

Towards a Societal Transformation

*- a qualitative study of grassroots innovations within waste
management in Zanzibar*

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Abstract

The issue of waste is an increasing global problem, affecting people, animals and ecosystems. Zanzibar has experienced a dramatic increase of incoming tourists, with a growing waste problem as a result. This exploratory case study provides an analysis of the waste management situation in Zanzibar from the viewpoint of grassroots innovations initiatives. The study explores how grassroots innovations have evolved in Zanzibar and creates an overview of what challenges grassroots innovations within waste management face. The study is based on qualitative interviews, held with respondents on site in Zanzibar. The social context in Zanzibar is considered to provide a unique setting, both in terms of waste and the political situation. The respondents included are grassroots initiatives, governmental institutions, hotels and other stakeholders related to the waste management cycle or grassroots initiatives.

The findings suggest that the current waste situation in Zanzibar has sparked the urge of contributing to a change, in regard to waste, among a few empowered citizens. These citizens have started grassroots initiatives based on the willingness to make a change, often with limited support from external forces. The different respondents gives the study an overview of the situation and a multifaceted picture of the development of grassroots innovations in Zanzibar. Treating waste is currently shameful, according to the norm, and grassroots initiatives in this case study have challenged this in order to reach their goals. Along the way, several challenges have been identified in both the literature and collected data, where the most prominent additions from the respondents have been legitimisation of knowledge and collaboration.

The study draws attention to grassroots innovation, being a contribution to societal change, that seems to be needed in order to solve the waste management issues and a lurking ecological catastrophe. The grassroots initiatives have already seen their efforts contribute to some change in the local environment. The research concludes that there are four major challenges that grassroots innovations face in Zanzibar. However, when the challenges are curbed to some extent, it paves the way for grassroots innovations to reach its full potential and contribute to sustainable transformation. The ambition is to contribute to current theories regarding grassroots innovations and generalise, to some extent, in order to use our findings in other contexts or cases.

KEYWORDS:

Grassroots innovations, evolution and development of grassroots innovations, social innovation, challenges and constraints of grassroots innovations, sustainability, waste management, scaling.

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Abbreviations

CBO - Community Based Organisations

GHG - Greenhouse gases

HDPE - High-density polyethylene

NGO - Non-governmental organisations

SIDA - Swedish International Development Cooperation Agency

SUZA - State University of Zanzibar

UN - United Nations

ZEMA - Zanzibar Environmental Management Authority

ZOPF - Zanzibar Ocean Protection Foundation

ZUMC - Zanzibar Urban Municipality Council

1. Introduction

Due to urbanisation and rapid growth of population, the waste generated per person is increasing quickly. The annual waste is expected to increase by 70 percent between 2016 and 2050. Due to the rapid increase, more than 90 percent of waste is frequently burned or disposed insufficiently in low-income countries (The World Bank, 2018). Insufficient disposal of waste becomes a health risk for both humans and the environment. It can cause water and soil contamination in addition to greenhouse gas emissions, and it is a serious threat to biodiversity.

The island of Zanzibar is a semi-autonomous region of Tanzania, a low-income country in East Africa, with an internal self-government (Britannica, 2019). Zanzibar suffers from an insufficient disposal of waste due to the lack of a proper waste disposal process (Zanzibar Environmental Policy, 2013). Approximately 870 tonnes of solid waste is generated per day in Zanzibar (Zanzibar Research Agenda, 2015), whereof only 25-40 percent of the solid waste is estimated to be collected and transported to the official disposal site (Abdulsasoul & Bakari, 2016; The East African, 2018; Zanzibar Environmental Policy, 2013). The remaining waste is either dumped at unauthorised landfills, burned or eaten by animals (Abdulsasoul & Bakari, 2016; The East African, 2018). Approximately 80 percent of the total waste is anticipated to come from hotels and resorts (The East African, 2018).

According to the Zanzibar Environmental Policy (2013) the key issues for waste management are,

... inadequate national capacity to properly manage (handling, collection, disposal, recycling, reuse and treatment) solid waste generated in the communities.

Further, it is argued that knowledge is lacking in regard to how hotels affect natural and human environments, and how the effects can be mitigated in Zanzibar (The East African, 2018; Zanzibar Research Agenda, 2015). Due to a lack of proper waste management, several private and public initiatives, and social movements, within the civil society have been established with the aim to respond to local needs and clean Zanzibar (CHAKO, 2018; Down to Earth, 2018; IPPMedia, 2017; Zanrec, 2018). These initiatives fall under the concept of social innovation as *grassroots innovations*. Please note, within this study grassroots innovations will be used synonymously with grassroots initiatives, grassroots movements, grassroots and grassroots innovation movements. Grassroots innovations are community-led initiatives with the

possibility of taking different forms (Seyfang & Smith, 2007). Most social innovations start within the civil society and often include empowered citizens (Caulier-Grice et al. 2012). Historically, social innovations have played an important role in identifying and meeting social needs (Tepsie, 2014). Initiatives from grassroots movements have found to be important contributors when it comes to creating sustainable communities (Hossain, 2018).

The ambition of this thesis is to provide a fair picture of how grassroots initiatives within waste management have evolved and what challenges they face in Zanzibar. In order to get hold of relevant first-hand information in regard to grassroots innovations in Zanzibar, the research for the study was conducted in Zanzibar. During the field trip it shortly became obvious that the waste situation is a huge problem, where an immense amount of waste is not properly disposed but instead dumped at unauthorised landfills.

1.1 Research Questions and Purpose

The topic of *grassroots innovations* within waste management and sustainability was chosen due the authors' awareness and interest of the waste management situation in Zanzibar. The authors perceived the lack of a functioning waste management system in Zanzibar to be a dangerous risk for the environment and also for the inhabitants that could even affect the island's main source of income - tourism.

The purpose of the thesis is to create an understanding how grassroots initiatives within waste management have evolved and what challenges they face. The thesis takes an explorative approach, where primary data has been collected during a field study in Zanzibar. The research takes its starting point from social innovations, focusing on grassroots innovations and other relevant concepts linked to grassroots innovation, such as; *social entrepreneurship*, *empowered citizenship* and *collective actions*.

There are a number of studies that examine the development and challenges of grassroots innovation. However, many of the studies focus on comparing different kinds of grassroots innovations with each other and lack an in-depth analysis of a specific system, like waste management in developing countries. Furthermore, the context of Zanzibar has not been thoroughly explored. Therefore, the authors realised that it would be appropriate to investigate the challenges of grassroots innovations and how grassroots innovations has evolved in

Zanzibar. The study aims to increase the understanding of grassroots initiatives' development and challenges in regard to waste management. Based on the above, and in line with certain criteria, explained below, this thesis seeks to answer the following research questions:

How has grassroots innovations, within waste management, evolved and developed in Zanzibar?

What challenges does grassroots innovations face within waste management in Zanzibar?

In order to find appropriate research questions, the authors followed the following criteria for the research questions of being: *clear, researchable, having a connection with previous theory and research, contributing to new knowledge, having a link between the questions and being neither too narrow nor too broad* (Bryman and Bell, 2015). The term *evolve* is used throughout the thesis and is defined as “to develop gradually, or to make someone or something change and develop gradually” (Cambridge Dictionary, 2019a). Also, *challenges* is used throughout the thesis, and is defined as “something needing great mental or physical effort in order to be done successfully, or the situation of facing this kind of effort” (Cambridge Dictionary, 2019b). Both terms, *evolve* and *challenges*, are therefore essential for our research in order to reference the development and challenges faced by grassroots innovations in Zanzibar. As presented, the chosen research questions are specific, but without focusing on too many details.

Hopefully, the authors will be able to contribute with new knowledge within the research area. Moreover, by understanding the development of grassroots innovations and the challenges grassroots innovations face, it may be possible to strengthen the initiatives in order to better support them. In addition, the authors hope to be able to describe the development of grassroots innovations and the applicability of theories regarding grassroots initiatives in Zanzibar. However, the researchers are aware of restrictions regarding generalisation in qualitative studies. This study further aims to address the UN Sustainable Development goal #8, regarding urban poverty (UN, n.d.a), and target #11.6: Sustainable cities and communities, by paying attention to waste management (UN, n.d.b), by highlighting the capability of grassroots innovations.

1.2 Background

The following chapter aims to provide background information and foundational understanding for the following sections. Also, it aims to create an understanding for the topic and choice of the research questions. It briefly presents background information about Zanzibar and the current waste situation. Social innovation, including grassroots innovation, and its challenges are presented and explained in regard to the waste situation in Zanzibar. Further explanation of the situation in Zanzibar will be described in chapter 4.

1.2.1 Zanzibar, Tanzania

Tanzania is a union between the former Tanganyika, on the mainland, and the Zanzibar archipelago. Zanzibar is a semi-autonomous region of Tanzania, with an internal self-government. Tanganyika gained independence from Britain in 1961 and in 1964 they joined with Zanzibar to form Tanzania (Britannica, 2019). Zanzibar has a population of approximately 1.3 million inhabitants (BBC, 2018) while Tanzania as a whole has approximately 57 million inhabitants (Landguiden, 2016). The official language is Swahili wherein English is used within higher education and within the judicial systems (Landguiden, 2016).

Zanzibar is known for its astounding white sandy beaches, turquoise water and colourful coral reefs. It is a popular tourist destination where the amount of tourists has more than doubled in the past ten years from 150,000 to 376,000. However, a third of the population on Zanzibar live under very poor conditions and around 10 percent of Zanzibar's youth are unemployed. Tourism is Zanzibar's largest economic sector and is necessary for the socio-economic stability of the island. The government views the tourism sector as a big asset, even irreplaceable, in regard to economic growth and employment and it helps to reduce poverty (The East African, 2018).

1.2.2 Waste in Zanzibar

According to the Zanzibar Environmental Policy (2013), a proper process for solid waste and sewage disposal in Zanzibar does not exist. For example, thousands of cubic meters of sewage and untreated liquid waste runs directly into the sea as many hotels and restaurants do not have their own treatment systems. This can cause worsening environmental conditions for coral reefs, seagrass and mangrove forests. When it comes to solid waste, which this study will focus on, one of the contributing factors to the masses is the large amount of products coming in

single use plastic packaging, often used by hotels, restaurants and other activities related to tourism. In the long run, this adds up to colossal amounts of solid waste (The East African, 2018). Due to urbanisation and population growth, including an increasing number of tourists, there have been major difficulties in developing and implementing an effective waste management system (Abdulrasoul & Bakari, 2016; The World Bank, 2018; Zanzibar Environmental Policy, 2013).

The exact amount of waste generated in Zanzibar is not known, but is estimated to be about 870 tonnes of solid waste per day (Zanzibar Research Agenda, 2015). According to Abdulsasoul & Bakari (2016) and The East African (2018), only 25 percent of the solid waste is estimated to be collected and brought to the official disposal site. The remaining 75 percent is burned, eaten by animals or dumped, unprocessed, at unauthorised landfills. However, this number differs from the Zanzibar Environmental Policy (2013), where the estimate from 2006 says that approximately 40 percent of the solid waste is properly collected by the government and brought to the official disposal site. At the moment, there is only one private waste management company, Zanrec, that offers sustainable waste management. About 80 percent of the total waste is expected to come from resorts, hotels and restaurants and, therefore, mainly from tourism. Thus, every tourist visiting Zanzibar may also contribute to environmental destruction (The East African, 2018).

In 1992, the Revolutionary Government of Zanzibar launched the National Environmental Policy for Zanzibar in order to protect the environment. However, waste management was not mentioned as a key policy statement. The Zanzibar Environmental Policy of 2013 has been updated in order to meet the current challenges Zanzibar faces in regard to environmental and climate change – including the Zanzibar Vision 2020 (Zanzibar Environmental Policy, 2013). Part of the 2020 vision for Zanzibar is to enhance sustainable tourism (The East African, 2018; Zanzibar Environmental Policy, 2013) and by 2020 the government’s aim is to collect and treat 70% of the solid waste by using a *reduce, reuse and recycle* (3R) approach (Zanzibar Research Agenda, 2015), which will be further defined, later. Furthermore, the 2020 vision includes conserving and protecting the environment, and efficiently being able to utilise natural resources so that Zanzibar’s natural resources and heritage can be passed onto future generations (Zanzibar Environmental Policy, 2013).

In 1996, the *Environmental Management for Sustainable Development Act of Zanzibar* was legislated in order to enhance long-term conservation and management and sustainable use of natural resources. However, enforcement of regulations related to the environment and natural resources are weak in Zanzibar (Zanzibar Environmental Policy, 2013). An increased economic growth and social transformation will put a higher pressure on the environment and degradation (Zanzibar Environmental Policy, 2013). Therefore, population growth, together with increased tourism, will mean a higher demand on the islands resources, facilities and the environment, which will become a huge threat in the future if it continues at the same pace (The East African, 2018; Zanzibar Environmental Policy, 2013). The following was stated by a director and professor in The East African (2018): *“If handled correctly, tourism can be a true blessing for Zanzibar, but if it is not, it can also be a curse and ruin it all”*. Thus, a change within waste management is required.

1.3 Grassroots Innovations

Globally, there are initiatives from non-governmental organisations (NGO), private organisations, unofficial individuals and governments that work towards a sustainable development. For example, there are unofficial individuals collecting and recycling waste in order to earn a living as there is an absence of formal waste collecting services (GRI, 2017). By recycling waste, you reduce the emissions, save energy, preserve natural resources and tackle climate change (Hossain et al. 2011). Therefore, not only do these individuals earn a living, they also reduce the carbon footprint and improve the environmental conditions, recover resources, improve health conditions and create jobs among the poor (GRI, 2017). These initiatives are identified as *grassroots initiatives*, and many of the grassroots initiatives have turned into new social movements that challenge local governments and states (Zapata Campos & Zapata, 2012). Grassroots innovations, or initiatives, are usually community-led solutions aimed at sustainable development of the community. It is described as a growing collection of bottom up innovative solutions for sustainability that respond to local situations and needs. However, grassroots innovations often struggle to scale up and usually get stuck in a small niche (Grassroots Innovations, n.d.).

Taking the standpoint in recycling initiatives and networks, it is estimated that inhabitants of societies where there are no formal waste collection, tend to contribute to the waste collection to a much greater extent than elsewhere (Gutberlet, 2012). These people often lack the access

to funding, which makes it harder for them to organise themselves and create formal associations (Yates & Gutberlet, 2011). However, many of these people instead organise themselves within community-based organisations. Zapata Campos & Zapata (2013) and Gutberlet et al. (2016) argues that cooperation with governments are essential due to occurrence of resistance towards these groups. These types of grassroots initiatives are contributing to both environmental and social change (Zapata Campos & Zapata, 2012).

1.4 Delimitations

The aim of the thesis is to investigate the evolution and development, as well as the challenges, of grassroots innovations within waste management in Zanzibar. Delimitations of the research are addressed in this section to present the scope of the research.

Since the study focuses on grassroots innovations, other types of innovation will be excluded from the scope. It is acknowledged that some initiatives balance on the border of the definition of being a grassroots innovation. Nonetheless, these have been included due to relevance, but, other than those, the research will be restricted to grassroots innovations. Further, other perspectives from key stakeholders, such as governmental authorities and hotels, have been included in the data collection. In addition, grassroots innovations unrelated to waste management have been excluded from the scope of this research. This is due to the focus on the waste management situation, including how grassroots innovations play a role in the societal change from a waste management perspective. Therefore, other grassroots initiatives that lack connection to the prerequisites of this research are not relevant, even if they might be interesting projects.

In the context of the societal transformation of interest in this study, on top of grassroots innovations, norms and empowered citizens are discussed in the research. However, the researchers have restrained from doing a normative analysis of the inhabitants in Zanzibar and have instead relied on the interpretation of the local context by the included respondents. Further, financial constraints has received limited attention in this research due to time limitations of the thesis. In addition, financial constraints are not seen as an isolated challenge for grassroots innovation, but often for innovations and organisations in general.

The study further focuses on grassroots innovations located in Zanzibar. The peculiar setting in Zanzibar, being a developing country with many tourists and having a prominent waste situation, makes it interesting to study. However, due to the scope of the study and the specific context, the study excludes other regions and markets for grassroots innovation. In Zanzibar, grassroots initiatives, different experts and relevant stakeholders from the region have been included, but the researchers have delimited themselves from including other external viewpoints. This is mainly due to the reason that other people most likely lack the knowledge about the particular setting that Zanzibar possesses.

As final remarks, the descriptive and investigative approach does not aim to provide recommendations for how the grassroots initiatives or other stakeholders should act in order to solve the waste management situation in Zanzibar, but rather to give an objective overview of what the situation looks like, how grassroots innovations within waste management have evolved and what challenges they face.

2. Method

The following chapter includes the research process and motivations of the decisions taken. The intention of this part is to provide understanding for the reader of how the research has been conducted. The chapter starts with the research strategy including the choice of exploratory research and qualitative approach followed by the research design, where both primary and secondary data sources were used for the collection of data. Finally, the research methodology including, data collection, sampling of interviewees, data analysis and quality assurance.

2.1 Research Strategy

2.1.1 Exploratory study

Since the aim of the study is to get a better understanding of relationships, concepts and challenges of grassroots innovations and how these initiatives have evolved on Zanzibar, the study uses an exploratory approach (Research Methodology, 2018). One of the aims of the study is to improve the understanding of the problem, which makes an exploratory approach appropriate (Research Methodology, 2018). The exploratory approach further tolerated the research questions being adjusted to the collected data, focusing on the societal transformation from the perspectives of grassroots innovations within waste management in Zanzibar.

2.1.2 Qualitative approach

A qualitative research approach has been chosen to gain knowledge and understanding of how and why things unravel the way they do, and is a good choice for generation of new theory and contributions. This will allow the authors to uncover the complexities of the case, regarding grassroots innovations, and its challenges and development (Bryman and Bell, 2015).

The qualitative method was chosen in order to allow the researchers to put more emphasis on interpretation of what situations grassroots initiatives face in Zanzibar. According to Bryman and Bell (2015), quantitative research is more static while the qualitative study enable a more process-oriented approach. Using a qualitative method, words play a key role in collecting and analysing data, which will further allow the researchers to understand each respondents experience. By focusing on the interviewees' own words and perceptions regarding grassroots innovations, the researchers will develop a deeper understanding of how individuals perceive the constantly changing reality in Zanzibar. Quantitative research tends to explain the actual behaviour, while a qualitative strategy focus on explanation and the meaning of the matter, which is preferred in this study. The qualitative approach enables the authors to capture the complexity and offer different insights and views of the research questions, rather than simplifying the results into quantitative measures, such as numbers. Advantages of using a qualitative research method in this study is the exploratory approach and the possibility of going into depth of the interviewees' experiences and as well as its flexibility (Bryman and Bell, 2015). This goes very well with the exploratory and relatively general stance of the research questions.

Qualitative research approaches are often based on an inductive approach, which is applied in this study. Inductive research emerges from observations in order to build theory rather than testing it, which would be the case in a deductive approach (Bryman and Bell, 2015). Choosing an inductive approach was motivated by the lack of research regarding grassroots innovations in Zanzibar. This is further in line with the purpose of the study, to create an understanding of grassroots innovations challenges and development. The inductive approach is perceived as iterative and exploratory which means that new theory and contributions could emerge based on the data collected. Exploratory research is used in order to understand underlying opinions and reasons, which will facilitate answering the research questions about challenges and evolution of grassroots innovation(Bryman and Bell, 2015). Another reason why an inductive

approach is appropriate for this study is that the authors of this research do not have a preconception about what answers might be revealed from the study.

There are, however, some critiques in regard to qualitative research, all worthy to take into consideration: *its subjectivity, difficulty to replicate, limited generalisation and lack of transparency* (Bryman and Bell, 2015). As a qualitative approach is based on the words in the interviews', it allows the researchers to be subjective and interpret the meaning of the data depending on the situation. Furthermore, the data collection may be very difficult to replicate because the result of the interviews might depend on many special circumstances, such as the mood of the interviewee or the current situation of the interview. Therefore, flexibility and unstructured tendencies are not always in its favour. The critique of limited generalisations is based on twenty two interviews being conducted using a relatively small group of people, twenty five individuals in this case, which makes it hard to generalise the results to represent an entire population. And the fourth critique, lack of transparency, is also a potential issue since the interview often is intimate and between two or a few people, mostly three in this study, behind closed doors (Bryman and Bell, 2015).

Even though a qualitative approach comes with the certain risks mentioned, the researchers concluded that the gain of using a qualitative approach excels the risks, compared to choosing a quantitative approach while gathering data in Zanzibar. The qualitative approach will allow the researchers to put emphasis on the interpretation and details that can be found in the information, rather than the metrics. This allows data to have an enriched level of details which in turn can provide more opportunities of identifying different insights during the gathering of data. Due to the circumstances, it is considered beneficial that the researchers will be physically on site in Zanzibar collecting data, being able to take advantage of instinctual observations regarding grassroots innovations within waste management. The researchers will be able to focus on each respondents words and outlook and constantly compare them to one another in order to gain a deeper understanding. Being well-aware of the above risks, the researchers have taken actions needed in order to minimise the risks, which is described more closely in 2.5 *Quality Assurance*.

2.2 Research Design

As the aim is to get a comprehensive understanding of the waste management situation, in regard to grassroots initiatives in Zanzibar, and answer the two research questions, a *case study* design is perceived to be an appropriate research method. In addition, as the research questions aim to answer *how* and *what*, a case study approach is further proved suitable as it allows a lot of detail and is considered to be go into greater depths than other designs. A case study aims to explore a phenomenon, in this case the waste management situation in relation to grassroots initiatives in Zanzibar, by pursuing an in-depth, up-close and detailed examination, which suits the qualitative approach. Consequently, it was considered accurate to further select a *single case approach* (Bryman and Bell, 2015). The single case focuses on the system regarding the waste management situation, in regard to grassroots initiatives, in Zanzibar.

Grassroots initiatives, governmental institutions, private organisations such as hotels and recycling agents were interviewed as part of the single case study when performing the in-depth analysis of the phenomena. This enabled the researchers to understand how the system was connected and discover common features in the development and challenges for grassroots initiatives. Further, this approach required the researchers to focus on finding potential stakeholders to make sure that all parts of the system was acknowledged. Since the researchers were able to spend an extended amount of time on site, together with many local actors in Zanzibar, mapping the situation became more operable.

In addition, by choosing a case study design, it favours the researchers qualitative method as these methods are considered beneficial when generating a detailed examination of the case. Furthermore, the case study approach enabled the researchers to approach the case from many different angles through e.g. semi-structured interviewing, participant observation and data collection. This in turn further permitted the researchers to highlight unique characteristics of the case, also known as an idiographic approach, which also distinguishes and argues to use a case study (Bryman and Bell, 2015).

Since the researchers are analysing one specific system at a specific location, the case is considered to be both unique and revelatory. A unique case has a specific feature related to the research purpose, which in this case is the concept of grassroots innovations within waste management. Further, due to the study having an inductive approach, the revelatory case

provides an opportunity to study the specific phenomenon within a single case study (Bryman and Bell, 2015).

However, the disadvantages of using a case study design have been acknowledged, such as limited reliability, replicability and validity. For example, Bryman and Bell (2015) questions how a “single case possibly be representative so that it might yield findings that can be applied more generally to other cases”. The researchers recognise that it may be difficult to achieve replicability for a single case, which in turn makes it difficult to achieve external validity and external reliability. However, the researchers, among many other researchers, still argue that a case study can be generalised to a certain degree (Bryman and Bell, 2015). In addition, the researchers also recognise the risk of having a degree of subjectivity and researcher bias. However, by approaching the case from different angles, as previously mentioned, the researchers avoid reliance on one single approach when on site in Zanzibar. Reliability, replicability and validity will be further discussed in 2.5 *Quality assurance*.

2.3 Research Methodology

2.3.1 Primary Data Collection

When gathering primary and empirical data, the researchers collected material through interviews and direct observations. The most appropriate approach for the qualitative research for the study was to use qualitative interviews in order to understand the specific issues related to the subject in Zanzibar and get an in-depth understanding from the people living there. Being on site in Zanzibar also enabled the researchers to be exposed to relevant situations regarding to the topic and observations were therefore continuously performed.

The qualitative interviews represented the collected data from primary sources in this study, which benefits this thesis as it provides the opportunity of exploring different perspectives and experiences (Bryman and Bell, 2015). The advantage of primary sources is that the data collected is of specific purpose for just what the study comprises and is therefore first-hand information (Institute for work and health, 2008). Also, the choice of qualitative interviews and observations were optimal due to the relatively small population of potential respondents regarding grassroots initiatives within waste management in Zanzibar (Bryman and Bell, 2015).

A semi-structured interview method was selected in this study to gather the empirical data. This approach allows keeping the interviews open, allowing new takes and ideas to be brought up depending on the participants' answers, personalities and interests. A semi-structured interview method was also more flexible than for example a structured interview, while being more controlled than an unstructured interview method. The semi-structured interviews enabled the researchers to understand the respondents' perspectives in relation to the research questions in a better way and enabled the researchers to capture relevant information since the framework for the interviews were set in advance (Bryman and Bell, 2015).

2.3.1.1 Interview Guide

An interview guide was created in order to cover the specific topics and to guide the researchers in their work (see appendix 1). The interview guide consists of a list of questions divided into specific topics and helped to maintain some structure to the interviews and to make sure all relevant questions were asked to the respondents. Dependability of the research is considered to be strengthened when a copy of the interview guide is attached to the study (Bryman and Bell, 2015).

The interviews all commenced with an introductory question, and depending on the respondents replies, further questions such as, follow-up questions, probing questions, further elaborations, structuring questions, and direct questions were asked. The order of the questions depended on the interviewees' responses, emphasizing the flexibility of the semi-structured approach compared to structured interviews. However, almost all the questions in the interview guide were asked to all respondents. In addition, the researchers conducted a pilot guide that ensured the function and clarity of the questions (Bryman and Bell, 2015).

2.3.2 Sampling and Interview Process

2.3.2.1 Sampling

Purposive sampling was used since the researchers did not sought after respondents on a random basis, but chose respondents strategically based on relevance to the research questions and the case. This ensured capturing a variety within the chosen sample and selected respondents. Purposive sampling, however, limits the possibilities for the researchers to generalise the results to a whole population since it utilises a non-probability approach (Bryman and Bell, 2015). Due to the situation in Zanzibar, and many players within the waste management system being small

and independent actors, this sampling approach was necessary in order to map relevant stakeholders.

One of the main forms of purposive sampling, theoretical sampling, was used, which is suggested when using grounded theory (Bryman and Bell, 2015). Bryman and Bell (2015) describes it as “...grounded theory advocates that you sample in terms of what is relevant to and meaningful for your theory”. Grounded theory will be further explained in section 2.4 *Data Analysis*. Theoretical sampling is an iterative process of data collection in order to generate a theory which continues until no new relevant data or findings emerges, which means that theoretical saturation has been reached (Bryman and Bell, 2018; Ljungberg, 2018). By collecting, coding and analysing data continuously throughout the research process, the researchers were able to understand what to collect next and where to find it, with the aspiration to reach theoretical saturation (Bryman and Bell, 2018).

The collaboration and initial interviews with a grassroots initiative in Zanzibar and the University of Dar es-Salaam helped the authors to identify potential respondents based on the knowledge of these first responders. The researchers were able to contact people involved with subjects related to the research questions. In total twenty two interviews were conducted in the spring of 2019. (See Table 1). The respondents included key stakeholders such as grassroots initiatives, including social entrepreneurs, private businesses (e.g. hotels), government employees and researchers.

No	Organisation	Interviewee(s)	Location	Duration
1	Zanrec	General Manager (GM)	Zanzibar, Mwanakwerekwe	40 min
2	Large 5-star hotel	Project Manager	Zanzibar, Stone Town	60 min
3	Zanrec	Site supervisor	Zanzibar, Matemwe	73 min
4	Large 5-star hotel	GM	Zanzibar, Matemwe	43 min
5	Medium 4-star hotel	GM	Zanzibar, Kibweni	36 min
6	Small 4-star hotel	Owner/GM	Zanzibar, Stone Town	82 min
7	CHAKO	Employees	Zanzibar, Mwanakwerekwe	28 min
8	University of Dar Es Salaam	University Employee	Dar Es Salaam	89 min

9	Recycle @ Ozti	Founder	Zanzibar, Marhubi	123 min
10	Recycle @ Ozti	Director	Zanzibar, Marhubi	61 min
11	ZMC	Director	Zanzibar, Stone Town	46 min
12	Municipal Solid Waste Landfill	Engineer	Zanzibar, Kibele	22 min
13	Joint initiative, Pilot Project	Representative from Pilot Project	Zanzibar, Stone Town	37 min
14	CHAKO	Operations manager	Telephone	29 min
15	Vikokotoni Environment Society	Founder and manager	Zanzibar, Stone Town	71 min
16	Zanrec	Educational manager	Zanzibar, Mwanakwerekwe	66 min
17	Recycling agent	Founder/Manager	Zanzibar, Kama Village	40 min
18	Recycling agent	Founder/Manager	Zanzibar, Kisimani	20 min
19	Recycling agent	Founder/Manager	Zanzibar, Mtoni	20 min
20	Zanzibar Ocean Protection Foundation	Founder	Zanzibar Stone Town	79 min
21	ZEMA	Representative from ZEMA	Zanzibar, Stone Town	44 min
22	SUZA	Local researchers and experts within solid waste management	Zanzibar, Stone Town	70 min

Table 1. Detailed list of the interviewees

2.3.2.2 Interview Process

First contact with most respondents was taken via e-mail or telephone in order to arrange a time and place for the interview. Upon first contact the researchers informed about the aim of the research, why they had been chosen and the general structure of the interview in order to prepare them as well as possible.

All interviews but one were held face-to-face on site in Zanzibar. Due to the grounded theory's iterative approach, flexibility from the researchers was essential in order to adjust the collection of data during the process. For example, one interview was conducted via telephone as they were not possible to conduct face-to-face and many interviews were held remotely from where the researchers were stationed. All interviews were audio recorded and transcribed, agreed upon

with all respondents before the interviews were held. The reason for audio recordings was to be able to capture both *what* people say, and also *how* they said it. In order to simplify the transcription, which can be very time-consuming, one of the researchers conducted the interviews and the other researcher took notes and observed (Bryman and Bell, 2015). This helped during the iterative process of the grounded theory. Many interviews were held in a quiet space without interruptions. However, several interviews were disturbed by both loud noises and extreme heat, which might have affected the quality of the transcriptions. But because of the audio recordings, the interviews could be listened to several times, reducing the effect of the distractions.

2.3.3 Secondary Data Collection

In line with Bryman and Bell (2015), secondary sources were primarily used in the early phases of the research in order to gain knowledge regarding the situation on Zanzibar and previous research along with existing theories. The secondary data in this thesis consists of both facts, that report data regarding the situation on Zanzibar, and relevant theory, in the form of a literature review including application of theoretical models. The literature review aims to find an explanation model and interpretations of the data, while the facts aim to report the current situation in Zanzibar, such as policies, regulations or background information. The secondary sources were collected in accordance with the three step process, presented by Bryman and Bell (2015): 1. *specify the question and plan the review*, 2. *conduct a literature review* and 3. *report and dissemination*.

Having specified research questions early on in the research process enabled the authors to direct the literature review and data collection to relevant subjects and theories in relation to grassroots innovation. The literature review includes theories and models that other people have developed as explanatory models. In the second step, a literature review was conducted in order to attain an unbiased and extensive search on what is known about the subjects. Secondary sources, articles, books and other publications, were based on data collected by others and is thus existing data (Bryman and Bell, 2015). Several databases were used in the review, such as the Economic Library at Gothenburg University and Google Scholar, to attain as much information as possible from various publications. When evaluating the trustworthiness of sources, sources chosen were to a great extent peer-reviewed including a high number of citations. Relevant literature in this study will be literature addressing the areas: grassroots innovations/initiatives/movements, social innovation, social entrepreneurship, collective

actions, empowered citizens, bricolage, scaling, norms and sustainability, which were the keywords used when searching for literature. For the third step, report and dissemination, the researchers will present, explain and compare relevant literature, theories and models in chapter 3: *Literature Review and Theoretical Approach*. Further, the researchers will determine and argue which models are most useful for the study.

2.4 Data Analysis

Grounded theory was chosen to analyse the data of this research. Grounded theory is “*theory derived from data, systematically gathered and analysed through the research process*” (Bryman and Bell, 2015) and the method, data collection, analysis and theory creation are closely related. Grounded theory have two important features for this study. It develops theory out of the data collected, which is presented under the analysis and conclusion sections, and it has an iterative approach. The iterative approach means that data collection and analysis was conducted simultaneously, enabling the researchers to know where they were in the process and adapt the data collection accordingly (Bryman and Bell, 2015).

When using grounded theory, four different tools were used to reach the desired outcome. 1. *Theoretical sampling*, meaning that collection of data, coding and analysing data is conducted simultaneously throughout the research process to develop theory as it emerges. 2. *Coding*, simplifying the data gathered by breaking them down to categorised and comprehensible parts. 3. *Theoretical saturation*, which is the process of coding and collecting data where saturation is reached when new data is not further bring new input for the developed concept. 4. *Constant comparison*, which is the process of enabling data and conceptualisation simultaneously to keep track of the research progress throughout the study (Bryman and Bell, 2015). This was done throughout the study, which enabled the researchers to be on track when conducting their study.

There are five outcomes that emerges at different stages of grounded theory: *concepts*, *categories*, *hypotheses*, *substantive theory* and *formal theory* (Bryman and Bell, 2015). When interviews were conducted, they were all recorded, transcribed and coded. Concepts (useful in theory building and frequently occurring in interviews) and categories (elaborated concepts) emerged from coding and constant comparison, which helped to divide the data and make it comprehensible. An initial hypotheses is described as an outcome when categories are compared and an initial impression is made. This could be created as the researchers could see

patterns in the collected material and decided to explore that particular area further. Based on further data collection, the hypothesis was tested, resulting in substantive theory for the case situation, presented in the conclusion. Through further testing in other setting, the substantive theory could develop into formal theory (Bryman and Bell, 2015).

All the interviews were transcribed in detail to limit misinterpretations. Using coding, described as an initial step of generation of grounded theory, the data collected was grouped into different concepts and categories. By grouping parts of the interviews, constant comparison and analysis could be conducted. Open coding has further been chosen for this research, where the data is broken down in order to give a holistic picture and understanding and grouped together. The grouped data is later transformed from concepts to categories (Bryman and Bell, 2015).

During the data collection, the theoretical literature review worked as a guidance for the researchers when coding and collecting data. Coded and categorized material was compared to the existing theory in the literature review, enabling the application of the grounded theory approach. Further, through constant comparison and theoretical sampling, data and literature could be gathered and analysed throughout the process and was through coding simplified to make the compilation more extensive. This was performed throughout the study in order to reach theoretical saturation.

2.5 Quality assurance

Bryman and Bell (2015) describes three criteria in order to evaluate the quality of the research: 1. *Reliability*, which concerns if the measures are consistent throughout the research and how repeatable the results are. 2. *Replicability*, explaining how replicable a study is, meaning that for a study to be replicable the entire process has to be carefully described. 3. *Validity*, takes up the integrity of the conclusions made in the study. In a qualitative study it is specifically important to acknowledge the internal and external validity and internal and external reliability of the research. Due to limited replicability and the small sample of a single-case study, external validity and external reliability is difficult to achieve (Bryman and Bell, 2015). However, since several actors on different levels within the waste management system were interviewed, a more holistic picture of the situation in Zanzibar could be provided. Also, due to the authors being on site during a longer period of time it was possible to interact with interviewees on multiple occasions when clarification was needed.

When it comes to internal reliability and internal validity, it refers to the agreement upon interpretation of data between the researchers and how well the developed conclusions and theories match the research questions (Bryman and Bell, 2015). The authors were under close cooperation and spent the same amount of time on site. Additionally, the authors switched between conducting the interview and transcribing, which increased the understanding between them both. However, the researchers early acknowledged possible language barriers when conducting, interpreting and transcribing the interviews. For example, there was a risk for the respondents not understanding the questions and could therefore not respond in their best manner. However, the level of English among respondents was high and the researchers did not feel limited, which led to the interviews quality exceeding the researchers expectations. When it comes to internal validity, the case study is a good start for a fruitful research that resulted in large amount of data from the interviews as well as literature.

Bryman and Bell (2015) additionally *trustworthiness* when evaluating the quality of research. Trustworthiness has been given the attention in this study. Four concepts are presented when issuing trustworthiness; *conformability* (corresponding with objectivity), *credibility* (corresponding with internal validity), *transferability* (corresponding with external validity) and *dependability* (corresponding with reliability) (Bryman and Bell, 2015).

Conformability

Conformability relates to the objectivity of the research and how objective the researchers have been. To fulfil conformability, the researchers tried to make sure that personal values and “theoretical inclination” did not interfere with the study or the results and it was important that the researchers acted in ‘good faith’ (Bryman and Bell, 2015). As this study simply wanted to know how grassroots innovations evolve in Zanzibar and their challenges, it has a relatively objective stance and it was important to understand the local challenges and motivations.

Credibility

Credibility makes sure that the research is carried out according to good practices and how believable the findings are (Bryman and Bell, 2015). The researchers handled this issue by performing a thorough literature review, giving the researchers a comprehensive understanding of the subject beforehand, using several theories, concepts and sources. Some of the challenges working in a foreign country was also curbed by having an introductory course together with

SIDA (Swedish International Development Cooperation Agency). Being two researchers helped the research from a credibility point of view, especially since the interviews were held by one of the researchers while the other one transcribed and listened to the respondent. The audio recorded interviews also provided the researchers with the option of listening to what the respondents had to say several times after the interviews were held. Due to the interviews being semi-structured, the researchers could make sure that they had understood the context and subject correctly. This also enhanced the grounded theory approach and helped the researchers to avoid misunderstandings. Via an oral agreement, before the interviews were conducted, the data and material was agreed upon to be used and cited in the research report.

Transferability

Transferability concerns if the findings could be applied in other situations and if they are generalisable. Bryman and Bell (2015) argues that qualitative research often depend on the unique social context in the study. To overcome this, the researchers have included a detailed description of the culture and situation at the specific site, described in the literature as thick description. The specific situation on Zanzibar required the researchers to draw a lot of attention to the grassroots innovations and waste context in Zanzibar, limiting misconceptions by readers drawing generalisations not applicable in other contexts. The statements from the respondents have been carefully weighted, trying to limit the context-specific conclusions even if the context in Zanzibar is specific. However, the comprehensive outlook on development and challenges of grassroots innovations could maybe be transferred to several organisations in Zanzibar. The similarities may therefore affect transferability in a positive way.

Dependability

With this concept it is suggested that the researchers should apply what is described as an 'auditing approach' by Bryman and Bell (2015), making sure that all steps of the research process are kept on record. The records would then be accessible for peers evaluating the progress and the research. The researchers of this study have clearly provided the readers with a guide through the process of how the study has been conducted. E.g. have recordings and transcripts been kept intact and the outcomes from both the literature review and the data collection is summarized in this report.

3. Literature Review and Theoretical Approach

Within the section of literature review and theoretical approach, relevant concepts and literature will be introduced in order to understand the theoretical background of previous research. Further, relevant theories and concepts, necessary to frame current literature, are treated to present and answer the research questions of how grassroots innovations develop and the challenges they face. The purpose of using existing theories and concepts is to create a foundation to frame the authors' analytical framework for the study.

The first chapter begins with explaining *social innovation* and relevant concepts such as *grassroots innovation*, *social entrepreneurship*, *empowered citizens* and *collective actions*. The two latter concepts are, in turn, related to *norms* which will be further elaborated. The concepts have been chosen to strengthen the theoretical background of how social innovation and grassroots innovations spur innovation, engaging people to a greater extent and eventually contributing to societal change. However, during the process of evolving and developing, explained within the different concepts, different challenges occur. The researchers want to highlight that especially *empowered citizens*, *collective actions* and *norms* highly intertwined with the concept of *challenges*. Therefore, moving forward, to create a theoretical understanding of what challenges grassroots innovations face, the researcher will treat Smith et al.'s (2014) three main challenges and the Triple Tensions framework by Hossain (2018), including a deep dive into the concept of *Scale-up*. The literature review will end with a section defining the research gap.

3.1 Social Innovation

Roome (2013) defines social innovation as innovations that “*has the potential to affect change in conventional [public and private] sectors of the economy and society*”. Further, the concept of social innovation is commonly used as an umbrella concept covering a broad range of terms describing any kind of initiatives (Pue et al. 2015; Tepsie, 2014). Within this chapter, social innovation is used as an umbrella concept.

Caulier-Grice et al. (2012) argues that there are several definitions of social innovation but claims that what unites the different definitions and perspectives of social innovation is that they all include empowered citizens and involvement. Tepsie (2013), correspondingly, argues

that most social innovations start within the civil society. Similarly, social entrepreneurs, with a bricolage behaviour, pursue actions to solve community-based problems and are motivated by social impact and betterment of their communities (Bacq et al. 2015). The concept of social entrepreneurs will be used in order to explain the individual behaviours of grassroots innovations, as well as how grassroots innovations evolve, while empowered citizens and collective action focuses on the societal transformation.

Concepts deemed relevant are limited to understand the individual organisations’, and the system’s, transformation towards sustainability. With the strong connection to social innovation and connections to the research topic on grassroots innovations, the researchers have chosen to focus on four relevant concepts within social innovation: *grassroots innovations*, *social entrepreneurship*, *empowered citizens* and *collective actions* together with *norms* (Figure 1). However, the researchers acknowledge that social innovation is a broad concept with many different terms, and that some authors even argue that social innovation is a buzzword without any unified definition (Edwards-Schachter et al. 2012; Mulgan et al. 2007).

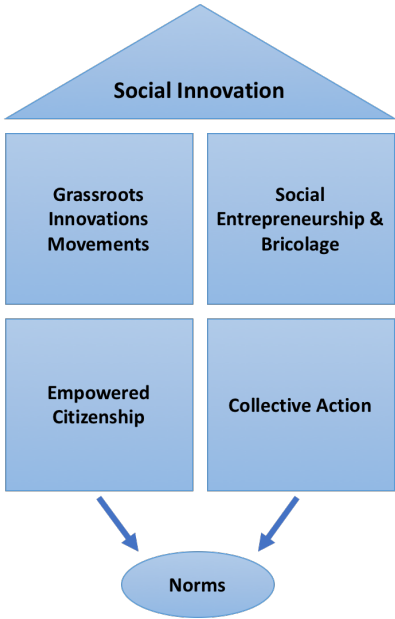


Figure 1: Social Innovation as an umbrella concept

3.1.1 Grassroots Innovations

Grassroots innovations concern the bottom-up processes of social innovation (Belda-Miquel, 2017) and has initially received limited attention from scholars, but has, in recent years, had an upturn (Hossain, 2018). The aim of grassroots innovators is to conduct socially inclusive

innovation processes with a focus on local communities when it comes to knowledge and outcomes (Sarkar & Pansera, 2017). Grassroots movements are therefore important initiatives contributing to the creation of sustainable communities. One frequently used definition of grassroots innovations is Seyfang & Smiths (Seyfang & Smith's, 2008; Seyfang, 2010; Seyfang & Axeltine, 2011; Seyfang & Longhurst, 2015). As Seyfang & Smith (2008) put it,

We use the term 'grassroots innovations' to describe networks of activists and organisations generating novel bottom-up solutions for sustainable development; solutions that respond to the local situation and the interests and values of the communities involved. In contrast to mainstream business greening, grassroots initiatives operate in civil society arenas and involve committed activists experimenting with social innovations as well as using greener technologies.

Grassroots movements are attentive to sustainable innovations in their localities, (Hossain, 2018) and are community-led initiatives with potential to diffuse and result in societal transformations and can take different forms, such as low impact housing developments, farmers markets, or waste-prevention initiatives (Seyfang & Smith, 2007; Seyfang, 2010; Zapata & Zapata, 2017). The grassroots innovations' effort can include creating training programs, feedback lessons, workshops and development of regulations and policies (Hossain, 2018). A grassroot movement emerges from the 'grassroots', which means that it is a result of a bottom-up process originating from both community and users, but could also include actions with, and by, governments, R&D institutions and aid agencies (Fressoli et al. 2014; Hossain, 2018).

Sarkar & Pansera (2017) argues that grassroots innovations could potentially have a global disruptive impact if these solutions have the potential to be scaled up and brought to the village or region next door. It is however difficult for the movements to stay alive and it is even harder to evolve into commercial ventures, which means that support from intermediary organisations is crucial (Hossain, 2018). In an environment not typically associated with regulations and striving economies, these types of social entrepreneurial ventures can spark experimentation when it comes to other practices as well, resulting in new rules and practices for those affected (Ostrom, 1996). However, the state and policy agents often do not acknowledge the movements' impact and contributions within sustainability (Sakar & Pansera, 2017). The evolution and development of grassroots innovations is closely intertwined with challenges that

they face, therefore, this issue will be further elaborated in *3.2 Challenges for Grassroots Innovations*.

The key for a successful transformation towards sustainability is to identify the changes, as well as challenges, how the changes happen and to understand the underlying parameters that drives the change (Sarkar & Pansera, 2017). Furthermore, Schaltegger & Wagner (2011) acknowledged that grassroots movements often spark experimentation and innovation, which, in turn, could result in new institutions and as motivation for entrepreneurs to explore new markets and expand their operations. For environmental protection and similar initiatives, these evolving entrepreneurial initiatives could potentially generate “ripples on the water to the public” (Samson, 2009). Evolving entrepreneurial initiatives further takes us into the concept of social entrepreneurship and bricolage.

3.1.2 Social Entrepreneurship and Bricolage

The concept of social entrepreneurship and bricolage is used to further explain individual behaviour, as well as to explain the development of initiatives. Similar to grassroots innovations, social innovations and social entrepreneurs are perceived to influence system-changing solutions (Kickul et al. 2018). A social entrepreneur is defined as “*a person who pursues novel applications that have the potential to solve community-based problems*” and is willing to take a risk in order to create a positive impact in society (Investopedia, 2017). Social entrepreneurs are motivated by social impact and the betterment of their communities, rather than financial results, and it is concluded that social entrepreneurs often thrive in environments where resources are scarce (Bacq et al. 2015). The concept of innovation when resources are scarce is called bricolage and is defined as “*a construction made of whatever materials are at hand; something created from a variety of things available*” (Dictionary, 2019). In early stages of ventures, and for entrepreneurs in resource constrained environments, bricolage plays an essential role as it enables the procedure of creating something new through recombining existing resources. In regards to social innovation, these combinations of resources at hand are applied to new problems and opportunities (Kickul et al. 2018). Bricolage is a closely linked concept to social entrepreneurship (Bacq et al. 2015) and has grown to become a central concept in order to understand behaviours and complexities of social entrepreneurs (Kickul et al. 2018).

Because of the novel approach and bricolage behaviour, social entrepreneurs and social innovations have the opportunity to influence system-changing solutions that can be both

scalable and sustainable, facilitating innovations at no, or little, cost (Kickul et al. 2018). Nevertheless, a social entrepreneur often needs adequate financial capital in order to succeed (Kickul et al. 2018). Further, resource-constrained environments are even more apparent in developing countries, where it is e.g. likely a lack of governance support and where conflicts might affect the opportunities of innovation. Understanding the culture, obtaining cultural knowledge and identifying the few resources at hand is key for social entrepreneurs in their quest for success (Bacq et al. 2015).

3.1.3 Empowered Citizens

Grassroots innovations are a type of social innovation (Seyfang & Smith, 2007) and, according to Caulier-Grice et al. (2012), involvement and empowered citizens are collectively seen as necessary for social innovation. Dobson (2004) states that sustainable development is a widely accepted objective by most governments all over the world and citizenship implies that it should not only be governments, but citizens as well, bringing sustainability to the table and trying to change the societies.

Drevensek (2005) argues that well informed citizens ensure that environmental goals are achieved and that policies and legislations are correctly implemented. This is closely linked to the importance of citizens' knowledge in regards to the environment. If citizens know about the environmental risk on a local, national and global level, they would be able to participate more actively in policy-making and link these processes to their own interests and concerns (Drevensek, 2005). Dobson et al. (2005) further argues that participation is one important qualification for people to take on environmental policy and that knowledge is a precondition for this to happen. This knowledge sharing is, therefore, a key success factor in order to successfully address environmental issues (Dobson et al. 2005). The approach towards empowering citizens' perspectives on sustainability further targets attitudes and norms. Citizenship, in this case, is a solution where the individual's actions could be checked toward the common good (Dobson, 2004) and make environmental actions the norm. How norms are influenced will further be presented in section *3.1.4.1 Norms*.

In order to succeed with citizen participation, which can be a challenge, Drevensek (2005) argues that both public and private actors have to strategically plan and investigate how to direct communication activities in the best possible way in order to activate the public and promote involvement, i.e. empower citizens. One could highlight the environmental risk more

effectively through; *“formal and informal education programmes, two-way communication in environmental risk projects, establishing social/environmental responsibility programmes and PR-solutions”* (Drevensek, 2005). Kennedy (2011) argues that local actions for the environment are not likely to solve the global environmental issues we have as they are limited in scope. However, it is sometimes the only approachable admission to the political debate in the aim for sustainability (Kennedy, 2011). Kennedy’s (2011) research shows that knowledge shared among people is a driving force for many to practise a more sustainable lifestyle. It is further argued that the current institutional and political course, which is undermining sustainable development, could be challenged by groups of individuals acting as effective agents (Drevensek, 2005).

3.1.4 Collective Actions

This further brings us into the concept of collective actions, a social movement theory within social innovation that focuses on how social movements form and develop, comparable to the description of empowered citizens. Similar to Dobson (2004), who argues that citizenship is a solution where individual actions can be checked toward the common good, collective action refers to actions taken together in a group, working towards and aiming to achieve a common objective (Encyclopedia, 2008). During the last decades, evidence has increased regarding human actors being able to solve some collective action problems on their own, without external enforcement and rules. This is contradictory to the conventional theory of collective action that declares that actions taken toward a common objective are unlikely to occur without external enforced rules (Ostrom, 2010a).

Shawki (2013) states that the collective action frame was developed by participants in social movements in order *“to give their mobilization effort and their cause meaning and to encourage and validate their actions and agendas”*. On the other hand, Ostrom (2010a) means that there is considerable unease regarding the underlying problem of collective action, where social dilemmas create collective action problems, still exists. The occurrence of collective-action problems arise when each individual chooses a strategy based on the short-term benefits to one self in an interdependent situation. This means that individuals take actions that generate lower outcomes than what could have been achieved if they considered the collective long-term benefits (Ostrom, 2010a). Ostrom (2010b) explains the concept of collective action as a *“setting where decisions about costly actions are made independently but outcomes jointly affect everyone involved”*. Therefore, if independent decision makers base their decisions on short-

term benefits, they will not be able to generate a higher result, regardless of the investment. However, the problem will not cease to exist as soon as the government creates a policy to deal with externalities, as the policies also rely on citizens willing to cooperate (Ostrom, 2010b).

Many challenges being theorised as ‘global problems’ are in fact a collective result of actions taken by individuals, different kinds of groups, private firms, and local, regional and national governments (Ostrom, 2010b). To be able to solve these global problems, Ostrom (2010b) means that collective action is required. Further, it is believed that a global agreement regarding climate impact will take too long to develop and, in the meantime, that just waiting and doing nothing will lead to a disaster. However, to solve climate change long term, behaviour in the day-to-day activities of individuals, communities, groups, private organisations and the government needs to change (Ostrom, 2010b). Ostrom (2010b) further argues that, according to the conventional theory of collective action, external authorities are needed to enforce rules, regulate needed actions, impose sanctions, monitor behaviours and implement incentives, as no one will voluntarily change their behaviour in order to decrease the environmental impact.

Ostrom (2010b) has identified a polycentric approach as an expanding analytical approach to understand and improve efforts to cope with global climate change. While Reeves et al. (2013) states that collective action frames allow people to contemplate taking action in regard to certain environmental issues (Reeves et al. 2013). Ostrom (2010b) states that polycentric systems are *“characterized by multiple governing authorities at differing scales rather than a monocentric unit”* and further implies *“many centres of decision making that are formally independent of each other”*. Each unit, such as a firm, local government, family or region within the polycentric system carries out extensive independence in order to create norms and rules within the unit. The advantages of each unit’s individuals is the local knowledge and learning from others. Ostrom (2010b) argues that the polycentric system is believed to increase the following;

Innovation, learning, adaption, trustworthiness, levels of cooperation of participants and the achievement of more effective, equitable, and sustainable outcomes at multiple scales.

A key component in finding ways to reduce the environmental impact is a strong commitment where individuals can rely on each other taking responsibility. This is believed to be accomplished more efficiently in small and medium units that are connected through different networks (Ostrom, 2010b). However, Ostrom (2010b) further explains that the polycentric

approach is contradictory to the conventional theory of collective action. The conventional collective action theory predicts that external enforced rules are needed in order to take common actions. This has led to many analysts assuming that an enforced global agreement is the only possible way to address climate change. But, the more recent and increasing findings challenges the conventional theory that believes that individuals cannot themselves take actions to address the problems. The recent findings show that individuals that are informed about the problem are proven to take positive actions, in regard to climate change, without awaiting external enforced rules and compliance (Ostrom, 2010b). However, Ostrom (2010b) highlights that if we do not do anything before a global settlement is negotiated, it will increase the risk for everyone involved. If a polycentric approach would be implemented, benefits would be able to be gained on multiple scales at the same time as boosting experimentation and learning from each other (Ostrom, 2010b).

3.1.4.1 Norms

When exploring empowered citizens and collective actions, the researchers stumbled over the concept of *norms* which was proven to be relevant in this case in regard to challenges of grassroots initiatives. For example, Dobson (2004) argues that attitudes and norms are targeted when discussing empowered citizens, collective actions and sustainability. Norms are defined as “established behavioural patterns for the members of a social system” and are argued to be potential barriers to change, operating on various levels in a society (Rogers, 1983). Smith et al.’s (2014) challenge of working in the current setting, while trying to transform the entire setting itself, addresses the issue of a normative adjustment. Kennedy (2011) argues that norms regarding e.g. waste and consumption could be transferred through distinguished patterns among people in a community, i.e. using the social system. The community-networks created could also play an important role when commitment by one or a few actors could be scaled up to a political level (Kennedy, 2011).

In order to convey individuals’ actions to the public space, ‘public meeting points’ are crucial. Meeting points where the citizens could be inspired by one another and acknowledge their shared frustrations and goals (Kennedy, 2011). Kennedy (2011) further argues that citizens that reduce their own ecological footprint could result in a virtuous circle where ‘good actions’ from one person/group result in more “good actions” within the community/public space and reduce the barriers of environmental action (Figure 2). Rogers (1983) argues that change agents or opinion leaders could be used to drive the change. Opinion leaders have a unique position in

the social structure and are, therefore, of importance to the general adoption of changed norms, while the change agents work for a predetermined change and use opinion leaders to reach their goals.

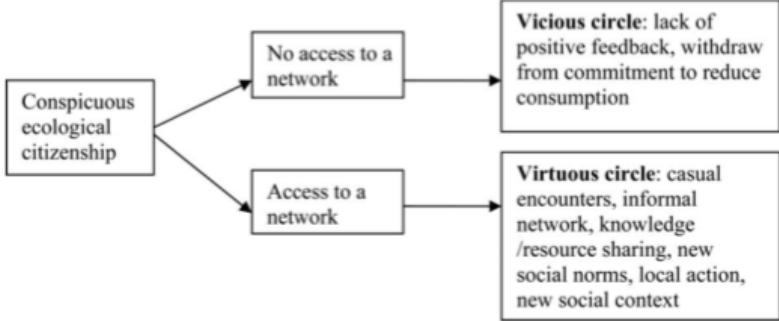


Figure 2: Model of ecological citizenship and social context (Kennedy, 2011)

Dobson (2004) stresses that governments have to address changes related to e.g. governance, infrastructure and lifestyle. Sarkar & Pansera (2017) argue that policy makers have to acknowledge the grassroots movements and accept the hybrid between grassroots and the market in order to develop the supporting functions needed. In order to create a felicitous environmental social movement, new social norms are crucial (Kennedy, 2011).

Finnmore et al. (1998) describe the creation of norms as a life cycle comprising a three-step process (Figure 3), where the most apparent divide between the emergence of new norms is described as the tipping point. The tipping point refers to when a critical mass of relevant stakeholders at a state level (norm leaders) have adopted the norm. There is, however, a difference between what influences the changes at each stage. At the first stage, norm emergence is driven by norm entrepreneurs who try to influence the norm leaders to embrace the change. In the second stage, the facilitators of the norm plough through the population of norm leaders and try to influence them. Internalisation, the third step of the life cycle, means it has achieved broad public acceptance and is often no longer a subject for public debate. Finnmore et al.(1998) mention female voting rights as an example of a norm that has reached the internalisation stage.

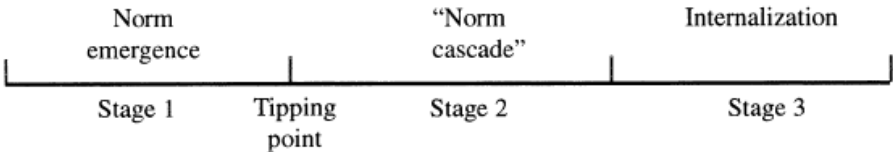


Figure 3: Norm life cycle (Finnmore et al. 1998)

3.2 Challenges for Grassroots Innovation

Relevant concepts within social innovation and norms have been presented above. The last three concepts, *empowered citizens*, *collective actions* and *norms* interconnect and could be perceived as a *challenge*. The researchers will further move forward exploring the challenges grassroots innovations face in this section. There are two major contributions within the literature regarding challenges. These main theories have been brought up in this study. Each theory identifies three major challenges for grassroots innovations, but the challenges, however, differ. First, Smith et al. (2014) identifies the challenges towards grassroots innovations to be:

1. *Using project-based solutions while seeking structural change.*
2. *Being appropriate for the current setting, while at the same time trying to transform the entire setting it operates in.*
3. *Addressing local specificity while also trying to diffuse the innovation and make it widely applicable.*

Hossain (2018), on the other hand, argues that grassroots innovations face three tensions, labelled the Triple-Tensions model. The three tensions, or challenges, are identified as: *Scale-up*, *Success* and *Sustainability* (Figure 4). The similarities and differences between the theories of Hossain (2018) and Smith et al. (2014) will be further elaborated on in the following section.

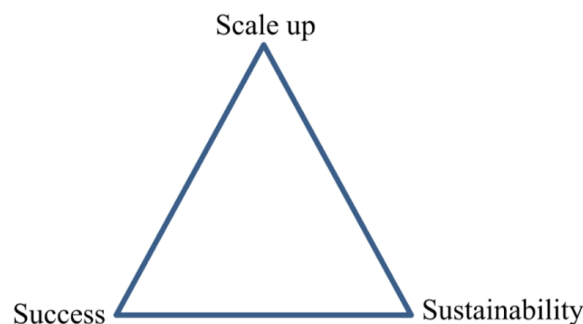


Figure 4: Triple Tensions of Grassroots Innovations (Hossain, 2018)

3.2.1 Smith et al.'s Challenges

Regarding Smith et al.'s (2014) first challenge, *using project-based solutions while seeking structural change*, it was stated that grassroots innovations often focus on internalising more

socially just principles and that the innovations often lack focus on addressing the structural changes that are the root cause of the situation. Leading to grassroots often have limited success. Addressing economic and political changes as well as knowledge production is, therefore, seen as crucial, even if they go beyond the borders of the innovation (Smith et al. 2014). Furthermore, Smith (2007) and Smith et al. (2014) see the risk of the aim for social transformation, such as empowering communities and public participation, being lost. The grassroots innovations might then only focus on producing cheap products and services to the poor. This also corresponds with what has been brought up in previous sections regarding social innovation, where norms, collective actions and citizen empowerment are addressed and play a key role in social innovation.

The second challenge, *being appropriate for the current setting, while at the same time trying to transform the entire setting it operates in*, Smith et al. (2014) argues that the innovations sometimes have to be ‘inappropriate’ by challenging current structures and behaviours, in a short-term perspective in order to transform the structures it targeted. This is because grassroots innovations often start in an environment where resources and political power are unevenly distributed. The challenge is to provide an innovation that is locally applicable while still transforming the situation (Smith et al. 2014). The third challenge addressed by Smith et al. (2014) is found to be similar to what other authors, including Hossain (2018), have found as well. This challenge will, therefore, be treated together with them in the following section, 3.2.2 *Scale-up*.

3.2.2 Scale-up

In Smith et al.’s (2014) third challenge, *addressing local specificity while also trying to diffuse the innovation and make it widely applicable*, addresses scaling of grassroots innovations, like many other researchers as well (Fine & Leopold, 1993; Bacq et al. 2015; Rogers, 1983), Hossain (2018), through the Triple-tensions framework, also acknowledges the challenge of scale-up for grassroots innovations in his model. Hossain (2018) further argues that most grassroots movements are not intended to be scaled up, but that scale-up is a key condition for sustainability and is, therefore, also a persistent challenge in regard to grassroots innovations.

Smith et al. (2014) focuses more on the challenge of spreading the innovation to other locations, while Hossain (2018) speaks about scale-up in more general terms. Bacq et al. (2015) state that scaling itself could be divided into two subcategories, *breadth* and *depth* of impact. Depth of

impact refers to adjusting the product/service to better solve a social problem, i.e. increasing the quality of the service. Breadth of impact, comparatively, refers to expansion in a geographical sense, i.e. growing quantitatively and making sure more people are beneficiaries. Another concept mentioned in theory regarding upscaling of innovations is diffusion of innovation. The concept is defined by Rogers (1983) as the process where an innovation is communicated to members of a social system to spread the innovation. A social system might be groups of individuals or other groups or organisations seeking to solve a common goal (Rogers, 1983). Scaling and diffusion have been extensively treated as a unified concept in terms of depth, breadth and diffusion of the innovation. This is important when discussing scale-up in relation to the theories of Smith et al. (2014) and Hossain (2018), as the researchers in this case do not distinguish between the two types of scale-up, but rather see scale-up as a challenge in itself.

In order to scale-up, it is crucial that the grassroots movements realise and mobilise the value it possesses (Hossain, 2018). Bacq et al. (2015) describes difficulties related to scalability as the importance of mutual understanding between the local community and the entrepreneurs, and Fine & Leopold (1993) argue that the cultural link to the local setting is an obstacle for scaling. On this topic, Hossain (2018) states that grassroots movements are generally powerless but through collective action, and by working together, they are able to play a more significant role, even if established actors try to counteract them. This goes in line with Smith et al. (2014), who state that it is not impossible to scale up, but that support and effort are crucial for the configuration for the grassroots in each location. Both Smith et al. (2014) and Hossain (2018) state that local context, including political conditions, population profile and values, are central when it comes to scaling of grassroots movements. Smith et al. (2014) argue that the local specificity of a grassroots innovations works against wide-scale diffusion and that it is difficult to spread to other locations with different conditions. Hossain (2018) means that one important key is networking, which can unfold through local projects, communities and intermediary actors. To improve scalability, it is essential to link sectors together and connect communities, individuals and society as a whole (Hossain, 2018). Bacq et al. (2015) further add early political support as a factor improving scalability.

However, grassroots movements face many challenges in regard to upscaling, such as scarcity of funding, high turnover rate among members of the community and departure of people in key positions (Hossain, 2018). However, when it comes to resources, the constrained

environment is argued to be as much of an obstacle as it is an opportunity, at least when it comes to scalability (Bacq et al. 2015). It is easier for social enterprises to develop and use the resources at each location in order to better solve the communities' needs, rather than move and adjust the same resources to every new site. This is especially true if many adjustments are required. The grassroots innovation might then not be identical in each location, but it would ease the scaling problem as argued by Smith et al. (2014).

As previously mentioned during the social innovation section, adapting the bricolage behaviour is, therefore, key when social entrepreneurs are trying to scale their impact. However, according to the study of Bacq et al. (2015), there are limits to how well bricolage can affect the social impact in the long-term. According to Dees (2008), scaling could include a focus on the reach of the social venture in order to address the issue more effectively. Social entrepreneurs using bricolage will help drive social change through innovations and also help to upscale the social impact (Bacq et al. 2015), confirmed by Kickul et al. (2018) who also found a positive linear relationship between entrepreneurial bricolage and scaling of social impact.

There are many researchers identifying the challenge and need for grassroots innovations to scale-up (Bacq et al. 2015; Hossain, 2018; Desa & Koch, 2014; Smith et al. 2014), and Hossain (2018) states that, even if grassroots innovations are considered sustainable, the impact might not be significant if they cannot scale-up (Hossain, 2018).

3.2.3 Triple Tensions of Grassroots Innovations

As discussed above, Hossain (2018) identifies three tensions challenging grassroots innovations. These are *Scale-up*, *Success* and *Sustainability*, as seen in Figure 4. These differ from the challenges identified by Smith et al. (2014), but some linkages can be made, especially concerning scale-up which has been treated in the section above. According to Hossain (2018) and Martin et al. (2015), grassroots innovations emerge to tackle societal problems, often focusing on sustainability and behavioural change rather than economic incentives (White and Stirling 2013). *Scalability* is a challenge for mainstream innovation, in their quest for commercial value, and for grassroots innovation, aiming to spread social, ethical and cultural values. Scalability is seen as a condition for sustainability when it comes to grassroots innovation, according to Hossain (2018), and grassroots innovations therefore play an important role in the transformation towards sustainability (White & Stirling, 2013).

Hossain (2018) describes *sustainability* as one of the tensions in the Triple-tensions model. There are many definitions regarding sustainability and sustainable development, however, the most frequently used definition comes from Brundtland et al. (1987):

Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

In regard to sustainability, grassroots movements contribute both internally, by transferring skills to new members of the grassroots, and externally, by encouraging sustainable consumption. Grassroots movements are turning into a fundamental part of sustainability policy due to local originating actions and strong local institutions (Hossain, 2018).

Martin et al. (2015) means that social movements emerge in order to address “*the unsustainability, injustices and inequalities of market economies*” and highlights the role of civil society in creating a new pathway to sustainability. Hossain (2018), on the other hand, argues that grassroots innovations real contribution to sustainable development is not recognisable and that most grassroots movements only have a limited contribution to sustainability. Smith et al. (2014) implies with their challenges, “*Using project-based solutions while seeking structural change*” and “*Being appropriate for the current setting, while at the same time trying to transform the entire setting it operates in*”, that grassroots innovations have a challenge when it comes to a contribution to social transformation, and that these, in fact, *can* contribute to sustainable development. The challenge of connecting the grassroots initiatives and societal transformation is highlighted by both authors, both internally and externally.

Hossain (2018) acknowledges that contribution to sustainability is complicated to measure, which in turn precludes grassroots innovations from catching the attention of policymakers, financial organisations and politicians. However, Hossain (2018) admits that grassroots movements do contribute to sustainability and show a “socially transformative path towards sustainability”, but that the contribution itself is not significant. Nevertheless, Hossain (2018) acknowledges the lack of research of grassroots innovations within sustainability. Smith et al. (2014), on the other hand, state that it is a challenge to address the structural change but does not mention that the effect should be limited. Instead, they argue that political changes and knowledge production is crucial to address. Smith et al. (2014) mean that launching short-term

'inappropriate' innovations, by challenging current structures and behaviours, is one way of addressing transformational change.

The third tension in the Triple-tensions model by Hossain (2018) is success. It entails that the previous two tensions, sustainability and scalability, are essential for the success of the grassroots innovation, but overcoming these two does not automatically lead to success. Laws, policies, regulations and citizen awareness, together with participation, play an important role in regard to success. Hossain (2018) argues that grassroots innovations in urban areas might struggle with the interaction between the niche and the regime, empowerment and community oriented urban governance. This is somewhat similar to the argument by Smith et al. (2014) that one of the challenges is to be appropriate for the current setting, while at the same time trying to transform the entire setting it operates in and further means that grassroots innovations might have to challenge the power structures. The current restrictions are addressed as a challenge by Hossain (2018) in order to reach success. Hossain (2018) further means that five inter-reliant factors can influence the success: transition initiative characteristics, members, resources, organisation and context.

However, Bacq et al. (2015) argue that one way to measure the success of social entrepreneurship is to look at scaling of the social impact (defined as “the process of expanding or adapting an organisation’s output to better match the magnitude of the social need or problem being tackled” (Bacq et al. 2015)). Scaling of social impact is highlighted as one of the most important variables for the success of social entrepreneurship (Desa & Koch, 2014). However, Renko (2013) states that it is difficult to measure social impact and performance.

3.3 Summary Literature review

Social innovation is used as an umbrella concept including *Grassroots innovation*, *Social Entrepreneurs*, *Empowered Citizens*, *Collective Actions*, the latter two being linked to *norms*. Most social innovations start within the civil society with the motivation of social impact and betterment of communities, similar to social entrepreneurs using bricolage behaviour. Grassroots innovation are defined as a socially inclusive innovation process with focus on local communities regarding knowledge, outcomes and processes (Sarkar and Pansera, 2017). Further, Caulier-Grice et al. (2012) argue that involvement and empowered citizens are necessary for social innovation, whereas Dobson (2004) and Drevensek (2005) mean that well

informed citizens ensure that environmental goals are achieved and that they have to bring sustainability to the table in order to push policymakers and authorities to change. It is, however, highlighted that achieving empowered citizenship can be a challenge (Drevensek, 2005). Collective action, corresponding to actions taken together in group aiming to achieve a common objective, is argued to help solve global problems. The conventional theory argues that external enforcement is needed in order to pursue common actions, while the polycentric approach states that problems can be solved 'on their own' (Ostrom, 2010b). When addressing sustainability issues through empowerment, grassroots innovations and collective actions one might argue that, in order to succeed, norms need to change. Kennedy (2011) suggests that one good action could lead to many more and contribute to a societal change by addressing the norms and the way people act in their day-to-day life.

When it comes to challenges, one can see some similarities between the theories of Smith et al. (2014) and Hossain (2018). Scale-up is addressed as a challenge, even if it is addressed in different ways. The local specificity entails that it is not easy to just scale or to expand grassroots innovations from one location to another. In addition, Hossain (2018) brings up sustainability and success, where sustainability is argued to be best addressed both internally and externally. This corresponds with Smith et al.'s (2014) challenges as well, where the internal focus might take over from the structural aims. However, Smith et al. (2014) argue that not addressing transformational change limit the success of grassroots initiatives. Although, the authors see how grassroots innovations play a role towards sustainability. However, Hossain (2018) argues that individual grassroots initiatives have limited success to transform the situation. Even if both Smith et al. (2014) and Hossain (2018) address similar challenges in their theories, Smith et al. (2014) have been more specific in their explanation of what challenges grassroots innovations face. Smith et al. (2014) also focus more on how grassroots innovations face challenges from within the organisation. Hossain (2018) describes, in more general terms, how the tensions affect the grassroots innovations. The tensions could be seen more as external factors that grassroots innovations have to tackle.

In regards to the evolution and challenges of grassroots innovation, the literature is partly intertwined, helping the researchers of this study create a comprehensive picture of grassroots innovation. The literature implies that external support is needed (Hossain, 2018) and for a long-term change in behaviour, norms have to be addressed (Dobson, 2004; Ostrom, 2010b; Kennedy (2011). Sarkar & Pansera (2017) state that the key to a successful transformation

towards sustainability is to identify both changes and challenges. Norms are identified in the literature as enablers addressed for both. Sarkar & Pansera (2017) further argue that grassroots innovations can have a global disruptive impact if scaled up.

3.4 Research Gap

It can be challenging to find an innovative and original topic and to distinguish gaps within the existing literature. However, the researchers had a specific topic in mind already and, after conducting a comprehensive literature review, the researchers could identify a gap.

Throughout the literature review, several authors have been identified covering the topic of grassroots innovations. By digging deeper into the topic and being on site in Zanzibar, it has helped the researchers to expand the research and focus the study into less explored dimensions of grassroots innovations. After some initial literature review, the researchers identified the development and challenges of grassroots innovations in regard to waste management as a topic not fully explored in the literature, especially not in Zanzibar.

Earlier literature regarding challenges and development of grassroots innovations has been found, partly including waste management. With that said, the researchers were able to find relevant models to treat the topic and to compare the theories with grassroots innovations within waste management in Zanzibar. In the literature review, various theories were found which touched upon each other. Empowered citizens, collective actions and norms are interrelated and related to the challenges in the literature, where the two main theories discussing challenges only partly align. Because of the spread in concepts related to challenges for grassroots innovation, it was difficult to analyse grassroots initiatives based on the conditions in Zanzibar. The researchers identified this relevant research gap and decided to explore this further to try to get an overview of the challenges and make it more comprehensible to fully understand the challenges for grassroots innovations.

The researchers realised that the grassroots innovations also face multiple challenges during the evolution and development phase. In order to fully comprehend the challenges in the specific context of Zanzibar, the evolution and development process of grassroots innovations within waste management in Zanzibar was, therefore, deemed highly relevant to investigate further. No unified theory could explain a similar situation as the one in Zanzibar, and no previous case

of Zanzibar relevant to answer the research questions was found. Thus, a second relevant research gap could be distinguished.

The researchers decided to use the existing theories to explain the development and challenges grassroots innovations face and compare these with grassroots innovation within waste management in Zanzibar. The researchers gradually developed a deep understanding of the subject and how it has previously been approached within the chosen topic. Also, by linking the theories together and using them on the case study, the researchers conducted a research fulfilling the given gap within the literature.

4. Empirical Findings

The aim of this section is to introduce the current situation in Zanzibar in terms of waste and grassroots initiatives and present what the data collection has resulted in. A current waste management chain will be presented. This is followed by a presentation of the different organisations and individuals interviewed, such as grassroots initiatives, governmental- and private organisations. Additional findings have been divided into subcategories that researchers have focused on, treating similar topics mentioned in the literature review: challenges, knowledge and citizenship including norms. Knowledge and citizenship as well as norms are partly intertwined but have been chosen to be presented separately.

4.1 Current Situation

Tourism has been highlighted several times as one of the greatest contributors of waste, on top of communities and organisations, on the island by the majority of respondents. The representative from Zanzibar Environmental Management Authority (ZEMA) highlighted several structural challenges related to waste management systems in Zanzibar, such as how the generation and the composition of solid waste has changed over time. The organic waste is decreasing while packaging products, such as plastic, is continuously increasing due to tourism. Multiple respondents stated that the lack of improper solid waste management, rooted in inadequate collection and recovery of waste, has led to an extensive negative environmental impact, affecting public health.

ZEMA stated the collection rate had increased from 17%, in 1993, to 50%, in 2018, leaving the other 50% randomly disposed. But, according to other sources only about 25-40 percent of the solid waste is estimated to be collected and transported to the Municipal Solid Waste Landfill (Abdulsasoul & Bakari, 2016; The East African, 2018; Zanzibar Environmental Policy, 2013). The waste in Zanzibar is either collected by the governmental services, multiple unauthorised waste collectors or by Zanrec (which will be further introduced). Both ZEMA and Zanzibar Municipal Council (ZMC) admitted that waste disposal governed by the local government authorities exercises uncontrolled dumping, and not only by unauthorised waste collectors. Further, all interviewees confirmed that the remaining waste is illegally disposed by being dumped, burned or buried on the beach, without any control of how it affects the pollution of water and air. Figure 5 demonstrates Zanzibar’s current waste management chain.

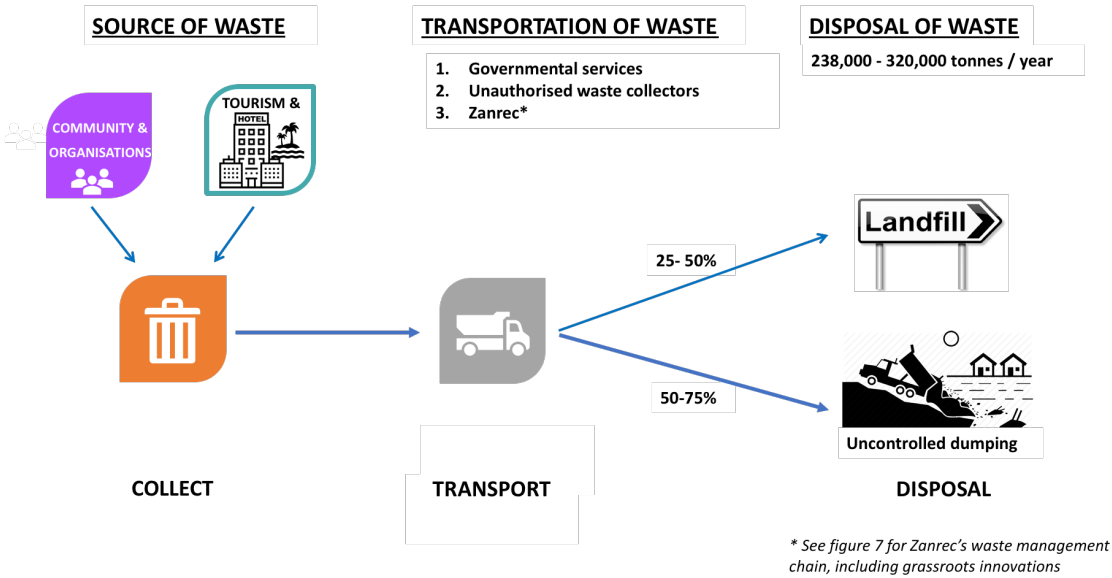


Figure 5: Zanzibar’s current waste management chain

Solid waste is defined by ZEMA as “unwanted, useless discarded materials that are generated from day to day activities in a society” (Interview, ZEMA). At the same time ZEMA, among other respondents, argues that all waste is resources, which can be reused. It was, however, argued to be a big challenge for the communities in Zanzibar to realise this. Zanzibar is an island and is therefore also exposed to waste washed ashore from other parts of the Indian Ocean.

Separation of waste at the source is argued to be a key element for successful waste management according to the majority of respondents. However, currently, less than 2% of the households on Zanzibar separate their waste. SUZA argued that resource recovery, including waste-

picking, selective collection, sorting, processing, reuse and upcycling were among the most effective solutions to the management of solid waste in Zanzibar. However, collection and disposal of waste is associated with increased costs. Therefore, the most efficient way to handle these problems is by recycling, reusing and composting. For example, organic waste, can be composted and sold, resulting in social, economic and environmental advantages.

One risk mentioned by several grassroot initiatives, is that if the poor handling of waste continues in the same pace, the illegal dumpsites will continue to grow and eventually lead to less tourists visiting Zanzibar as they do not want to visit a dirty destination. This will in turn lead to a significant decline within the tourism sector, Zanzibar's largest economic sector. In addition, it could lead to more people getting diseases such as cholera from staying near the dumpsites and even more waste will end up in the sea, which is further devastating as Zanzibar depends on fish.

4.2 Grassroots Initiatives in Zanzibar

Grassroots initiatives in Zanzibar create both employment for the local population as well as raises awareness, knowledge and involvement regarding solid waste management within the community. The grassroots initiatives operate in order to make the environment clean and more sustainable and their aim is to expand the business, employ more locals, and manage waste to have a bigger impact on society and the environment. While conducting the research, the researchers came in contact with several businesses and grassroot initiatives regarding waste management in Zanzibar which will be presented below.

Zanrec

Zanrec is a privately owned waste management company founded in 2011 by two Swedish entrepreneurs that wanted to do something about the current waste situation in Zanzibar. Zanrec's operations are run by locals living on Zanzibar and has, therefore, retained and developed its local heritage. Zanrec's main activities include collecting and separating waste, as well as educating people through its educational department. Recently, they also began to process and sell compost. Zanrec was initiated in order to "make the environment clean and make Zanzibar clean" (Interview, GM at Zanrec). Zanrec is a profit-oriented organisation aiming to develop a sustainable business. The excessive waste was further identified as a

business opportunity by Zanrec, where they started with hotels as they are perceived to be the main source of waste.

Zanrec has 27 full-time workers and 23 additional people working as collectors on a month-to-month basis. The waste is taken to the waste management site of Zanrec, and then separated into different chambers. The recycling site was provided to Zanrec by the local government. Zanrec has established cooperation with around 70 hotels on Zanzibar, making up around 15% of the hotels on the island. Apart from the hotels, Zanrec also has some income from recycling agents, waste dealers and donations. The waste collected by Zanrec is either sold to recycling agents, other companies using the material such as Recycle@Ozti and CHAKO (to be introduced), or taken to the Municipal Solid Waste Landfill (Figure 6). However, the GM of Zanrec explained that they are not making any money at the moment as they have a lot of costs, but that they will hopefully break even very soon as they are growing by about 30 percent per year.

Even though Zanrec is a private company, the company has an environmental and social aim to clean the whole of Zanzibar. Socially, it means improving health standards of the people and preventing diseases such as cholera. Also, by working together with communities, they create work and income opportunities for more people. In addition, Zanrec provides education to the villages and schools, which, in turn, enhances the knowledge regarding waste and the environment. Environmentally, it means preventing pollution and further degradation.

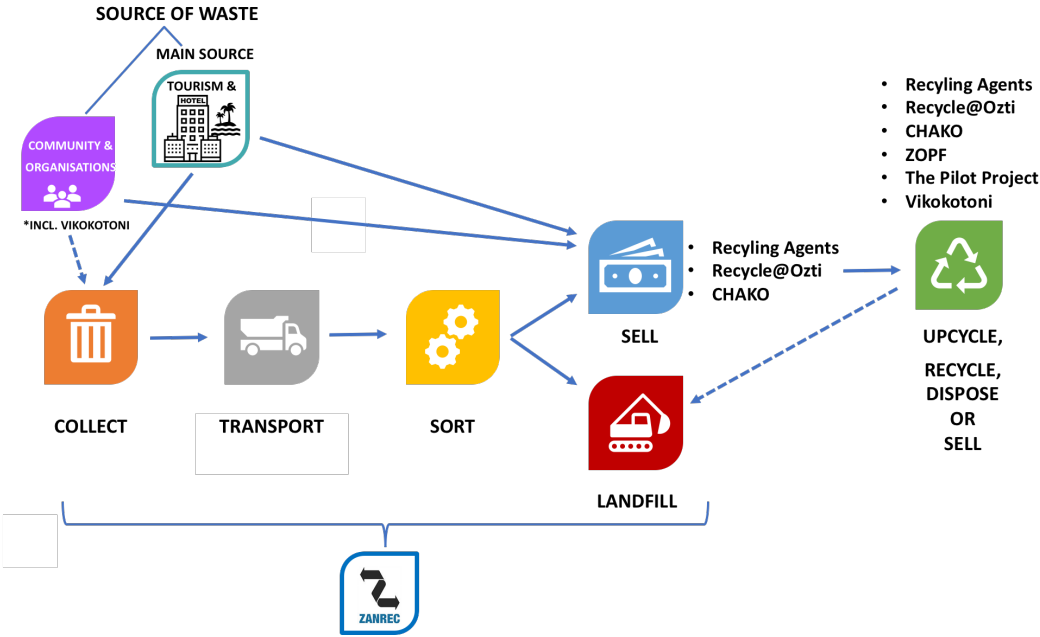


Figure 6: Zanzibar's current waste management chain when Zanrec collects the waste

CHAKO

CHAKO is a social enterprise operating in Zanzibar, founded in 2010. It started as a small workplace where four women created products from recycled paper. Today, CHAKO has grown and had about 35 employees, being known for upcycling glass bottles into sellable glass products. CHAKO was founded by two Europeans wanting to do something about the worsened waste and employment situation. CHAKO's employees are both internally and externally educated and are used as promoters, both at work and outside of work to the local community, of how to protect the environment. Further, two employees of CHAKO explained that their main objective is to clean the city and find a use for the waste. The glass bottles that CHAKO works with comes from Zanrec and different hotels (Figure 6). The operations manager was proud to announce that CHAKO became profitable in 2017 and is currently hiring more employees and, therefore, needs a bigger space, which will be received with support from the government.

Recycle@Ozti

Recycle@Ozti was founded in 2018, pursuing recycling and upcycling after the founder became increasingly frustrated and worried about the waste situation in Zanzibar. The founder had very limited resources and therefore experimented with different kinds of plastics by melting them at various temperatures with the resources they had available at hand. The founder, had many failures before being able to create products that could be sold. Big investments are needed and wished for by Recycle@Ozti, in order to scale up and expand their business, but the founder is currently content with taking baby steps in order to make Zanzibar clean. Recycle@Ozti has a small workshop with only two full-time employees, excluding the founder and director, who also work with educating school classes. The collected plastic that Recycle@Ozti uses comes from Zanrec, The Vikokotoni Environment Society, hotels and recycling agents (Figure 6). The founder explained that their main goal is not money, but that it is needed to survive. The personal aim is, further, to be able to pay back the investment that already has been made.

The Vikokotoni Environment Society

Vikokotoni is a neighbourhood in Stone Town where there has been an increase in the number of residents and shops and, therefore, waste produced. The residents used to throw all their waste on the street as there was no waste service offered by the government, leading to a dirty

and unhealthy environment. In 2011, The Vikokotoni Environment Society (now referred to as Vikokotoni) set up their own garbage management together with several other neighbourhoods, following the president's advice, and were promised governmental help, which they have still not received. Vikokotoni is seeking to reduce pollution by promoting environmental awareness and sustainable waste management. They work with daily- and monthly clean-ups, collection of waste, recycling, upcycling, raising awareness, growing a vegetable garden and creating and selling compost. Vikokotoni sells plastic to, for example, Recycle@Ozti (Figure 6). They also perform education and meetings in regard to the environment, raising awareness and knowledge. Vikokotoni believes that everyone is responsible for the community and that people need to understand that “there is no trash, everything is business” (Interview, Vikokotoni).

Zanzibar Ocean Protection Foundation

Zanzibar Ocean Protection Foundation (ZOPF) was initiated by a 19-year-old local Zanzibari that wanted to clean and protect the ocean. The founder realised that education was crucial in order to protect the ocean and, therefore, started to teach the communities and organise clean ups with schools. The founder has about forty people working for the foundation three days per week in exchange for food, but without payment as there is no money. However, the initiator hopes to start making money later. The founder explains for the crew that “we are from Zanzibar, so we want to protect what we have” (Interview, Zanzibar Ocean Protection Foundation). From the beach clean-ups, the workers clean the plastic and sell some to Recycle@Ozti, and send the rest to the governmental landfill (Figure 6).

The Pilot Project

The Pilot Project is a joint initiative by the Centre for Science and Environment and ZEMA in order to decentralise solid waste management in Zanzibar. Other governmental stakeholders such as ZMC are also involved. The ambition of the project is to facilitate better waste management, practices and policies. 200 out of 626 households in a village have been chosen to join the project, where the chosen households have been educated on how to segregate their waste. The costs of the waste collection has been covered by the municipality in order to create incentives for communities to segregate their waste. So far, about 85-90 percent of the waste is being segregated.

There are four major outcomes from the Pilot Project. First, empowerment and livelihood to local communities, especially for women, where people gain knowledge and start to segregate

waste themselves and understand the importance of segregation and the alternative use of waste. Secondly, financial incentives from selling compost, plastic bottles and glass to local dealers. The third is the success of the renewal of the dumpsite to a compost and also a learning centre where people can buy compost and learn about it. The fourth, is the replication happening in other areas, with the intention of replicating it to the entire island.

4.3 Governmental Organisations

The political situation in Zanzibar, and even in the entire Tanzania, is very complex. For example, in regard to the matter of waste in Zanzibar, during many of the interviews it was stated that several governmental authorities are involved and they were not clear who was responsible for what. Further, the researchers experienced a shrinking democratic space which made it more difficult to pursue the research in Zanzibar. The interviewees and locals confirmed that it has become more difficult since the election of a new president in 2015. Also, it was stated by multiple respondents that the governmental involvement in the private sector in regard to environmental management is rather limited. Different governmental representatives that the researchers met with and interviewed will be presented in the following section.

The State University of Zanzibar

Three waste management researchers from The State University of Zanzibar (further referred to as SUZA) were interviewed. The researchers focus on solid waste at hotels in Zanzibar and the opportunities of recycling. At the moment, they are trying to quantify the amount of waste generated at hotels, which is a huge challenge, in order to get an overview of the situation and to find out what needs to be done. They also stated that Non-Governmental Organisations (NGO) and Community Based Organisations (CBO), with an interest in environmental matters, are increasing.

Zanzibar Municipal Council

The director of Zanzibar Municipal Council (ZMC) was interviewed. At the moment, the ZMC are investigating the concept of private public partnership (PPP) and how to collaborate with other private sectors on the waste management issue. Regarding regulations, ZMC explained that higher legal authorities create regulations and guidelines for the whole nation. However, the implementation is further done by the municipalities who have an important role. ZMC is currently collaborating with both NGOs and CBOs regarding waste management and are

involved in the Pilot Project previously explained. However, many other interviewees, not working for the government, meant that the government wants to deal with the waste on the island because they can receive money that way.

Zanzibar Environmental Management Authority (ZEMA)

ZEMA is an institution linked to the government of Zanzibar and aims to coordinate, regulate, monitor and supervise all environmental management activities and concerns. They further claim to promote environmental awareness and enforce regulations and standards. Many of ZEMAs concerns have been introduced in section 4.1 *Current situation*.

University of Dar es Salaam

The university employee from University of Dar es Salaam, within the centre of policy and advocacy, works as an administrative officer working and specialising in business environment improvements by engaging the government. The centre deals with research, policy analysis, advocacy and environmental improvements in Tanzania, including Zanzibar. The university employee is also involved in grassroots innovations projects related to waste and is very knowledgeable in the subject. According to the university employee, incentives for grassroots initiatives is the income generated from the waste when they sell it to buyers. Further, it was stated that most of the grassroots exist for financial purposes, as they most likely do not have any other employment. However, some grassroots initiatives do also exist for social services and environmental reasons. The employee at the University of Dar es-Salaam will be continued to be referred to as “University employee”.

4.4 Private Organisations

Recycling agents

Recycling agents in Zanzibar are individuals that have started a not entirely legitimate business. It is estimated to be five recycling agent sites on the island whereof the researchers visited three sites, each with about 20-25 employees. All recycling agents started their business as business opportunities were discovered. Even though the incentives are mainly financial, the recycling agents acknowledge that they create work for other people and help to clean the island, contributing socially and environmentally. The recycling agents and employees work with buying and shredding the plastic, sometimes washing it, packing it and sending it to Dar Es Salaam. Usually, from Dar es Salaam the plastic is sold to China. The recycling agents buy

plastic bottles from Zanrec, waste pickers¹ and the government landfill. They feel that the government is making it difficult for them and harassing them.

Hotels

Four hotels, consisting of two large 5-star hotels, one small 4-star hotels and one medium 4-star hotel, were also interviewed as they are involved in, and contribute to, the waste situation on the island. The hotels are in different stages in regard to implementing various environmental practices. However, most of the hotels work with waste management so they can promote themselves as “green” rather than wanting to make an actual difference. The hotel managers will not be specifically referred to each hotel, but rather just as e.g. “hotel managers”. This is to keep some data anonymous.

4.5 Challenges

Waste management on Zanzibar is currently facing many challenges, not the least because it is an island. It is not uncommon that the collectors, including governmental employees, bury the waste on the beach or dump it in unauthorised dumpsites in order to save money. Several respondents argued that the collectors, apart from Zanrec, only care about the money, and not the environment. Further, the waste situation is threatening the prospering tourism industry. At the same time, private companies like Zanrec are not able to take care of the waste situation for regular inhabitants since they are not able to pay for the service. The financial means of the inhabitants also limits the government’s ability to collect from the villages as well. The mixed and unsorted waste is a major challenge for Zanzibar.

Grassroots

Stability, financial aspects and market mechanism are always challenges for grassroots innovations according to SUZA. Zanrec have lost many potential customers since the price is perceived as too high for them to pay. Further, it was implied that the price is difficult to accept since some believe that Zanrec is an NGO, while others think that Zanrec makes a lot of money.

Recycle@Ozti argued that they face challenges when it comes to time due to manual work and a lot of trial and error processes. In addition, their dependability on one single machine is also a big risk, at least if it breaks. Vikokotoni, on the other hand, said that they face many challenges

¹ Informal waste pickers are private individuals that collect and sell waste.

both size wise and profit wise. For example, the employees of Vikokotoni has decreased with almost 40 percent since the start of 2011, due to very wages consisting of approximately 9 USD per month. CHAKO and Vikokotoni both stated that communication is very important and that they needed more people to know who they were in order to grow.

Recycle@Ozti stressed that the lack of collaboration was a challenge and one respondent argued that “small island politics” (Interview, anonymous) sometimes even turn the initiatives on Zanzibar against each other. Multiple grassroots initiatives and governmental organisations saw a challenge of unifying the organisations on the island that ultimately want the same thing: a clean Zanzibar. For Zanzibar Ocean Protection Foundation further stressed a desire for collaboration. SUZA implies that cooperation is important and a platform should be created in order to enhance collaboration. When facing the scaling challenges of waste management solutions, SUZA saw a huge need for PPP, private public partnership. These could be collaborations between private and public initiatives.

Government

One major challenge for waste management situation on Zanzibar is that the government does not care and are not able to concretize the efforts of the waste situation. The bureaucracy, e.g. applying for permits and long lead times, slows processes and expansion among grassroots initiatives, this was further experienced by the researchers themselves. Further, it was implied by many interviewees that corruption exists in Zanzibar, whereof one respondent literally stated that “...corruption is very prominent on the island” (Interview, Anonymous²). The majority of all interviewees argued that they lacked support from the government, whom also believe that the government does not prioritise the issue of waste, and said that help from both domestic and international sources are needed.

An employee from CHAKO stated that,

The government has to understand that these initiatives improve the environment and the situation on the island.

Several respondents argued that the government should play a role in supporting grassroots initiatives that want to take care of problems, but should also take a leading role in the waste

² Some parts of the interviews were conducted off record as the interviewees wished to be anonymous.

management system. All the issues related to waste management should be addressed in the environmental policy, but according to SUZA, there is not a complete and comprehensive waste policy in place. The government is working on a national strategic plan for waste management, however, structured promotion of source separation was missing at the moment. But even when policies and regulations do exist, many respondents argued that the enforcement is too weak.

Hotels

Hotels have a large impact on the environment in regard to solid waste management as usage of single-use plastics, such as bottles for drinking water, straws, single-use toiletries, is very high per hotel. One of the 5-star hotels shared that they currently throw away 1700 plastic waste bottles per day, which means approximately 620 500 bottles per year. In addition, it was mentioned that many hotels on the island bury their waste on the beach or dump the waste directly into the sea, which was also witnessed by the researchers themselves.

4.5.1 Scaling of Grassroots Initiatives

Zanrec said they are growing due to people, such as managers at hotels, are slowly realising the problem of waste on the island. When it comes to the scaling opportunities for Zanrec, the aim is not to expand its presence further than Zanzibar, where the GM of Zanrec stated,

There is no point of going anywhere else until we have solved the issue on Zanzibar

The aim is to clean the whole island of Zanzibar, to work with all hotels and offer the service to everyone on the island. Zanrec argues that if all hotels would join Zanrec, Zanzibar would be clean, but it was also highlighted that Zanrec had to deal with the government, who is competing with them, first. They have already seen improvements when it comes to education and waste handling.

Even if there were laws preventing littering, several respondents argued that the enforcement of the laws were too weak. Zanrec stated: “It should not be very difficult to track where each hotels’ waste end up” (Interview, GM Zanrec). Further, transparency and awareness among hotel managers is a challenge for Zanrec. But with stricter enforcement of laws, more hotels would be forced to join Zanrec and sustainable waste management processes. This would help Zanrec in their aim of controlling all of the waste on the island as well as controlling the entire waste chain, from the source to end consumption. The employee at the University of Dar es-

Salaam also stressed the need to expand geographically in Zanzibar, including finding a collaboration partner, in order to have a significant impact on the environment. The university employee further gave examples on how the government could support grassroots initiatives to scale, such as assisting in registering the business, organise waste collection points, help with the connection to banks and focus on educational efforts.

CHAKO highlighted their quest for growth and scaling the business. However, for further growth, government support is seen as a necessity, as well as investors. CHAKO decided to grow their business with more materials and product offerings while Recycle@Ozti has reached a point where large investments were needed to transform the plastic to sellable products in an efficient way. CHAKO showed belief in the future as a bigger piece of land from the government was currently being negotiated. It was stressed that further collaboration regarding the development of that piece of land was a large challenge. With the new piece of land, Vikokotoni saw the possibility of scaling up the processes and handle more waste than from the Vikokotoni neighbourhood.

4.5.2 Knowledge

Several interviewees, both grassroots innovators and governmental authorities, argue that the waste management problem in Zanzibar is related to the lack of awareness and knowledge. The majority of respondents argue that many people do not know the consequences of the waste and that it is important to focus on people's waste habits and inform them about the dangers, and impact, of burning and throwing waste outside. In addition, the importance of the government understanding the severity of the situation, is highlighted. SUZA argued that continuous education is needed in order for a slow adoption to get people onboard. Most respondents agreed that knowledge will have a positive impact in regards to waste management, however, the awareness is not coming fast enough. As SUZA put it, "knowledge must be shared" (Interview, SUZA).

All the grassroot initiatives are contributing to the knowledge diffusion and educating local people regarding waste, pollution, recycling and the environment. For example CHAKO, who use their employees as promoters to inform the community of how to protect the environment. The operations manager of CHAKO said that,

It is also important that they [the employees] become promoters at home and talk to neighbours, family and the community about how to preserve the environment.

Zanrec's aim is to pursue a dialogue with the communities, where the main message is: "we are cleaning for our kids. Don't think about Zanrec when you clean, think about your children" (Interview, Educational Manager Zanrec). It was also mentioned that Zanrec does not make any money on the education department and is therefore currently a cost. However, it is believed to be a win in the long term as the villages will be able to help Zanrec to start separating the waste.

Zanrec is targeting the community and schools in proximity to the hotels buying services from them. And in the areas where these efforts have been made, change can be seen, according to Zanrec. In addition, even if Zanrec is profit oriented, their education manager volunteers on days off by spreading knowledge and claiming that "I have education but I do not have money" (Interview, Educational Manager Zanrec). Recycle@Ozti works with education through spreading the word about their operations and inviting school classes and is planning to launch collaboration with Zanrec to educate teachers. Zanzibar Ocean Protection Foundation started since the founder himself and many others lacked the knowledge about the consequences related to people's daily life and waste habits. The founder of Zanzibar Ocean Protection Foundation said that,

I thought the solution is to educate people because they do not know what they are doing when they destroy it [the ocean]. With teaching you can make a change.

The young people taught by Zanzibar Ocean Protection Foundation in turn teach their parents when they come home. The organisation also addresses the work of fishermen and try to convince them to change their fishing procedures to take better care of the marine environment. Vikokotoni has emphasised the change that education has enabled for them, which started with a few meetings, where people are now more aware of the issues related to waste.

The employee at the University of Dar es-Salaam values education and knowledge high and states that it is necessary for both practitioners and for society. For example, the university offers a free entrepreneurship education which has resulted in the collection and organisation of the waste collectors becoming much better, together with increasing profitability. Within the Pilot Project, Zanzibar Urban Municipality Council (ZUMC) is in charge of informing the local

community about handling of waste and the door-to-door diffusion of knowledge and education. Whereof, the knowledge diffusion is seen as an important outcome of the project. Several hotels also highlight education and knowledge diffusion as key improvement areas. One hotel manager had high belief in education and stated that: "People are being educated and that will bring a change" (Interview, GM Hotel). However, at the moment, the green approach is not properly communicated to the employees at the hotels and several hotels do not even know what happens with their waste after it has been collected. Furthermore, many people do not fully comprehend why waste is a bad thing. Multiple respondents argue that the public would start to throw waste in the bin if they understood why, implying the importance of knowledge. It was argued by several respondents that organisations have to be open to learn from others in order to find a solution to the waste management situation, and in the end change attitudes.

Currently, according to SUZA, there is a cooperation between the university, CBOs and the Sheha committee in order to educate the community and influence the attitudes of the people. Shehas are in charge of the villages and communities and the committee is a network of prominent people in the different villages acting somewhat like mayors. The Shehas were mentioned among several interviews as a respected key individual in order to spread knowledge and further educate the village. Zanrec said that "the Sheha is the leader of the village. If you want something, you talk to the Sheha, because the Sheha knows everyone" (Interview, Site Supervisor Zanrec). In addition, Zanrec also educates the Shehas who in turn educates the villages.

4.5.3 Citizenship and Norms

If you are picking waste, you seem to be crazy and have mental problems.

- *Employee, University of Dar es Salaam*

Compared to before, the quantity and variation of materials make it difficult to sort materials. People imitate how things have been done previously, and therefore people are still burying waste on the beach in order to let the tide flush it out into the ocean. Another perceived attitude was that "if they cannot see the problem, it is not there" (Interview, Anonymous). The employee, from the University of Dar es-Salaam, meant that it worked when it was mostly organic waste, but it is now mixed up with plastics, metal, chemicals and other materials that

harm the local environment. One interviewee argued that hotels do not care if they saw the pictures of the illegal dumpsite in the forest.

When Zanrec's site supervisor was asked about talking to the waste pickers dumping it illegally, instead of driving to the official dumpsite, the following was stated,

You cannot stop them. Who are we to stop them? We are not the government. We are like them [i.e. trying to make a living].

The issue is problematized by connecting it to the local people's current situation where the following was stated from one hotel's general manager,

When your minimum salary is 150 USD per month, if you can save 5 USD on petrol, it is a lot of money. And if you dump some plastic in the forest no one knows or get hurt.

The employee at the University of Dar es-Salaam said that graduates with a bachelor's degree would not be supported by their families if they are seen picking waste as it is seen as a shame to pick waste. This has resulted in people thinking that they cannot bring waste into their home either, including recycled products, which limits the success of grassroots innovation. SUZA also explains the negative attitude people have when they see someone working with and touching waste. It was stated that: "It is connected with livelihood and poor people" (Interview, SUZA). The separation of waste that is currently done is conducted due to economic incentives.

All interviewees have stated that the waste situation in Zanzibar is a collective problem where everyone is responsible. As the Manager at Vikokotoni put it: "Everyone is responsible for the community" (Interview, Manager Vikokotoni). Vikokotoni argued that everyone knew about the waste issue in the neighbourhood but did not do anything about it, but after having cleaned the streets and working every day of the week: "nobody threw rubbish on the streets anymore" (Interview, Vikokotoni). Multiple respondents mean that when people see it is clean, they do not throw as much trash in the streets. Similar projects as Vikokotoni were initiated on the island but with little effect and failed to survive.

The founder of Zanzibar Ocean Protection Foundation said that sometimes people refuse to listen when being confronted of destroying the coral: "The problem is they do not know what they are doing, but sometimes they are willing to change their behaviour" (Interview, Zanzibar Ocean Protection Foundation). The founder tries to inform citizens that tourists might not come

to Zanzibar if they continue to destroy the coral or pollute the island. However, several respondents highlighted the waste problem as a global problem, where the western lifestyle is to blame. One respondent also said that people in Zanzibar have to believe in themselves to do something about environmental problems and not only wait for mzungos [i.e. white people] to solve the problem.

SUZA argued that behaviour changes are not done in a snapshot due to the culture of not separating waste and, therefore, constant education is needed to get positive behaviours. SUZA stated that: “You can see people in a dala dala [local taxi bus] just throwing the plastic out” (Interview, SUZA). However, as 80% of the population have been going to school, it is argued that people will become empowered and start to understand where the waste should go in order to keep the environment clean. It is expected that the children growing up with this new culture will change attitudes with time. Sustainable living has to be made simple and inexpensive in order for people to adopt the change. Further, people need to continue to realise that waste can be a resource, as put by SUZA,

Awareness is one thing, but empowerment, through education is the solution.

Even though most of the waste comes from the tourism industry it is argued the government should enlighten the public about solutions. SUZA stated that,

In our community, most of the time people listen to the government, we respect them because we know that they have the enforcement mechanism.

It is argued by SUZA that everything cannot be centralised to the government. SUZA strongly believes in community engagement and communication and stated,

You sit down with them, listen to them, decide with them. This approach is called the PPP: Public Private Partnership. If you centralise everything to the government it will fail. Engagement and involvement. It is the approach that has been proven to work the best within waste management.

5. Analysis and Discussion

The aim of the study is to increase the understanding how grassroots innovations within waste management in Zanzibar have evolved and developed as well as what challenges they face. The analysis has been divided into two parts in order to answer the research questions. The first part will analyse how grassroots innovations have evolved and developed in Zanzibar and the second part will focus on the challenges that grassroots innovations within waste management face in Zanzibar.

How has grassroots innovations, within waste management, evolved and developed in Zanzibar?

What challenges does grassroots innovations face within waste management in Zanzibar?

5.1 Evolution and Development of Grassroots Innovations

This section aims to analyse and discuss the evolution and development of grassroots innovations within waste management in Zanzibar. Where evolve, as previously mentioned, is defined as a gradual development. The authors further aim to contribute with new knowledge within the research area that hopefully can support and strengthen the grassroots initiatives.

First of all, the research will investigate the definition of grassroots innovations and whether the different organisations and actions align with the definition. Further, in order to understand what initiated the grassroots innovations and the factors behind the development, the driving forces and behaviours will be explored. Concluding this section, the evolution of the grassroots initiatives will be further explored.

5.1.1 Defining Grassroots Innovations

As previously stated, the most commonly used definition of grassroots innovations is stated by Seyfang & Smith (2008) which is also applied by the researchers for the analysis and discussion;

We use the term 'grassroots innovations' to describe networks of activists and organisations generating novel bottom-up solutions for sustainable development; solutions that respond to the local situation and the interests and values of the communities involved. In contrast to mainstream business greening, grassroots initiatives operate in civil society arenas and

involve committed activists experimenting with social innovations as well as using greener technologies.

However, the researchers would also like to apply two additional definitions. First, Sarkar & Pansera's (2015) definition of grassroots innovation, who means that the aim of grassroots innovators is to conduct socially inclusive innovation processes, focusing on local communities in regard to knowledge, processes and outcomes involved. Secondly, the definition of grassroots movements being a community-led initiatives with the possibility to spread and apt wider societal transformations (Seyfang & Smith, 2007; Seyfang, 2010; Zapata & Zapata, 2017).

Zanrec, CHAKO, Recycle@Ozti, Vikokotoni, Zanzibar Ocean Protection Foundation and the pilot project, wanted to do something about the unsustainable waste situation in Zanzibar and therefore started their initiatives, aligning with the definitions of grassroots innovations. Even though Zanrec and CHAKO were founded by foreigners, the operations are run by locals and has therefore retained its local heritage and responding to the local community, still in line with the definition of grassroots innovation. Additionally, aligning with Sarkar and Pansera (2015), with focus on spreading knowledge, Zanrec has further established cooperation with hotels and schools as well as planning a collaboration with Recycle@Ozti. Further, Recycle@Ozti, Vikokotoni and Zanzibar Ocean Protection Foundation use education to spread knowledge regarding waste and the environment in Zanzibar. For example, CHAKO uses their employees as promoters, educating the community on how to preserve the environment. This also aligns with Kennedy (2011), meaning that knowledge sharing is a driving force for many to practise a more sustainable lifestyle.

At first, the recycling agents were identified to be grassroots innovations. However, their reasons to start, and run, their business is mainly due to economic reasons, rather than a solution responding to the interests and values of the community involved. They do, however, operate in a civil society and experiment with social innovations since they are getting plastic off the island. The recycling agents are still perceived to have a positive social and environmental impact, but they do not do it for the same reasons and incentives as the definition of grassroots initiatives.

The grassroots initiatives, on the other hand, have a social and environmental incentive with the aim to clean Zanzibar and creating employment, which is done by collecting and recycling or upcycling waste, and through education. However, the researchers acknowledged that Zanrec is a privately owned and profit-oriented organisation, which is perceived to be problematic in regard to the definition of grassroots innovation. Although, on top of the educational efforts, the employees of Zanrec are highly committed employees, where e.g. the education manager volunteers on days off in order to spread knowledge. In addition, Zanrec does not make any money on their education department. Even if Zanrec may not be fully align with the definition of grassroots innovations by Seyfang & Smith (2008), the researchers does not think that it should be reviewed so literally, but rather focus on their overall aim. Therefore, with Zanrec's aim of cleaning Zanzibar, including highly committed employees which may be perceived as activists, the researchers argue that Zanrec should be seen as a grassroots initiative.

Further, grassroots movements can include actions with, and by, governments (Fressoli et al. 2014; Hossain, 2018). An example of this is the Pilot Project. It is perceived to have a novel bottom-up solution responding to the local situation and being socially inclusive, due to the knowledge and employment opportunities provided, while focusing on local sustainable innovations. Therefore, the pilot project is argued to be a grassroots initiative. Other initiatives are e.g. SUZA's research on waste issues, as well as ZEMA and ZUMC's efforts, which also could somewhat align with the definition of grassroots innovations as they try to find a sustainable solution for a very apparent problem without any financial incentives. However, the researchers argue that these should not be defined as grassroots initiatives as they are driven by the government rather than community-led initiatives, generating novel bottom-up solutions. Although, the initiatives started by the government in terms of e.g. research is an important step in order to create a structural change.

Based on the definitions of grassroots and the collected data in Zanzibar, the researchers perceive the following organisations to be regarded as grassroots innovations; Zanrec, CHAKO, Recycle@Ozti, Vikokotoni Environment Society, Zanzibar Ocean Protection Foundation and the pilot project. These will further be in focus in the analysis and discussion. In addition, three major driving forces were identified among the grassroots innovations;

1. Positive social and environmental impact
2. Spread knowledge

3. Financial incentives

5.1.2 Behaviours and Development of Grassroots Innovations

Social entrepreneurs are defined as individuals that are willing to take a risk in order to create a positive impact in society with the potential of solving community-based problems (Investopedia, 2017), confirming that social impact in the community is more important than financial results, as argued by Bacq et al. (2015). As mentioned in the previous section, each grassroots initiative were frustrated with the increasing waste and was of the opinion that something needed to be done. Bacq et al. (2015) argued that in order to succeed as a social entrepreneur, it is important to obtain cultural knowledge and identifying the few resources at hand. Closely linked to social entrepreneurship is the behaviour of bricolage. Bricolage plays an important role in the innovation process as it helps to create new, sustainable, and sometimes, scalable solutions, to little or no cost, by recombining existing resources (Kickul et al. 2018).

For example, Recycle@Ozti has extremely limited resources, and when experimenting with different types of plastic there is no other option than identifying available resources. Recycle@Ozti receives plastic from Vikokotoni, recycling agents and Zanrec, and uses it to create different kinds of products. Vikokotoni, who was promised help from the municipality, which was not received, needed to find a way to clean the Vikokotoni neighbourhood and therefore arranged daily and monthly clean-ups. CHAKO started to work with paper-beads, but then expanded into glass bottles as it was identified as a resource provided by hotels and Zanrec. Furthermore, Zanzibar Ocean Protection Foundation have very limited resources but still has approximately 40 people working three days per week without pay. Zanrec makes the most of every resource by either sorting and selling plastic, glass and metal or make compost of organic waste. All grassroots have a deep connection to the local setting and are perceived to possess a cultural knowledge and also a bricolage behaviour, where they are able to create something new, sustainable and, sometimes, scalable for little or no cost, which is in line with both Bacq et al. (2015) and Kickul et al. (2018). Further, Kickul et al. (2018) implied that bricolage is significantly related to scaling of the social impact which is proven within all cases mentioned above, where all the organisations have scaled up and been able to achieve a bigger impact. One exception might be Vikokotoni that has decreased in number of employees. However, it is believed that they have had an increasing impact due to their actions taken and their knowledge sharing. It is further argued that grassroots innovations still need adequate financial capital to

succeed, apart from bricolage (Kickul et al. 2018). This will be discussed briefly in section *Financial Constraints*.

Further, the researchers argue, as well as it is implied in the literature, that the evolution and development of grassroots innovations are connected to citizenship, empowered citizens and collective actions, which are in turn connected to knowledge and norms. However, during the development of the thesis, the researchers further realised how the development of grassroots innovations are highly associated with the identified challenges. For example, many respondents address the lack of empowerment and highlight the limited cooperation among the grassroots initiatives. However, many of the initiatives have been initiated in order to contribute to make a change and one might argue that the entrepreneurs behind these grassroots initiatives have been empowered to do so. In addition, since many of the respondents implied the lack of external empowerment, the actions to contribute and make a change likely originates from the personal. Further, the difficulty of spreading knowledge on the island and the moderately cooperative government was also stressed by the respondents. Both the interviewees and the literature underlines the importance of collaboration in order to further develop and make an impact waste wise. Therefore, empowered citizens, collective actions, knowledge and norms will be covered in the following section, *5.2 Challenges of Grassroots Innovations*.

5.2 Challenges of Grassroots Innovations

Throughout the conducted research several challenges have been identified from both the literature review and qualitative data collection, when looking at how grassroots innovation in Zanzibar have evolved. The waste situation is a global problem and not only limited to developing countries or to coastal regions like Zanzibar. However, since Zanzibar is an island and has waste coming in from the sea, locals and hundreds of thousands of tourists, the situation might be more apparent and visible than in many other places. SUZA argued that the lack of a measurable overview of the waste situation made it difficult to grasp. However, the waste situation in itself is seen as a challenge but from a grassroots innovation movements perspective in this study, it is also seen as an opportunity.

This section will first address the challenges introduced in the literature by Smith et al. (2014) and Hossain (2018). The most prominent link between the two theories, scale-up, is discussed separately from the other challenges in section *5.2.1.1 Scale-up*. Scale-up is associated with

many constraints, where both governmental relations and financial constraints will be treated. The analysis will continue by treating knowledge, empowerment of citizens and collective actions as a challenge when discussing societal transformation. The chapter will end with concluding remarks to define the challenges grassroots innovations face in Zanzibar.

5.2.1 Theoretical Challenges

Returning to the challenges identified in the literature review, Smith et al.'s (2014) three challenges and the Triple tensions-theory of Hossain (2018), parallels can be made from the data collection. The first challenge of Smith et al. (2014) stated that grassroots initiatives will have limited success if they only focus on the socially just principles internally while not seeking structural change. The grassroots initiatives in this study confirm that the social context in Zanzibar limits their success since many people lack awareness about the environmental situation. That is why knowledge and empowered citizens have been given so much attention when addressing challenges for these organisations.

It is acknowledged that several of the grassroots initiatives have their own educational efforts and have started to address environmental and waste related issues in Zanzibar, even without having direct economic benefits from it. Since Smith et al. (2014) argue that societal change should be addressed “outside the borders of the innovation”, these initiatives have to some extent curbed the challenge when pursuing educational efforts not directly linked to their business. It should be mentioned that even if the direct economic benefits are not linked to the educational efforts, all grassroots initiatives will probably be better off if a societal change in regards to waste would occur. Especially since several of the initiatives address separation of waste as a success factor for solving the waste situation, which in turn would lead to more resources [i.e. material] for them. The philanthropic educational efforts might therefore have an ulterior motive. However, from a sustainability perspective, this does not have to be negative and would hopefully drive the change just as well.

CHAKO and Zanzibar Ocean Protection Foundation have already started to see a change in people's behaviour, which implies that they do indeed address structural change. Smith et al. (2014) even argued that grassroots initiatives will have limited success if structural transformation is not addressed. However, since the problem of waste still exists in Zanzibar, and efforts addressing structural changes have been made, it suggests that a major change will not immediately be seen even if they address structural changes. This challenge is further be

linked to changes in behaviour, knowledge and norms, which will be treated in section 5.2.3 & 5.2.3.1.

The second challenge of Smith et al. (2014) regards the difficulty of providing an innovation that is locally applicable while also trying to transform the situation. The innovation might therefore have to be somewhat inappropriate to influence a change in the intended direction. None of grassroots innovations in this study could be classified as inappropriate from the researchers' perspectives. However, several of the entrepreneurs have highlighted the power imbalance between the government and grassroots initiatives, which could mean that they have to be on good terms with local authorities. Because of this reason, the grassroots initiatives in this study are perceived to be on the border of what is accepted while also challenging current norms. Challenging the norms are not limited to the role of the government. Zanzibar Ocean Protection Foundation mentioned that they talk to fishermen about sustainability and therefore also question generations of work ethics as well as questioning the educational system. Smith et al. (2014) seem to foremost address political restrictions in society when discussing this challenge. In Zanzibar, however, it seems to be as much of a cultural challenge where a lot of the resistance come from regular inhabitants on the island and where grassroots initiatives push for a behavioural change.

When comparing Smith et al.'s (2014) challenges with the framework of Hossain (2018), there are similarities between the authors. As mentioned, scale-up is the most prominent one, and will be treated in the section 5.2.1.1 *Scale-up*. Regarding the tension of *Sustainability*, Hossain (2018) somewhat contradicts himself by further stating that grassroots innovations are becoming a fundamental part of sustainability while also saying that grassroots innovations have limited contribution to sustainability. However, by this Hossain (2018) means sustainability as a global problem and not local sustainability. In the local environment, Hossain (2018) acknowledges the importance of grassroots innovations, which is in line with what this study has shown. The grassroots initiatives in this study do not necessarily aim at changing the global problem of waste but rather at contributing to a local transformation (which is nonetheless part of the global problem). Therefore, sustainability is a challenge that needs to be addressed by these initiatives.

One can see the similarities between the tension of sustainability and the first challenge of Smith et al. (2014), addressing just principles internally while also seeking structural change. Internal

and external sustainability efforts have to be addressed and is seen as a challenge in both theories with the aim for a structural change. Some of the initiatives address educational efforts at e.g. schools, but the general outreach seem difficult to manage. Many of the respondents would like to see the government take this role or at least give the grassroots initiatives their support. The difficulty to reach out with the knowledge and change confirms the challenge in both Smith et al.'s (2014) and Hossain's (2018) theories.

Laws, regulations, citizen awareness and participation are all addressed in Hossain's (2018) tension of *Success*. Collaboration between external forces and independent initiatives is argued to be of importance and these factors are also highlighted by the conventional collective action-theory (Ostrom, 2010b) and confirmed by several interviewees. It seems like the success-tensions cover a broad spectrum of factors and takes a quite general stance. What is confusing with this tension is that it does not seem to correspond with success independently or lead to success in itself, which makes the researchers question the labelling of this tension. Moving forward with the third challenge of Smith et al. (2014) and the tension of scale-up by Hossain (2018), this challenge will be discussed in the following section.

5.2.1.1 Scale-up

Upscaling of grassroots initiatives have been identified by several authors in the literature review as one of the major challenges for grassroots initiatives (Hossain, 2018; Smith et al. 2014; Bacq et al. 2015; Sarkar & Pansera, 2017; Fine & Leopold, 1993; Kickul et al. 2018) and very important for the success of social entrepreneurship (Desa & Koch, 2014). What has become apparent from the data collection in Zanzibar is that the grassroots initiatives want to scale up their operations in order to contribute to a clean Zanzibar and contribute to a societal transformation. All organisations interviewed wanted to scale their business further, whether it was to attract more customers to their products/services, have a greater impact on the local environment, get larger pieces of land or employ more people. As they have not reached their goals yet, it is still communicated as a major challenge. Scaling the business might seem to be a quite obvious aim and challenge for most organisations. However, scale-up for grassroots innovations might be even more of a challenge according to the authors mentioned above. Since only grassroots initiatives have been of interest in this study and scale-up is identified as a major challenge, it is, however, impossible to determine if grassroots initiatives have had a more difficult time to scale-up compared to other organisations in Zanzibar.

Even if scaling has been treated as a unified concept in this study, it seems important to address that the grassroots initiatives in this study have been keen on primarily improving the local waste situation. For example, the representatives from Zanrec stated that they did not want to expand outside Zanzibar since they had plenty to change in Zanzibar. This could be applied to the concepts introduced by Bacq et al. (2015) and the importance to address *depth* of impact (i.e. quality of the service) as well as *breadth* of impact (quantity of the service). However, breadth within the borders of Zanzibar has been the focus among these grassroots initiatives. Another implication regarding the challenge of scaling is Dees et al.'s (2008) argument that scaling could aim at addressing issues more effectively, which could explain the aim of improving the waste situation in Zanzibar by several of the grassroots initiatives. Smith et al. (2014) seems to address the challenge of scaling as if it would be obvious to want to scale to other locations. This only partly align with the respondents as they currently focus on scaling within the borders of Zanzibar. Hossain (2018), on the other hand, states that many grassroots initiatives are not intended to scale-up, which does not completely align with the aims of the grassroots innovations included in this research, as they want to scale within, but not beyond, Zanzibar.

Several of the authors in the literature review addressed the difficulty of spreading locally specific grassroots innovations to other locations (Hossain, 2018; Smith et al. 2014). Diffusing the innovation to various locations within Zanzibar is a challenge but does not seem to be as big of a problem for the grassroots initiatives in this study as many theories want to put it. The problems related to waste seem to be relatively similar all over Zanzibar, suggesting an alignment with the argument of Bacq et al. (2015), that it is easier to scale an innovation if there is a connection between the districts. However, Zanzibar is a small island, which makes it hard to compare with the theories. The Sheha committee, mentioned by Zanrec and SUZA, play a significant role in connecting the different districts in Zanzibar, potentially enabling grassroots initiatives to scale through shared experiences. This connection had already been established by Zanrec and emphasized by SUZA. However, as mentioned, the grassroots initiatives wanted to scale within Zanzibar and the challenge of scaling would probably be even more apparent if they aimed at expanding outside the borders of Zanzibar.

Financial Constraints

Limited financial resources and financial solutions for grassroots innovations have not been in focus of this study since it was determined by the authors in the delimitations sections that

limited financial resources was not only bound for grassroots innovation, but for most innovations in general. Although, it should be mentioned that the grassroots initiatives included in this study had all seen financial constraints as an obstacle towards scaling. Bacq et al. (2015) argued that the scarce resources would be an opportunity for the grassroots initiatives if they used bricolage behaviour which was confirmed by SUZA, ZEMA and ZMC. They argued further that one has to realise that all waste is a resource, It is however impossible to neglect that funding and financial resources limits the grassroots initiatives' possibilities to scale further (Kickul et al. 2018), which was further confirmed during the interviews. Therefore, the researchers question how far it is possible to go solely on the behaviour of bricolage.

At the moment, all of the initiatives are struggling, none of them having an obvious success. Maybe, which may be apparent, a combination of the right behaviour together with an adequate amount of money, as Kickul et al. (2018) puts it, could help them thrive. But then it is difficult to determine what an adequate amount is. In addition, Bacq et al. (2015) states that developing countries have more resource constraints than developed countries due to reasons such as lack of governance support. This may further imply that in Zanzibar, as an underdeveloped island with highly limited resources, all kinds of individuals and organisations have to adopt a bricolage behaviour, not only social entrepreneurs.

The limited financial capabilities of inhabitants in Zanzibar further limits the outlook for several of the grassroots initiatives. For example, Zanrec has issues with competitive prices for hotels and argued that private people could not pay for waste management solutions at all. Vikokotoni, Recycling@Ozti, CHAKO and several of the hotels furthermore stated that locals do not have the opportunity to pay for waste pick-up. These financial presumptions are, however, part of the local specificity grassroots innovations have to take into consideration and grassroots have to be able to work with the values and interests at the specific location, according to Seyfang & Smith (2008).

Governmental support

Several grassroots initiatives and Zanzibar Environmental Policy (2013) argued that the laws and regulations regarding waste in Zanzibar are not enforced. The lack of transparency of processes and awareness enables hotels, private people and organisations to avoid the regulations. This limited e.g. Zanrec in their quest of scaling their business since unauthorised waste collectors could collect and improperly discard the waste at a very low cost, even if it

destroyed the environment. This could for example be a consequence of corruption according to two of the interviewees.

Bacq et al. (2015) and Hossain (2018) addresses similar issues in their articles and argued that government and governance support was important for grassroots innovation. Smith et al. (2014) also highlights the importance of addressing policy makers and regulations when they present their challenges. The university employee suggests that the government could e.g. support grassroots innovations by making it easier to register a business, as it is argued that bureaucracy currently slows down processes. However, the government was partly supportive for several of the other initiatives and were in the process to help Zanrec, Vikokotoni and CHAKO with plots of land. More support was, however, wanted. Furthermore, initiatives with connections to government, such as the pilot project and the environmental policy (2013), imply that the local government is aware of the waste issue and has some willpower to make a change in Zanzibar. This is somewhat confirmed as the 2020 vision for Zanzibar includes conserving and protecting the environment as well as utilising natural resources more efficiently (Zanzibar Environmental Policy, 2013). However, this vision was never brought up during any of the interviews, which makes the researchers question their legitimacy.

In reference to scale-up and governmental support, the researchers at SUZA saw the need for partnership between public and private initiatives, labelled PPP, and further stressed the important role of the government when it comes to working as a supporting function for grassroots innovation. Hossain (2018) and Bacq et al. (2015), mentioned that governmental support makes scaling efforts for grassroots innovations easier, and both Hossain (2018) and Smith et al. (2014) identifies the need for grassroots innovations to address governmental/regulative instances. Establishing connections and collaboration with official institutions to establish a change correspond with conventional collective action theory, as stated by Ostrom (2010b). As mentioned above, the grassroot initiatives in Zanzibar have been able to maintain their operations, using more of a polycentric approach, where external forces are not that much involved. But as both theory and the respondents mean, is the involvement of public institutions necessary for future success and to curb challenges. This is for example in line with Zapata Campos & Zapata (2013) and Gutberlet et al. (2016) who means that cooperation with governments are essential due to the occurrence of resistance towards grassroots innovations. Nevertheless are networks and collaboration stressed as a success factor

by Ostrom (2010b) and is further argued by the researchers in this study to be an enabler of further developing the grassroots initiatives in Zanzibar.

5.2.2 Theoretical Challenges Summary

Hossain (2018) and Smith et al.'s (2014) challenges have been treated, together with input from other authors, in the sections above. They all touch upon the same challenges when presenting their theories. Smith et al. (2014) seem to address their challenges with the individual grassroots initiative in mind while Hossain (2018), on the other hand, addresses the limited penetrative power one individual initiative will have, taking a more general stance with his challenges. There are similarities, such as the addressing of internal and external sustainability issues in order to drive a change or the challenge of scaling the grassroots innovation. Hossain (2018), however, collect all possible challenges under the labels of *Sustainability*, *Success* and *Scale-up*. It is argued by the researchers in this study that neither of the theories makes the understanding of challenges for grassroots innovations complete. The authors of this study argue that knowledge has not been emphasised enough by either Smith et al. (2014) or Hossain (2018) when comparing it to the respondents in this study. The challenge of knowledge in relation to empowerment, collective actions and norms will therefore be treated below in order to modify the theoretical challenges found in the literature.

5.2.3 Empowered Citizens through Knowledge

Limited knowledge about the waste situation in Zanzibar and the services Zanrec provides, compared to competing services, is a challenge and is seen as one reason why Zanrec does not have a larger presence in Zanzibar at the moment. Knowledge, considered as a presumption for e.g. upscaling among the respondents, has been highlighted as one of the major challenges for grassroots innovation to flourish in Zanzibar. Knowledge has been given some attention during the literature review but has not been highlighted as such a distinct challenge as in the data collection for this study.

Two types of knowledge have been identified from the data collection. The knowledge regarding the waste management situation in Zanzibar and the knowledge about the individual grassroots initiative. Both types of knowledge seem important, but the general knowledge about the waste management situation is perceived to be fundamental for both the waste situation and

the grassroots initiatives. Addressing this type of knowledge could increase awareness among people regarding consequences and potential actions, hopefully leading to empowered citizens and collective actions (Dobson, 2004; Ostrom, 2010b; Smith et al. 2014). This type of knowledge has also been given most attention in this study.

Dobson (2005) highlights knowledge in relation to empowered citizens as an important building block when addressing both global and local environmental issues. It is further a precondition for people to pressure deciding organs in society to take action and influence change. Several of the interviewees addressed the lack of environmental commitment and willingness to change the waste situation from the local government. Dobson (2005), however, argued that participation from citizens is needed to pressure states to take action and Caulier-Grice et al. (2012) stated that involvement and empowered citizens was a necessity for social innovation and driving societal change. Although, the researchers in this study argue that the grassroots initiatives could be seen as participation since the initiators have founded the grassroots initiatives. In this study, the respondents have been able to initiate their grassroots innovations in their quest for societal change, but the researchers argue that it could probably have been done more efficiently if more citizens had been empowered to do the same, if they entered into collaborations and were supported by the government. This is in line with Samson's (2009) who means that evolving entrepreneurial initiatives can generate ripples on the water to the public.

To see a more extensive change in a society, Drevensek (2005) argued that the broad empowerment among citizens has to come from knowledge regarding environment, and the waste situation in Zanzibar, in this case. Partly because Kennedy (2011) argued that isolated environmental initiatives might have limited impact and partly because Zanrec and SUZA argued that people in Zanzibar simply do not know about the consequences of waste or what happens when waste is burned, improperly discarded or even buried on a beach. If people do not know themselves, it implies the impossibility to pressure the government and vice versa. Further, respondents argued that the government care more about money than the waste situation and therefore resulting in no unified educational efforts. The governmental agencies interviewed did not share the same point of view but did not clarify who is responsible for the education regarding waste management.

Related to citizen empowerment and participation, all of the grassroots initiatives included in this study had started their own educational efforts to tackle the challenge. It is good that some educational efforts have started since the debt lies not only on the government's shoulders, as Drevensek (2005) stressed that both public and private actors had to direct communication efforts to promote involvement. Ostrom (2010b) argued that the polycentric approach to collective action, where initiatives drive the change themselves without external support, is a new take on the collective action phenomenon and that one does not have to rely on the slow global agreements and governmental guidelines. Kennedy (2011), however, argues that individual initiatives have limited impact without governmental support. Although, Kennedy (2011) also states that local private initiatives might be the only way to approach sustainability. Accordingly, both Ostrom (2010b) and Kennedy (2011) argued that networks among the initiatives is one way to approach this challenge.

On the topic of networks and collective actions, one of the grassroots initiatives saw the pattern between the challenges of knowledge, upscaling and larger impact as the lack of networks among the grassroots initiatives in Zanzibar. Rather than working together and join forces towards a common good, the grassroots witnessed competition among the organisations and argued that it made the sustainability transition slower. Dobson (2005) argued that knowledge sharing was key success factor to address environmental issues. Knowledge sharing could be made more effectively if it was done through networks, where each participant could rely on the others commitment for the long-term goals, in this case environmental commitment (Ostrom, 2010b; Kennedy, 2011). There are no networks among the grassroots initiatives in Zanzibar, but Zanrec had started to use the network of the Shehas to promote governmental change and their own educational efforts. This was stressed by SUZA as being a key to change since the Sheha has a lot of influence in each village in Zanzibar.

When discussing knowledge as a challenge, the literature speaks of knowledge in a very broad sense and the term has been widely used in the study. The researchers of this study agree that the knowledge is important, but what might be more important is the legitimization of knowledge, since it could be difficult to know what to do with the knowledge if it only 'exists'. The researchers argue that if the knowledge would be legitimised and promoting what one can do with the knowledge, it could have larger impact. The researchers further mean that when the knowledge is spread and legitimised by governmental agencies, schools and citizens, the true change could happen. The grassroots initiatives included in this study are examples of this.

They have the knowledge, but they also legitimised it and do something with the knowledge, which has brought the citizens to the table of sustainability, as Dobson (2004) would have put it. Legitimise knowledge could be perceived as an even greater challenge than attaining knowledge in itself, since the knowledge is a tool that has to be activated and used in order to see a change. Legitimised knowledge could be further linked to norms, as discussed in the next section.

5.2.3.1 Norms

Dobson (2004) speaks of the common good and that we need to target attitudes in order to empower citizens' perspective. The common good does not necessarily convince the individual to act but citizenship, where the individual actions are checked towards the common good, could help to make environmental actions become the norm (Dobson, 2004). In regard to the grassroots initiatives in Zanzibar, one can see that the individual actions are checked towards the common good even though there has been a lack of communication among the initiatives. However, changes in behavioural patterns does not happen overnight and reducing environmental impact relies on a strong commitment where the different individuals can rely on each other taking responsibility (Ostrom, 2010b), which is not the current status in Zanzibar.

Kennedy (2011) argues that patterns and norms can be changed by using the social system, stating that meeting points are crucial in order to see this change. The educational efforts among the grassroots initiatives are examples of establishing meeting points, where actors within waste management connects with the public and students, i.e. as opinion leaders as suggested by Rogers (1983). Kennedy (2011) argues that meeting points could spur a virtuous circle where one good action could lead to more good actions. Although, the lack of collaboration and awareness among the initiatives, which confirms that the initiatives have started individually, suggests that the *virtuous circle* could have had an even greater impact if there would be meeting points for the grassroots initiatives as well. The researchers at SUZA argued that changes in attitude in relation to waste will take a long time to change and will require constant education, further connecting norms and attitudes to legitimised knowledge.

In contrast to the polycentric approach to collective action, Sarkar & Pansera (2017) argued that policy makers have to acknowledge grassroots innovations and accept a hybrid between the market and grassroots initiatives to develop supporting functions. However, in order to create a social transformation, norms in society have to change as well (Kennedy, 2011). The

employee at University of Dar es-Salaam said for example that there is a negative attitude and shame towards people working with waste as it is perceived to be connected to the livelihoods of poor people. The established grassroots initiatives included in this study have overlooked this norm, where most of the grassroots innovators and the governmental representatives mean that waste should be seen as a resource. This could have been a threat to their business and the success of these grassroots initiatives in Zanzibar, since several of them base their business on reusing waste. With grassroots initiatives handling waste, it implies that the norms might have already been tweaked a little bit. The researchers argue that it might depend on the educational efforts by the grassroots initiatives. Other norms mentioned by the interviewees were: the inability to question the government about their processes, short-term financial benefits were more important than long-term environmental winnings for most people and no separation of waste. One respondent highlighted, however, that some of the norms are not specific to either Zanzibar or Africa. Environmental change has to be addressed both globally and locally and norms have to change everywhere. This is, however, not an excuse to not address the change of norms in regards to waste in Zanzibar.

Norm creation is described as a three-step cycle by Finnmore et al. (1998) where the most important obstacle for a change can be the ‘tipping point’. The ‘tipping point’ describes the critical mass on a state level that adopt a norm change. For example, had educational efforts have been initiated by grassroots in Zanzibar. This might be an indication that the tipping point is within reach. The first step of this cycle have norm entrepreneurs trying to influence a change. When norm entrepreneurs try to influence norm leaders, it is successful then when a critical mass of the norm leaders are convinced. This could for example be grassroots initiatives targeting a change and then trying to affect the Shehas, as could be resembled as norm leaders as they are the key people in society in Zanzibar. When enough Shehas within the Sheha network had adopted the change, being able to affect the masses in Zanzibar, this could resemble the tipping point. In the third step, the norm is described as being internalised and could resemble the broad acceptance of the norm. The norm challenge could in this way be adapted to the societal prerequisites in Zanzibar.

An example of the norm change described in the paragraph above, the Vikokotoni initiative have for example seen the change internalised in their neighbourhood. Not necessarily through the Shehas, but rather due to the Vikokotoni initiators continuously informing and persuading the inhabitants. The clean streets then influenced people to change their behaviour. When the

streets became clean it became more obvious that one is littering and it was argued that Vikokotoni could see a big change. In this way knowledge, or legitimised knowledge, has through grassroots innovations, collective actions and empowered citizens proven to make a change in the local society and contributed to a normative change. A lot of work has been put into this initiative and as several authors suggested, norms do not change overnight (Kennedy, 2011; Finnmore et al. 1998). However, the challenge of legitimised knowledge has been argued to influence the societal transformation addressed by both Hossain (2018) and Smith et al. (2014) and the researchers of this study argue that it should be emphasized as a major challenge for grassroots innovation. The legitimised knowledge might result in collective actions in terms of new initiatives and helping those already established, further empowering citizens and possibly changing norms.

5.3 Summary

The grassroots initiatives in this study are functioning organisations and might be the evidence that there are some people that want to voluntarily contribute to a positive impact. It also suggests that grassroots initiatives have been able to evolve and develop by working with the challenges they face. The researchers agree with Dobson (2004) that citizens, on top of the government, are needed. Although, the government also needs to support the citizens as it has become apparent that the government possesses a key role when it comes to the waste situation in Zanzibar. The grassroots initiatives included in this study are, however, up and running and have been able to reach the size they currently have. There has been limited empowerment of citizens in general, but the entrepreneurs behind the grassroots initiatives in this study have made use of their knowledge and have made a change by initiating these initiatives. The researchers believe that this might be the beginning of a larger transformation.

Several challenges for grassroots innovations have been treated in this study, both from theory and the data collection. The local political and social prerequisites, however, suggests that the challenges should be consolidated and expanded compared to the two theories. Hossain (2018) and Smith et al. (2014) somewhat complement each other, but as the interviews have been held during the field study, some challenges need to be highlighted in a unified model. The researchers in this study have concluded the following to be challenges of grassroots innovation: Scale-up, external forces, legitimised knowledge and collaboration, are linked to grassroots innovations within waste management in Zanzibar.

Through the data collection and literature review, the researchers argue that there are enough evidence that knowledge, both internal and external, plays a key role when discussing challenges for grassroots innovations in Zanzibar. *Legitimised knowledge* has a connection to both empowering citizens and changing norms, all being addressed in societal change and by the grassroots initiatives included in the study. This further implies the role that grassroots innovations play, and can play in a sustainable transformation of society. Legitimized knowledge is the challenge of both addressing internal and external knowledge efforts. This challenge therefore corresponds with the challenges addressing sustainability and societal transformation by both Hossain (2018) and Smith et al. (2014). *Collaboration* between grassroots initiatives is highlighted to be important by several respondents, where collaboration through networks has been argued to improve grassroots innovation, irrespective if one has a polycentric or conventional approach to collective action (Ostrom, 2010b). Collaboration between initiatives could spur great outcomes and is argued to be a challenge for grassroots innovation.

Scale-up is addressed by both Smith et al. (2014) and Hossain (2018), as well as several other authors and respondents in this study. The challenge of scaling is given when analysing grassroots innovation. Hossain (2018) mentions success as a tension, where external forces are highlighted. The external segment of this tension has instead been labelled as *External forces*, and is argued to be a challenge for grassroots innovation. External forces include e.g. enforced legislation and policies. Grassroots innovations in this study are interpreted to be on the line to push a societal change and often have to address external factors, such as legislation.

Through these four challenges, a new model has been created that correspond with the challenges identified by the respondents in this study as well as a development of the challenges found in the literature review. This because neither Smith et al.'s (2014) or Hossain's (2018) challenges completely describe the challenges grassroots innovations within waste management face in Zanzibar. The term *Success* used to label one of the tensions in Hossain's (2018) model and has now been set aside from the model. It stays relevant to the model since if one is able to tackle the four challenges mentioned, success could be reached. With the definition of grassroots innovations in mind, sustainability is seen as a prerequisite for success and is therefore not identified as a challenge in itself. The model identifying challenges for grassroots innovations, the *Quadruple tensions of grassroots innovations*, is presented in Figure 7:

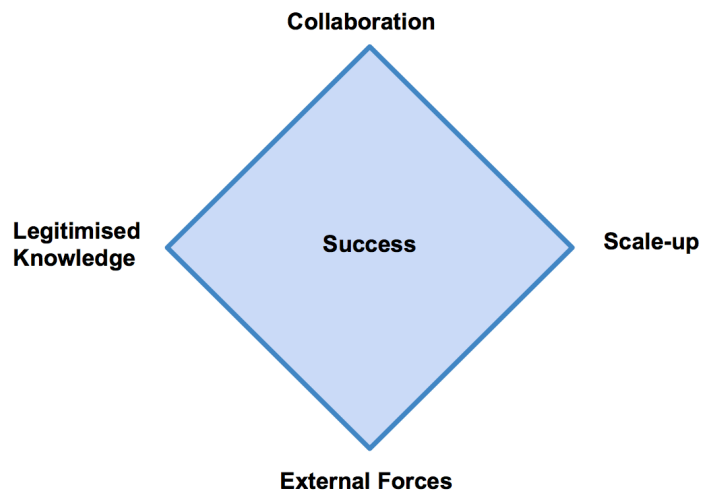


Figure 7: The Quadruple Tensions of Grassroots Innovations

6. Conclusion

Throughout the conducted study, the researchers have been able to compare literature regarding grassroots innovations with the experiences of grassroots innovations within waste management in Zanzibar. The grassroots initiatives have been initiated to act upon the waste situation, something the founders have been unhappy with. The grassroots initiatives in this study aim to clean Zanzibar and help solve the waste and unemployment situation. However, the grassroots innovations do not only contribute to sustainability, but also to education and disseminating knowledge. In turn, these contributions affect the current norms, which is needed for a transformation to take place. The grassroots initiatives have been initiated by empowered citizens with knowledge and drive, who have seen an opportunity, or an obstacle, and took the chance to tackle it. They have started their grassroots initiatives individually, without the help of a network, aiming for the same goal. Despite this, they have been able to get up and running and have established their respective initiatives. By understanding how these initiatives have evolved in Zanzibar, the researchers in this study are able to concretize the challenges they face.

Another important outcome of this research is the realisation that the environment and waste situation is under extreme pressure in Zanzibar. What is uplifting is that societal change is addressed by grassroots innovation, researchers and governmental institutions, even if the research shows that more needs to be done. Many of the respondents also acknowledge grassroots innovations as important players in this societal transformation, in regard to waste,

implying a future need for more grassroots innovations. Governmental institutions have, however, currently not understood the full potential that these types of initiatives have, to a certain extent, counteracted their development. However, small changes in behaviour have been identified, which might be the start of a larger transformation in Zanzibar towards sustainability.

Using Hossain (2018) and Smith et al.'s (2014) challenges as a base, the researchers of this study have been able to compare their theories to the challenges that grassroots innovations face within waste management in Zanzibar, during their evolution and development. This comparison, in turn, has paved the way for *The Quadruple Tensions of Grassroots Innovations* (Figure 7). The Quadruple tensions of grassroots innovations identified in the analysis have all, to some extent, influenced the grassroots innovations included in this study. The model was derived from the collection of data, a literature review and from the analysis of grassroots initiatives in Zanzibar. The researchers believe that it can be further applied to other grassroots initiatives outside of Zanzibar, despite its limitations.

The challenges included in the model have been the ones most commonly discussed in this study, and the model works to understand the complex environment in which grassroots innovations operate. The tensions, legitimised knowledge, scale-up, collaboration and external forces, all challenge grassroots innovations throughout their evolution. The researchers perceive grassroots innovations to be a crucial part of the societal transformation that is needed to save the beautiful island of Zanzibar. However, this model does not solve the environmental or waste related issues in Zanzibar, but rather highlights challenges that these grassroots initiatives face during their processes.

Collaboration and legitimised knowledge are the two most prominent additions to the theoretical challenges, presented in the literature review, that are included in the *Quadruple tensions model*. These are especially important to include, since the researchers argue that legitimised knowledge could help drive a normative change in Zanzibar and empower grassroots initiatives, citizens and governmental institutions; something many respondents in the study sought after. This, in turn, could spur both networking and collaborations among grassroots initiatives. Norms, collaboration, including collective actions, and knowledge were identified as major challenges among the respondents and were, therefore, of great importance to emphasise in the model. Application of the *Quadruple tensions model* to grassroots

innovations can hopefully concretize the challenges and pave the way for mutual understanding and joint efforts towards a sustainable transformation in Zanzibar.

7. Managerial and Social Implications

The following section introduces the managerial and social implications regarding grassroots innovations within waste management in Zanzibar. Even though the research has been conducted in Zanzibar, the researchers believe that other grassroots initiatives could use the suggestions below in order to help their respective initiatives to succeed and drive societal transformation. The model of *Quadruple tensions of grassroots innovations* that was developed during the research describes the challenges grassroots innovations face in Zanzibar. This model could be used by grassroots initiatives to map out challenges and create a plan for how to mitigate them in the best way.

First of all, the study shows that grassroots initiatives have been established and developed individually. The results show that grassroots initiatives need to be united and collaborate in order to have a larger impact on societal transformation. To achieve this, grassroots initiatives could implement meeting points where they are able to meet, map challenges using the *Quadruple tensions model*, and coordinate with a common aim of driving societal transformation by increasing the total awareness of the issue. Further, initiatives should aim to create and maintain positive relationships with local governments. Initiatives can create or join lobbying efforts in order to make policy makers more aware of the severity of the waste management situation and explain their role in reaching environmental goals. Should governments fail to acknowledge the severity, initiatives need to pressure the government further. In the case of Zanzibar, it was stressed that the government is not doing enough to support grassroots innovations. However, it is crucial that grassroots initiatives are supported and enforced by governments and governmental policies to be able to *scale-up* and have a larger impact on societal transformation, representing *external forces* and *scale-up* of the *Quadruple tensions model*.

Furthermore, collaborations between initiatives, paired with governmental support, could lead to more effective and widespread educational efforts. The research shows that educational efforts have a positive impact. However, they should not be limited to targeting schools, but rather extend to governmental institutions, private companies and tourists as well. Moreover,

repeated educational efforts will eventually legitimise the knowledge and help transform norms and attitudes regarding waste. Increased education is believed to result in more empowered citizens. As a result, legitimising knowledge and empowering citizens could, in turn, catalyse normative changes and enhance the outcomes of grassroots initiatives. These actions address *legitimised knowledge* and *collaboration* of the *Quadruple tensions model*.

Further, this model can be used by SIDA, who controls how financial aid is directed from Sweden, when supporting local organisations. By understanding the challenges grassroots innovation face within waste management, SIDA might be able to direct helping efforts more effectively by knowing what challenges they face.

8. Limitations and Future Research

This section include and treat factors that limits the conducted research and how the results of the research pave the way for future research on the topic.

8.1 Limitations

Several limitations have to be taken into consideration when taking on the study. The study was conducted in Zanzibar, Tanzania during eight weeks where first of all time and financial resources limited the scope of the research. For example, the scope of the research could have been expanded, including more regions and grassroots initiatives if it was not for a limited amount of time. However, thanks to a contribution from SIDA it made it possible for the researcher to conduct the study on site in Zanzibar. Given the set approach of a master thesis, the researcher perceive to have made the most out of the financial and timely prerequisites.

The limitations of generalisation, transferability and subjectivity are also considered to be noteworthy by the authors. For example, qualitative research limits the generalisability of the research and depends on the unique social context in Zanzibar in this case. The relatively small sample further limits the sample to represent a whole population. In addition, being based upon words, the subjectivity of qualitative research is another limitation of the study. The researchers have taken several measures to try to be as objective as possible, but there is, however, not proof of the researcher's objectiveness. In addition, due to the field study being conducted in

Zanzibar, it may have contributed to linguistic limitations in the form of language barriers, even if it was not perceived as limiting by the researchers.

As the case, and context, of Zanzibar is very specific, the limitation of transferability makes it difficult to apply the findings in other situations and locations (Bryman and Bell, 2015). The researchers tried to limit context-specific conclusions in order to increase transferability. However, the researchers are aware of the difficulty of succeeding fully with this. This in turn affects the applicability of the Quadruple tensions of grassroots innovations to other locations. However, the aim of the research was not to create a universal model for grassroots innovations but rather contribute to existing literature. The researchers argue that the new complementary model further helps to explain the phenomena, which in turn will facilitate future research and also the applicability.

It should also be mentioned that it has been difficult to determine which challenges are related to grassroots innovations specifically and not innovations in general. It is also important to acknowledge that other types of innovations were not included in this study. For example, if failed grassroots innovations were to be identified, it would be possible to pursue a comparison, regarding the identified development and challenges, between the studied grassroots innovations and failed grassroots innovations. For example, a ratio of successful versus failed grassroots initiatives in Zanzibar would be able to clarify how challenges impact both the surviving and de failing grassroots. This would further given the research additional depth.

8.2 Future Research

This research has had an exploratory approach which contributes to a rich basis for future research. It has provided the researchers with the opportunity to explore and map out broader problems within the context of grassroots innovations and their challenges in Zanzibar. However, this paper has not been able to dive deeper into each specific issue within the study. In line with the section 3.4 *Research Gap*, future research should focus on the phenomena waste management in relation to grassroots innovations, due to current scarcity. Further, future research should in depth focus on the bigger transformation rather than on a particular innovation in regard to grassroots innovations. The researchers hope to draw attention to the subject and lay the foundation for other researchers to further explore.

When mapping out the development and main challenges of grassroots innovations in Zanzibar, using the Quadruple tensions of grassroots innovations, the thesis presents a deficiency of knowledge, and a lack of collaboration and external forces. The researchers argue that the mentioned gaps need to be filled in order for grassroots innovations to be able to first of all scale up and success but also in order to generalise the results. Therefore, future research is needed in order to further map and out create a framework on how to improve these conditions, in regard to scaling of grassroots innovations. Further, motivations of different actors need to be further researcher in order to identify common interests and facilitate collaboration or networks. The researchers hope that the model, Quadruple tensions of grassroots innovations, will further create a base for future research and even be tested in other locations.

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Appendix

Appendix 1: Interview Guide

1. Tell us about yourself
 - a. What is your name?
 - b. Where are you from?

2. What is your position/role?
 - a. How long have you worked at (insert organisation)?
 - b. Why are you involved within this initiative?

3. What does (insert organisation) do?
 - a. What does waste management look like on Zanzibar?
 - i. What alternatives are there?
 - b. What support has your organisation received?
 - i. (Both from within and outside Zanzibar)
 - c. How many people are working here?
 - d. What does the organisational structure look like?

4. How has the waste situation evolved on Zanzibar over time?
 - a. What happens with the waste that is actually thrown into the garbage?

4. What is the history of (insert organisation)?
 - a. What has the development looked like? From idea to today.
 - b. What has been the (growth) strategy?
 - c. What are (insert organisation) main activities?
 - d. Why Zanzibar?
 - i. What is the culture like on Zanzibar?

5. What are the perceived effects/impact of (insert organisation)?
 - a. Socially?
 - b. Environmentally?

- c. Economically?
- d. How does the economical situation for (insert organisation) look like?
- e. Does (insert organisation) receive any financial support?
 - i. In case of yes, from who?
- a. What are (insert organisation) achievements?
- b. What are the objectives of (insert organisation)? Shortterm and longterm.
- c. What has enabled (insert organisation) growth? (Opportunities)

6. What has been challenging/constraints?

- a. What has been challenges/constraints in order to scale up?
- b. What type of challenges do you think similar organisations face?

7. Future plans?

- a. Do you think (insert organisation) should grow?
 - i. Why?
- b. How could (insert organisation) grow?