

The livelihoods of municipal solid waste workers – sustainable or a vicious cycle of debt and vulnerability?

A case study in Babati, Tanzania

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Abstract

This essay examines sanitation workers who work with solid waste management and analyses their ability to create a sustainable livelihood based on livelihood assets and strategies. The study was undertaken in Babati, Tanzania and a qualitative method was applied, consisting of interviews and observations. The main findings were that sanitation workers employed four livelihood strategies, however, only two of these were sustainable and contributed towards a positive livelihood outcome. Multiple stresses were identified, such as low wages, inability to save money, unsafe work conditions, exposure to bacteria and other contaminants and no access to social services. Shocks were identified as work-related injuries resulting in extended time off work, wages being paid out late and sudden illness. This made the sanitation workers terms of employment in Babati almost equivalent to that of waste workers and waste pickers in the informal sector, despite being employed by the local government authorities. As a result, the workers were not able to attain a sustainable livelihood and the livelihood outcome appear to be a vicious cycle of debt and vulnerability. A key characteristic for this study is its examination of Tanzania's political context and institutional framework as important factors that affect the sanitation workers' resource base and strategies as well as their exposure to vulnerabilities.

Key words: solid waste management, sustainable livelihood approach, environmental justice, vulnerability, LGAs, governance

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List of abbreviations

ALAT - Association of Local Authorities of Tanzania

CBO - Community Based Organization

CCM - Chama Cha Mapinduzi

DbyD - Decentralization by Devolution

EJ - Environmental Justice

EPA - The United States Environmental Protection Agency

LGA - Local Government Authorities

LGRP - Local Government Reform Program

NSGRP - National Strategy for Growth and Reduction of Poverty

PRSP - Poverty Reduction Strategy Paper

PMO-RALG - The Prime Minister's Office, Regional Administration and Local Government

SLA - Sustainable Livelihood Approach

SW - Solid Waste

SWM - Solid Waste Management

SWMS - Solid Waste Management Systems

TNBS - Tanzania's National Bureau of Statistics

1. Introduction

Waste management is one of the most difficult and visible environmental problems that urban communities and local governments in low-income countries face around the globe today (Claudel 2010). The rapidly growing problem with solid waste (SW) affects urban residents who are exposed to ineffective solid waste management systems (SWMS), as solid waste can pose a serious health hazard to people and public health. Waste that is not disposed effectively can spread communicable diseases, attract disease vectors, spread harmful substances and pollute the soil, water and air (Claudel 2010; Vergara & Tchobanoglous 2012 in Chen & Urpelainen 2015).

Waste workers provide a vital and essential part of SWMS in developing countries. They improve the quality and cleanliness of public spaces in urban areas and help prevent the spread of communicable diseases and therefore improve public health. They extend the life cycle of landfills by decreasing the amount of waste disposed in them and are important economic actors as they provide vast quantities of important material for the recycling market that would otherwise be unutilized. Waste workers also protect the environment by making materials available for reuse or to be reprocessed and enabling valuable materials to go back into the global recycling stream (Adama 2014; Dias 2016). Despite this, working within waste management is often associated with low social status (Mbah & Nzeadibe 2015: 293; Pilapitiya et al. 2006). Individuals working with solid waste management are also often marginalized from mainstream society, excluded from decision-making processes, and are often even viewed as criminals (Adama 2014; Dias 2016; Pandey 2011: 29).

Today, around 3.5 billion people live in urban areas around the world, it is estimated that by 2030 this number will increase to 5 billion people. Low-income countries will face 95% of this urban population growth (United Nations 2018). In 1950, only 29% of the world's population lived in urban areas. By the year 2000 this had increased to 47% and is projected to reach 61% of the world's population by 2030. Meaning that for the first time in history there will be more people living in urban areas than in rural areas (United Nations 2004 in Ahmed & Ali 2006).

Cities around the world generated an estimated 1.3 billion tons of solid waste in 2012. That number is expected to rise to 2.2 billion tons by 2025. Waste generation will more than double in low-income countries over the coming 20 years. Costs of global SWM is estimated to increase from around 205 billion USD in 2012, to approximately 375 billion USD in 2025. This

dramatic increase will be most extreme in low-income countries which will experience an estimated 5-fold increase in SWM costs. This provides a good indication of how big the problem of waste management might become in the future. Since SWM is often the single biggest expense for many cities and local governments in low-income countries today (Bhadata & Hoornweg 2012).

This case study examines the livelihoods of municipal solid waste workers in Babati, Tanzania. It puts into focus their vulnerabilities, the context in which they are working and what strategies they employ in order to improve their livelihood. Notably Babati has experienced rapid urbanization and therefore a massive increase in generated solid waste over the last decade.

1.1 Background

Rapid urbanization and massive increases in solid waste have created serious governance and environmental problems in most developing countries in the world today. Several different factors are playing a part in this, including insufficient equipment for waste workers, inadequate public funding and urban planning as well as weak governmental institutions. Absence of enforcement and implementation of policies and a shortage of adequate facilities for collecting, storing, disposing and transportation of solid waste are also problematic factors. Already strained and poor SWMS in developing countries, including Tanzania are subjected to substantial problems when it comes to the increased growth in SW generation and its disposal (Kamgnia Dia et al. 2009).

As much as 80–90% of solid waste generated in urban areas in low-income countries never get collected. Further, domestic waste which accounts for approximately 60% of total solid waste generated daily, is often disposed of by harmful burning or burying by households (NBS 2017: 133).

As it has been accounted for above, SWM brings many complex challenges for low-income countries to deal with in form of governance, lack in public funding, planning and weak governmental institutions. Therefore, it is important to look at the political context as well as the institutional setting in Tanzania when analyzing waste management in Babati. The next subchapter will present the historical and contemporary political and institutional setting in Tanzania.

1.2 Politics, Institutions and Governance in Tanzania

Local governments have existed in Tanzania since 1926. Decentralization has been ongoing in three separate phases in Tanzania since its independence in 1961. During the first phase, the government dissolved the local governments and cooperative unions in order to merge local and central government functions. This was done in order to decentralize power by directly involving citizens in the centrally coordinated planning process according to the ruling party Chama Cha Mapinduzi (CCM). Due to globalization and the new global economy, as a response to the African debt crisis, International finance institutions (IFI:s) such as the World Bank and the International Monetary Fund (IMF) via processes of global governance, were able to impose strict structural adjustment programs ¹(SAPs) on Tanzania and other heavily indebted states around the world (Mercer 2003: 741-743). As Ó Tuathail et al. put it, in adjusting countries, the national state became merely a “transmission belt for the new rules and regulations of the global economy” (Ó Tuathail et al. 1997:14 in Mercer 2003:742). The second phase of decentralization was thus initiated due to the fast decline in essential services caused by the economic crisis of the late 1970s and 1980s. As well as the devastating economic and social effects following implementation of the SAPs. Causing the ruling party CCM to re-introduce local governments in the country in 1984 (Kasubi et al. 2014: 1; Venugopal & Yilmaz 2010: 215).

The third and current phase of decentralization is being conducted through the Local Government Reform Program (LGRP) which was introduced by the government in 1998 to improve service delivery by transferring political, financial and administrative powers to local governments, to make local authorities more autonomous and democratic. The program is focused on a medium to long term process of legal and institutional reform by way of capacity building, expanded local political accountability to the local population, community involvement in planning and implementation of infrastructure and service delivery projects (Kasubi et al. 2014: 1; Venugopal & Yilmaz 2010: 216).

Decentralization refers to the division of powers between the central government and the local government. It is useful here to define two different versions of decentralization on opposite sides of the spectrum.

¹ SAP loans are provided to countries in dire fiscal or macroeconomic trouble. In return receiving countries are required to reform macroeconomic and fiscal policies according to a neoliberal agenda around economic stabilisation, trade and financial liberalisation, deregulation, and privatisation. Critics argue such adjustment comes at a high social cost (Kentikelenis et al. 2017).

First, “Decentralization by deconcentration” where, local governments answer to and are directly subordinated to the central government. The local governments in this case, have no legal powers except for those that are directly distributed by the central government (Ahmad et al. 1998: 4).

The opposite of this is often referred to as “Decentralization by devolution” (DbyD). This second definition describes the central government's transfer of power and authority over financial distribution, decision-making processes and management to the local governments, which to a degree should be free to act autonomously. This process gives municipalities independent authority to make their own investment decisions and the responsibility to raise their own revenues, as well as to elect their own mayors and councils (ibid: 5-6). DbyD presents the most direct link with democracy, empowerment and popular participation. It emphasizes the link between the state and the people, and a transfer of power, accountability and resources to the local government authorities (LGAs) in order to better represent the local population (Vedeld 2003: 160). DbyD is the method that Tanzania is currently implementing in the third phase through the LGRP introduced in 1998.

In 1985, after 20 years of striving for “Ujamaa”, a socialist model of economic development, Tanzania abandoned its pursuit of socialism and instead embarked on a new path of neo-liberal free market economy. In 1992, the country also abandoned its one-party state model after almost 30 years of one-party rule under CCM. Tanzania's development strategies have, since the 1990s, put emphasis on decentralization, institutional reforms, good governance and community development as its main drivers for poverty eradication (Mercer 2003). These neo-liberal economic reforms have had significant effects on the economic and social rights of the citizens of Tanzania. Both income inequality and inequality in the access to social services have risen since these reforms were implemented (URT 2005: 5-6). The national poverty reduction strategy paper (PRSP) was implemented by the government in 2000 when the negative effects on the welfare of the citizens of Tanzania due to the neo-liberal economic reforms implemented in the 1990s no longer could be ignored. The follow up to PRSP, the national strategy for growth and reduction of poverty (NSGRP) was implemented in 2005. The NSGRP officially promote the social inclusion and empowerment agenda of the post-Washington Consensus ²(PWC). However, in reality both the PRSP and the NSGRP still promote a strong neo-liberal agenda

² PWC represents a continuation of the neoliberal development policy, although in a more 'inclusive' form with emphasis on governance, civil society and poverty reduction. With the idea of empowerment in particular focus. as well as a more balanced role between the state and the market and the strengthening of institutions in comparison to the SAPs (Pflaeger 2013).

with macroeconomic stringency that assumes that economic growth will naturally produce a reduction in poverty and inequality (Pallotti 2008). The PRSP and the NSGRP both put a strong focus on restructuring local economic and political institutions. Where decentralization is considered essential for economic growth and poverty reduction (ibid). The LGRP policy presume that a transfer of funds and personnel from the central government to LGAs would create incentive to mobilize local resources and thus improve the delivery of social services. LGAs were therefore made responsible for financing social services like healthcare and education themselves (Mollet & Tollenar 2013: 346).

So how has Tanzania's focus on decentralization, institutional reforms, good governance and community development been implemented to strengthen local government services and increase political accountability and grassroots democratic participation? In theory DbyD should have improve accountability, service delivery and local political participation at the local level.

First, in terms of accountability. Local political responsibility and accountability structures are still very much lacking in Tanzania. Several vital LGA positions are still filled by the central government, thus blocking the institutionalization of local democracy within LGAs. Political representation in Tanzania is strictly hierarchical and promotes upward accountability from locally elected officials to central government officials. Instead of the intended bottom-up accountability to the local population (Venugopal & Yilmaz 2010: 217-218), There are no local government statutes or procedures that provide a citizen whose rights have been negatively impacted by administrative actions decided by the LGA to appeal such a decision. Furthermore, there is no independent organization in charge of even hearing and filing complaints by citizens whose rights have been affected by decisions or actions taken by the LGAs (Research on Poverty Alleviation (REPOA) 2007:13).

The hiring process of staff within LGAs is only symbolically maintained. The employment board responsible for hiring personnel for the local councils consist of three members appointed from the central government agencies and only two members from the local level. This obviously favors the balance for new hires for the central government. The central government play a big part in the actual hiring process itself, for example; all doctors, accountants, secondary school teachers and nurses are hired by the central government and then deployed to the LGAs. In fact, any other staff that the LGAs want to hire can only be approved by receiving permission from the central government (Orgut consulting 2009 in Venugopal & Yilmaz 2010: 222). LGAs have virtually no input during staff appraisals or staff discipline meaning that they

have almost no influence over staff and cannot do much if public servants like health service staff or teachers do not perform their jobs in a satisfactory way (Dege consult 2007 in Venugopal & Yilmaz 2010: 222). Ruling party CCM politician and member of parliament, Brigadier General Hassan Ngwilizi, states:

In a situation where real power has always vested in and has been exercised by leaders on behalf of the people the devolution strategy is invariably wrought with a host of difficulties and challenges. We are now fully aware that the difficulty of getting the existing power holders to part with their much cherished powers and prestige and give it to the people as the constitution already provides and the difficulty of getting the ordinary citizen to accept that he or she as a member of society is the source and fountain of all power and authority which has in most cases been exercised by the government on his or her behalf. (Ngwilizi, 2002: 21)

The public culture of accountability in Tanzania unfortunately cannot be characterized as strong. Further reasons for this could be local traditions, norms and etiquette that keep people with low social status from critiquing people with higher social status. Councilors in Tanzania for example, are entitled to be addressed as “Honorable” (Mheshimwa). Which shows the status and authority elected councilors expect to be granted with. This is especially problematic for women, who often find it challenging to take the floor in public meetings. Where they run the risk of being ignored or even ridiculed (Lange 2008: 1139). So, even though people have voted their leaders into power, they find it extremely difficult to hold them accountable (Shivji & Peter 2000: 59 in Lange 2008: 1139).

Second, when it comes to the expected improved service delivery from LGAs derived from DbyD with the focus on health care provision for poor and vulnerable groups of people, it was found that the achievements to deliver quality basic health services are far behind expectations set out by the DbyD policy. Accessibility to health care services by vulnerable groups cannot be guaranteed or can become meaningless when, vital drugs and medicine are often out-of-stock in public healthcare facilities and must be bought from private hospitals and pharmacies. Meaning that poor people often end up paying as much for public as for private healthcare (Kasubi et al. 2014: 5-6). Medical supplies, equipment and essential medicines are scarcely available in most public health facilities in Tanzania and this causes suffering and even unnecessary deaths of innocent citizens (Sikika 2013: vii).

Third, in terms of improved local grassroot-political participation,. Local government finance is severely limited in Tanzania. LGAs are responsible for around 20% of public spending nationwide, although they only collect approximately 5% of all public revenue. The rest is financed through transfers from the central government that are often conditional grants. Meaning that they are earmarked for specific areas decided by central government. LGAs have not yet managed to build up their revenue-raising capacity. In 2007 LGAs relied on the central government for more than 90% of their funds. Therefore, LGAs have very little control over their own budgets and cannot meet local demands and preferences from citizens as a result of the central government determining both the quantity and how revenues transferred to LGAs should be spent (Mollel 2010: 3; Venugopal & Yilmaz 2010: 224). Further, few citizens have knowledge or information about local governance processes and finance due to confusing and extensive documentation. Public notices on the subject are presented in a technical and complicated way, making it difficult for citizens and stakeholders to get simple, up-to-date information. A citizen survey conducted in 2004 showed that 86% of all respondents had never seen or received any information about local tax revenue or user charges fees being collected in their area, (such as waste collection fees) (Erasto et al. 2004: viii). Citizens in Tanzania have little belief in the legitimacy of local taxation and are therefore generally reluctant to pay taxes as they feel they get little in return for their money. Furthermore, the central government is responsible for setting tax rates. Any new tax changes in already existing LGAs tax rates must be written into the LGA by-laws and then approved by The Prime Minister's Office before it can be implemented, which is a time-consuming and demanding procedure for LGAs (Mwaimpopo et al. 2004: 37, 51-52).

To conclude this section, Tanzania's decentralization effort, starting out from a one-party socialist system with central planning into a multi-party state and open economy, has made some headway. However, the process has been extremely slow and there is still a long way to go for real DbyD to be realized (Khamis et al. 2013: 2; Venugopal & Yilmaz 2010: 229). Pallotti (2008: 222) argues that LGAs through the inherently technocratic and neo-liberal LGRP will in fact not strengthen the accountability and local political grassroot participation. Instead it risks weakening LGAs political legitimacy due to the still very strong control exercised by the central government. Therefore, it risks undermining and even accelerating social and economic marginalization of local communities, vulnerable groups and the already poor. By adding more pressure on-top of already financially strained LGAs, to be able to raise their own revenues for social services (Pallotti 2008:222).

1.3 Study area: Babati

This study was undertaken in a town called Babati, which is part of the Manyara region located in the northern part of Tanzania. The town is located near Tarangire National Park and Lake Babati.

Babati has experienced rapid urbanization and population growth since it was promoted to the regional capital of the Manyara region. It is the center for administration, political, economic, as well as social services in the region. This has caused many people to move to Babati town in search of work and other business opportunities (Hangoa 2014: 3-4; Lawi 2007: 48).

1.4 Problem area

As Babati has experienced a rapid population growth, the town is facing many challenges that comes with a growing town. Work opportunities, transportation and satisfactory living conditions are among these challenges, but so is solid waste management. According to a 2012 population and housing census by Tanzania's National Bureau of Statistics (TNBS), the urban population in Babati town grew from 30,975 in 2002 to 57,909 in 2012. An increase of 87% (NBS 2012:52).

Most solid waste management services in Tanzania are not publicly funded, but franchised to private companies, non-governmental organizations (NGOs) or community-based organizations (CBOs) by the LGAs. Despite the many complex problems that come with rapid increase in SWM due to rapid urbanization (Mol et al. 2013). SWM in Babati has undergone different phases of management. Local authorities have historically been responsible for SWM but outsourced the services to CBOs and private actors for a period of time. Before retaking responsibility for SWM once again. Efforts have been made to make Babati a clean town with well-functioning services, and waste workers are essential for the LGA and the broader Babati community in order to achieve this goal. Despite this, research show that waste workers in cases elsewhere are paid an inferior salary and appear to be subjected to marginalization and stigmatization (Adama 2014; Dias 2016; Mbah & Nzeadibe 2015: 293; Pandey 2011: 29; Pilapitiya et al. 2006).

1.5 Purpose

The purpose of this study is to examine and analyze the vulnerabilities, livelihood assets and livelihood outcomes of the sanitation workers involved in waste management in Babati, to determine if they can attain a sustainable livelihood. To determine this, we examine the

relationship that the sanitation workers have with the municipality as well as what capabilities they possess and what strategies they employ to improve their situation. In this study, the terms waste workers and sanitation workers will be used interchangeably as they have the same meaning. We draw from Sustainable Livelihood Approach ideas to help conceptualize, structure and analyze the empirical material.

1.6 Research questions

- What are the sanitation workers' terms of employment with the Babati Town Council?
- What strategies do sanitation workers in Babati employ to achieve a sustainable livelihood?
- What livelihood outcomes are they able to attain from these strategies?
- What possibilities would improve the sanitation workers' livelihood?

2. Previous research

Previous research has been done in the field of waste management in developing countries. A few of the studies have focused on individuals working in the informal or private sector within waste management, and a number have tried to map waste management systems. Some of this literature will be presented in this chapter.

How solid waste management is handled differs between continents. Many countries in Europe depend on municipal services, whereas franchising and outsourcing have become a common method in Africa where some have experienced more success than others. These services have been provided by private actors, CBOs and individuals from the informal sector, such as waste pickers. Gupta et al. (2010) defines the informal sector as "Individuals or enterprises who are involved in private sector recycling and waste management activities which are not sponsored, financed, recognized, supported, organized or acknowledged by the formal solid waste authorities, or which operate in violation of or in competition with formal authorities." (2010: 4). One of the reasons for outsourcing and franchising is the state's limited financial resources and inability to effectively manage the ever-increasing amounts of waste due to rapid population growth (Grebresenbet et al. 2015). This is the case in Kampala, Uganda, where the city authorities have outsourced to private actors in order to provide the services more effectively. However, this has not resulted in the expected outcome (ibid). This is also the case in Babati, where this case study has been undertaken. Mr. Aretas, the Town Cleaning Officer, explained that CBOs provided waste management services in the past but were not doing a

satisfactory job and as result, the Town Council once again took over the responsibility for the services (Aretas 2019).

Mbah and Nzeadibe (2015: 280) examined waste pickers and the social dimension of sustainability in the Nigerian city of Aba and found that neoliberal economic policies have led to a rise in waste picking, and a removal of social safety nets. However, the study also found that the informal waste pickers contribute positively towards sustainability as it drives entrepreneurship, generates employment and income, creates a "green economy", saves cities money and landfill space and help mitigate the problem of climate change. Despite this, the common public opinion is that waste pickers and waste workers are of a lower status than the general workforce (Mbah & Nzeadibe 2015: 293). A study on public opinion in Dar es Salaam, Tanzania, showed that the public prefer government participation in waste management over private actors, CBOs or waste pickers, although the government have been inactive in most areas (Cheng & Urpelainen 2015: 117). This means that even though the informal sector fills a gap left by the municipalities and LGAs, the public still prefer more government involvement.

A study by Maldonado and Moreno-Sanchez (2006) on informal waste workers in developing countries found that they provide an important role in SWMS. They collect waste in the streets, landfills and dump sites that formal waste workers ignore which can then be recycled or re-used and incorporated into a country's economy. Despite providing this valuable service and benefit to society, informal waste workers are ignored when waste management policy is implemented. The study explores how informal waste workers can be integrated in more inclusive SWMS and thus minimize their long hours of strenuous manual labor without adequate safety equipment, social marginalization, health risks, economic insecurity and lack of basic social services. Helwege and Marengo (2018) also explore how to include informal waste pickers that are working without any social benefits and safety gear in South America by creating inclusion programs to improve their livelihoods and promote recycling. As inclusion of informal waste pickers into the formal economy would benefit all stakeholders involved in SWM.

In a study by Keita et al. in (2002) on community participation in waste management in Bamako and Bangalore, a pilot case study was analyzed. The project was conducted in an area comprised of 3,000 households. The objective of the study was to create a SWMS through community involvement and in close cooperation with the city authorities focusing on raising awareness and education of residents regarding waste and a healthy environment. This was to be done

initiating a door-to-door waste pickup service, conducted at specific times. Separation of solid waste and organic waste at the household level was introduced. Residents were encouraged to apply to become civic wardens, and to enroll into a waste management committee. Both were tasked with monitoring LGAs waste services from a grassroots community perspective. Time and effort were put into raising awareness through explaining methods and benefits of waste separation and a clean environment and by spreading the message during public events, hosting seminars and workshops in community halls attached to local temples. Door-to-door contact with every household however was the main awareness-raising method. The door-to-door contact proved much more effective than by only handing out printed material as had been done previously. The study found that household participation in the new SWMS was rising. Approximately a 15% increase in participating households after each new awareness campaign was estimated. Considerate change in the behavior of residents was noticeable such as being more open to put time and effort into waste storage and separation and a higher willingness to pay the monthly waste collection fees. The results were more revenue from waste collection fees, less garbage being thrown in the streets and thus, a cleaner urban environment (Keita et al. 2002: 241-247).

Another similar study by Rathi (2005) analyzed community participation for alternative approaches for better municipal solid waste management in Mumbai, India analyzing a joint project between the Government of India and the Municipal Corporation of Greater Mumbai (MCGM) by using a decentralized SWMS called Advanced Locality Management (ALM). ALM is a community-based approach for more effective management of civil services at the grassroots level. The main objective was to start separating waste at the source, i.e. households, into categories of recyclable (dry waste) and biodegradable material (wet waste). Here too, like the previous study, residents formed a committee that was responsible for inspecting, planning and implementing different areas of the waste management. The committee also helped coordination between the MCGM and local residents for a smooth delivery of public services. MCGM conducted awareness and education campaigns for the residents, established composting pits for biodegradable waste and appointed an officer to process residents' complaints and to coordinate action with the committee. Waste pickers were organized and trained by NGOs in order to collect the waste at the households, sell the recyclable materials and compost biodegradables. MCGM provided the initial set-up costs, then the residents paid the waste pickers a collection fee for their services. The study concluded that successful community participation in waste management was more cost efficient than if only handled by the local authorities. The net cost for waste management was (1) through successful community

participation 35 USD per ton, (2) Public-Private Partnership 41 USD per ton, (3) waste handled only by the municipal authority 44 USD per ton. Community participation is not only cheaper for SWMS. Other advantages include: smaller demand for community trash bins, healthier and cleaner environment, cheaper SWM transportation costs, reduced land requirement for landfill due to less waste getting disposed, thus extending the life cycle of landfill, significant reduction in waste burning, meaning smaller emissions in the air and reduced toxic fumes released in the air and finally a decreased level of environmental pollution (Rathi 2005).

Another study conducted in Kathmandu examined municipal waste workers and their livelihood assets, vulnerability, strategies and outcomes found that the workers are excluded from political, economic and social spheres (Pandey 2011: 29). Noel (2010) examined both formal and informal waste workers livelihood strategies in Port-au-Prince, Haiti and concluded that waste workers within the formal economy lack basic safety equipment. The employer could not afford to provide this due to a limited budget, so workers had to buy safety gear for themselves. They also earn very low wages due to budget constraints in the LGA, which often could not pay out salaries in time, often for several months at an end. Workers did not get paid for working overtime and were scheduled to work every day of the week. The LGA stated that they paid workers what they could, due to the central government providing insufficient funds to properly pay or provide safety equipment for their workers. There was no formal workers organization, making them unable to put pressure on the government or LGA to improve working conditions or increase salaries. These problems, the study found, resulted largely from poor governance, institutional instability, severely limited funds within the LGA and improper pre-disposal practices by residents. Waste workers were paid so little that they were kept at the bottom of the economic ladder.

Child waste pickers in the informal sector in Kaduna, Nigeria, are marginalized and overlooked and not acknowledged by the government despite the fact that the child waste pickers contribute to resource recovery (Nzeadibe & Mbah 2015: 280; Adama 2014: 155). There are however different views regarding this, as a few authors argue that the role of the informal sector has been widely recognized in recent years as they can reduce the cost for formal waste management, is an important complement to the public sector and can provide working opportunities for vulnerable social groups. Others say that the informal sector may cause further degradation of the environment due to the lack of proper equipment and use of inappropriate waste handling methods (Hipel & Ma 2016).

Some studies have also chosen to focus on workers' health. According to a 2010 study that examined the respiratory health of municipal solid waste workers, poor health among sanitation workers are not unique. The study was conducted by Athanasiou et al. (2010) in a port town in Greece where 184 municipal employees participated in a cross-sectional study where they filled in a questionnaire and evaluated their lung function by spirometry. The background of the study was an increasing evidence that the prevalence of work-related pulmonary problems is greater in waste workers than in the common workforce. The results of the study indicated a greater prevalence of respiratory symptoms and a higher level of decrease in lung function capacity in municipal solid waste workers, which could be a consequence of the workers exposure of bioaerosols generated by decaying organic waste, dust, vehicle exhaust fumes and bad weather conditions. The spirometry test showed a statistically significant decline in the forced vital capacity, which strengthen the correlation between waste workers health and solid waste collection work (Athanasiou et al. 2010: 618-623).

Another study by Pons and Ross (2013) states that solid waste workers are frequently exposed to soft tissue sprains, strains, tears and back injuries, broken bones, slips, trips and falls, vehicle accidents, prolonged exposure to sun and extreme temperatures, contact with fecal matter and other infectious and/or hazardous materials, among others. These conditions often result in injuries, illnesses and sometimes death among sanitations workers. Pons and Ross explain that "sanitation workers in developing countries are exposed to substantially greater risks, in large part because (a) solid waste collection, recycling, and disposal practices rely mainly on untrained manual laborer's who directly handle solid waste every day, (b) many laborer's are children who don't know enough to be careful, and (c) manual laborer's generally wear little or no personal protective equipment such as safety glasses, hard hats, gloves, safety boots, high-visibility clothing, etc." (Pons & Ross 2013: 661). Sanitation workers in developing countries also have fewer occupational safety standards and regulations. Today, developed countries rely on mechanical collection equipment which have proven to be effective to reduce the injuries and deaths of sanitation workers (ibid). Pons and Ross conclude in stating that it will be a challenge to improve the safety of sanitation workers in developing countries as government leaders tend to earn political capital by supporting service systems that employ many citizens, even though such practices may be inefficient and lead to occupational hazards, and there is often little incentive to reduce a labor force where wages are low and plentiful and where workers are unlikely to be compensated for injuries (Pons & Ross 2013: 662).

Other studies have examined social and environmental injustices in solid waste management. The United States Environmental Protection Agency (EPA) defines Environmental Justice (EJ) as follows: “Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies” (EPA 2017). EJ is a broad concept that entails both rural and urban environments where people live, work and spend their free time, as well as, people’s relationship to nature. EJ focuses on how power structures on different levels and scales, both globally and locally, can act to undermine marginalized people’s access and ability to make use of the environment they live in and its resources (Amazu 2018). One study undertaken by Kubanza and Simatele (2016) investigated social and environmental injustices in Kinshasa, the capital of the Democratic Republic of Congo and found that urban poor in the city bear an enormous environmental and social injustice burden stemming from uncollected solid waste and also faces challenges associated with poor SWM due to rapid urbanization, weak institutional set-up and civil conflict (Kubanza & Simatele 2016). This has resulted in poor and unhealthy living conditions for the urban residents, inadequate sanitation conditions, lack of water and an unprecedented accumulation of solid waste which have triggered a myriad of urban problems. As one of the core arguments of EJ entails a fair distribution of environmental benefits and burdens, the study found that the unsatisfactory waste management not only posed a problem for the urban poor whose health deteriorated, but also resulted in environmental injustice issues that affected the urban poor more than the rest of Kinshasa’s residents (ibid). Das et al. (2017) also examined EJ in Kinshasa a year later and found that solid waste management is a responsibility entrusted to public-funded municipal authorities. This was problematic as rich neighborhoods enjoyed well-functioning systems while the urban poor did not, which means that there is a clear divide between rich and poor neighborhoods and waste management and therefore an occurrence of environmental injustice. Das et al. concluded that environmental injustice occurs in many poor cities, particularly in sub-Saharan Africa (2017).

Drawing from these studies, waste workers and waste pickers appear to operate in a highly stigmatized sector. However, most studies have focused on the informal sector which means that there is a gap in the literature, as not much has been written about sanitation workers and their ability to make a sustainable livelihood within the formal sector (i.e. in our case through their employment with Babati Town Council). Thus, this study is contributing to the field of waste management and the research on the formal sector and its workers.

3. Theoretical framework

This third chapter presents the study's theoretical framework. The theory used is Sustainable Livelihood Approach where Chambers and Conway (1991) as well as Scoones (1998; 2009) have been influential authors.

3.1 Sustainable Livelihood Approach

Sustainable Livelihood Approach (SLA) is a highly flexible term. It can range from location-based rural or urban livelihoods, social differences such as gendered or age defined livelihoods, occupational factors such as fishing, farming, waste management or pastoral livelihoods and dynamic factors such as resilience or sustainable livelihoods or livelihood trajectories or pathways, and many more. Therefore, it is important to clarify and identify the specific factors that will be applied to the specific context of the development problem at hand so as to not muddle or add even more complexity to the SLA concept (Scoones 2009:171-172).

In its most simple form, Livelihoods perspectives start out with how different people in different places live. Several different definitions of SLA do exist. The approach was first introduced in 1987 by the Brundtland commission and was then expanded upon further in 1992 by the UN conference on Environment and Development where it was determined that SLA should be widely implemented to eradicate poverty (Krantz 2001: 1). Chambers and Conway (1991) wrote an influential paper on SLA, as an integrated concept that incorporates capability, equality and sustainability in order to measure if an individual, household or community has adequate access to food and cash to meet basic human needs, and if they have security in ways of access to or ownership of resources to guarantee enough income earning activities and savings to withstand unexpected risks or shocks in form of unforeseen emergencies (Chambers & Conway 1991: 4-6).

Drawing from the Chambers and Conway paper, Ian Scoones from the Institute for Development studies (IDS) proposed the following definition of SLA:

A livelihood comprises the capabilities, assets (including both material and social resources) and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks, maintain or enhance its capabilities and assets, while not undermining the natural resource base. (Scoones 1998: 5)

He continues to say that the key questions to be asked in any analysis of sustainable livelihoods is:

Given a particular **context** (of policy setting, politics, history, agroecology and socio-economic conditions), what combination of **livelihood resources** (different types of 'capital') result in the ability to follow what combination of **livelihood strategies** (agricultural intensification/extensification, livelihood diversification and migration) with **what outcomes?** Of particular interest in this framework are the **institutional processes** (embedded in a matrix of formal and informal institutions and organizations) which mediate the ability to carry out such strategies and achieve (or not) such outcomes. (Scoones 1998: 3)

To exemplify this, one can examine the individual, group or community and its socio-economic condition, how the national and/or local political setting creates restrictions or opportunities for the researched to pursue a sustainable livelihood and what outcomes it may result in.

SLA draws on an economic metaphor in order to combine both tangible and intangible assets that people have accessed and then combine these assets with five main capitals that make out the capital base which determines their ability to pursue different livelihood strategies. Combining these five main capitals, which are human-, financial-, social-, physical- and natural capital, determines what kind of livelihood the researched can construct for themselves and determines the livelihood strategies they can employ. How they can employ these determine livelihood outcomes and help us understand to what extent they are sustainable (Scoones 1998: 7).

Vulnerability should not be equated with poverty here. A failure to separate poverty from vulnerability has harmful implications. It acts to blur distinctions and uphold the stereotype of the nondescript and indistinguishable masses of the poor. Vulnerability does not mean a lack of or want of something. But refers here to insecurity and defenselessness in regard to exposure to risks, shocks and stresses. Or the ability to cope, recover from, or avoid them (Chambers 1989:1). Vulnerability is also more closely linked to net assets than poverty. Poverty for example, in relation to low income, can be reduced by borrowing and investing. Such debt however makes individuals and households more vulnerable within the SLA framework. The ability to cope with stress and shock impacts a person's livelihood. Stresses are typically

predictable, cumulative, continuous and distressing. Shocks on the other hand are usually sudden, traumatic and unpredictable (Chambers & Conway 1991:14).

The SLA framework, in other words, analyzes how sustainable livelihood is achieved (or not) in the context of the formal and informal political and institutional setting by looking at the five main livelihood resources; natural-, social-, human-, physical- and financial capital. The strategies and activities that people employ form a livelihood portfolio. It also contains an individual's ability to cope with and recover from stresses and shocks. This then determines how vulnerable they are. It also incorporates vital aspects of poverty such as vulnerability and social exclusion and focuses on the livelihood of the vulnerable or poor and starts out from the perspective of analyzing people's current livelihood systems in order to identify and create relevant interventions that are specific to the context of the problem at hand (Krantz 2001: 6-11).

A crucial aspect that SLA takes into consideration when analyzing the sustainable livelihood outcome are the roles of organizations and institutions. These can consist of political structures, policies or formal and informal institutions. To analyze and understand the social structures and various processes through which sustainable livelihoods are achieved is an essential component in the SLA framework. Power relations are inherently ingrained within institutions, thus, making disputes over rules, norms and institutional practices highly important. Institutions are dynamic and are constantly changing over time and are often subjected to different interpretations by different actors. They are part of the process of social negotiation (Scoones 1998: 12). Institutions can be seen as "the rules of the game" while organizations could be viewed as "the players" (North 1990 in Scoones 1998: 12). The dynamics between these institutions and organizations is an important factor in the SLA framework (Scoones 1998: 12)

Scoones (1998:12) states that understanding institutional processes allows us to identify opportunities and gateways or barriers and restrictions to sustainable livelihoods. Formal and informal institutions determine access to various livelihood assets and therefore directly affect the portfolios of livelihood strategies people can employ. The figure below illustrates the main factors within SLA as they relate to each other.

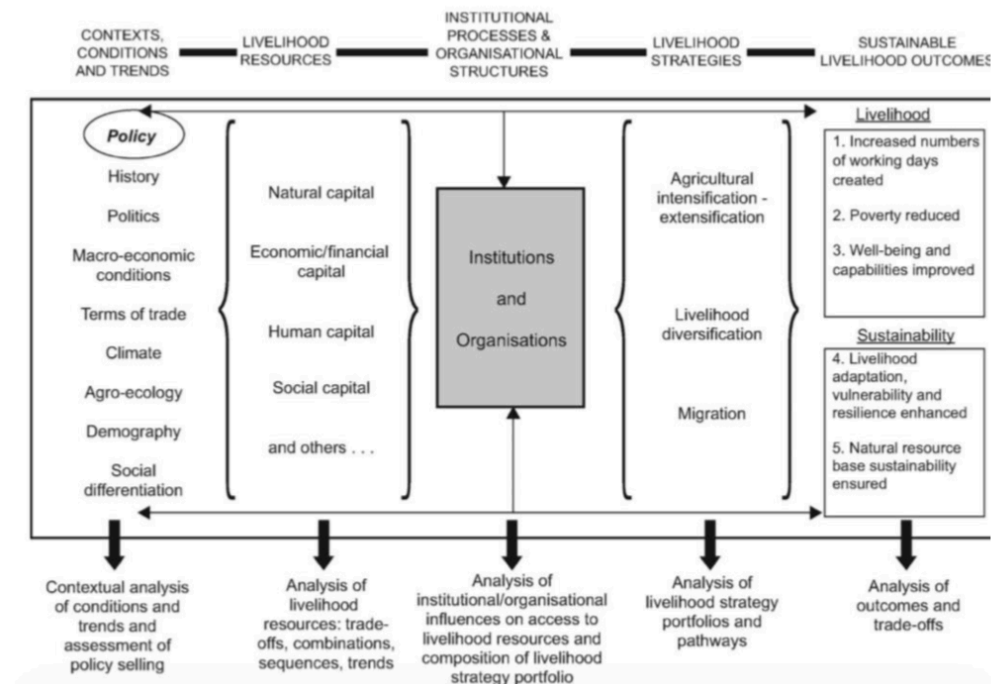


Figure 1 – Sustainable livelihood framework: a checklist (Scoones 1998)

A recurring critique of SLA is that it has historically largely ignored and stayed away from analyses of politics and power with a weak and sometimes contradictory theorization of politics and power as a result. It has failed to link the governance debate within development with livelihoods. Although some important work on incorporating these factors into SLA has been conducted, it has historically remained in the fringes of the SLA debate. Further critique of the framework has been its strong focus on micro-scale local context and people-centered approach resulting in a failure to address economic globalization and macro-scale economic trends as well as pressing global-scale questions. Yet another critique have been centered around a lack of focus in dealing with long term changes in environmental conditions, fundamental shifts in rural economies and instead focusing on immediate shocks and stresses and local knowledge and capability. While ignoring the big picture of global climate change and its devastating impact on those local people living where climate change effects are most severe (Scoones 2009:181-182).

Scoones proposes that politics and power must take a more central role in SLA going forward,. As politics is not only context based, it is a focus for analysis in and of itself. SLA need to move beyond the local level and examine wider structures of inequality such as the histories of places and people relating to for example globalization and state-making in order to tie together local, and micro-level perspectives with broader macro-level structural analysis to adequately assess

the structure and agency that define the opportunities and constraints acting on individuals, households or communities (Scoones 2009: 172). This is why this study has chosen to treat politics and institutions as an important contributing factor to individuals' livelihood outcomes.

The framework for the analysis of sustainable livelihoods presented in Figure 1 above provides an integrated view of the processes by which people, who in this case are the sanitation workers in Babati, manage to attain or fail to attain sustainable livelihoods for themselves.

According to Scoones (1998:13) even a major field research might not provide enough time and resources to investigate each factor provided by the SLA framework. Taking all the quantitative and qualitative data into account for the analysis while also looking through an institutional lens and incorporating contextual factors, combined with livelihood resources, strategies and outcomes, could prove an overwhelming enterprise and might still fall short of uncovering all aspects of sustainable livelihoods. Scoones (1998:13) continues to state that such a comprehensive analysis is not always even appropriate. The key factors when analyzing sustainable livelihoods are to identify the institutional patterns that determines the fundamental tradeoffs between different types of capital, livelihood strategies (portfolio) and livelihood outcomes (sustainable or not) for the individuals being researched. 'Optimal ignorance'³ must always be applied in work like this. To only seek out what is necessary to know, to in order to take appropriate action.

3.2 Applying the theory

Before the next chapter, a short section about the theoretical adaptation will be presented. Due to the limited nature of this field study, which was undertaken in the field for two weeks, a decision was made to use a qualitative approach by asking the sanitation workers' questions about their perceptions and opinions relating to SLA. The authors thought this fitting since SLA as Scoones puts it "*look at the real world and try understand things from local perspectives*" (2009: 172). In terms of SLA, the focus was on the five different capitals together with institutional processes, political and organizational structures that act to create barriers or opportunities for the sanitation workers and whether they can cope with the stresses and shocks they are exposed to, or if this creates vulnerability. This thesis will define stresses as: low wages, indebtedness, seasonal workload hardships and unsafe working conditions. Shocks are

³ Optimal ignorance means knowing the difference between what is worth knowing and what is not, enabling the collection of information that is required for the research projects. This avoids the collection of too much irrelevant data (Gleason & Scrimshaw 1992)

identified as: late salaries, sudden sickness and work accidents. As the stresses and shocks can be reasons or factors that results in vulnerabilities, they will be analyzed in an integrated livelihood analysis in the sixth chapter. The next chapter will present the analysis method and procedure of the empirical material in relation to SLA.

4. Methodology

This chapter will describe the methodology of this study, which includes choice of method, the implementation of the chosen method and an explanation of how the empirical material has been analyzed. A short segment of validity and reliability will also follow, as well as ethical considerations.

4.1 Qualitative method

This field study has conducted a qualitative method consisting of interviews and observations as well as an analysis of previous research. This has been suitable for the study as its aim is to understand the livelihood outcomes of individuals involved in the waste management sector. Scientific articles have been read, deselected and analyzed for the previous research analysis. These have been found through SöderScholar and GoogleScholar, where key words such as waste pickers, health, Tanzania, marginalization, environmental justice and livelihood have been used.

4.2 Semi-structured interviews

The primary empirical material for this study is generated from semi-structured interviews. This kind of interview method necessitates that a number of questions and key words are prepared in advance, but room is left for supplementary questions and wide, elaborated answers. Semi-structured interviews have four primarily advantages compared with more structured surveying techniques. The four advantages are as follows: (1) it gives the researcher greater flexibility in the questioning process, (2) the researcher has better control over the interview, in terms of time and place, privacy and of course in which order or sequence the questions are asked (3) personal interviews generate a higher response rate, compared to impersonal mail questionnaires, and (4) it gives the researcher the opportunity to collect additional information about the interviewees, such as background information, current living conditions and personal characteristics (Dewaard et al. 2015: 196-199).

Seven interviews were undertaken in total. Three of these were group interviews, two were made in pairs and one was individual. The individual interview was held with Mr. Aretas, who is the Town Cleaning Officer, working for the Town Environmental Sanitation Department in Babati Town Council. This interview was held in English which meant that there was no need for an interpreter, however, a field assistant was present during the interview to ensure the quality and accuracy of the interview.

Two of the three group interviews were held with sanitation workers, working for Babati Town Council's waste management. Issues that were covered include the workers' health, social networks, wages, security and family life. In the first interview ten women took part, while seven men participated in the second. Both interviews lasted for approximately 30 minutes each. The participants in these interviews seemed to appreciate the opportunity to share information and were generous with the information shared. The third group interviews were held with three teenagers with ages ranging from 14-19 who lived near Babati's landfill where they worked during the day. This interview lasted for approximately 15 minutes. However, the teenagers were not as open to discussing their livelihoods as the sanitation workers. The answers were short and unelaborated, and it seemed like the teenagers were hesitant to answer the questions, which is why this interview is shorter since it felt unethical to pressure them for elaborated answers.

The interviews held in pairs was more in-depth than the group interviews with the sanitation workers. The first interview included two women, while the second included two men. These interviews lasted for approximately 50-60 minutes each. To reach a greater understanding of the sanitation workers' workdays, observations were used as a complement to the interviews. Observations for about 20 minutes followed the interviews, where the interviewees showed their most frequently executed job tasks.

The group interviews and the interviews held in pairs were executed in Swahili, with a field assistant present acting as an interpreter. Semi-structured interviews are often preferred when using an interpreter as a lot of material can be lost due to translation errors if one relies on unstructured interviews. Several prepared questions or keywords reduce that risk which is why semi-structured interviews were suitable for this study (Willis 2006: 145).

The interviews were held in the order described for a reason. Mr. Aretas interview generated fundamental information about solid waste management in Babati. For example, he explained who is responsible for wages, fees and revenues, how much solid waste is collected each day

and the lack of governmental funding. The following interviews with the waste workers were not designed to challenge or question Mr. Aretas, but to explore whether the waste workers share the same opinion and perception as Mr. Aretas.

4.3 Analysis method of the empirical material

The empirical material that has been analyzed in this study was generated from semi-structured interviews and observations field notes. All the interviews were transcribed as soon as possible to ensure that no material was forgotten or left out without follow-up in interviews were deemed necessary.

The method used for this study is called paper-and-pen-method, by Aspers (2011: 185). The material needed for this method is the empirical material, which in this case consists of transcribed interviews and field notes, and different colored pencils. The idea of this method is to create categories from codes and concepts. The analysis was made by highlighting codes or concepts that contain valuable information or words that can be seen as themes (Fangen 2005: 103). However, the code is in itself neutral, and is merely to be seen as descriptive of individuals or surroundings, of feelings, theoretical concepts or of the researcher's experience. The code enables distinctions within the empirical material and is a part of the coding scheme which consists of different code types, for example background codes, substance codes and unfixed codes, which in turn consists of different sub-codes. The analysis of the empirical material can be made row by row or word by word and will hopefully generate highlighted codes and concepts that are common for multiple transliterations and field notes (Aspers 2011: 168-172). As a result, correlations and linkages can be made between the different material and help to deepen the analysis. Since the theoretical framework used for this study consists of Sustainable Livelihood Approach the codes have been categorized into the five elements of capital: natural-, social-, human-, physical- and financial capital.

As the analysis was undertaken by the authors in Tanzania and Stockholm, adjustments in the analysis method have been made. Parts of the analysis have been made by hand, and through the use of Microsoft Word. There is no fundamental difference between the different methods as they both are able to declare the codes in a sufficient way, but an analysis made with a computer has a number of advantages compared to the by hand-method as it is cost-efficient, and able to unitize different materials and can provide a find-function. When the coding scheme is made by hand it is however easier to get an overview of the material (Aspers 2011: 188). A combination of the two methods have resulted in a comprehensive analysis without difficulties.

4.4 Ethical considerations

Ethical considerations are important in any study in development research. It is therefore important to recognize that each stage of the research process could potentially involve ethical considerations, regarding the subjects of the research such as: the research problem itself, the setting where the research is being conducted, who the research subjects are, what type of data is collected and what data collecting method is required (Dewaard et al. 2015: 65). Thoroughly conducted fieldwork or a well-written study is not worth much if it leaves behind social chaos and conflict in the field. It is therefore crucial to consider how a study or fieldwork may influence or effect the people involved in the research after the researcher leaves the field (Brydon 2006: 25).

In the early days of development research, top-down models and modernization ideas ruled the agenda and the subjects of the research did not have any agency or voice. This has now changed drastically, much due to criticism which stated that earlier research ignored local practices and contexts. Now the emphasis lies firmly on collaboration, participation and facilitation between the researcher and the individuals being researched. The researched are not only involved in the data collection part of the research as passive subjects but are often also involved in formulating key questions in the research, as well as being involved in the design, analysis, evaluation and implications of the actual findings of the research (Brydon 2006: 26).

According to The Swedish Research Council, there are four primary ethical requirements to consider when conducting social science research, which consists of the information-, consent-, confidentiality- and usage requirement (2017: 40-42). All the interviewees have been informed that their participation was voluntary at all times, what the intended outcome might be as well as any potential risks, benefits or dangers that might be involved in participating in the research. Getting informed consent is a crucial ethical factor to consider when conducting research (Dewaard et al. 2015: 67; Brydon 2006: 26; Repstad 2007: 104). All interviewees have been given anonymity except from Mr. Aretas, the Town Cleaning Officer in Babati who agreed to be named. Two sanitation workers have been given pseudonyms; Lucas and Christopher⁴, whereas the others are referred to as Sanitation workers. This has been done since the research is handling highly sensitive issues which might be problematic for the individuals involved as it is not possible to control who will read or have access to the final study. All the individuals

⁴ They are also referred as to Lucas and Christopher in the list of references.

involved have been given guarantees that the information they have shared will be used for research purposes only (Brydon 2006: 26-27; Repstad, 2007: 104; Svensson & Teorell 2007: 21).

Besides the ethical requirements formulated by The Swedish Research Council, another crucial ethical factor that had to be taken under consideration is power relations in the field. This is especially true when it comes to working groups such as children, vulnerable or poor people (Binns 2006: 19). Local power dynamics must be considered within the culture of the research setting, and relationships between for example classes and clans, landholders and the landless, women and men, educated and illiterate, rich and poor or between workers in the formal and informal sector. As this field study was short term and in the Global South context, local intermediaries such as field assistants, interpreters and gatekeepers, with their own position and power relationships within the community, had to be relied upon (Apentiik & Parpart 2006: 34-35; Brydon 2006: 27-28). Such complex power dynamics require the researcher to be context-sensitive, up front and honest about how researchers might affect relationships between members within the researched community. Conscious efforts to overcome the hierarchical power relation between researcher and the researched requires repeated reassessment of one's positionality and assumptions as a researcher (Binns 2006: 19; Brydon 2006: 27-28; Henshall Momsen 2006: 47). This led to a change of field assistant half-way through this study as his/her position in the field caused the interviewees to feel uneasy and stigmatized, which is the opposite of the intent of the study.

4.5 Validity and reliability

When discussing qualitative research, concepts such as validity and reliability are often mentioned. The requirements for the concepts in qualitative research are different than in quantitative research, as the former is normally context bound and the conclusion may not be generalizable as it often is in quantitative research.

Validity is defined by Johannessen and Tufte (2003: 47) as "a degree to which qualitative data accurately gauge what we are trying to measure". In other words, it is concerned with the truthfulness of the scientific findings. To ensure the validity of this study, previous research in the field has been analyzed. A supervisor and several classmates have read the paper during the writing process and shared their constructive criticism. All the interview questions were also reviewed and approved by a supervisor and field assistants.

A high degree of reliability, on the other hand, is achieved when later studies reach the same results, even if it is conducted by different researchers or in a different time period (Johannessen & Tufte 2003: 28-29). Thus, it is concerned with the consistency, stability and repeatability of the results and requires the researcher to use the same or comparable methods on the same or comparable subjects. Reliability is easier to achieve in quantitative research as it is more objective and often based on numbers and statistics. As this study is centered around interviews and observations a high degree of reliability cannot be achieved since the answers from the interviews can differ depending on formulations, who is interviewing and who is the interviewee and subjectivity, which can be both aware and unaware. As this case study was undertaken within two weeks there are also limitations which may affect the results. Researchers who stay in the field for a longer period of time may find other data than what was gathered for this study.

5. Results

In this chapter the empirical material will be presented. The initial paragraphs will describe SWM in Babati in general, whereas the following five paragraphs are divided into the five capitals described in the SLA-model. Which are natural-, social-, human-, physical- and financial capital. This material is mainly generated from interviews with the sanitation workers, while the material used for the initial paragraphs mostly consists of material from the interview with the LGA representative Mr. Aretas.

5.1 Waste management in Babati

Responsibility for Babati's waste management has differed over the last decade. After outsourcing the services to CBOs and private actors, local authorities are once again responsible for waste management. The Medical Department was previously responsible for several years, but today the waste management services are handled by the Environmental Department (ED) and have been since 2014 (Aretas 2019).

Babati town generates around 66 tons of solid waste every day. Mr. Aretas, the Town Council representative and Town Cleaning Officer advised that a maximum of 25 tons can be collected and disposed of per day, which means that approximately 42 tons remains uncollected each day. According to Mr. Aretas this is a consequence of the lack of resources in the department which has resulted in poor methods and old equipment in bad condition (Aretas 2019). The

waste is collected by using dust-brushes, rakes, push-carts, one tractor. They also have one compressor truck, which Mr. Aretas says, “is the best thing for solid waste management” (ibid). The push-carts, dust-brushes and other equipment are in poor condition. This equipment is operated by 25 sanitation workers who works every day of the week, including weekends.

Every morning the sanitation workers clock in at 7:30 am at the meeting point in the town's center. The workers then get divided into groups that get distributed different duties in different parts of town. The tasks can differ, some may sweep the streets or collect litter from open spaces. The waste that is collected is later disposed at one of the three collecting points in town, from which the compressor truck collects the waste and drives it to the open landfill which is the final destination for waste disposal in Babati. The compressor truck can drive to the landfill site three times a day (Aretas 2019). The workers clock out at 15:30 pm on a normal day, provided they do not need to work overtime, which happen when the compressor truck break down (Sanitation workers 2019).



Figure 2: One of the three refuse bay collection points. (Denise Lekare 2019)

Babati's open landfill is located in the rural hills of Kiongozi, approximately ten kilometers from the town's center. It is estimated to last 100-200 years before it is full, according to Mr. Aretas, and operates without formal composting or separation of organic or hazardous waste. However, no waste from hospitals or industries are disposed there (Aretas 2019). Separation is managed by the informal waste workers who live near the landfill and work there at a daily basis. Most of them are teenagers who have finished primary school and work at the dump site to make a living for themselves or to provide for their families. They operate without any support or recognition from the Town Council. The teenage waste pickers, as they will be referred to from here, separate the valuable materials such as plastic and metal which people from town later buy from them. Other valuable things they find are kept for themselves (Teenage waste pickers 2019).

The Town Council has very limited economic resources due to an unwillingness from the community to pay for waste collection, which impacts the wages of the sanitation workers. Their salary is based on the fees and revenues collected by the Town Council every month, which means that it can differ on a monthly basis. The Town Council collects fees from households, restaurants and businesses which pay for waste collection. The households pay 1,000 shilling per month which corresponds to about 4 SEK or 0.4 USD, and the restaurants and businesses pay 2,000 shilling per month. Even though this is a relatively low figure, as the minimum daily wage in Tanzania is 10,000 shilling, many individuals still do not pay. According to Mr. Aretas, the biggest challenge the Town Council is facing is the community's unwillingness to pay for waste collection (Aretas 2019). He says national campaigns have been made to increase public awareness and improve their attitude and behavior, but they have only resulted in small changes (ibid). Revenues from bus stops, markets stands, public toilets and guesthouses are also collected by the Town Council. Salaries for the 25 sanitation workers consist of 20% of the total amount derived from these revenues and collections fees from the households and businesses (ibid).

5.2 Financial Capital

Financial capital consists of the capital base that people have access to, i.e. cash, savings, credit and debt as well as basic infrastructure, equipment and technologies that are needed in order to pursue any form of livelihood strategy (Scoones 1998: 8).

All of the workers stated that the salary from the job is not nearly enough to support or sustain their families' needs. None of them were able to save any money from the income they earn.

The vast majority of the sanitation workers are the sole providers for their household. As an example, two of the women interviewed, both of whom were widows, were the sole providers for their families consisting of nine and twelve members respectively.

This job it never sustains our family's needs. In fact, we need to take students to school, where the salary is actually not enough to fulfill the family needs. [...] it is not an assured salary, permanent salary. So, it is very difficult to do. In fact, [...], it is very hard. (Female sanitation worker 2019)

They further state that they have no opportunity to find any other sources of income, since they work between 07:30 am – 15:30 pm every day of the week, with no vacation days nor paid sick leave. (Sanitation workers 2019).

We don't feel that secure much, and again the body gets tired because we do the work weekends, and school and weekdays. We all do the work since Monday up to another Monday, so no resting. So, you will only rest when you get sick, if you get sick is when it's time for you to rest. (Male sanitation worker 2019)

One of the biggest problems that they describe however is that their salary is often not paid on time with delays lasting anywhere from two to four months. This makes the period while waiting to receive their salaries very difficult, since they as previously stated are unable to save any money from the wages that they earn (Sanitation workers 2019).

The average salary, according to the women interviewed, is about 265,000 shilling per month. After taxes they keep around 240,000 shilling or 102 USD per month (Female sanitary worker 2019). The women stated that they would need around 2,000,000 shilling (850 USD) per month to be able to save money and provide for their families (Female sanitation workers 2019). As a high proportion of their salary is used to pay rent, they cannot afford to pay for health insurance for themselves and their family members.

The men stated that their average salary was around 200,000 shilling (85 USD) but said that this varies depending on how much has been collected in revenues and whether they do have taken any sick days, as they only get paid for the days they work (Sanitation workers 2019). They also stated that a large proportion of their salaries is used to pay rent. Lucas, one of the interviewees, is renting a house and lives together with his wife and four children. The monthly

expenses for renting the house and utilities is 40,000 shilling, where 30,000 is for rent, 5,000 is for water and 5,000 is for electricity. Lucas estimates that he would need to just about double his salary to 450,000 shilling (190 USD) to have enough money to provide for his family, save some money and start to improve his living situation (Lucas 2019).

Christopher, another interviewee, is living with his wife and two children, the oldest is aged 3 years and the youngest 7 months and he is renting a room that costs 25,500 shilling/month, where 20,000 is for the room and 2,000 for electricity and 3,500 for water. He also provides for his sister's children. Christopher estimates that his salary would need to double, as his children are not in school yet. This is why 400,000 shilling (170 USD) would be enough to sustain them and also provide for his sister's children (Christopher 2019).

A big problem arising from the salaries not being paid on time, sometimes for several months, is that the workers are then forced to loan money until they receive their salary, in order to survive and provide for their families. They have various expenses, like buying foodstuffs, paying for medical bills if they or their children are sick as well as ongoing costs such as rent, electricity, water and transportation (Sanitation workers 2019). When asked where they secure the loans from, they answer that they borrow the money from "a person, who believe in them, that wants to help them" (Male sanitation worker 2019). The interest on these loans is a 50% flat rate for the first month. If they are late to return the money from the first month, due to the salary being delayed for a second consecutive month, the interest fee goes up to 100%. They further state that they are unable to make these loans more favorable for them due to their weak bargaining position (Male sanitation worker 2019).

The problem comes that the salary does not come in time. You can find at the end of the month, the second month no salary. Then you will still suffer to loan different products in different shops so you can provide services to the family. Once the salary comes, you pay the loans and you are left with no money. (Male sanitation worker 2019)

According to the sanitation workers this problem started when their contracts were moved from the District Medical Officers (DMO) to the ED within the Town Council. When the contracts were under the DMO's responsibility the salaries were paid on time, but since moving it to the ED, the salaries started to be late, due to the departments limited resources (Sanitation worker 2019). The workers state that the process of improving the terms of the new contracts will take

some time, but that the situation is getting better, however there is still room for improvement (ibid).

According to Mr. Aretas, the inability to pay the sanitation workers salaries on time stems from a lack of resources within the Town Council due to poor capability to generate enough revenue from waste collection fees and revenues from public toilets, bus stands, market stands and other areas around Babati Town. But also, because sanitation workers salaries are given a low priority by the Town Director and Town Treasurer who are responsible for paying out salaries to workers employed by the city. Other workers simply have a higher priority than the sanitation workers (Aretas 2019).

The money to pay for sanitation workers salaries consists of 20% from the total amount of waste collection fees and revenues collected from public toilets, bus stands and market stands around Babati Town. However, these fees and revenues are not enough, since the majority of people in town do not want to pay the 1,000 shilling per month (0.4 USD) to have their waste collected. Under Mr. Aretas' supervision, the salaries have however been paid on time for three consecutive months. He would further like to increase the fees from 1,000 to 2,000 shilling per month for domestic collections, in order to increase the sanitation workers salaries. Unfortunately, this is something that Babati Town cannot implement on its own as such a proposition must go through the parliament and then ultimately through the Prime Minister's Office which is a difficult and time-consuming process (Aretas 2019).

The only problem is the resources, because we are paying them through our own source, revenue collection from the area around Babati town. And then Town Treasurer look, there is charges for electricity, charges for other workers, charges for workers and then if there is no money for paying according to the priority, they say no, you have to wait first, and then give to the other workers. (Aretas 2019)

The workers further state that they cannot make demands or put pressure on the Town Council to increase their wages or go on a strike and stop working when their salaries are late. This is because they are easily replaced as the job does not require any specific skills or qualifications (Male sanitation worker 2019). "So, we just keep doing the job, and keep working even if the salary does not come" one male sanitation worker said. Another male sanitation worker said "It is very challenging [...] because we does not have deep qualifications, so if we stopped coming to work today, somebody will replace you tomorrow" (Male sanitation workers 2019).

Another big financial concern was regarding the mandatory payments they make toward their pensions. The workers stated that around 10,700 shillings is deducted per month for this. The employer is supposed to match this number and put it into a pension account for them. The workers are however uncertain if the money is actually deposited into the correct account on their behalf. When the workers try to enquire about this issue with the officers in charge they feel that they do not get satisfactory information and they are treated impolitely and dismissively because of their low social status (Male sanitation worker 2019).

In the end of the month there is some salary, some amount of money, taken as pensions, and put for the future, now when we ask, 'is it going to the right place? In a certain account, once I retire, will I get my money?' And then they [officers in Town Council] are very harsh to us, the officers in the District Town Council, they are harsh to us. 'YES, THERE IS!'. But because we are not educated much, they are still impolite and sometimes, once we ask once again to do follow up. 'Are they in the right place?' and they say 'YES!' and sometimes we take it as it is. But the money, goes to do other things. (Male sanitation worker 2019)

Some workers expressed a feeling of hopelessness, being trapped and not being able to find another job due to the nature of the sanitation work which entails long hours, strenuous manual labor, low pay, and no vacation or time for rest. "In fact, no way out, no way out, because the condition of the job and I must do so, I have no way to get another new job" one female sanitation worker said (2019). The easiest way to find another job would be to start a small business, but this requires capital, which they do not have access to as they are unable to secure favorable loans or save money from the low salary they earn (Female sanitation workers 2019).

The easiest one maybe would be to do small business, and when you speak of doing small business you need capital. So, in fact, if we could have the chance to save the money that we get from the job, then we could do another business, small business. But in fact, nothing we save, so we don't have capital to start small business that maybe could be substitution for the job. (Female sanitation worker 2019)

5.3 Social Capital

Scoones (1998: 8) defines social resources as "networks, social claims, social relations, affiliations and associations upon which people draw when pursuing different livelihood strategies requiring coordinated actions".

The majority of workers answered that they did not feel appreciated by the community or people in town. They also felt that the community did not understand that the work and service they provide is important for public health and the town's appearance. They acknowledge that some people value and appreciate the job they do, but the vast majority do not. Also, they state that if someone asked them about their job and how much money they earn, they tend to inflate the amount they make to encourage and empower themselves (Sanitation workers 2019).

Really, people do not appreciate what we do, it's like we sometimes remove the rubbish, but still people just throwing at the same time and the same place again, and they can say, it's your job! Pick it, it's your job! So, they don't appreciate what we do. (Male sanitation worker 2019)

The sanitation workers are employed by the Town Council under contracts that need to be renewed and re-signed every three months. This was a cause of concern for the authors of the study due to it possibly acting as a barrier for the workers to demand more favorable working conditions as such short contracts might make it easy to fire perceived troublemakers. However, none of the workers interviewed expressed any concern for the contract possibly not being renewed. They do mention that they need to keep good relations with the employer to get renewed contracts and need to trust that the Town Council are doing their best to provide their salaries when they are late (Sanitation workers 2019).

The sanitation workers due to their wages being low have organized themselves into a social network that provide financial aid to each other when they are facing big expenses such as weddings or funerals. Then the whole group provides emotional support if there is a funeral, and money to cover the costs of such events (Sanitation worker 2019).

If someone have a problem, if she is sick, he is sick, or if somebody getting married then we tend to contribute to each other, if there is a death in someone's family, then we contribute some condolences from the group, we tend to help each other in terms of money, sometimes we go to visit the family and have some responsibility there. (Female sanitation worker 2019)

The sanitation workers are in the process of trying to formally organize themselves to be able to secure health insurance as a group. They have brought this request to their manager who has

verbally agreed that this would be possible. At the time of the interviews however, eleven months had passed with no feedback or follow up from the manager (Male sanitation worker 2019).

Another important issue brought up by the workers themselves was that they should be provided with official ID-badges from their employer. The workers feel that showing that they are officially employed by the Town Council would improve the community's respect and opinion of them, as they would be seen as official town employees (Sanitation workers 2019).

There is no ID, no proper clothes to identify us while working, even though we have complained a lot to the Town Council director, but still now no response. (Male sanitation worker 2019)

5.4 Physical capital

IFAD, the International Fund for Agricultural Development (2008: 6) defines physical capital in relation to SLA as infrastructure, houses and buildings, communication, tools and equipment.

As waste management has low priority when the time comes to distribute resources within the council, the departments tools and equipment is of an inferior standard. Their working equipment consists of dust-brushes made of hay, rakes, push-carts, one tractor and one compressor truck. The dust-brushes, rakes and push-carts are all very old and in poor condition, and some push-carts are broken. The compressor truck is relatively new as it was purchased only two years ago. However, is often breaks down or has technical problems. This puts a strain on the sanitation workers as they have to work extra hours to make up for the work the compressor truck normally would do (Sanitation workers 2019). They are not provided with litter pickers which would reduce the back pains many suffer from as they would not need to bend forward as much as they do now when they pick up litter from the streets with their hands.

The strained resources also result in substandard safety gear. The sanitation workers are provided with gloves once a year for free, but since the ED took over the responsibility for waste management from the DMO they are no longer provided with rain boots or helmets (Sanitation workers 2019). When the gloves are worn out, they are required to replace them themselves, but as the salary is so low, they often go without. The sanitation workers also expressed the need for ID-badges as a form of safety equipment and have complained to the town council director without any response. They feel this would improve the chance of cars

and motorcycles slowing down when seeing them working by the road. They would also gain more respect from the town's residents and provide identification if accidents happen or if someone wants to consult them for work (ibid).

The housing in Babati is expensive in comparison with their wages. This causes a problem for the sanitation workers when a large portion of their salary is used to pay for rent. Most of them rent houses or rooms which they share with their families which can be quite large. Some workers also live outside town and expressed the need for better communications to and from work. A specific bus or even providing bicycles for the workers would give them more time with the family as they spend much time walking to work. Or a lot of money to pay for transportation in relation to their wages (Sanitation workers 2019).

5.5 Human capital

Human capital includes a range of aspects, including one's health, education, knowledge and skills and capacity to work (Scoones 1998: 8). These are aspects that will be discussed in this section in relation to the sanitation workers and the teenage waste pickers working at the landfill.

When interviewing the sanitation workers about their health they all said they suffer from a chronic cough, back- and knee pain and enhanced exposure to bacteria. A few of the workers also suffer from typhoid which is expensive to treat at the hospital, especially in relation to their salary. Some of the symptoms however seem to be seasonal, as the sanitation worker explained that the cough gets worse in the dry, dusty part of the year and the back pains are worse in rainy periods as the waste gets wet and therefore heavier. They also get cuts when cleaning the streets and often fall as cars and motorcycles drive close-by. Their current way of cleaning wounds is to use milk as a serum or antidote, but sometimes milk is too expensive. Most of the sanitation workers anticipate that they would be victims of additional diseases such as TB or UTI if they go to the hospital for a medical check-up. Medical check-ups or medical treatments are however unusual for the sanitation workers as they all lack health insurance. One of the male sanitation workers expressed discontent about the Town Council's social responsibility and felt that the Town Council should provide health insurance (Male sanitation worker 2019). One of the reasons for this is that the sanitation workers do not get paid when they are sick or visiting the hospital, even when the disease or injury is a consequence of the poor work environment. When asked if injuries are often caused by the work environment and if any injuries had occurred recently, Lucas answered:

We had two accidents, one when the car entered the bus stand, then the mother [woman] that was cleaning at the corner, was pushed with the car and she slid down the drainage ditch [...] and the other day a motorbike hit the mom [woman], and she slid down the drainage ditch. (Lucas 2019)

When they miss work to visit the hospital, it leads to a reduced salary as they only get paid when they work. As a result, they frequently work with pain in their backs and knees from injuries and avoid visiting the hospital in order cut medical costs and not miss work. They also believe that they bring home hazardous bacteria to their family as they are exposed to bacteria daily and lack the proper safety gear and health insurance. The male sanitation worker who expressed discontent about the Town Council's social responsibility suggested that the health insurance could be provided by taking a small fraction of their salary, as it is for the pensions. He continues to say that the sanitation workers eventually have to organize themselves in order to get health insurance, if the Town Council does not take its responsibility (ibid).

The teenage waste pickers are even more exposed to hazardous waste and fumes than the sanitation workers as no proper separation or composting is done by the formal sector at the landfill. Instead, they separate the valuable materials such as plastic and metal by hand without gloves or other safety gears, in order to sell it later on. The waste that remains is often burned which also affects the waste pickers health as smoke can cause respiratory diseases.

In terms of formal education, none of the sanitation workers have a high degree of education, and some have only finished primary school. Lucas, one of the sanitation workers, said they all encourage their children to study at higher levels, as this would mean more job opportunities in the future. However, since they all work long days they rarely have time or energy to help their children with homework and studies (Lucas 2019). They also wait a few hours to play with their children as they are covered with dust and bacteria when they get home and need to take a shower before they can play (ibid).

As all the sanitation workers lack any higher degree of education and no special knowledge, skill or qualification is needed to become a sanitation worker, they are easily replaceable by the Town Council. This puts them in a vulnerable position, as they cannot affect or oppose their working conditions or go on strike when the salary is late. It also means that they have to work close to 365 days a year if they want to keep their jobs as they only get time off when they are

sick. There is very little variation of job tasks and most days looks the same, except when they are required to work overtime. The tasks are evenly divided between men and women but some of the male sanitation workers said they often do more of the physical or heavy tasks as they are, in their own words, more suitable for men (Male sanitation workers 2019). Besides this, they all agree that the job is equal for both genders and they felt equally unsafe when working in public places. The department also has an even mix between men and women (Sanitation workers 2019).

5.6 Natural capital

According to SLA, natural capital can consist of land and water resources, forest products, wildlife and biodiversity and environmental services, to name a few. From the empirical material generated it is clear that waste management reduces the amount of natural capital in Babati and is at the same time harmful for people's health. However, it must be pointed out that the natural capital would be reduced even more if not for the sanitation workers, because, as it was mentioned in the first chapter, they improve the cleanliness of public spaces, help prevent the spread of communicable diseases and extend the life cycle of landfill by separating waste and by enabling valuable materials to go back into the global recycling industry stream.

In order to meet central government regulations regarding waste management, Babati has applied three bylaws. These bylaws declare (1) that every person must live in a clean area, (2) that individuals who litter are punished with a fine for 30,000-50,000 Tanzanian shilling and (3) that individuals who damage the environment are punished with a fine for 200,000 Tanzanian shilling, according to the Environmental Act (Aretas 2019). Despite this, and the fact that households only pay 1,000 Tanzanian shilling a month for waste collection, which corresponds to 4 SEK or 0.4 USD, many people still pollute the nature. In order to evade the monthly payments and the fines for littering, they pollute the nature at night by burying their waste when no one is awake to witness it, or simply burn the waste (ibid).

This is harmful for both nature and humans. As there is a lack of economic resources in the waste management sector and environmental services, there is very little separation of waste, which pollutes the land and water and reduces the biodiversity and the ability for humans to grow plants and crops on the land. The waste also pollutes the air with hazardous fumes that can lead to respiratory diseases for humans when it is burned. When Mr. Aretas was asked about the health of the sanitation workers he said they seemed to be immune to the fumes and dust at the landfill and the collection points in town, as he immediately started coughing and

had trouble breathing when he visited their work, while the sanitation workers never complain to him (Aretas 2019). However, when the sanitation workers were interviewed for this study, many of them said they suffer from a chronic cough and an extreme exposure to bacteria which they later bring home to their families (Sanitation workers 2019).

As mentioned in the beginning of this chapter, Babati's landfill site is located in the rural hills of Kiongozi, approximately ten kilometers from the town's center. As the only kind of waste separation is managed by the teenage waste pickers who live nearby, the nature is negatively affected. The landfill is thoughtfully placed far from town to reduce the effects on the Babati community, but this consequently means that the nature and environment are being contaminated by the waste, fumes and smoke when the waste is burned. However, the teenage waste pickers are reducing the negative impacts on the environment as they separate the waste and sell the valuable materials, meaning less waste is left at the landfill to harm the environment or to be burned.



Figure 3: Babati's landfill site. (Denise Lekare 2019)

6. Analysis

This chapter will analyze the empirical material in relation to SLA, the theoretical framework for this study. The first section will briefly present the national political context that sanitation workers in Babati are situated in. The second section will examine the financial-, social-, physical-, human- and natural capital in order to determine if they are strong and thus can help achieve a sustainable livelihood outcome or if they are fragile and thus create vulnerabilities and undermine workers ability to cope with or recover from stresses or shocks. The institutional setting in Tanzania and Babati will be examined in the third section, in order to determine if institutional processes creates opportunities or barriers for the sanitation workers, before identifying the various strategies sanitation workers employ in order to create a livelihood portfolio. Definitions of vulnerabilities, stresses and shocks as the authors have identified them will also be presented before finally examining the livelihood outcome based on combining the aggregate results from the context, - capitals, - institutional,- and livelihood portfolio of sanitation workers in Babati.

As it was explained in the third chapter, SLA can be described as a framework where the particular context together with combinations of livelihood resources result in the ability to form livelihood strategies which results in livelihood outcomes (Scoones 1998: 3). Livelihood resources are in this case the five different forms of capital which were described above.

Scoones definition of a sustainable livelihood is useful to examine again:

A livelihood comprises the capabilities, assets (including both material and social resources) and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks, maintain or enhance its capabilities and assets, while not undermining the natural resource base. (Scoones 1998: 5)

6.1 National context

The national political context in Tanzania, is at the surface one where the central government is in the process of implementing DbyD and thus, handing over power, decision making and autonomy to LGAs in order to promote democratization. In reality however, one could argue that the central government is keeping a very firm grip on the power and decision-making processes in the country. The technocratic and neo-liberal policies of LGRP risks undermining and even accelerating social and economic marginalization of local communities, vulnerable groups and the already poor by making already financially strained LGAs responsible for

financing and providing social services. It seems clear then that national policy does not provide much in the way of support for the livelihoods of vulnerable sanitation workers in Babati.

6.2 The workers' capitals

In order to do an integrated livelihood analysis, one must understand how the different forms of capital affect each other, or in this case, the lack of capitals. Their financial capital is the biggest cause for concern, as it is extremely limited. Being the sole provider and unable to support the family's basic needs, as well as not being able to save any money due to their low wages. The inability to engage in alternative sources of income due to the stringent work schedule. Uncertainty about pensions being administered correctly. No access to health insurance. All these factors combined causes considerable financial vulnerability for the workers and thus creates an extremely limited ability to cope with or recover from shocks such as the salary being paid out late, sudden sickness or accident. The Town Council's inability to pay salaries in time forces the workers to loan money at exorbitant interest rates, which in turn leads to indebtedness that can be difficult to repay. These loans are a form of livelihood strategy by the workers, however, it is not a sustainable one as it does not maintain or enhance the workers capabilities or assets and acts to create even more financial vulnerability.

The sanitation workers' social capital showed that the majority of Babati's residents felt that the workers are of a lower class and status which affects the level of community support. This was manifested by cars and motorcycles driving disrespectfully and dangerously close to the workers. This causes an unsafe work environment and thus a stress-factor that they are unable to avoid (Sanitation workers 2019). Their low social status makes them unable to demand more favorable loans, nor gain information about their pension or demand improved work conditions or higher salary, adding another stress-factor that they are unable to affect or avoid, thus creating added vulnerability. As the community support is low, it has caused the workers to organize informally. This informal network is a source of financial and emotional support and appears to be the only strategy which has a positive impact. However, a formal organization is still needed, as this would improve the chances of demanding better working conditions and/or interest rates on loans. The workers are in the process of organizing formally. This as a possible gateway in order to create a stronger social capital. Unfortunately, this has yet to be realized.

The workers' human capital showed, besides from poor health and exposure to various health and environmental risks, a lack of education, qualifications or specific skills. This puts them in a highly vulnerable position as they, in their own words, are easy to replace since the barriers

to work within sanitation are low and they work under short term three-month contracts. The nature of the job, with demanding physical labor and no days off, undermines their human capital and is a health risk in and of itself.

The physical capital in the form of infrastructure, equipment and safety showed that lacking financial resources resulted in inferior work equipment and tools of poor standard and inadequate safety gear, negatively affects the health of workers. No ID-badges or official uniforms added to a perceived sense of insecurity. These factors all act to undermine their physical capital, reducing their capacity to cope or recover from stresses and shocks and adding vulnerability. Expensive housing and utilities in relation to their wages is also negatively affects their human capital in the form of financial vulnerability. One compressor truck was purchased two years ago and has helped reduce the workers' workload.

The natural capital is the capital which has the fewest negative impacts on the workers livelihood. It is mostly the environment that is affected as waste pollutes the air, land and water. However, it must be stated that without the sanitation workers and teenage waste pickers, these negative impacts would be much worse. Thus, it could be argued that their work is adding to the natural resource base. The pollution of air, land and water does have some impact on the workers' health due to poor managing methods, but then again, it could be worse and especially if the landfill site was located in the town's center.

6.2 Political and institutional context

Putting the workers capitals into the national political context in Tanzania, consisting of a neo-liberal open market economy, it is quite clear that it does not provide much institutional support for the livelihoods of vulnerable sanitation workers in Babati. As already shown previously both income inequality and inequality in the access to social services have increased since the national strategy for growth and reduction of poverty (NSGRP) and the national poverty reduction strategy paper (PRSP) reforms were implemented (URT 2005: 5-6). Further, as (Pallotti 2008: 222) argued, the local government reform program (LGRP) is actually weakening LGAs political legitimacy instead of strengthening it.

First, implementation of DbyD was done so LGAs could increase revenue streams, fund and improve welfare and health services to local residents. This has failed. Public health care facilities often face a severe lack in funds. Patients without health insurance often end up paying the same price in public as they do in private facilities, as public facilities often must buy

supplies from private clinics or pharmacies a market price. This creates a vulnerability for the sanitation workers who do not have access to subsidized healthcare although they have a greater need for healthcare than ordinary citizens due to the hazardous nature of their job.

Second, DbyD was implemented to improve political accountability to the local residents and increase grassroot political participation. However, this has not yet been realized. No statutes or procedure exist for citizens to file complaints nor appeal decisions made by the LGA. Political representation in Tanzania remains hierarchical, promoting a culture of upward accountability instead of the intended downward accountability to the local residents. Informal local traditions and norms keep people with low social status from critiquing people of higher social status. Political accountability in Tanzania could therefore be considered weak. This creates several barriers for sanitation workers in Babati as there is no official course of action nor institutional support at their disposal to hold officials accountable that would have a real impact as they; (1) attempt to enquire information about pensions, (2) request follow up about securing health insurance from the employer (3) challenge their low priority regarding salary payouts (4) request adequate safety equipment, official ID-badges and work uniforms.

Third, regarding improved community involvement in planning, implementation of infrastructure and service delivery projects. LGAs have very little control over their own budgets, as the vast majority is funded by the central government, who then determine how and where funds should be spent. LGAs therefore cannot meet local demands and preferences from its citizens. Further, citizens have little information about local taxes and user charges fees (used for waste collection in Babati). Citizens have little belief in the legitimacy of local taxation, and thus, are reluctant to pay taxes as they get little in return for their money. This creates further barriers directly affecting the salaries of the workers as they are paid 20% of total revenue from waste collection and revenues. Thus, creating added economic vulnerability.

Finally, DbyD has yet to be realized, as LGAs have virtually no autonomy regarding financial matters. LGAs are thus not able to change existing taxes as they see fit without approval from central government, a time consuming and burdensome procedure for LGAs. This creates yet another institutional barrier, as Babati's LGA would prefer to increase waste collections fees from 1,000 to 2,000 shillings per month in order to raise the sanitation workers' salaries.

6.3 Livelihood Portfolio

The ability to pursue different livelihood strategies depend on the ability to combine resources together with intangible assets, such as claims and rights, with activities and strategies employed in order to create a livelihood portfolio (Scoones 1998: 9). Four livelihood strategies were undertaken by workers: (1) not seeking healthcare in order to save on medical costs, (2) securing loans due to salaries being late (3) walking to work to cut transportation costs and (4) establishing an informal social and financial network. Only two of these strategies were however sustainable as not seeking healthcare undermines their human capital. The loans, due to the exorbitant interest rates is also unsustainable as it undermines their financial capital, adding to the workers financial vulnerability. The strategy that appeared to have the most positive impact on their livelihood outcome was the establishment of the informal network. Even so, the livelihood portfolio for sanitation workers in Babati is severely limited, mainly due to (1) an inability to engage in alternative income earning activities and thus inability to diversify their already low incomes due to the stringent schedule and demanding nature of their job, and (2) inability to migrate in search for other job opportunities due to being in debt from being forced to take loans.

Stresses were identified as: (1) low wages, (2) inability to save money, (3) unsafe working conditions, (4) exposure to bacteria and contaminants, (5) weak community support due to low social-status, (6) insecure employment due to being easily replaced, (7) recurring seasonal stresses, (8) no days off, no vacation and no paid sick leave and (9) no access to health insurance. Shocks were identified as: (1) work related injuries resulting in extended time off work, (2) wages being late and (3) sudden illness.

Institutional barriers was identified as: (1) high cost and poor health care quality due to lack of medicine, drugs and equipment in public health facilities, (2) inadequate safety gear and equipment due to insufficient finances within the LGAs budget, (3) citizens being reluctant to pay taxes and waste collection fees, directly affecting the wages of sanitation workers, (4) inability to increase waste collection fees due to LGAs limited financial autonomy from central government, (5) poor down-ward political accountability, (6) lack of any appeal or complaint process making sanitation workers unable to demand accountability regarding pensions and wages not being paid on time, and (7) inability to save money in order to cope with shocks resulting from salaries not being paid on time by the LGA.

6.4 Livelihood Outcome

The livelihood outcome of the sanitation workers in Babati must thus be regarded as extremely vulnerable. This is due to all five of their capitals being identified as extremely weak. Also due to the nine different stresses identified above, that they are repeatedly exposed to and unable to avoid. As well as the three different shocks identified above that they are unable to avoid or protect themselves against. Finally the seven institutional barriers identified above that they have no capability to affect, change or avoid, are acting to undermine the workers ability to achieve a sustainable livelihood.

Of the four livelihood strategies employed, only two were sustainable. The sanitation workers in Babati do not have the capacity, assets or ability to employ the activities required to avoid, build up resistance to, or overcome any of the identified nine stresses, three potential shocks and seven identified institutional barriers, leading to them being under constant exposure to these institutional barriers, stresses and shocks which results in an extremely vulnerable livelihood outcome. I.e. their livelihood outcome appears to be a vicious cycle of debt and vulnerability and unfortunately highly unsustainable.

However, due to the very limited two-week timeframe of this case study, it must be noted by the authors that it is reasonable to presume that the sanitation workers in Babati engage in various other livelihood strategies that this case study was not able to identify.

Furthermore, it is highly likely that the sanitation workers are part of, and benefit from other informal social networks that acts as financial support for the sanitation workers low salaries. This can be community networks consisting of neighbors, neighborhood or networks that originally include one's spouse or other family members, that the sanitation workers possibly draw economic and social benefits from. As network analysis is extremely time consuming the authors of the study was unfortunately not able to explore these possibilities further.

Despite the many hardships, barriers and challenges facing the sanitation workers on a day to day basis. It is important here for the authors to acknowledge that the sanitation workers in Babati still manage to remain strong, positive, warm, very generous, competent, optimistic, proud and extremely hardworking while they continue to strive to improve the life situation for themselves and their families.

7. Discussion

When analyzing the empirical material, it became clear that even though the sanitation workers in Babati operate in the formal sector, their terms of employment is so precarious in terms of low wages, inadequate safety gear, stigma, health problems and uncertainty of employment as if it is mimicking the poor conditions of the informal sector. This chapter will therefore discuss the empirical material and put it into a broader, global context where similar cases around the world will be presented and discussed.

Pandey's (2011) and Noel's (2010) work on municipal solid waste workers in the formal economy sector show many similarities with sanitation workers in Babati. Pandey (2011) conclude that waste workers in Kathmandu are exposed to income inequality and exclusion from the economic, social and political spheres. The poor status of their livelihood capitals together with poor health act to deprive them of opportunities to cope with or recover from stresses and shocks and thus, resulting in an extremely vulnerable livelihood outcome. Similarly, Noel (2010) found that waste workers in Port-au-Prince, Haiti lacked essential safety equipment and thus, was exposed to constant health risks. They were also severely underpaid and sometimes had to wait months for their salaries. They had no days off, were not paid overtime and could not put pressure on the authorities to improve their conditions. This was mainly caused by poor governance and institutional instability. Grebresenbet et al. (2015) reported that it is common for other sectors to receive higher priority than waste workers, as many sub-Saharan African countries often have more pressing priorities such as health problems and unemployment. The workers in Port-au-Prince's daily working schedule was however flexible, making them able engage in other income earning activities in order to boost their meagre incomes from waste management which differs from the sanitation workers' situation in Babati, who have strict schedules and stated that they could not engage in other income earning activities. All three studies show similarities with the sanitation workers in Babati as they suffer from a highly vulnerable and unsustainable livelihood outcomes. The poor status of their capitals is largely affected by politics and institutions. On the national level, the neoliberal politics enacted through the PRSP and NSGRP have caused both inequality and inequality in access to social services to rise (URT 2005: 5-6). According to Pallotti (2008: 232-233) DbyD has not yet been realized and the central government still exercises a strong top-down control over LGAs which acts to create weak local institutions and undermines the LGAs ability to support vulnerable groups such as sanitation workers in Babati. Babati's LGAs inability to collect sufficient revenues and taxes results in lacking finances for social services, a lack of safety equipment, failure to pay salaries on time and weak political accountability. All these factors undermine the sanitation workers' ability to secure a sustainable livelihood. It

appears that municipal solid waste workers in many parts of the developing world are facing similar hardships.

As Maldonado and Moreno-Sanchez (2006: 373) show, working under extremely precarious conditions makes waste workers exposed to environmental health hazards. Helwege & Marelllo (2018) also reports that informal waste pickers are more vulnerable to injuries due to denied access to social benefits like health insurance and unemployment insurance. Despite being formally employed by the Local Government, Babati's sanitation workers show many similarities with waste workers and waste pickers in the informal sector as they work under three-month contracts and are easily replaced, lack social security as they are not provided health insurance nor can they afford it themselves. Exposure to work related hazards, no time off work and no economic security due to being underpaid and often forced to wait for their salaries for several months. The sanitation workers in Babati also perceived themselves as seen as being of lower status, by the town's residents. This links to Mbah and Nzeadibe's (2015: 293) study on waste pickers and workers in a neoliberal economic political context which found that even though informal waste pickers and workers contribute positively towards sustainability, they are still seen as being of lower status than the general workforce.

The sanitation workers' poor health in Babati are not unique as similar cases have been found around the world. Pons and Ross (2013: 661) found that solid waste workers are more frequently exposed to slips and falls, soft tissue sprains, back injuries and contact with fecal matter and other infectious and/or hazardous materials than the general workforce. They are also more exposed to these risks than workers in developed countries who rely on mechanical collection equipment which has proven to reduce injuries (ibid). Athanasiou et al. (2010) found a correlation between solid waste collection work and poor health among workers as the results indicated a greater prevalence of respiratory symptoms and a higher decrease in lung function capacity in municipal solid waste workers (Athanasiou et al. 2010: 618-623). These studies show that waste workers in developing countries generally experience poor health and that the workers in Babati are no exception. The workers' poor health can also be seen as a result of environmental injustice, as they bear a higher environmental burden than rest of the city's residents from waste management's negative effects, including inadequate safety conditions, exposure to injuries and illnesses and exposure to environmental hazards. This corresponds with Kubanza and Simatele's (2016) results from Kinshasa as well as the work of Das et al. (2017).

Mr. Aretas claimed the biggest challenge in waste management was the residents' unwillingness to pay for waste collection fees, which in turn makes it difficult to increase the fees and revenues. If this unwillingness is due to lack of financial capital among the residents, forms of community participation may be initiated as an alternative. Community participation has been examined by Keita et al. (2002) and Rathi (2005) who found that successful community and/or household participation is more cost-efficient than if waste management is handled solely by municipal authorities, and also entails a healthier and cleaner environment (Rathi 2005). Awareness campaigns proved effective to increase participation and cause a change in behavior which led to more revenues from waste collection fees and a cleaner urban environment (Keita et al. 2002: 241-247). An increase in community participation can therefore help to improve waste management in Babati. It could change the residents' behavior and attitude which may enable an increase of fees and revenues which in turn would result in higher salaries for the sanitation workers.

8. Conclusion

The main objective of this paper was to analyze the livelihood resources, strategies and outcomes of sanitation workers in Babati. To do this, four research questions were designed:

- What are the sanitation workers' terms of employment with Babati Town Council?
- What strategies do sanitation workers in Babati employ to attain a sustainable livelihood?
- What livelihood outcomes are they able to attain from these strategies?
- What possibilities could improve the waste workers' livelihoods?

What are the sanitation workers' terms of employment with Babati Town Council?

The workers terms of employment are extremely precarious. This is because they experience virtually no social benefits as they are underpaid, and sometimes are forced to wait several months for their salaries to be paid due to their low social status. They are also exposed to severe health risks due to not being provided with health insurance, proper safety equipment, uniforms or ID-badges. They have no days off work to rest, no vacation or paid sick leave and are working under short-term three-month contracts and are easily replaced due to low barriers to enter the job creating a high degree of uncertainty for sanitation workers in Babati.

What strategies do sanitation workers in Babati employ to attain a sustainable livelihood?

The sanitation workers employed four livelihood strategies (1) not seeking healthcare in order to save on medical costs, (2) securing loans due to salaries being late, (3) walking to work to cut transportation costs and (4) establishing an informal social and financial network. Only two of these strategies were however sustainable as not seeking healthcare undermines their human capital. The loans, due to the exorbitant interest rates are also unsustainable as they undermine their financial capital making the workers financially vulnerable. The strategy that appeared to have the most positive impact on their livelihood outcome was the establishment of the informal network.

What livelihood outcomes are they able to attain from these strategies?

The livelihood outcome of the sanitation workers is very vulnerable, as it is based on a fragile set of assets and resources. The institutional setting provides virtually no opportunities to enhance their capacity to cope with or recover from the numerous identified stresses and shocks. Instead the institutions seem to create numerous barriers and constraints for the sanitation workers ability to attain a sustainable livelihood. Sanitation workers in Babati do not have the capacity, assets or ability to employ the activities required to avoid, build up resistance to, or overcome any of the identified stresses, potential shocks and institutional barriers as earlier accounted for. Thus, resulting in vulnerability to the stresses and shocks which results in an extremely fragile and unsustainable livelihood outcome.

What possibilities could improve the waste workers livelihoods?

The central government should put an end to its top-down control over LGAs and implement DbyD reform in earnest. Thus, giving LGAs autonomy to: (1) set their own budgets and how to spend it, (2) implement downward accountability to residents and thus, improve political accountability, (3) implement statutes for residents to lodge complaints and appeal decisions taken by LGAs, (4) provide residents with simple, easily accessible and up-to-date information regarding local taxes and political processes, (5) involve local community in SWM by awareness campaigns of the benefits from waste separation and a clean environment and (6) encourage grass-root participation for residents to enroll in waste management committees tasked to oversee LGAs waste management services.

Successful implementation of the six suggestions above might make LGAs better equipped to (1) meet local demands and preferences from citizens regarding planning and implementation of infrastructure and public service delivery, (2) strengthen resident's belief in legitimacy of

local taxation and thus, make residents more willing to pay taxes, (3) increase tax revenue which would directly increase sanitation workers' salaries, (4) increase LGAs ability to provide health insurance for sanitation workers, (5) provide sanitation workers with ID-badges and adequate safety equipment, (6) increase revenue stream for LGA enabling them to pay salaries in time and (7) make the community in Babati aware of the benefits sanitation workers add to society in form of preventing communicable diseases, improving public health, cleaner public space and protecting the environment and thus, raise the sanitation workers' social status and acknowledge the important services they provide to both residents and the LGA.

To conclude, this essay found that the workers terms of employment are almost equivalent to workers in the informal sector in other low-income countries around the world, as they are paid an inferior salary, experience severe health problems, have no certainty of employment continuity, lack proper safety gear and equipment and are seen/perceived as being of lower social status. However, more research on the formal sector needs to be done, not only to shed more light on their circumstances of life and work, but also to tell their stories and make their voices heard.

9. List of references

Adama, O. (2014). Marginalisation and integration within the informal urban economy: the case of child waste pickers in Kaduna, Nigeria. *International Development Planning Review*, 36(2), pp. 155-180. [2018-12-08]

Ahmad, J., Bird, R. & Litvack, J. (1998). Rethinking Decentralization in Developing Countries. *PREM Sector Studies Series*, Washington, DC: World Bank
<http://www1.worldbank.org/publicsector/decentralization/Rethinking%20Decentralization.pdf>
[2019-03-17]

Ahmed, S.A., Ali, M. (2006). People as partners: Facilitating people's participation in public-private partnerships for solid waste management. *Habitat International*, 30(4) (2006), pp. 781-796. [2018-12-08]

Amuzu, D. (2018). Environmental injustice of informal e-waste recycling in Agbogbloshie-Accra: urban political ecology perspective, *Local Environment*, 23(6), 603-618. [2018-12-08]

Apentiik, C.R.M. & Parpart, J.L. (2006). Working in Different Cultures: Issues of Race, Ethnicity and Identity. In: Desai, V. & Potter, R.B. (Eds.) *Doing Development Research*. Sage Publications, London [2018-12-18]

Aspers, P. (2011). *Etnografiska metoder*. Malmö: Liber.

Athanasίου, M., Dounias, G. & Makrynos, G. (2010). Respiratory health of municipal solid waste workers. *Occupational Medicine*, 60(8), pp 618–623. [2019-03-15]

Bhada-Tata, P. & Hoornweg, D. (2012). *What a Waste: A Global Review of Solid Waste Management*. Urban development series; knowledge papers no. 15. World Bank, Washington, DC. © World Bank. <https://openknowledge.worldbank.org/handle/10986/17388> [2018-12-11]

Binns, T. (2006) Doing Fieldwork in Developing Countries: Planning and Logistics. In: Desai, V. & Potter, R.B. (Eds.) *Doing Development Research*. Sage Publications, London.

Brydon, L. (2006). Ethical Practices in Doing Development Research. In: Desai, V. & Potter, R.B. (Eds.) *Doing Development Research*. Sage Publications, London.

Chambers, R & Conway, G. (1991). *Sustainable Rural Livelihoods: Practical Concepts for the 21st Century*. Brighton: Institute of Development Studies.
http://publications.iwmi.org/pdf/H_32821.pdf [2018-12-09]

Chambers, R. (1989). *Editorial Introduction: Vulnerability, Coping and Policy*. IDS Bulletin, 20(1-7). [2018-12-15]

Cheng, C., & Urpelainen, J. (2015). Who should take the garbage out? Public opinion on waste management in Dar es Salaam, Tanzania. *Habitat International*, 46, pp 111-118. [2018-12-08]

Claudel, N. (2010). Solid waste workers and livelihood strategies in Greater Port-au-Prince, Haiti. *Waste Management*, 30(6) 2010, pp 1138-1148. [2019-03-11]

Das, D.K., Kubanza, N.S. & Simatele, D. (2017). Some happy, others sad: exploring environmental justice in solid waste management in Kinshasa, The Democratic Republic of Congo. *Local Environment*, 22(5), pp 595-620. [2019-03-16]

Dewaard, J., Frankfort-Nachmias, C. & Nachmias, D. (2015). *Research Methods in the Social Sciences*. 8th. Ed., New York: Worth Publishers.

Dias, S. M. (2016). Waste pickers and cities. *Environment and Urbanization*, 28(2), pp 375–390. [2018-12-05]

Environmental Protection Agency (EPA). (2017). *Environmental Justice*.
<https://www.epa.gov/environmentaljustice/learn-about-environmental-justice> [2018-12-09]

Fangen, K. (2005). *Deltagande observation*. Malmö: Liber.

Estasto, N., Fjeldstad, O., Florida, H., Geoffrey, M. & Knut N. (2004). *Local Government Finances and Financial Management in Tanzania*. No WP 2004: 7, CMI Working Papers, CMI (Chr. Michelsen Institute), Bergen, Norway <https://www.cmi.no/publications/file/1857-local-government-finances-and-financial-management.pdf> [2019-03-04]

Gupt, Y., Scheinberg, A., Simpson, M.H. (2010). *Economic aspects of the informal sector in solid waste*. Main Report Volume 1. GTZ (German Technical Cooperation) and the Collaborative Working Group on Solid Waste Management in Low and Middle Income Countries (CWG), Eschborn, Germany. [2019-03-18]

Helwege, A. & Marelllo, M. (2018). Solid Waste Management and Social Inclusion of Wastepickers: Opportunities and Challenges. *Latin American Perspectives*, 45(1), pp 108–129. [2019-03-13]

Henshall Momsen, J. (2006). Women, Men and Fieldwork: Gender Relations and Power Structures. In: Desai, V. & Potter, R.B. (Eds.) *Doing Development Research*. Sage Publications, London

Hipel, K.H. & Ma, J. (2016). Exploring social dimensions of municipal solid waste management around the globe – A systematic literature review. *Waste Management*, 56, 2016, pp 3-12. [2019-03-17]

Hongoa, P.S. (2014). *The Impact of Population increase around Lake Babati*. Masters thesis, The Open University of Tanzania. http://repository.out.ac.tz/771/1/PIUS_HONGOA_-_JD.pdf [2018-12-06]

International Fund for Agricultural Development (IFAD) (2008). *The Sustainable Livelihoods Framework* [PowerPoint slides] <https://www.soas.ac.uk/cedep-demos/.../SLFramework.ppt> [2019-03-02]

Johannessen, A. & Tufte, P.A. (2003). *Introduktion till samhällsvetenskaplig metod*. 1:3. Uppl. Malmö: Liber AB.

Khamis, Z. K., Pazi, R., Peter, A., & Ringo, C. (2013). The creeping decentralization in Tanzania: Is the strategy accorded full support by the Government? *International Journal of Social Sciences and Entrepreneurship*, 1(5), pp 204-227. [2019-03-16]

Kamgnia Dia, B., Parrot, L. & Sotamenou, J. (2009). Municipal solid waste management in Africa: Strategies and livelihoods in Yaoundé, Cameroon. *Waste Management*, 29(2) 2009, pp 986-995. [2018-12-08]

Kasubi, J.W., Kisumbe, L. & Sanga, D. (2014). More than a decade of decentralization in Tanzania: Its implications on Pro-poor service delivery. The case of primary education and health services. *International Journal of Scientific and Research Publications*, 4(12). [2019-03-06]

Gebresenbet, G., Kinobe, J. R., Komakech, A. J., Niwagaba, C. B. & Vinnerås, B. (2015). Mapping out the solid waste generation and collection models. The case of Kampala City. *Journal of the Air & Waste Management Association*, 65(2), pp 197-205. [2019-03-06]

Gleason, G.R. & Scrimshaw, N.S. (1992). Rapid assessment procedures - qualitative methodologies for planning and evaluation of health related programs. <http://archive.unu.edu/unupress/food2/UIN08E/UIN08E0W.HTM> [2019-03-25]

Kentikelenis, A., Stubbs, T. & Thomson, M. (2017). Structural adjustment programmes adversely affect vulnerable populations: a systematic-narrative review of their effect on child and maternal health. *Public health reviews*, 38(13). [2019-03-13]

Keita, M., Iyer, A., Muller, M. S., Sacko, B., & Traore, D. (2002). Differing interpretations of community participation in waste management in Bamako and Bangalore: some methodological considerations. *Environment and Urbanization*, 14(2), pp 241–258. [2019-03-13]

Krantz, L. (2001). *The Sustainable Livelihood Approach to Poverty Reduction*. Swedish International Development and Cooperation Agency (SIDA). <https://www.sida.se/contentassets/bd474c210163447c9a7963d77c64148a/13602.pdf> [2018-12-09]

Kubanza, N.S. & Simatele, D. (2016). Social and environmental injustices in solid waste management in sub-Saharan Africa: a study of Kinshasa, the Democratic Republic of Congo. *Local Environment*, 21(7), pp 866-882. [2019-03-13]

Lawi, J. (2013). The Rapid Growth of Towns and Migration in Tanzania: A Case Study of Babati Town. *International Journal of Business, Humanities and Technology*, 3(7). [2018-12-07]

Maldonado, J. & Moreno-Sanchez, R. (2006). Surviving from garbage: The role of informal waste-pickers in a dynamic model of solid-waste management in developing countries. *Environment and Development Economics*, 11(3), pp 371-391. [2019-03-20]

Mbah, P. O. & Nzeadibe, T. C. (2015). Beyond urban vulnerability: interrogating the social sustainability of a livelihood in the informal economy of Nigerian cities. *Review of African Political Economy*, 42(144), pp 279-298. [2019-03-16]

Mercer, C. (2003). Performing Partnership: Civil Society and the Illusions of Good Governance in Tanzania. *Political Geography*, 22(7). [2019-03-19]

Mol, A.P.J., Oosterveer, P. & Tukahirwa, J.T. (2013). Comparing urban sanitation and solid waste management in East African metropolises: The role of civil society organizations. *Cities*, 30, 2013, pp 204-211. [2018-12-13]

Mollel, H.A. & Tollenaar, A. (2013). Decentralization in Tanzania: Design and Application in Planning Decisions. *International Journal of Public Administration*, 36(5), pp 344-353. [2019-03-06]

Mollel, H.A. (2010). *Participation for local development: The reality of decentralization in Tanzania*. African Studies Centre, Leiden.
<https://openaccess.leidenuniv.nl/bitstream/handle/1887/16269/ASC-075287668-2792-01.pdf?sequence=2> [2019-03-06]

Mwaimpopo E., Steffensen J., & Tidemand P. (2004). *A Comparative Analysis of Decentralisation in Kenya, Tanzania and Uganda*. Country Study—Tanzania.
<http://www.dege.biz/FINALSYNTHESISREPORTnovember.pdf> [2019-03-15]

National Bureau of Statistics (NBS). [Tanzania]. (2012). *Manyara Regional Profile*.
<https://www.nbs.go.tz/nbstz/index.php/english/statistics-by-subject/population-and-housing-census/697-2012-phc-regional-profiles> [2018-12-07]

National Bureau of Statistics (NBS) [Tanzania]. (2017). *National Environment Statistics Report, 2017* (NESR, 2017), Dar es Salaam, Tanzania Mainland. [2018-12-07]

Ngwilizi, H. (2002). *The local government reform programme in Tanzania – country experience*. Paper presented at the Commonwealth advanced seminar on leadership and change in the public sector. Wellington, New Zealand.

<https://docplayer.net/32976167-The-local-government-reform-programme-in-tanzania-country-experience.html> [2019-03-06]

Pandey, R. (2011). Waste Workers and Scavengers of Kathmandu: Livelihood Assets, Vulnerability and Strategies in the context of Sustainable Livelihood. *The Himalayan Geographers*, 6, pp 29-46. [2019-03-11]

Pallotti, A. (2008) Tanzania: Decentralising Power or Spreading Poverty?. *Review of African Political Economy*, 35(116), pp 221-235. [2019-03-06]

Pflaeger, Z. (2013). Decaf empowerment? Post-Washington Consensus development policy, fair trade and Kenya's coffee industry. *Journal of International Relations and Development*, 16(3) pp. 331-357. [2019-03-19]

Pilapitiya, S., Vidanaarachchi, C.K. & Yuen, S.T.S. (2006). Municipal solid waste management in the Southern Province of Sri Lanka: problems, issues and challenges. *Journal of Waste Management*, 26, pp. 920-930. [2019-03-05]

Pons G. & Ross, D. E. (2013). Much room for improvement: occupational safety for solid waste workers. *Waste Management & Research* 31(7) pp 661–662. [2019-03-15]

Rathi, S. (2006). Alternative approaches for better municipal solid waste management in Mumbai, India. *Waste Management*, 14(2), pp 1192-1200. [2019-03-17]

Research on Poverty Alleviation (REPOA). 2007. *Framework for Downward Accountability in Local Government Authorities*. Submitted to the Prime Minister's Office—Local Government and Regional Administration.

<https://www.scribd.com/doc/56640604/Framework-of-Downward-Accountability-in-Local-Governance-Tanzania> [2019-03-06]

Repstad, P. (2007). *Närhet och distans: kvalitativa metoder i samhällsvetenskap*. 4:e uppl. Lund: Studentlitteratur.

Scoones, I. (1998). Sustainable Rural Livelihoods: A Framework for Analysis, IDS Working Paper 72, Brighton: IDS.

<https://opendocs.ids.ac.uk/opendocs/handle/123456789/3390> [2018-12-03]

Scoones, I. (2009). Livelihoods perspectives and rural development, *The Journal of Peasant Studies*. [2018-12-03]

Sikika. (2013). *Report on the Availability of Essential Medicine, Medical Supplies and Bed Capacity in Hospitals in Tanzania Mainland*. Report on Availability of Essential Medicines.

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<https://www.sikika.or.tz/images/content/mp3/Bed%20capacity%20report%20ENGLISH%202013.pdf> [2019-03-06]

Svensson T. & Teorell, J. (2007). *Att fråga och att svara*. Malmö: Liber.

United Republic of Tanzania, (URT). Vice President's Office (2005). *National Strategy for Growth and Reduction of Poverty*. Dar es Salaam.
https://www.unpei.org/sites/default/files/e_library_documents/TZ-MKUKUTA-Nat-Strategy.pdf [2019-03-13]

Vedeld, T. (2003). Democratic decentralisation and poverty reduction: exploring the linkages. *Forum for Development Studies* 30(2) pp 159–204. [2019-03-11]

Vetenskapsrådet. (2017). God forskningssed.
https://www.vr.se/download/18.2412c5311624176023d25b05/1529480532631/God-forskningssed_VR_2017.pdf [2019-03-12]

Willis, K. (2006). Interviewing. In: Desai, V., Potter, R.B. (eds.). *Doing development research*. (2013). Sage.

The World Bank. (n.d). *World Bank Country and Lending Groups*.
<http://data.worldbank.org/about/country-classifications/country-and-lending-groups> [2019-03-08]

Interviews:

Aretas, Laurent; Town Cleaning Officer for Babati Town Council. 2019. Interview February 6th.

Christopher; Sanitation worker for Babati Town Council. 2019. Interview in pair February 14th.

Lucas; Sanitation worker for Babati Town Council. 2019. Interview in pair February 14th.

Anonymous interviews:

Female sanitation workers for Babati Town Council. 2019. Group interview February 7th.

Male sanitation workers for Babati Town Council. 2019. Group interview February 7th.

Teenage waste pickers. 2019. Group interview February 8th.

List of figures:

Figure 1: Scoones, I. (1998). *Sustainable Rural Livelihoods: A Framework for Analysis*, IDS Working Paper 72, Brighton: IDS.

<https://opendocs.ids.ac.uk/opendocs/handle/123456789/3390> [2018-12-03]

Figure 2: Photographer: Lekare, Denise. 2019. February 7th.

Figure 3: Photographer: Lekare, Denise. 2019. February 8th.