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## The case of Sarafu-credits

Examining how a community currency can contribute to sustainable livelihood in informal settlements

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Examining how a community currency can contribute to  
sustainable livelihood in informal settlements

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## I. Abstract

Residents of informal settlements (slums) are vulnerable to various disturbances; e.g. diseases spreading and fluctuations in food prices and local access to credits. The lack of credits derives from the continuous outflow of money from communities. This study examines a financial innovation called Sarafu-credits (SC) implemented in Kenyan informal settlements by the organization Grassroots Economics (GE). SC is a community currency (CC), more particularly vouchers only used within a network of micro-businesses, which aim to complement scarcity of conventional money. In addition, GE have initiated community activities, e.g. tree planting, trash collection, food gardens and cultural events, where residents can be paid in SC to improve the community socially and environmentally.

This study examines the design and practice of SC, and the activities, using mainly semi-structured interviews with SC-network-members and GE key persons, to understand how a CC can contribute to sustainable livelihood. The concepts specified and general resilience are used to understand the links between SC and the various social-ecological disturbances facing slum-dwellers.

The results suggest that SC-members who are actively trading with SC are able to increase their sales, savings and access to basic goods and services thanks to SC. The results also suggest the networks and community activities are strengthening social contacts in the neighbourhood, and constitute examples of how a CC can help finance management of local environmental problems, where SC paid for community services also support local trade. The identified challenges are related to local leadership, where trust, communication and consistency of rules are lacking. In one of the networks, the confidence in the usefulness of the currency is lacking, due to these challenges. GE have

experimented with different designs where one successful innovation is the ability to exchange SC to conventional money at certain occasions, which seem to strengthen the confidence in SC.

**Key words:**

*Community currencies, financial innovations, sustainable livelihood, social-ecological resilience, general resilience, vulnerabilities, informal settlements,*

*Kenya*

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### II. Acronyms

BPN = Bangla-pesa network

CC = Community currency

ES = Ecosystem services

NPN = N'gombeni-pesa network

KSH = Kenyan Shillings

SC = Sarafu-Credits

SDG = Sustainable Development Goals

SL = Sustainable livelihood

USD = the United States Dollar

UN = United Nations

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# 1. Introduction

## 1.1. Problem statement

With an increasing number of people inhabiting informal settlements (slums), now estimated at 880 million (UN-HABITAT 2016), a critical question, recognized in the Sustainable Development Goals (SDG), is how to make sure financial flows can work in favour of securing and developing livelihood for these people, whilst also recognizing social and ecological aspects. Resilience, the ability to cope with and adapt to changes and disturbances (Walker and Salt 2012) is now incorporated in many of the SDG:s (UN 2015a). Vulnerability can be described as the opposite to resilience (McCarthy et al. 2001).

Slum dwellers are particularly socio-economically vulnerable, due to insufficient public services and because of a poverty trap created by increasing migration and negative trade balance (Marx et al. 2013). The latter derives from the fact that little is produced in informal settlements, hence their primary “export good” is labour. While residents’ needs for basic goods are constant over the year the demand for labour varies, and accordingly incomes also vary. This lack of internal trade leads to limited and varying access to credits (liquidity shortage), capital outflows through purchases of imported goods (Marx et al. 2013, UN-HABITAT 2016) and contributes to food insecurity (Kimani-Murage et al. 2014).

However, the vulnerabilities of slum dwellers are not only of economic character. Sanitation infrastructure and management of waste are non-existent or inefficient, which expose residents to air pollution through street burning (Muniafu and Otiato 2010) and, in combination with flooding, risk spreading diseases (Cronin 2004, Henry et al. 2006). Poor urban residents are also more exposed to various natural disasters (Napier and Rubin 2002, Diagne et al. 2003).

Kenya’s informal settlements are some of the largest in Africa and are struggling with all mentioned problems (section 3.1). The Kenyan organization Grassroots Economics (GE) has introduced a community currency (CC) to complement the lack of credits in informal settlements, and through different activities strengthen the community socially and environmentally. CCs are means of payment working parallel to national currencies to fulfil local development goals (Lietaer and Dunne 2013). Since the financial crises 2008-2009 CC-

initiatives have grown in numbers (Seyfang and Longhurst 2013) and some in size and economic impact (Littera et al. 2014). Altogether, CCs form a growing and diverse assemblage of grassroots initiatives of an alternative monetary logic (Blanc 2011, Lietaer and Dunne 2013).

In this case vouchers called Sarafu-credits (SC) are used for trade alongside conventional money, within a network of micro-business-owners. The networks are locally governed by committees and supported by GE. The issuing of credits differ from microloans and other credit injections. SC are issued as a small grant when a micro-business-owner registers as a member of the network, but requires other members to commit themselves to trade with the new member. While microloans have been criticized for not targeting the poorest and prioritizing interest returns (section 2.1.) access to SC does not require savings nor interest-bearing loans.

The local committees also organize community activities where participants can be paid in SC; e.g. sport events, tree planting, local food gardens and trash collection, which together aim to improve communities socially and environmentally. The SC-payments to participants creates a surplus of SC, circulating in the community and are later exchangeable to conventional money (further explained in section 5.2.). These different credit issuing tools makes the SC-system unique to other CC-systems. The GE approach to target both economic, social and environmental challenges also makes it interesting in the perspective of sustainable livelihood and resilience to various disturbances (section 2.2.).

A systemic review of CC research shows that studies have focused on North America, Western Europe and to some degree Latin America, Oceania and Asia. But very little has been written about African initiatives, mainly because the CC movement has been almost non-existent there. The same research review shows that links between CC, resilience and sustainable development are many times included in the visions and words of CC initiators, but few of these links have been studied (Seyfang and Longhurst 2013). This study examines the SC-system in the informal settlements of Mombasa, an area where livelihood improvements are vital and access to credits is significantly challenging. Examining alternative financial innovations in low-income-countries could contribute to more efficient achievement of SDGs.

## 1.2. Aim and objectives

The theoretical aim of this study is to examine the potentials and challenges of a CC as a financial innovation for sustainable livelihood (SL), by combining the concepts SL and social-ecological resilience, thereby widening their usage. Both concepts emphasise the need to adapt to social-ecological disturbances whilst developing (section 2.2).

The objective of the field study is to collect inside-perspectives from users of SC and key persons within the SC-networks and GE. This is in order to better understand; the design of the SC-system, its operating challenges, how it contributes to local trade and finances community projects, and thereby its contribution to SL and resilience of livelihood.

## 1.3. Research question

How can a community currency contribute to sustainable livelihood?

To answer the question, five themes (sub-questions) are examined. These are categorized under specified resilience – the ability of a specified part of a system to cope with and adapt to a specified disturbance – and general resilience – the ability of the whole system to cope with and adapt to all kinds of disturbances (Folke et al. 2010b). These are the five themes:

### **Specified resilience:**

1. Resilience to liquidity shortage – i.e. resilience of SC-members' access to credits towards volatility in accessible conventional money

### **General resilience:**

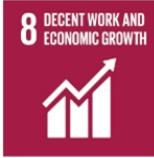
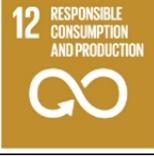
Resilience of primarily SC-members' livelihood, but also livelihood of other community residents, to all kinds of disturbances. To understand general resilience of livelihood, the study will examine interlinks between SC-trading, GE activities, local governance, and the following livelihood strategies and outcomes:

2. Local food production
3. Management of local environmental problems or ecosystems
4. General health and education
5. Social capital

## 2. Theoretical background and concepts

This chapter highlights the links between SDGs and GE activities and the current challenges of financing sustainable development for poor people, including some inabilitys of microfinance. This is followed by a description of how GE activities can be analysed through ‘social-ecological resilience’, SL and ‘currency pluralism’ related to CC research. Finally, the five themes of the research question will be related to ‘general resilience’.

### 2.1. Finance for sustainable development

Targets related to GE objectives	Goals
Goal 1 target 4 (1:4) and 8:10 emphasize poor people’s access to financial services. 1:5 states the necessity of reducing poor people’s vulnerability to “economic, social and environmental shocks and disasters”.	 
11:1 states the need for upgrades of slums and slum dwellers’ access to basic services. 11:6 emphasize “special attention to air quality and municipal and other waste management” in urban environmental work.	
Improved sanitation, water and air quality by waste management is also mentioned in 3:10, 6:3 and 12:4 (UN 2015b)	  

How to finance sustainable development represent is a central challenge to the SDGs. On the International Conference for Development 2015 it was concluded that developing countries need both bigger and more inclusive financial investments (UN 2015a). GE’s objectives include; increasing access to credits and basic services, and improving the sanitary environment – which are objectives highly related to several SDGs (table 1).

Table 1. SDGs targets linking to GE objectives

While aid is often crucial for livelihood, two common problems are; first, the effectiveness in relation to corruption – the amount of money used for the intended purpose – (Transparency

International 2010), and secondly, the dependency behaviour it sometimes risks to create (Collier 2008).

Microloans is a commonly suggested method for providing capital to poor people through entrepreneurship and self-empowerment. However, reviews of studies on microloans show that the very poorest are not reached, mostly because they do not qualify for loans (Morduch and Haley 2002, Weiss and Montgomery 2004). The pressure of repayment has in many cases been destructive to social networks (Rahman 1999, Jackson and Young 2016). Other studies argue that microfinance have been commercialized with high interest rates that actually make most borrowers worse off (Bateman and Chang 2012).

This study is examining a CC, an alternative non-profit method of financing micro-entrepreneurship aimed at effectively targeting poor communities through self-empowerment.

## 2.2. Sustainable livelihood and social-ecological resilience

This study draws on a definition of sustainable livelihood (SL) from the British Department for International Development (DFID):

*“(...) the capabilities, assets (including both material and social resources) and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks, maintain or enhance its capabilities and assets, while not undermining the natural resource base.” (Krantz 2001: 3).*

“Means of living” in this thesis refers to basic goods (or services) like food, water and medicines, primary education and general health. Social dimensions are treated as assets required for means of living, rather than means of living in themselves. “The natural resource base” is here described as ‘natural capital’ from which flows of ecosystem services are produced. Ecosystem services are the benefits people obtain from ecosystems (MEA 2005).

In this sense SL is almost synonymous to ‘social-ecological resilience’ when applied to livelihood. “(social-ecological) Resilience is the capacity of a system to cope and adapt to disturbances and still retain its basic function and structure.” (Walker and Salt 2012: xiii). The “basic function”, in this case, is to secure and strengthen livelihood. When resilience refers to a society or community, it does not have to mean maintaining status quo. The basic function and structures can operate within a changing but predictable “development trajectory” – the

terminology now mainly used in social-ecological resilience literature (Folke et al. 2010a). In the same time, a system can be resilient but in an undesired trajectory. Hence in this case, a resilient system can refer to either being stuck in a vicious cycle of poverty or developing to strengthen livelihood – also shown in development literature (Perry et al. 2006). Disturbances to a vulnerable system can turn the same feedback mechanisms in an undesired direction, hence vulnerability research has been described as the opposite to resilience (Berkes 2007).

The chosen system components providing livelihood are local trade, incomes, savings, business investments, public services and the sanitary environment (air and water quality) (fig. 1). Social capital is examined separately because it is an asset which can affect the functionality and resilience of the whole system (section 2.4.).

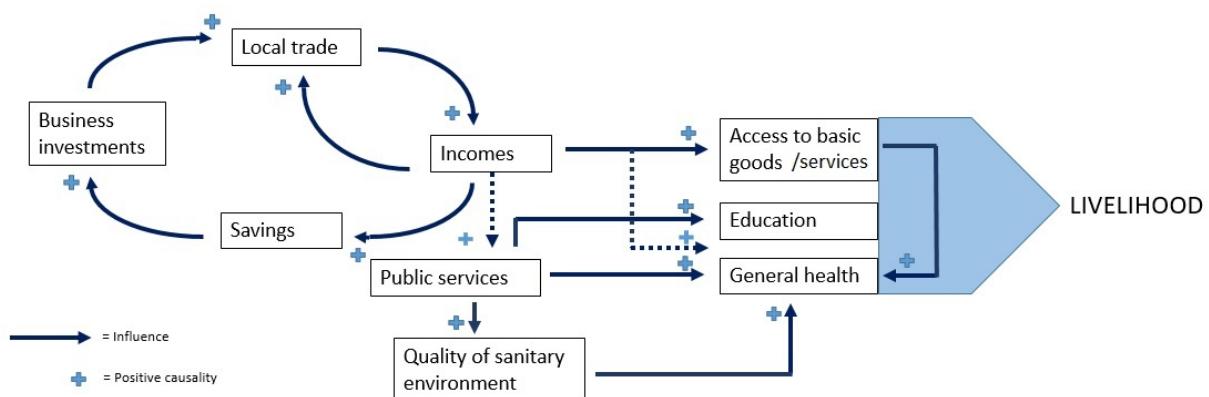


Figure 1. System providing livelihood in informal settlements

Positive causality means that one component influence another in the same direction (“increasing -> increasing” or “decreasing -> decreasing”). Hence, the system can either be stuck in a poverty trap with decreasing local trade, incomes and investments, or it can develop and strengthen livelihood by increasing local trade, incomes and investments. Because most people in informal settlements have informal jobs, tax revenues are very limited, represented by the dotted arrow from incomes. The other dotted arrow shows that some private incomes are needed for education and health. Access to basic goods are also expected to influence general health.

‘Disturbances’ according to SL approach can both be shocks, trends and seasonal fluctuations (Glavovic and Boonzaier 2007) in social-ecological resilience research called ‘pulse’ and ‘press’ disturbances (Nyström et al. 2000). In this thesis it refers to unpredictable economic, political or health related shocks as well as predictable fluctuations and persistent stressors of livelihood (section 5.1.1.).

## 2.3. Community currencies and currency pluralism

Since the main effect of a CC should be access to credits, this is analysed by using the concept ‘specified resilience’ towards volatilities in accessible credits (defined in section 1.3.).

The economic purpose of a CC is according to Lietaer and Dunne (2013) to function as a bridge between unmet needs and unused resources. In this case study the unmet needs refer to lacking of access to basic goods, health and education. Unused resources refers to unsold excess of goods and services people are able to provide if liquidity (means of payment) was sufficient. Conventional currencies, according to Lietaer and Dunne, have to be kept scarce to retain its value. They argue that the function of money to store value stands in inherent conflict with the function as a mean of payment. Too much savings hurts consumption, and when creating too much credits for consumption, this hurts the currency value (inflation), and thereby savings. Central banks try to control money supply, in order to find the best balance between high inflation and high spending capacity, but the best balance for a whole nation is often not the best balance for a local community.

‘Currency pluralism’- describes how a CC can complement conventional money when the latter is too scarce in a particular trade area. When less money is flowing into a community there are still goods and services to be traded. Sellers can then accept a lower amount of conventional money if they feel confident that other traders, they buy from, accept less conventional money too. This confidence is crucial in a CC to avoid hoarding of both currencies during economic down cycles. The limited usage area of CCs can be reason itself to establish confidence of consumers that credits are quickly returning to them, instead of flowing out of the community. This has been shown in the Swiss WIR-system. This system uses a digital complementary currency, binds together over 77 000 small Swiss business, and has shown to be counter-cyclical to the Swiss economy by stabilizing money supply (Stodder 2009). There are both similarities and differences between WIR and SC which is discussed in section 6.1.

## 2.4. General resilience

Concerning the different kinds of vulnerabilities and disturbances facing slum dwellers, increasing ‘general resilience’ (defined in section 1.3) of livelihood is crucial. General resilience is in this thesis used as a way to assess SL.

The five themes are based on GE activities targeting these different aspects of general resilience. The first theme ‘access to credits’ also includes an element of general resilience, because increased savings of poor people have been shown to increase their buffer capacity to sudden expenditures and their adaptability to changing circumstances (Perry et al. 2006).

Regarding theme two, local food gardens have been shown to increase food security for poor urban residents in Africa (Maxwell 1995, Averbeke 2007). Kimani-Murage et al. (2014) shows that Kenyan slum dwellers are reducing their food diversity and meals as an adaptive strategy towards price increases in food, which has a negative health effect. This together shows that local food production can increase resilience to various disturbances affecting access to food and general health.

Tree planting, being one of the GE activities and examined in theme three, generally prevents soil erosion from water and wind (Gyssels et al. 2005) can maintain ground water supplies (Anderson et al. 1976) prevents landslides (Abe and Ziemer 1991) and can improve soil fertility and humidity in cultivation (Jose 2009).

The fourth theme ‘general health and education’ is mainly about examining livelihood in itself linked to the other themes, but the SL approach also sees health and education as assets which can increase adaptive capacity (Krantz 2001, Brocklesby and Fisher 2003).

‘Social capital’, the fifth theme, here defined as ‘strength and amounts of social contacts and the trust built in these contacts’, as used by Krantz (2001) has been recognized as an important component for general resilience (Carpenter et al. 2012). Several case-studies suggest it is strengthening resilience through enhanced adaptability (Hahn et al. 2006, Bernier and Meinzen-Dick 2014). Studies have shown both that CCs can enhance social capital (Seyfang 2004, Seyfang and Longhurst 2013) and that social capital has an important role for the resilience of a CC-systems itself during crises (Gomez 2012). Two previous studies of the SC-system emphasize the role of trust between traders (Ruddick 2015, Dissaux 2016).

### 3. Case study description

#### 3.1. Informal settlements and financial services in Kenya

Of Kenya's approx. 46 million inhabitants, 12 million are urban (World Bank 2015). 55 % of the urban population are living in informal settlements (UN-HABITAT 2016) on only 5 % of the urban land (Henry et al. 2006). Informal settlements or slums mainly refer to urban or semi-urban areas without formal city planning, characterised by dense population, lacking public services, no property rights over houses and very high levels of poverty (Alder 1995).

In Kenya, like in other countries, the rapid migration from rural areas contributes to growth in informal settlements (UN-HABITAT 2016). World Bank Group (2016) estimated 28 % of the Kenyan urban "workforce" were jobless, and 40 % worked in the informal sector with low productive jobs. Kenyan slum dwellers have been recognized as highly food insecure (Kimani-Murage et al. 2014).

Meanwhile, Kenya has a uniquely high amount of alternative financial services besides banks. Savings and Credit Cooperatives (SACCOs) was estimated to have 2.5m members in 2005 and plenty of informal saving groups called "chamas" also exists, where members put savings in a common account and then take turn to receive grants, non-interest or low-interest loans from the pot (Owen 2007).

#### 3.2. Mombasa, Kwa-N'gombe and Bangladesh



Figure 2. Kenya, Mombasa and case study area

*To the left Kenya. To the right Mombasa. Red area: Kwa-N'gombe (N'gombeni-pesa network) and Bangladesh (Bangla-pesa network) (Google maps 2017).*

Mombasa is a port city and the second largest city in Kenya (approx. 1m inhabitants (County Government of Mombasa 2014)). This case study was carried out in two adjacent areas called Bangladesh and Kwa-N'gombe (fig. 2) which contain Mombasa's largest informal settlements. The examined CC-networks were Bangla-pesa-network (BPN) in Bangladesh and the N'gombeni-pesa-network (NPN) in Kwa-N'gombe<sup>1</sup>. The main road, connecting the Mombasa port and Nairobi, cuts through this area and many people do day work related to transports.

### 3.3. Grassroots Economics and Sarafu-credits



*Figure 3. Sarafu-credits*

*Locally called Bangla-pesa. Photo by researcher.*

GE is a Kenyan non-profit foundation, not financed by any state. GE has initiated five CC-networks so far, trading with SC (from now called SC-networks) – three in the informal settlements of Nairobi and two in the slums of Mombasa (this case). Together they now include more than 1000 micro-business, most of them one-person-business, and 20 schools also participating in SC trading. A majority of the members are women, many are widows and

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<sup>1</sup> Bangla and N'gombeni-pesa are named after the two areas. “Pesa” means “money” in Swahili.

supply several children. Typical goods and services are food, water, charcoal, repairing, school tuition, transportation and laundry.

## 4. Methodology

A case study was conducted in the Bangla-pesa-network and the N'gombeni-pesa-network, both in the outskirts of Mombasa. The networks were selected because of their community projects targeting local food production, local environmental problems, health, education and social capital, to help examine the five themes of the research question.

### 4.1. Epistemological and ontological approach

The ontological and epistemological approach used is constructivism, which focuses on people's subjective perceptions – in this case respondents perceptions about their own livelihood, the purpose of the SC-network and GE. 'Livelihood' and 'purpose' are seen as mainly social constructions. According to constructivism, to put together a coherent picture based on different involved persons' subjective perspectives creates knowledge (Bryman 2012). However some information was considered as referring to objective facts (positivism), e.g. amounts of vouchers a member receive when registering. A positivist approach was used in these cases – hence, comparing different responses to increase reliability.

The theoretical concepts were used to analyze results, but no special hypothesis or theory of outcome was made before field work, this in order to find unforeseen themes to create new theories.

### 4.2. Data collection

Following this approach, the primary chosen data sources were semi-structured interviews. Secondary survey data collected by GE was also used for triangulation. In addition, I participated in the annual planning meeting of GE and in two community activities.

This study complements previous quantitative studies of the SC-networks with a qualitative approach. Semi-structured interviews were used to understand change over time and understand *how* the CC works and *how* and *when* the CC is used or not used. Semi-structured interviews can, better than participatory observations and non-structured interviews, draw out certain information about earlier events and, better than surveys, let respondents formulate their opinions around predefined issues. If using open questions, semi-structured interviews

also avoid directing answers to pre-assumed alternatives, which is a risk with fully structured interviews. Using focus groups was excluded since the objective was to compare different individual perspectives not influenced by the presence of others (Bryman 2012).

Some participatory observations were included in order to get a closer look on participation in community activities and to get information about GE's future plans.

Semi-structured interviews were performed with 30 SC-members (30 min each), five committee members (45 min) and five key persons in GE (around 1 hour). The exact number of interviews was not decided in advance, but followed the idea of "empirical saturation" – no more respondents were selected in each area when answers were not adding anything new to answer the research question (Bryman 2012).

The semi-structured part had one main question - "Can you please tell me about SC in your life?" and then predefined follow up questions directing answers to the five themes under the research question (see Appendix). All questions were formulated in an open way to obtain descriptive responses - to understand the "how" and "why". Because most members did not speak English, an interpreter was translating the questions from Swahili and summarized all answers at the place. The interpreter was well aware of the study and had a continuing dialogue with me. Every conversation was audio recorded after respondents' approval and notes were taken by me, from the translations. I also noted respondent's emotions, to better understand which subjects they felt were important, and place context – which might have affected responses (e.g. if others were listening to the conversation). Two local guides were preparing and introducing members at their home or workplace, to minimize respondents' off-work-time. The guides were both previously involved in voluntary work for GE, why they knew many members, but were not part of the organization. The latter was important because the influence of GE could risk biasing the answers due to potential dependency relations.

Purposive sampling was used to find members of both genders, with a diversity of goods and services and to target active and non-active members. Random sampling was not prioritized because the purpose was to attain a variety of comparable perspectives. Some members were chosen because their links to previous respondents, to bring clarity to - or triangulate data around - specific questions, adding an element of snowball sampling. The sample was based on the guides' local knowledge and some more basic information was collected through a short oral survey in the beginning of each interview, equal to all members (table. 2).

Table 2. Survey results from member respondents

Respondents attributes	Bangla-pesa-network	N'gombeni-pesa-network	Total
Number of respondents	17	13	30
Women	12	11	22
Men	5	2	8
Married	11	6	17
Widows	4	4	8
Divorced or single	2	3	5
Took care of five or more children	5	7	12
Maximal amount of children	7	8	8
Grown up – or no children	3	3	6
Had migrated from countryside	15	7	22
Living part-time in countryside	7	4	11
Sold cooked food	6	4	10
Sold raw food	4	5	9
Sold own grown food	0	2	2
Other goods sold	Charcoal, water, electronics, cloth	Charcoal, water, soap	
Sold services	5	None	-
Types of services	Shoe repairing, cloth washing, 2 school teachers	-	-

All members were compensated with approx. US\$ 1 for taking time off their work. This was a requirement from many members to participate because of their very small economic margins. Every respondents were informed of the compensation before the interview and everybody except key persons were promised anonymity, so respondents should feel free to express their own opinion and rely on getting compensated.

Interviews with committee members and key persons in GE were held in English with questions focusing on their different roles, how the currency-system and the activities work and their challenges from respondents' overarching perspectives.

### 4.3. Data analysis

Recordings with key persons were transcribed by me. Five extra interesting member interviews and three interesting parts of interviews were transcribed and translated by an external translator to get more details and increase reliability of the most important responses.

A thematic method was used to analyse the material. A theme is by Bryman (2012) described as an abstract category related to the research question, based on codes identified in the material, which can contribute to the theoretical understanding of the data. First, all text material was read carefully. Transcriptions and notes from interviews were both coded using the software Atlas.ti, to draw out parts related to the five themes of the research question (section 1.3.). To increase understanding of the five themes these three subthemes were also created during the coding process:

- Differences and similarities between perspectives of GE, members and local committees
- Differences and similarities between the two networks
- Challenges – identified reasons that the system does not work as GE intends

#### 4.4. Limitations in methodological approach

The field study is only covering two of five SC-networks, but considering the similarities between networks (same rules and similar context) and by using purposive sampling it is likely that responses could represent certain types of members also present in the other networks. The GE coordinator for the Nairobi networks was also interviewed for comparison.

I, as a white European man, could have biased responses, by being associated with wealth, previous aid programs and also with GE. The local guides and clarification of anonymity, compensation and researcher affiliation aimed at reducing this risk. The usage of GE survey data was another bias risk. Firstly, members have an interest in responding positively about SC because being active SC-traders can generate benefits. However, as GE are comparing responses of trade flows between close traders they can exclude unreliable answers. Secondly, GE has an interest of promoting their projects through their data. However, in this thesis GE data was only used for triangulation of the interview material. My interest in CC can also risk biasing interpretation of the material. However, this interest is wider than the specific case and includes a will to discover problems.

Finally, a limitation was that some of the GE projects are still in the start-up phase, which made it harder to evaluate their potential.

## 5. Results

This chapter gives an overview of disturbances to livelihood of slum dwellers in Mombasa, based on interview data, GE data and previous research. Then it present a description of the examined networks and the SC-system according to GE objectives, followed by the answers to the research question structured according to the five themes (section 1.3.), mainly based on interview data.

### 5.1. Disturbances and vulnerabilities in Mombasa's informal settlement

Liquidity shortage (lack of credits) is a persistent problem in Mombasa's informal settlements, because most micro-traders buy inventories at Kongowea market in town. This is concluded by Ruddick (Ruddick et al. 2015) to contribute to a steady capital outflow.

Liquidity also drops seasonally when school fees or rents have to be paid. GE surveys suggest an average members sales vary from US\$ 3.2 in a bad day to US\$ 16.2 in a good day.

Individually, some have much lower incomes (Ruddick et al. 2015).

Member respondents mentioned various reasons for fluctuations in incomes or access to basic goods, which were in lines with GE survey data for BPN. Respondents also mentioned different shocks affecting their livelihood. Previous research shows disturbances affecting the sanitary environment and incomes of slum dwellers in Mombasa (table 3.). Figure 4 shows how these stressors are affecting the livelihood system.

*Table 3. Disturbances to residents of Mombasa's informal settlements*

	Fluctuations in incomes or persistent stressors of livelihood	Shocks or vulnerability to shocks affecting livelihood
Examples from interviews	<ul style="list-style-type: none"> <li>- Varying amounts of customers</li> <li>- Price fluctuations of food and charcoal</li> <li>- Husbands not finding a daily job</li> <li>- Inflation</li> <li>- Harder seasons when residents are moving away</li> <li>- Droughts mentioned by farmers</li> </ul>	<ul style="list-style-type: none"> <li>- Husbands passed away</li> <li>- Destroyed water pipes</li> <li>- Fire</li> <li>- Sickness or sick children.</li> <li>- Bankruptcy</li> </ul>

GE survey data	<p>Most common (regarding incomes):</p> <ol style="list-style-type: none"> <li>1. Varying amounts of customers</li> <li>2. Lack of remittances</li> <li>3. Payment of school fees, increased prices on stock products</li> </ol>	<ul style="list-style-type: none"> <li>- No data</li> </ul>
From literature	<ul style="list-style-type: none"> <li>- 32 % of waste in Mombasa is burned or left on the streets (more in slums). Burning causes health problems (Tan 2012)</li> <li>- Deforestation is increasing erosion (Gyssels et al. 2005) and ability of the soil to sustain ground water (Anderson et al. 1976).</li> <li>- Insufficient investments by Mombasa county government in social services, housing, disaster control and waste management (County Government of Mombasa 2014) Due to political struggles, unclear responsibilities and corruption (Rakodi et al. 2000).</li> <li>- Kenyan slum dwellers are undernourished due unvaried and insufficient diet (Kimani-Murage et al. 2014).</li> <li>- Accessible day jobs related to transport fluctuate due to fluctuating world prices on Kenyan export goods (Kenya National Bureau of Statistics 2012), causing income fluctuations in Mombasa's informal settlements (Ruddick et al. 2015).</li> <li>- Credits are flowing out of Mombasa's informal settlement (Ruddick et al. 2015). Liquidity shortage (lack of credits) suppress local trade, which is causing more liquidity shortage when incomes are decreasing, or imported goods are purchased (Marx et al. 2013)</li> </ul>	<ul style="list-style-type: none"> <li>- Annual floods in Mombasa + insufficient sewage systems + accumulated waste in the streets = risk of diseases like cholera and typhoid to spread to people with limited savings for medical expenditures (Awuor et al. 2008)</li> <li>- Houses in Mombasa are built on grounds vulnerable to floods and erosion (Awuor et al. 2008).</li> <li>- During the political violence 2007/2008 following Kenyan election. unemployment rose and staple goods like maize flour doubled in price, causing very limited access to affordable food in informal settlements (Kimani-Murage et al. 2014).</li> <li>- Sudden increases in global food prices affects poor urban residents the most (Cohen and Garrett 2009).</li> </ul>

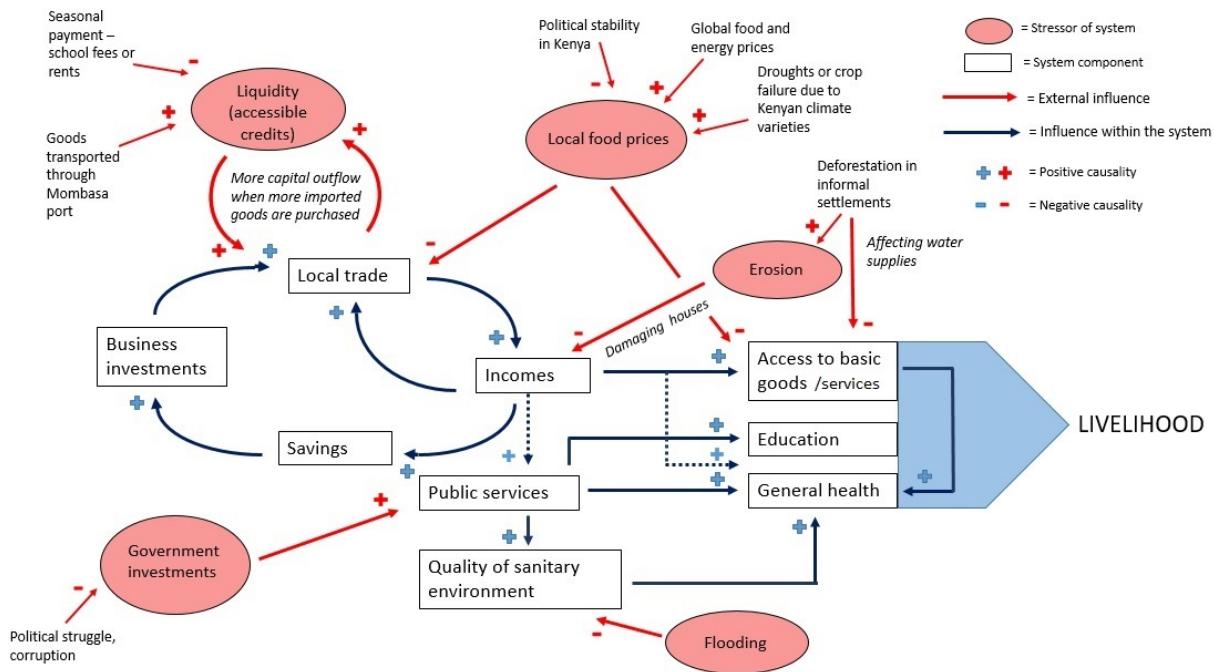


Figure 4. Stressors of the livelihood system

Building on figure 2. Positive causality means that one component influence another in the same direction (“increasing -> increasing” or “decreasing -> decreasing”). Negative causality means influence in the opposite direction (“increasing -> decreasing” or “decreasing -> increasing”).

The system sustaining livelihood for slum dwellers in Mombasa is in the middle. The multiple stressors risks to turn the system into a vicious cycle of poverty. Decreasing liquidity and decreasing local trade reinforce each other. This is because less spending on local goods means either less credits are circulating or that residents instead purchase imported instead of local goods, which leads to capital outflow and thereby less liquidity. Higher local food prices also leads to less local trade and less access to basic goods. Deforestation affects incomes by leading to erosion which is damaging houses, and affecting the ability of the soil to sustain ground water. Flooding in combination with waste in the streets is decreasing the sanitary conditions. Lacking government investments is limiting public services.

## 5.2. The Sarafu-credit-networks

### 5.2.1. Bangla-pesa- and N’gombeni-pesa-networks

The Bangla-pesa-network (BPN) is the oldest of GEs networks, launched in 2013 after a pilot project ended named Eco-pesa (Ruddick 2011). The N’gombeni-pesa-network (NPN) was launched 2015 some kilometres from BPN in Kwa-N’gombe. Every GE network has a local committee, officially registered as a community-based organization (CBO) to administrate the network activities, such as registering new members, issuing SC-vouchers, teaching members how to use the currency, conducting surveys, holding meetings, managing the budget and organizing community activities. The committees usually consist of three persons (locally called “officials”), elected by members and working voluntarily. GE has an overarching role

by formulating constitution suggestions for committees, printing vouchers, issuing them to committees and also overlook and assist the work of the committees.

### **5.2.2. The Sarafu-credit system**

The SC-vouchers are supposed to be used for daily goods and services bought inside the community, while KSH can work as the currency for savings, for restocking business with imported goods or for products not available in the community. One SC is equal to KSH 1.

When new members register they receive a short training and 400 SC (USD 3.8) from the “officials” (committee members) for free. This amount is based on calculations of business excess capacity – extra goods and services micro-business would be able to sell aside from what they already sell, if customers had enough money to purchase the goods. SC-vouchers have been allocated to the officials from GE. New members are required to have four guarantors – other members committing themselves to trade with the new member using SC, which includes both purchasing and accepting SC.

A percentage of the price of member goods can be charged in SC, thereby allowing members to reduce their amount of KSH needed for a transaction. GE recommends that retail shops charge half of their profit, for every good, in SC. If a member for example is selling a fish for KSH 100 with a profit of KSH 50 she could charge 25 SC. The inventory is mostly bought from outside community so to be able to have some KSH profit the cost of inventory needs to be covered. However, if a member buys her inventory from other members or selling services she can charge 50 % of the price in SC.

On average, a member should have 400 SC in her pocket. In 2016 GE implemented “credit clearing” to attract more members and strengthen reliance on SC, meaning that in the end of the month every member having above 400 SC can exchange the surplus to KSH. GE founder Ruddick described that members should fluctuate around 400 SC, but:

*“(...) if they want to accept 2000 (SC) they can. (...) We guarantee that they’re not going to go out of business by making sure we buy that out of them.”*

Because of a small budget GE first intended to create a mostly self-sufficient system, why a rule was set saying members below 400 SC should fund (with KSH) the exchanges of members above 400 SC, with the amount missing up to 400. Hence, GE has presented the system as a form of tiny interest-free loan, because when members spend SC without selling

an equal amount back to the network this member can be described to be in debt to the network. However, both GE and officials declared the members, which were obligated to pay in KSH, hardly ever showed up for credit clearing. Instead, the cost of members exchanging SC surplus to KSH is accepted, and covered by GE budget. Despite these experiences the 400 SC is still presented to new members as a micro-loan to the network.

Another way SC can be exchanged to KSH is through the ‘open market’. Both members and non-members can participate in the open market. It is located within a surrounded area and all purchases are in 100 % SC. If you do not owe any SC you can exchange KSH to SC (100 KSH to 110 SC). When the market is over you may exchange back the SC surplus (amount over 400) to KSH.

The credit clearing system and the open market have attracted more members according to one BPN official and GE. However, Ruddick mentioned local infighting and a lack of committed officials as a source of mistrust between members and officials. He said this has contributed to members leaving the network, thereby hurting the SC-trade. The intention to let the networks be self-governed has shown to be challenging according to him.

GE and officials are organizing various community activities (box 1), in which SC are being used as payment to participants.

#### **Community activities of Bangla-pesa and N'gombeni-pesa networks:**

- Open markets where both members and non-members are invited to trade with SC
- Sports tournaments both for school children, youth and grownup SC-members.
- Music and dance activities for youth and children
- Trash-collection days
- Tree planting
- Managing two permaculture gardens belonging to the local schools
- A community shop selling staple food products for SC, with profits going to the community pot.

*Box 1. Community activities in Mombasa SC-networks*

External donations (private and partner-organizations) and money from GE budget are saved in the community pot. Committees are then paying participants in community activities with new SC, using the saved KSH as a security (pledged asset). Hence, there are temporarily more SC in the local market than the normal 400 SC per member, which should stimulate trade. In the end of the month, during ‘credit clearing’ or the open market, the SC surplus returns to GE. In return, KSH, previously saved as security in the community pot, goes to members (fig.

5). Earlier, GE tried a system where half of the 400 SC issued per member went directly to the community pot and there was no possibility of credit clearing, but according to GE this system was not sufficiently boosting local trade or attracting new members.

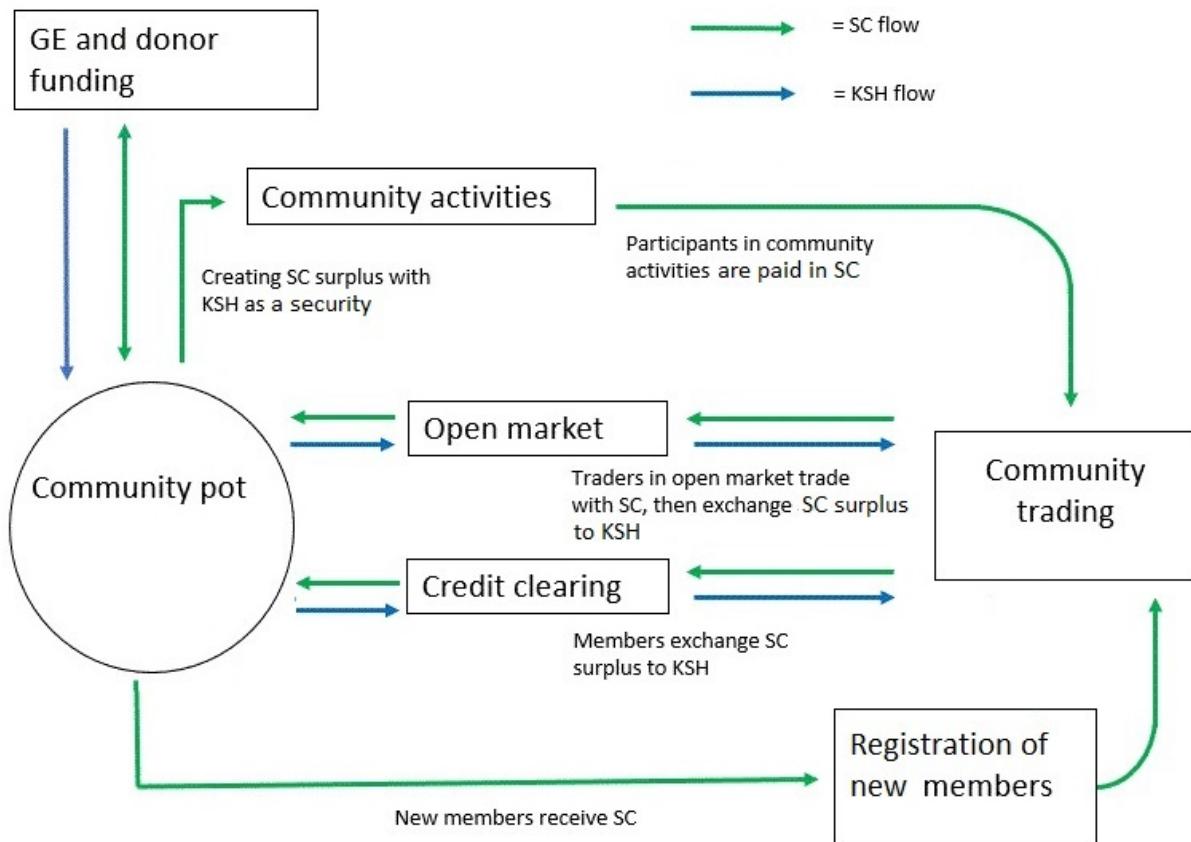


Figure 5. SC and KSH flows

GE are issuing new SC vouchers to the community pot, managed by the local committee. The committee are issuing SC when new members register – 400 SC each. This is stimulating community trade. GE and donors also sometimes inject KSH into the community pot for community projects. The committees are using the saved KSH as a security to issue additional SC, by paying SC to participants in community activities. The SC is then spent in the community and stimulate trade. During open market or credit clearing the surplus of SC returns to GE and the KSH security goes to members. According to the rules the members having below 400 SC, should also pay KSH to the community pot during credit clearing, but this rarely happens.

### 5.3 Theme 1: Resilience to liquidity shortage

All member respondents who were actively trading with SC and had enough active trade partners mentioned improvements in savings (although minor ones), could attract more customers and easier get access to basic goods they needed, especially during hard times.

However, some respondents in BPN and most respondents in NPN stated there were too few active members to maintain regular circulation.

Among the active BPN-members one exemplifies how her savings have improved (SC is locally called Bangla-pesa):

*“Before the coming of Bangla-Pesa, this money (revenues from sales) would be spent covering all of my basic needs and I will be left with no money to go back to the market and restock my business. Ever since Bangla-Pesa came in, most of our basic needs have been catered for by this community currency and we can now save most of our hard earned Kenya money to be used in our businesses and some other few major basic needs.”*

She mentioned she can purchase “basic needs” like flour, charcoal and vegetables for SC while the KSH profit is “*still intact*”. She uses her savings for her business, school fees and cloths. Another member said economic ties have become stronger between her closest traders, so she has a more reliable base of customers. One official said she was able to save KSH 2000 (US\$ 29) during two month of SC-trading. She used the money to dig a well, which enabled her to switch income activity from groundnut selling to water selling, during a period of water shortage in the community.

Active respondents mentioned more close traders and a greater variety of SC-goods they were purchasing and services than non-actives. They also often mentioned that they bought parts of their inventories from within the network. A launderer bought soap from another member, a chapatti-seller got flour from a member and some other food sellers were buying charcoal from members for their cooking. Some members said both they and their neighbors could also be flexible and charge a higher amount of SC if a customer had less KSH during hard times. GE survey data for all networks from 2017 showed 81 % stated increasing sales and 69 % stated more customers.

Almost all members who did not see any improvements were either not using SC regularly, had stopped using it or had never used SC after member registration – here called “non-actives”. Many non-actives lacked close traders. In NPN most respondents said most of their closest traders withdrew, which made the currency quite useless for them. A member explained:

*“Because no one wants to be stuck with lots of money from a currency that can’t help them in their hour of need.”*

While a couple of active BPN-members had used the credit clearing system (section 5.2.) few NPN members knew about it and the two who was using it were saving all their SC to exchange it in the end of the month instead of using them for trade. It was unclear how official were managing credit clearing. One was giving out SC to members with less than 400 SC. Hence, she was not exchanging surplus, but giving away SC to members who have been spending their SC. According to many non-actives in both networks they were not required to have four guarantors as GE constitution states. One member thought this was because officials wanted to expand the network by registering new members faster.

Some less active or non-actives also lacked understanding of how to use SC, confirmed by Ruddick (2015). One member said she had problem understanding and when asked about improvements she wanted officials to give out more SC so they could save both currencies, which contradict with the idea of using SC for daily spending and KSH for savings.

Almost all members in both networks stated that they wanted KSH loans, to develop their business. The ones who had increased their savings were using it for family needs and stated that further capital was needed to enlarge their business inventories to increase profits. Many of the respondents in NPN and a couple of respondents in BPN were disappointed and thought officials had not delivered business loans as they promised. Many non-actives had joined for this reason, and one respondent from GE said many just registered as members and then “*simply waited for a loan or grant*”. According to GE and officials SC-trading will increase savings and by saving in chamas (informal saving-groups) members can be creditworthy for a bank loan or an informal loan from the chama. However, some respondents had bad experiences with chamas because people were leaving with the money and sanctions are hard to implement.

*“They want us to get money in groups which is not working because when you sign up someone and business goes well for them, they will quit and leave you bearing their cross for them, no one wants that.”*

In 2017 GE plans to take over some administrative services from officials, and to let paid GE staff take care of more these instead.

## 5.4. Theme 2: Local food production

In summary the local food producers now consist of two food gardens managed by two schools in Bangladesh (Mombasa) and a small sub-network of farmers within NPN. GE intends to include more food producers in the system, but at the moment of writing this is still in a start-up phase.

### 5.4.1. Community food gardens

In 2016 GE got funded with two water tanks to harvest rain water, and then started up two permaculture gardens at the two schools in Bangladesh. Members were paid in SC to prepare the gardens and since then teachers and children together have managed the gardens. The work was integrated in the school education. GE environmental coordinator Dama has an education in permaculture, a method of designing organic circular farming with perennial plants and trees to increase soil fertility. She said:

*“But it is also a way of teaching entrepreneurship skills. (...) We want to show that there is a way they can do green business. They can be able to produce their own food. So when they see that we produce so much food in the school, and we are selling it to the community and the school is getting money, it really changes the way they think.”*

The idea is that the school should sell vegetables for SC to the community and teachers can use the SC to either buy goods or services from the community to the school or “top-up” their salaries with SC. This should be decided by the headmaster and teachers together.

Because 2016 was a dry year the gardens did not produce as much as expected, so most of the harvest was eaten by the children directly. But since permaculture is about increasing soil fertility and humidity harvest is expected to rise next year.

### 5.4.2. SC-trading with local food

Most inventories or ingredients used by members in BPN and NPN are originally bought from the big market in town. In BPN a community shop has been put up, run by officials on voluntarily basis, where both members and non-members can buy staple food products like flour and beans. Members can pay 10-20 % of the price in SC (the shop’s inventory is also from town). The profit goes to the community pot. The shop was seen as a reliable seller and was much appreciated among many member respondents, because it spare them the time and

money to travel to town to buy inventories. The shop in NPN sells mostly cloths and no staple goods. It was not used by any respondents, instead one member thought it was the property of officials. In the coming year GE intends to connect local food producers with the community shops.

During fieldwork the only members, except schools, producing their own food were a small group of farmers, 15 min away from Kwa-N'gombe with motorcycle, in a place called Owino Uhuru. They maintain their own circulation of SC, but are registered under NPN. According to the two respondents from Owino Uhuru and the "official" there the SC has strengthen their internal trade and their access to food a little, but since their farms are small and dependent on rain they cannot harvest enough to expand their customer base beyond the area. They would like a SC-community-market closer to them and investments in an irrigation pump. GE are planning to support the farmers with permaculture technics, which includes water efficiency, natural pest control, diverse cropping, plants to increase soil fertility and crops resilient to droughts. Dama described:

*"If it works (support of permaculture-technics and an open market in Kwa-N'gombe) they will be able to produce a lot, so it's easier to go to Kwa-N'gombe to buy, than come all the way to town (...) even the transport costs will go down for them."*

## 5.5. Theme 3: Environmental management

Except for the food gardens the two GE activities for improving the local environment are tree planting and trash collection (community clean-up days).

### 5.5.1. Tree planting

Trees have been planted by members and GE staff at the two schools in Bangladesh, at two churches and a local orphanage. The orphanage also got a donation of some food and 3000 SC, which they could spend back in BPN and NPN. In addition, some mangrove trees have been planted by the shoreline close to Bangladesh. Mangroves in Kenya provides ecosystem services in Kenya like bio-filtration, spawning grounds for fish, and storing carbon (Kairo et al. 2009). The main reason for tree planting, according to GE and teachers, is to combat erosion, which hurts the buildings and the food gardens. They said soil in the area is easily dried out and then carried away with rain and wind. The permaculture technics include tree planting to prevent erosion and adding nutrients through nitrogen fixation and adding organic

matters. Bamboo and bananas are also used as bio-filtrators – cleaning the rain water for the garden. Other plants are used as natural pest-controllers.

No incentives were paid out to participants in tree planting. Dama called it a “*community responsibility*”. It was unclear why preparing gardens and trash-collection were paid work, while tree planting was not. A couple of members said they would only participate in community activities if they were rewarded.

### **5.5.2. Trash collection**

Community clean-up days used to be two times per year and is usually engaging both members and youths. Interviews suggested the type of incentives vary. Sometimes it is a mix of SC and food, and sometimes SC and KSH. In NPN the members decided to make a common dinner with money from the community pot. The trash was later collected by the county and transported to a large dumpsite. No recycling system is in place at the moment. A couple of member respondents mentioned that the environment of Bangladesh had been “*cleaner*” and “*nicer*” as a result of the community clean-up days.

## **5.6. Theme 4: General health and education**

In Nairobi there are some clinics accepting SC. Except from this, GE founder Ruddick mentioned mental health, environmental health and food security as outcomes of SC-networks and activities.

With mental health he referred to “*having a network of people that can support you and trust you*”. The increasing trust was supported by both interviews and GE surveys, and three respondents mentioned they got help from members during health related crises (section 5.8).

With environmental health he referred to improved sanitary environment (section 5.6.).

Regarding food security, many non-actives spoke about the struggle to feed their children. Active members, in contrary, said they had increased their access to food (section 5.3.) and the food gardens provided food for school children (section 5.4.). One official said:

“*The initiative really improved our life. (...) (before) I could eat only in the evening hours. Morning hours I could not eat, there was no food. The only food I could get was for supper.*”

Regarding education, the schools as member of BPN should accept a part of the school tuition fee in SC, according to teachers and GE. No respondents had used this opportunity, but considering 16 schools have joined the Nairobi networks, the system seems to work in general.

## 5.7. Theme 5: Social capital

In summary, interviews suggested increasing social capital among members in BPN, confirmed by Ruddick (2015), but not in NPN. The trust and communication between officials and members seems to be generally low in BPN and even lower in NPN. In NPN, interviews also suggested that some officials mistrusted GE.

### 5.7.1. Difference between BPN and NPN

Regarding social capital there was a big difference between BPN and NPN (table 3). In BPN most respondents thought “*trust*”, “*harmony*”, “*friendship*” and social contacts had increased among members. In NPN, it was very hard to find any members who thought the project had brought any social change, even though active members were targeted.

BPN-members also mentioned “*a better social environment*” in the whole neighborhood. Several members said the community clean ups, the community shop and especially the cultural events were improving the social environment in the neighborhood and bringing people together. One member said even non-members had started to see BPN as a contributor to the community.

A BPN-official thought the community activities and trading had decreased criminality:

*“The activities we are doing in sports, (...) It has made our young men come out from alcohol and theft. Bangladesh has really improved. Before, you could not enter here at night without being beaten. Because there was no money. (...) There was big crimes in Bangladesh [before]. You could find out that somebody is dead. And when you see why he was killed he was killed just because he was just having a potion of 10 shillings in the pocket.”*

This was confirmed by two members saying the place felt safer and friendlier after BPN. A member voluntarily teaching children and youth singing and dancing, also emphasised the importance of activating the young. I observed one of their performances, and a cheerful football match between women in BPN and NPN.

### **5.7.2 Mistrust between officials, members and GE**

Mistrust from members towards officials was common in both networks but especially in NPN (table 3). Both respondents in BPN and NPN thought officials had not kept their promises, did not listen and did not always inform about events and meetings. In NPN respondents said one reason they were non-active was because officials never called for meetings or events. The only two members in NPN who saw a social change because of SC were a friend and a relative to the officials.

One official in NPN admitted they had stopped inviting members to meetings or organizing events the recent months. Some non-actives in NPN even thought the SC-project had stopped, because they were never called to meetings. She stated she had “*nothing new to tell members*”, why meetings were pointless in her view. She was disappointed with GE, because she had been waiting for information and support from them. No non-actives in NPN had requested help from officials to find new traders.

In both systems there were also some respondents thinking that officials were benefiting economically from the system. According to the GE constitution, the work of officials is entirely voluntary, and budgets are overseen by GE regularly. However, GE reports that some officials have been giving out SC and KSH from the community pot to family members. As previously stated, officials were also deliberately supporting some members not according to the rules. All officials had influential positions in the community before the launching of SC-networks (in NPN coupled to county government). Ruddick described how assumptions of corruption is always present in Kenya and can affect actions of officials’ through family loyalty or be self-fulfilling:

*“Everyone assumes that they’re evil (...) to the point that they (the officials) just end up hating the group and want to be corrupt. (Laugh) So there is such a pre-disposition for corruption in Kenya, especially slums.”*

Although members should elect officials every year, in practice neither members nor officials initiate elections, according to Ruddick. One election occurred when GE insisted, but then few participated and the same officials were reelected. Ruddick mentioned that participating in meetings means lost incomes for many micro-traders. This was confirmed by two members, exemplified by one of them:

*“I can’t afford to leave my work for a day and go work elsewhere, my kids and I will go hungry that day.”*

Table 4. Differences in social capital between BPN and NPN

	Member responses from Bangla-pesa-network	Member responses N'gombeni-pesa-network
Trust and social contacts between members	<ul style="list-style-type: none"> <li>Most mentioned: “trust”, “harmony”, “friendship”, “closer social ties” “share advice”</li> </ul>	<ul style="list-style-type: none"> <li>Most mentioned: ‘No social change’.</li> <li>Only one friend and one relative to officials mentioned: ‘A social positive change’.</li> </ul>
Social environment in community	<ul style="list-style-type: none"> <li>Some mentioned: “friendlier”, “safer”</li> <li>Two mentioned: “better atmosphere” and “activated youth” from community activities.</li> <li>One official mentioned: ‘Activities have decreased criminality’</li> </ul>	<ul style="list-style-type: none"> <li>Most mentioned: ‘No social change’.</li> <li>Only one friend and one relative to officials stated: ‘A social positive change’.</li> </ul>
Trust and communication between members and committees (“officials”)	<ul style="list-style-type: none"> <li>Some mentioned: ‘Officials do not keep their promises’ and ‘Officials do not inform about meetings and events’</li> </ul>	<ul style="list-style-type: none"> <li>Many mentioned: ‘Officials do not inform about meetings and events’</li> <li>Some mentioned: ‘Officials do not keep their promises’ and ‘Officials are benefiting economically on other members’</li> </ul>
Trust in SC-vouchers	<ul style="list-style-type: none"> <li>Most mentioned: ‘SC-vouchers are valuable to me’</li> </ul>	<ul style="list-style-type: none"> <li>Most mentioned: ‘SC-vouchers are not valuable to me’</li> </ul>

# 6. Discussion

This chapter will first discuss the five themes of the research question, by using the theory and their challenges and potentials, and last discuss SC in relation to other CCs and its potential to finance sustainable livelihood.

## 6.1. Specified resilience of livelihood

Both interview responses and GE data show many examples of income fluctuations which according to previous research can be coupled to liquidity shortage and fluctuations. Interview results suggest active members in BPN have increased their access to basic goods and services, as well as increased and strengthen their customer base, both thanks to SC. These results are supported by GE survey data. Same respondents also seem to use SC especially during times of low incomes in KSH. Hence, the results suggest SC are contributing to specified resilience towards liquidity shortage for active members.

The results also suggested active members had increased their savings slightly. Savings can also buffer against sudden expenditures (pulse disturbances) such as sickness, which was mentioned in interviews. However, according to members, their savings are not enough for business up-scaling, which could further strengthen incomes and livelihood as well as adaptive capacity. Firstly, better communication is needed regarding how members can first increase savings by using SC and then apply for a bank or a microloan. Secondly, saving in chamas is an unreliable tool when there is incentives for cheating.

The currency pluralism theory provide a suitable explanation for the economic improvements of active members, considering explanations by these respondents of how SC were used as the currency for daily needs, especially in times of liquidity shortage, whereas KSH were saved. However, interviews suggest there is a chain reaction, especially in NPN; when some members stop accepting SC, others do the same, and circulation in network subgroups is broken. This observation is supported by Ruddick (2015).

Following three hypotheses are suggested as explanations for this chain reaction.

- 1) The guarantor system of traders committing themselves to trade with each other seems to have been overlooked by officials in both networks, to attract more members. It is likely

that this has left some members with not enough contacts of committed traders. Interview results suggest active SC-members have more close SC-traders and access to a greater variety of SC-goods. Belonging to a committed sub-network is important to ensure that SC will always be accepted, which is clearly shown from the answers of non-actives in NPN, who lack sellers who accept their SC. Officials were not providing support to connect these traders.

- 2) The communication and training, which officials should be providing, was lacking in NPN, which seem to have created a lack of understanding of SC, and of empowerment – considering member responded they thought the whole project had stagnant.
- 3) Three successful innovations seem to have strengthen the reliance on SC and attracted more new members in BPN but not in NPN. These are:
  - ‘The open market’
  - ‘The credit clearing system’
  - ‘The community shop’

The open market allows traders to come together and attracts new micro-business by offering close access to other traders and a small incentive (100 KSH is exchanged to 110 SC). In addition, it gives an opportunity for members to spend their SC and exchange their revenues from market sales to KSH. In BPN the open market was appreciated but in NPN they had stopped calling for such community activities.

The monthly credit clearing system ensures micro-business-owners, who has attracted many SC-customers, to be allowed to exchange SC-surplus to conventional money. This does not only increase their savings, but it also increases the trust in SC as a currency. Traders connected to these popular sellers know that SC can always help them get access to commonly bought goods or services. In NPN it was unclear if the credit clearing system was working at all.

The community shop was appreciated in BPN because it allows members to restock their businesses, without travel to town, and were considered reliable. This is contributing to the usefulness of SC. However, the shop is dependent on voluntarily work by officials, hence vulnerable to disturbances. A part of the shop’s profit should perhaps be used as a remuneration for the shop manager. In NPN the community shop was not selling food or staple goods and due to lacking communication and mistrust some members did not see it as community shop at all.

## 6.2. General resilience of livelihood

Savings can strengthen resilience to sudden expenditures, but can also help people afford school costs, hence contributing to education. The ability to pay tuition fees with SC is also contributing to easier access to education for poor families. However, access to credits and savings is not strengthening resilience of health or resilience of direct access to food in times of crises. The results identified different disturbances to these three aspects of livelihood, hence emphasize the importance of general resilience – resilience of all aspects of livelihood to all types of disturbances. The following text is based on the four themes under general resilience and will describe the links between the mentioned disturbances, SC and GE activities.

The food gardens at the schools have provided free food for the children. Hence, this project provides resilience to shocks like the violent Kenyan political crises in 2007/2008, which caused rapid increases in food prices. The work needed to manage the gardens is incorporated in the education and preparations of the gardens was done by members paid in SC from the community pot. Hence, the project is supporting education, and also local trade, when members are spending their SC. The permaculture technics aims to increase soil fertility and provide drought resistant crops. Considering the recent dry year the gardens have shown being capable of providing food in cases of drought.

If GE will succeed in implementing their plans to connect nearby farmers to the networks, farmers can sell their crops to the community shops. This would increase self-sufficiency of the system and allow a bigger percentage to be paid in SC at the community shop, since the need for KSH to buy inventories in town would be reduced. Local farmers could also accept a high percentage of SC, because small scale farming needs few imported inputs. If the community shop raises the percentage of SC, members could do the same, because their inventories can be purchased with SC.. The fact that many members who saw improvements were buying parts of their inventories from within the network indicates that a higher degree of local production and refining could increase reliance on SC and thereby increase local trade, decreasing capital outflow. Hence, SC trading and local food production could increase resilience of both access to credits and food to liquidity shortage and fluctuations in global food prices.

Other disturbances mentioned in interviews – destroyed buildings and sickness – can be prevented by measures decreasing risks of erosion and by providing a better sanitary environment. The planted trees have future potential to prevent erosion, increase soil fertility for the gardens and sustain ground water supplies. These abilities are sometimes referred to as regulating ecosystem services, because they regulate the ability of the local ecosystem to provide food, stable building foundations and water (MEA 2005).

During the community clean-up days waste is removed from the communities, hence reducing air pollution and the risk of diseases spreading on the local level. Although the municipal garbage system is not sustainable – the trash is moved to a large dumpsite – the community clean-ups are improving the local sanitary environment, hence contributing to general health.

Together these community activities are contributing in some level to general resilience by targeting different aspects of livelihood and different kinds of disturbances. The causal links between SC, GE activities and disturbances of the livelihood system are shown below (fig. 6).

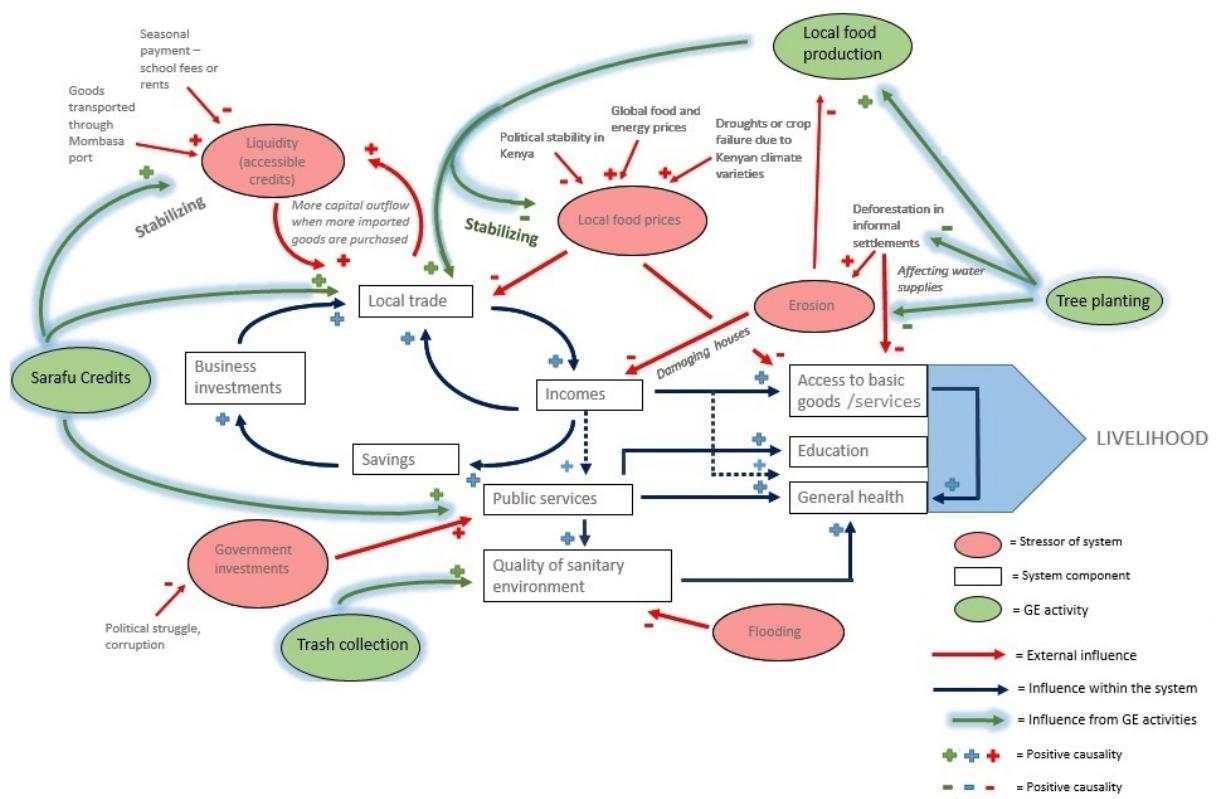


Figure 6. Livelihood system with disturbances and GE activities

Building on figure 4. The SC-system stabilizes fluctuations in accessible credits by increasing SC-trading in times of liquidity shortage of conventional money. It also increases local trade and can be paid out to residents who can provide public services. Trash collection, being one of these services, improves sanitary conditions. Local food production stabilizes food prices and decreases spending on imported food products, thereby decreasing capital outflow and increasing local trade. It is also contributing directly to livelihood by providing

*food for school children. Tree planting prevents erosion and depletion of water supplies and also increases soil fertility in the local food gardens.*

This study support earlier CC research regarding the role of social capital as both the base for a functioning CC and an outcome of local trade. The BPN was considered by its member to be a contributor to social capital between them, but the trust needed between members and “officials” is lacking in both networks. Interviews suggested that community activities such as culture and sport was contributing to a better social environment. Based on previous research social capital is a contributor to general resilience.

Since activities organized by officials were popular among members, it might be more suitable for officials to concentrate on these. The plans to move more administrative services from officials to GE could save time for officials to focus on community activities, while paid GE staff could ensure credit clearing, registering and the community pot are managed according to the rules.

### 6.3. A financial innovation for sustainable livelihood

The initial idea of GE to create a mostly self-financed system has been shown unrealistic. Earlier attempts to issue SC directly into the community pot during member registration was not sufficient for boosting trade, and attempts to, during ‘credit clearing’, let members below 400 SC fund the exchanges was unrealistic. The Swiss WIR-system is a self-financed system being a so called ‘mutual credit system’ where credits are created within each transaction. This means every trader starts with zero credits and a digital balance account showing assets or liabilities. During a transaction the buyer will receive a liability and the seller an asset of equal value. Hence, the sum of all assets and liabilities is zero. Both traders with liabilities and with assets can purchase goods to a certain limit. However, to access WIR-credits, traders need to save conventional money, as a security for the system. If a trader overdraws her account it will result in reductions in the trader’s saving accounts (Stodder 2009).

A similarity between WIR and SC is that issuing credits uses traders’ commitments, to trade their excess of goods, as a security. As long as SC are circulating, no conventional money is needed. But as this study suggests, reliance on SC is strengthened by the ability to exchange SC to KSH. In poor communities members cannot afford saving accounts before getting access to credits, so sanctioning overdrafts as in WIR is not possible. Other mutual credit systems like LETS does not require savings, but are dependent on trust and transparency

(North 1998). To implement a pure mutual credit system in an informal settlement seems to be challenging.

Because of this, some external input of conventional money is needed to fund cash exchanges in the SC-system. However, as long as members have relatively equal amounts of SC and keep them circulating, not that much funding is needed. In addition, the SC-system provides an opportunity for aid or government money to finance local development goals.

The preparations of the gardens and the trash collection was done by paying SC to residents. Same incentives should be given for tree planting. The SC surplus created by these pay outs was exchanged to KSH during credit clearing in the end of the month, after circulating in the community. This method creates incentives for local residents to manage local environmental problems, with a positive effect on local trade (no capital outflow) and finally savings, for the most successful micro-business. These three objectives have been achieved by a single financial injection in the SC-system.

If launching a recycling system, the Mombasa County could for example inject money in the SC-project, teach recycling to residents by paying them with SC, collect valuable materials, improve sanitary conditions and boost local trade at the same time.

An advantage with the ‘credit clearing system’ is also that donors can hold their money as a security until their special community purpose has been fulfilled, before SC are finally exchanged to conventional money in the end of the month. This ensures all money goes to the purpose, which is a great challenge with aid in countries like Kenya, with high levels of corruption.

## 7. Conclusions

This study suggests that the SC-system contributes to resilience of accessible credits to liquidity shortage for active members, and that it can enable increasing saving. However, there is a chain reaction of members stop using SC, especially in NPN, because they are not confident in the usefulness of the currency. A lack of guarantors, communication and training are likely explanations for this chain reaction. Furthermore, these three innovations provided in BPN, is suggested to strengthen confidence in SC:

- ‘The open market’ – market events using only SC

- ‘The credit clearing system’ – SC can be exchanged to conventional money
- ‘The community shop’ – a shop selling inventories to SC-traders

The SC-system is concluded to contribute to general resilience of livelihood by targeting different aspects of livelihood to various disturbances. GE activities are in some level contributing to local food production, and management of local environmental problems, by paying local residents to do community services. Together with the credit clearing system, the SC-case shows that injecting money for environmental projects through a CC, could also increase local trade and savings without extra costs.

The study also strengthens previous research, by emphasizing the role of social capital as both a contributor and an outcome of a CC.

Following areas of further research are proposed:

- CC research related to resilience and sustainable livelihood
- Local governance of CCs, and their local context.
- Combinations of a CC and other financial innovations, which could provide more economic capital for poor people
- The role of CC in relation to cost-efficient aid and government investments

## 8. References

- Abe, K., and R. R. Ziemer. 1991. Effect of tree roots on a shear zone: modeling reinforced shear stress. *Canadian Journal of Forest Research* 21(7):1012–1019.
- Alder, G. 1995. Tackling poverty in Nairobi's informal settlements: developing an institutional strategy. *Environment and Urbanization* 7(2):85–108.
- Anderson, H. W., M. Hoover, and K. G. Reinhart. 1976. Effects of forest management on floods and water supply. *USDA Forest Service General Technical Report PSW 18(PSW - 18/1976)*:1–28.
- Averbéke, W. Van. 2007. Urban farming in the informal settlements of Atteridgeville , Pretoria , South Africa 33(3):337–342.
- Awuor, C. B., V. A. Orindi, and A. O. Adwera. 2008. Climate change and coastal cities: the case of Mombasa, Kenya. *Environment and Urbanization* 20(1):231–242.
- Bateman, M., and H.-J. Chang. 2012. Microfinance and the illusion of development: From hubris to nemesis in thirty years. *World Economic Review* 1:13–36.
- Berkes, F. 2007. Understanding uncertainty and reducing vulnerability: Lessons from resilience thinking. *Natural Hazards* 41(2):283–295.
- Bernier, Q., and R. Meinzen-Dick. 2014. Resilience and social capital. *2020 Conference*(May):26.
- Blanc, J. 2011. Classifying “CCs”: Community, complementary and local currencies’ types and generations. *International Journal of Community Currency Research* 15:4–10.
- Brocklesby, M. a., and E. Fisher. 2003. Community development in sustainable livelihoods approaches - an introduction. *Community Development Journal* 38(3):185–198.
- Bryman, A. 2012. *Social research methods* Bryman. OXFORD University Press.
- Carpenter, S. R., K. J. Arrow, S. Barrett, R. Biggs, W. A. Brock, A. S. Crépin, G. Engström, C. Folke, T. P. Hughes, N. Kautsky, C. Z. Li, G. McCarney, K. Meng, K. G. Mäler, S. Polasky, M. Scheffer, J. Shogren, T. Sterner, J. R. Vincent, B. Walker, A. Xepapadeas, and A. de Zeeuw. 2012. General resilience to cope with extreme events. *Sustainability* 4(12):3248–3259.
- Cohen, M., and J. L. Garrett. 2009. *The food price crisis and urban food (in) security*. Environment and Urbanization. London.
- Collier, P. 2008. *The bottom billion : why the poorest countries are failing and what can be done about it*. Oxford University Press.
- County Government of Mombasa. 2014. *MOMBASA COUNTY ANNUAL DEVELOPMENT PLAN 2015-2016 FINANCIAL YEAR*. Mombasa.

- Cronin, A. A. 2004. *Water and Sanitation in the World's Cities: Local Action for Global Goals*, by Un-Habitat, 2003. *The Environmentalist*.
- Diagne, K., A. Lavell, E. Leon, F. Lerise, H. Macgregor, A. Maskrey, M. Meshack, M. Pelling, H. Reid, D. Satterthwaite, J. Songsore, K. Westgate, E. L. Esteban, H. Macgregor, A. Maskrey, L. Bull-Kamanga, K. Diagne, A. Lavell, E. Leon, F. Lerise, H. Macgregor, A. Maskrey, M. Meshack, M. Pelling, H. Reid, D. Satterthwaite, J. Songsore, K. Westgate, and A. Yitambe. 2003. From everyday hazards to disasters: the accumulation of risk in urban areas. *Environment and Urbanization* 15(1):193–204.
- Dissaux, T. 2016. Making money a common resource : the case of the “ Bangla - Pesa ” community currency in Kenya:1–10.
- Folke, C., S. R. Carpenter, B. Walker, M. Scheffer, T. Chapin, and J. Rockström. 2010a. Resilience thinking: Integrating resilience, adaptability and transformability. *Ecology and Society* 15(4).
- Folke, C., S. R. Carpenter, B. Walker, M. Scheffer, T. Chapin, and J. Rockström. 2010b. Resilience thinking: Integrating resilience, adaptability and transformability. *Ecology and Society* 15(4).
- Glavovic, B. C., and S. Boonzaier. 2007. Confronting coastal poverty: Building sustainable coastal livelihoods in South Africa. *Ocean and Coastal Management* 50(1-2):1–23.
- Gomez, G. 2012. Sustainability of the Argentine Complementary Currency Systems. *International Journal of Community Currency Research* 16(Special Issue):80–89.
- Gyssels, G., J. Poesen, E. Bochet, and Y. Li. 2005. Impact of plant roots on the resistance of soils to erosion by water: a review. *Progress in Physical Geography* 29(2):189–217.
- Hahn, T., P. Olsson, C. Folke, and K. Johansson. 2006. Trust-building, knowledge generation and organizational innovations: The role of a bridging organization for adaptive comanagement of a wetland landscape around Kristianstad, Sweden. *Human Ecology* 34(4):573–592.
- Henry, R. K., Z. Yongsheng, and D. Jun. 2006. Municipal solid waste management challenges in developing countries - Kenyan case study. *Waste Management* 26(1):92–100.
- Jackson, L., and L. Young. 2016. When business networks “kill” social networks: A case study in Bangladesh. *Industrial Marketing Management* 58:148–161.
- Jose, S. 2009. Agroforestry for ecosystem services and environmental benefits: An overview. *Agroforestry Systems* 76(1):1–10.
- Kairo, J., C. Wanjiru, and J. Ochiewo. 2009. *Economic Analysis of Mangrove Forests: A case study in Gazi Bay*. *Journal of Sustainable Forestry*.
- Kenya National Bureau of Statistics. 2012. Leading Economic Indicators in Kenya(April):1–142.

- Kimani-Murage, E. W., L. Schofield, F. Wekesah, S. Mohamed, B. Mberu, R. Ettarh, T. Egondi, C. Kyobutungi, and A. Ezeh. 2014. Vulnerability to Food Insecurity in Urban Slums: Experiences from Nairobi, Kenya. *Journal of Urban Health* 91(6):1098–1113.
- Krantz, L. 2001. The sustainable livelihood approach to poverty reduction. *Division for Policy and Socio-Economic Analysis*(February):44.
- Lietaer, B., and J. Dunne. 2013. *Rethinking Money: How New Currencies Turn Scarcity into Prosperity*. Berrett-Koehler Publishers.
- Littera, G., L. Sartori, and P. Dini. 2014. From an idea to a scalable working model : merging economic benefits with social values in Sardex. *Inaugural WINIR Conference, 11-14 September 2014, Greenwich, London, UK*:1–22.
- Marx, B., T. Stoker, and T. Suri. 2013. The Economics of Slums in the Developing World. *Journal of Economic Perspectives* 27(4):187–210.
- Maxwell, D. G. 1995. Alternative food security strategy: A household analysis of urban agriculture in Kampala. *World Development* 23(10):1669–1681.
- McCarthy, J. J., O. F. Canziani, D. J. Leary, D. J. Dokken, and K. S. White. 2001. Climate change 2001: impacts, adaptation, and vulnerability. *Contribution of Working Group II to the Third Assessment Report of the Intergovernmental Panel on Climate Change*.:1–1042.
- MEA, M. E. A. 2005. *Ecosystems and Human Well-Being Ecosystems and Human Well-Being*.
- Morduch, J., and B. Haley. 2002. Analysis of the Effects of Microfinance on Poverty Reduction Analysis of the Effects of Microfinance on Poverty Reduction. *NYU Wagner - Working Papers Series*:1–163.
- Muniafu, M., and E. Otiato. 2010. Solid Waste Management in Nairobi, Kenya. A case for emerging economies. *The Journal of Language, Technology & Entrepreneurship in Africa* 2(1):342–350.
- Napier, M., and M. Rubin. 2002. Informal Settlements : Lessons in Innovative Practice From. *Industrial Research* 2:1–32.
- North, P. 1998. Lets,“hours” and the Swiss “business ring”. Alternative currency systems and business development programmes. *Local Economy* 13.2:114–132.
- Nyström, M., C. Folke, and F. Moberg. 2000. Coral reef disturbance and resilience in a human-dominated environment. *Trends in Ecology & Evolution* 15(10):413–417.
- Owen, G. 2007. Rural Outreach and Financial Cooperatives: SACCOs in Kenya. *World Development*:1–28.
- Perry, G., O. Arias, J. Lopez, W. Maloney, and L. Serven. 2006. *Poverty reduction and growth: virtuous and vicious circles*. World Bank Report.

- Rahman, A. 1999. Micro-credit initiatives for equitable and sustainable development: Who pays? *World Development* 27(1):67–82.
- Rakodi, C. . d, R. . Gatabaki-Kamau, and N. . Devas. 2000. Poverty and political conflict in Mombasa. *Environment and Urbanization* 12(1):153–170.
- Ruddick, W. 2015. Trust and Spending of Community Currencies in Kenya. *3rd International Conference on Social and Complementary Currencies Oct 27th-30th 2015*:1–22.
- Ruddick, W. O. 2011. Eco-Pesa: An Evaluation of a Complementary Currency Programme in Kenya's Informal Settlements. *International Journal of Community Currency Research* 15(A):1–12.
- Ruddick, W. O., M. A. Richards, and J. Bendell. 2015. Complementary Currencies for Sustainable Development in Kenya: The Case of Bangla-Pesa 19:18–30.
- Seyfang, G. 2004. Time banks: Rewarding community self-help in the inner city? *Community Development Journal* 39(1):62–71.
- Seyfang, G., and N. Longhurst. 2013. Growing green money? Mapping community currencies for sustainable development. *Ecological Economics* 86:65–77.
- Stodder, J. 2009. Complementary credit networks and macroeconomic stability: Switzerland's Wirtschaftsrинг. *Journal of Economic Behavior and Organization* 72(1):79–95.
- Tan, Y. J. 2012. The Management of Residential Solid Waste in Mombasa Kenya:1 – 48.
- Transparency International. 2010. Preventing Corruption in Humanitarian Operations:164.
- UN. 2015a. *Third International Conference on Financing for Development Provisional agenda of the third International Conference on Financing for Development*.
- UN. 2015b. Sustainable development goals - 17 goals to transform our world.  
<http://www.un.org/sustainabledevelopment/sustainable-development-goals/>.
- UN-HABITAT. 2016. *URBANIZATION AND DEVELOPMENT: Emerging Futures*.
- Walker, B., and D. Salt. 2012. *Resilience Thinking: Sustaining Ecosystems and People in a Changing World*. Island Press, Washington.
- Weiss, J., and H. Montgomery. 2004. Great Expectations : Microfinance and Poverty Reduction in Asia and Latin America(15).
- World Bank. 2015. Kenya. <http://data.worldbank.org/country/kenya>.
- World Bank Group. 2016. *Kenya economic update - Kazi ni kazi, Informal should not be normal*.

## 9. Appendix

### 9.1. Interview questions

For SC-network-members

#### **Intro questions**

- Briefing – I tell them about me and the research and they can agree to the consent form.
- What do you do for living?
- Do you have a partner (husband/wife)? Children? How many?
- Where are you from? Do you also live somewhere else? Where?

#### **Main question**

Please tell me about SC in your life.

#### **Follow up questions**

- Why did you decide to join the network?
- What do you use SC for? Which goods and services? How do you price your goods? (how much do you spend per day? Does it differ different seasons or weekdays?)
- Have your work changed since you joined? How? (Savings?, more trade-partners?)
- Has the situation for your partner and children changed? How?
- Has your relation to other persons in the local area changed? How? Which persons?
- Do you perceive any difference for the people living in the local area since the SC was initiated?
- What major disturbances to your business or livelihood have you experienced when living here? What have helped you maintain your ability to get food, medicines, school costs or other basic needs? How has this helped you?
- Have you participated in any meetings or activities by Grassroots Economics or by the network?
- What do think can make the SC better in the future?

#### **After-briefing**

- I thank them and ask if they want to add anything. I tell them again what I am going to do with the information and give them my contact details.

For local committee members and key persons in GE

### **Intro questions**

- Briefing – I tell them about me, the research by presenting the Plain Language Statement (PLS) and they can agree to the consent form.
- What is your roll in the CCS? In the community projects?

### **Main questions**

- Why did you decide to initiate the SC project (if that person did)?
- Please tell me how the SC-system works.

### **Follow up questions**

- Is there a difference in how you (or GE) want the SC to work and how it works in practice? What kind of problems and challenges have you met?
- How are the community activities financed by the SC (which you been involved in)?
- Who are involved in the community activities? How many? Is there some people who don't want to join? Why?
- Are the SC/community activities affecting the local environment?
- How are the SC/community activities affecting general health in the local area?

### **After-briefing**

- I thank them and ask if they want to add anything. I tell them again what I am going to do with the information and give them my contacts details.

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