Solid waste management implementation, an opportunity not to be wasted
– Solid waste management in Babati, Tanzania

By: Stina Jaensson
Supervisor: Vesa-Matti Loiske
Abstract

The amount of waste is increasing in the world due to changed consumption patterns and increasing populations. This is a problem especially in poor countries where the ability to handle the waste is limited due to financial and management problems. The non-profit organization WASTE has developed an Integrated Sustainable Waste Management- concept (ISWM), trying to help cities with waste management. The concept focuses on cooperation and participation among stakeholders, and also introduction of micro-and small enterprises and community based organizations. The aim of this thesis is to give recommendations to Babati, a small town in the north of Tanzania, how to develop their waste management based on the concept of ISWM. A case study has been carried out in the town, founding out that the streets of the town is free from litter today but is facing big challenges in the future. The town has a growing population and is just about to change waste management system. The new system is not developed in cooperation with the stakeholders in the town, but rather an initiative from the authorities, which will make the system very fragile. However, it is not too late to take action for securing a successful implementation of the system. The authorities of Babati now have an opportunity to adjust the solid waste system before population and the mountain of waste gets out of control. The suggestions given to Babati are to have parallel systems of waste collecting; it will try to meet people’s different needs. Encourage people to make waste handling into a business is also essential, that will reduce the amount of waste and generate incomes at the same time. Finally and most important is to involve all stakeholders and listen to their needs. If the stakeholders are parts of the process and involved in decision making, it is much more likely that the system becomes sustainable and a success.

Keywords: ISWM, CBO, MSE, stakeholders, cooperation, participation
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List of Abbreviations

CBO- Community Based Organization
CCC-Central Collection Service
EPM- Environmental Planning Management
HtH- House-to-House Service
IMF-International Monetary Fund
ISWM-Integrated Sustainable Waste Management
MSE- Micro-and small enterprises
SCP- Sustainable Cities Programme
UDEM- Urban Development and Environmental Management
UNEP-United Nations Environmental Programme
UWEP- Urban Waste Expertise Programme
1. Introduction

Waste generation continues to increase world-wide hand in hand with growth in consumption. In developed countries the waste generation per capita increased three fold over the last two decades, making the generation five to six times higher than in developing countries. With increases in populations and living standards in developing countries, their waste generation is also growing rapidly, and may double in volume this decade (Palczynski, 2002). If this should not lead to a disaster, a sustainable system that can meet the new challenges needs to be developed.

1.1 Background

1.1.1 The waste problem

The mountain of solid waste in African towns is increasing due to more people; changed consumption patterns and lack of funding in the public treasuries. This has made it difficult for many local authorities to handle the waste. All countries on the continent have laws regarding waste, but there are still only fractions of the waste generated that are actually collected and safely deposited. Usually the collection system works more or less in the rich areas, while the poor neighbourhoods lack service. Instead the residents bury or burn their waste and a lot of waste end up in water drains or at road sides (Onibokun, 1999, pp. 101-102). A person in Africa generates approximately 0.5 kg waste per person and day. This is not much compared to the 2-3 kg that are generated in the North, but poorly managed it can become dangerous to health, a threat to the environment and a nuisance (Mugagga, 2006). Well managed on the other hand, it could contribute to give residents a pride of their town, a livelihood for poor people and a model for good governance for other public services (Scheinberg, Jgosse, & Anschütz, 2004, p. 11).

Palczynski (2002) representing the African Developing Bank, means that there is a need to develop an integrated approach where the public, private and community sectors work together to develop local solutions promoting sustainable solid waste management.

Waste management in cities is important in a governance perspective, since waste generated in a city can not be handled individually. Waste has public good characteristics because it can be disposed on public or private land and cause nuisance or become an environmental or health hazard affecting the whole society, although the waste generator think she has done her duty moving the waste from her domain. Waste management benefits the whole society, unfortunately, according to Onibokun, since it is a public good; people often think that it is the government’s responsibility to keep the environment clean (Onibokun, 1999 s.106).
1.1.2 Solid Waste Management in Tanzania

Solid waste management in Tanzania’s urban areas has received low priority during the years. The local authorities lack funds and do not have the necessary equipment and vehicles to carry out a proper service all the way to disposal sites. It is also a problem with unplanned settlements that lack infrastructure and are inaccessible to vehicles. The lack of service makes residents rely on other methods to disposal their waste, often unethical and detrimental to the environment. In turn, the residents will not pay for the service, making a no service-no payment circle (Urban Authorities Support Unit, 2006).

Recent years efforts have been made to change the solid waste problem in Tanzania. The country has been part of the Sustainable Cities Program (SCP) initiated by United Nations Centre for Human Settlements (Habitat) and the United Nations Environmental Programme (UNEP). The project, that covers different topics in the city, where Solid Waste Management is one, was first introduced in Dar es Salaam in the beginning of the 1990’s and then spread to several other towns in Tanzania. The objectives of the project have been to provide local authorities and other actors in the public and private sector with improved Environmental Planning and Management (EPM) on the principles of Agenda 21. The emphases have been on the principles of bottom-up planning, stakeholder participation in decision making and building of partnerships between local governments and stakeholders (SCP Tanzania, no date). The project is still going on but the waste management has not improved much. A National institutional framework how to handle the solid waste situation in the future is about to be developed though (SCP Tanzania, 2006). A campaign to raise the awareness of solid waste management was also done a couple of years ago with a competition in cleanness among wards, towns, and councils. Babati Town, the place of the case study, was the second cleanest town in Tanzania.
1.1.3 Study area-Babati

Babati is a small town situated in the northern highlands of Tanzania (fig. 1). In year 2002 the town became headquarter in the newly formed region of Manyara. Babati is now also the administrative and commercial centre of Babati district and Manyara Region. It is an agricultural area, but is about to build a diversified and dynamic economy (Babati Town Council, 2006). About 300 000 people are living in the Babati district and of that 31 000 people are living in the urban area (National Bureau of Statistics). In year 2002 the annual growth rate of the population in the town was 2.7 %, but today this number is probably higher (Babati Town Council, 2006).

![Figure 1: Babati, Tanzania (Wikipedia, 2008).](image)

1.2 Research problem

It is visible in the streets of Babati that the focus on solid waste has been adopted. The past years a lot of efforts have been made on keeping the town clean. The streets are free from litter and the waste management seems to function quite well. But a new management system is about to be introduced in Babati. The new system is not rooted in the community and is also based on the household’s payment, this in a rather poor town. The changed system in combination with a changing period with increased migration to the town and changed, and increased, consumption patterns may open up for new challenges. To meet these changed patterns, it is important to have a well managed solid waste system, which can grow with the expansion of the town and the increased amount of waste.
1.3 **Aim of the study**
With a starting-point in the Integrated Sustainable Waste System developed by WASTE, and with the experiences from other African locations, the aim of this thesis is to give recommendations of how the waste management could be managed to meet future challenges with increased population and changed consumption patterns in a small African town.

1.4 **Research questions**

- How can Babati maintain a well managed solid waste system in the future?

To be able to answer this question I have some sub-questions:

- How does the waste system work in Babati today, and what are the plans for the future?
- Who are the stakeholders in Babati, how do they cooperate?
- What is the role of micro- and small enterprises and community based organizations in Babati?
2. Method

2.1 Methods and discussion of sources

To meet the aims of this thesis I have used a qualitative method with interviews and secondary literature. The interviews were carried out during a three week long field trip to Babati, Tanzania, in spring 2008. To get an understanding of how the solid waste management works in Babati I started interviewing authorities responsible of waste management; the health officer, town planner and regional planner. I then went on interviewing other stakeholders. Interviews was done with the street children who are collecting valuable things at the dump, two neighbours to the dump, the CBO collecting domestic waste, a person who uses the CBO and a council worker. The interviews were semi-structured with room for following questions and the recipients’ thoughts. I also triangulated the information I got by meeting some of the informants again, and also asking the same questions to different interviewees. The interviews with the authorities were held in English, while the others were held in English-Swahili with a field assistant as an interpreter. I also got some quantitative data about the generated waste from the health department in Babati.

Secondary sources have been used to get a background to understand the solid waste problem in Babati and also to put Babati into an African context. Knowing how other countries in Africa have tried to solve the waste management helps to examine how to develop the waste management in Babati. Even though the cities studied are much bigger than Babati, I think it can contribute with different points of views. What I have found, no studies are made on the waste management in a small, but growing, town in the South.

The theoretical framework used is the ideas of Integrated Solid Waste Management (ISWM) developed by the Dutch non-profit organization WASTE. WASTE is an adviser for development project in the South and aim for a sustainable improvement of the urban environment and better living conditions for the low-income population. ISWM is used as an ideal of how solid waste management could be managed in Babati, with a focus on the involvement of stakeholders and their cooperation.

2.2 Validity and Reliability

One main problem in Babati was the restriction of time and the few interviews made. More interviews would have given a broader picture of the waste situation in Babati. It was also difficult to get official
information in forms of documents, regulations and directives in Babati. Through Internet pages and reports I have managed to fill some of these gaps, to make the picture more complete.

When making interviews there are some pitfalls. The interviews with the authorities were held in English, which is neither mine nor the interviewees’ first language. Information can therefore have been misunderstood and information might have been missed out. The other interviews were on the other hand held in the recipients’ language, but translated to me by an interpreter. It is a risk that the interpreter could not exactly express in English what the recipients said in Swahili and information could therefore have been lost. Since I have not reported the interviews word by word, there might be possible that I unknowingly have put my own interpretation into the answers.

ISWM, which is used as a theoretical framework, is developed during many years of research by the Dutch company WASTE and supported by the Netherlands Ministry of Foreign Affairs. It is initiated by authorities but is supposed to be a bottom-up project. It is based on residents and stakeholders opinions and experiences and used worldwide. The work is widely quoted and the concept has also inspired the African Development Bank in their work with solid waste. The concept is a well used assessment tool that is supposed to be carried out during a long time. I have not had the possibility to do so, but using the ideas of WASTE, I think I can make an analysis of how the waste management in Babati can be developed.

The children living next to the dump and making their living as scavengers are here referred to as street children. In the correct meaning of the word they are not since they have a house to live in, make their own living and some go to school, they just lack parents. But since most people in Babati seem to refer to them as street children, I have chosen to do so as well.

The line between CBO and MSE is blurry in Babati. The organization that is collecting the waste from households and restaurants is called a CBO both of the authorities and themselves. But according to the ISWM a CBO is usually motivated by values or ideas that involve improving and cleaning the neighbourhood and their aim is not to make money (Scheinberg, Muller, & Hoffman, 2001, p. 15). The CBO in Babati is more like what the ISWM call a service based MSE. They have seen a service that needs to be done and an opportunity to get an income. But since it is called a CBO in Babati, I have chosen to do so as well.
3. Theoretical Framework: Integrated Sustainable Waste Management

Integrated Solid Waste Management, ISWM, is a planning framework for solid waste management. The programme was initiated of the Urban Waste Expertise Programme (UWEP), supported by the Netherlands Ministry of Foreign Affairs, and designed and carried out by WASTE, Advisors on Urban Environment and Development in Gouda, Netherlands. UWEP has focused on bottom-up, participatory processes designed to improve waste management, livelihoods and urban governance in developing countries. The programme has been developed in cooperation with partner organizations in the South. In the first six years of research, between 1995 and 2001, the solid waste management was observed by local researchers in the participating countries, and the importance of micro and small enterprises and the informal sector was noticed. Through some pilot project, where local experts and organizations set their own priorities and designed the projects, the ISWM framework was created as a way to understand and theorize the factors that influenced the success and failure of these activities (Scheinberg, Jgosse, & Anschütz, 2004, p. 11).

3.1 The ISWM framework

The ISWM insight is that problems with solid waste management often have to do with more than lack of money and equipment. It can be attitude problems among the residents, waste management staff or private enterprises, or more serious factors as the institutional framework or social or cultural context. In these cases money is not the solution, but a change in social, institutional or political conditions is. It is important to remember that there is no absolute solution of solid waste management that fits to all cities and towns. Different systems in different parts of a city can also be needed. What works in the rich areas, might not be suitable in low income areas or on hillsides (Scheinberg, Klundert, & Anschütz, 2001, p. 10).

The ISWM concept takes as a point of departure four basic principles: Equity, Effectiveness, Efficiency and Sustainability. Equity meaning that all citizens are entitled to an appropriate waste management system for environmental health reasons; Effectiveness saying the waste management model will lead to the safe removal of all waste. Efficiency makes the management of waste maximizing the benefits, minimizing the costs and optimizing the use of resources and Sustainability refers to the fact that the waste management system should be appropriate to the local conditions and feasible from a technical, environmental, social, economic, financial, institutional and political perspective. It can maintain itself...
over time without exhausting the resources upon which it depends (Scheinberg, Klundert, & Anschütz, 2001, p. 11).

Figure 2: ISWM model (WASTE, 2008)

### 3.2 The dimensions

ISWM has also three major dimensions to focus on (fig 2): (1) The practical and technical elements of the waste system, (2) the aspects of the local context that should be taken into account when planning a waste management system and (3) the stakeholders involved in the waste management (Scheinberg, Klundert, & Anschütz, 2001, pp. 12-14).

1. Waste system elements

ISWM points out that the whole life cycle for materials are important in waste management, from the mining stage via processing, production and consumption to final treatment and disposal. The high profile elements are collection, transfer and disposal or treatment, but as important are waste minimization, reuse and recycling, and composting.
2. ISWM aspects
The ISWM concept points out different aspects, or lenses, through which the solid waste management system can be assessed, or a new system can be planned. The weight is not only put on technical and financial aspects of the system, but also environmental, social, health, legal, political, institutional and economic aspects are analyzed. This approach ensures that all the local issues affecting waste management in a specific area are taken into consideration.

3. Stakeholders
Participatory approach and the involvement of stakeholders is the most important dimension in ISWM, and also the issue of most relevance for this essay (see next headline). Stakeholders are persons or organizations that have an interest in a cause, in this case waste management.

3.3 Stakeholders and participation
The municipalities with the general responsibility for urban cleanliness and the households using the system are always stakeholders in waste management. The local authority have several roles, they should be policymakers to legitimize and support the roles of community and micro- and small enterprises (MSE), support and participate in information campaigns, and providing reliable disposal facilities. Households can have different socio-economic and gender characteristics, but have a very important role in garbage storage and collection, recycling, re-use and disposal. They have both an individual responsibility and a collective responsibility together with the community. Beside these two groups the stakeholders can vary between towns. One primary group though, is MSEs and Community Based Organizations (CBOs). The groups can differ in characteristic which influence their waste activities. MSEs can vary in orientation towards services, production, or values, while CBOs can have variations in communication structure and legitimacy. According to the ISWM the roles of CBOs is to mobilize the households, to supervise performance by service providers and to coordinate waste management activities, including the local authority. Other stakeholders in the community may be active as waste generators or waste service users. It can also be the formal or informal sector that trade with used items or initiators of awareness raising campaigns. This is making the community very complex. They have all different interest in waste and the aim for ISWM is to make them co-operate to improve the solid waste system (Scheinberg, Muller, & Hoffman, 2001, p. 39).

Local authorities used to have the only responsible for providing solid waste management. They did everything from physical infrastructure, institutional framework to everyday services. This is not always
the best solution for developing countries according to Scheinberg, Muller, & Hoffman (2001), when
the authorities can only provide waste services for a smaller part of the city, while other have no service
at all. Structural adjustments and fiscal discipline are imposing strict limits on governmental funds,
restricting expansion. An expanding urban population demands traditional and new services, but the
authorities are less and less able to provide it.

The ISWM-concept is instead promoting the use of MSE and CBO in the daily work of the waste
management. When local governments are lacking money to provide a sustainable service, well
managed privatization can increase the capacity for the government to provide a reliable service to all
residents. Private businesses often have the capital to make investments in equipment that the
municipality lack and have also the knowledge about the neighbourhood so they can provide a suitable
service (Scheinberg, 2001, p. 11). ISWM promotes encouragement of MSEs and CBOs to get involved
in the recycling sector. This sector is important because it reduces the volume of waste and avoids the
disposal cost, it can also make an income for poor people.

Micro- and small enterprises are often informal. When using MSE, ISWM promotes to give the MSE
recognition and formal status. This creates a formal management and control the relationship between
the government and the MSE. Another step to take is to institutionalize the MSEs and CBOs in waste
management by making long term plans based on the integration of their services (Scheinberg, 2001, p.
9). ISWM wants to see MSEs as building blocks in an urban privatization strategy that gives the
municipality the opportunity to create a more sustainable and integrated approach. (Scheinberg, 2001, p.
17).

It is understood through experience that consultation with actors concerned is likely to result in
sustainable, widely supported activities. To form this kind of partnership it takes at least two parties, the
authority and the community. The local authority is important because they make the rules and frames in
which the partnership can operate. The community contains of several different groups as, people,
households, businesses and organizations that have different stakes. The ISWM concept means that
through information and awareness-raising, organization and participation, the neighbourhood
communities can play significant roles in waste management, as long as the authorities provides a
supportive context. The partnership can also result in a combination of different types of waste systems
that is more likely to meet the demands of the residents. It can also give jobs and income opportunities
among waste collection and recycling, and the community is more likely to be positive to the system and
cooperate when they are a part of it. To increase the sustainability in the waste management system it is also important to have a fair pricing on the waste services, but also to calculate the costs and investigate how much the waste generators are willing to pay. This includes both when entrepreneurs are contracted by the local government and get paid to do a service, and the collection fees (Scheinberg, Muller, & Hoffman, 2001, p. 39).
4. Earlier studies
Several studies have been made on solid waste management in African countries. Most of them have been carried out in big cities like Dar es Salaam and Kampala. Common for the cities is that the solid waste is a big problem and the local authorities have failed to handle the solid waste problem. Increased urbanization and a change in the composition of waste have made the situation even worse. One way to handle the problem for the authorities has been to privatize all or parts of the solid waste service. In that way it has shown in some cases that the service becomes better and others than the authorities takes the cost. CBOs have also been a very important actor carrying out services. Common for the places studied has been a lack of cooperation between the authorities and the residents, making the arrangement unsustainable.

4.1 Kampala, Uganda
Kampala, Uganda, has a problem with increased generation of waste, but the increase has not been accompanied by an equivalent increase in the capacity for managing the waste (Mugagga, 2006). But recent years Kampala has joined the group of cities were privatization has been a lead in the attempt to improve the solid waste management. According to Mugagga private sector is endowed with qualities such as political independence, economic rationality, efficiency, dynamism and innovation advantages that the public service often lacks. But lack of money in the municipality has been a driving force, and also the World Bank, that lends money to Uganda, encourages privatization. Kampala now has a system of public and private participation. The municipality is responsible for the solid waste management, but private companies and CBOs are carrying out parts of the services. Different kinds of waste systems are also in use in the city, both House to House services (HtH), where the waste is collected at the house, and Central Collection Center (CCC), where containers is placed out, are practiced. CCC is mainly used in poor areas while HtH is used in wealthier areas. Each area has one provider exclusively that are expected to carry out the service and transport the waste to the landfill. The district takes the costs for the CCC-system, while residents using the HtH-system have to pay for the service. With these options it is easier for the residents to find a solution that suits them. The roles are indefinite and the legal framework for the partnering of public and private actors is not established in the communities, which make the cooperation between the private operators and the municipal unsecure. One problem is that the private companies are in the business for money, why the service is better in the rich areas where people can afford to pay, then in the poor where the ability to pay is low. A solution to this problem according to Mugagga could be subsidy to operators in low income areas, but the municipal can not afford that.
The privatization has clearly improved the waste situation in Kampala. The enterprises operate with smaller vehicles which make it easier to work even in unplanned settlements that lack proper roads. The introduction of transfer stations has also improved the situation. Mugagga means, that the privatization would have gained a greater success if the informal sector would have been involved in the planning, since they are doing a lot of the waste services in forms of recycling. The exclusion of women and children has also been a problem, since they often are the ones handling the waste at the household level and knows what solution is better for them. Mugagga is also pointing out the importance to get frameworks that encourage the participation of the community to get a sustainable solid waste service.

The attitude is a problem among the residents. Due to information campaigns the situation has become better, but the people from high income areas still see the waste as a problem, while the residents in low income areas are less bothered. They are all aware of the health risks with poor managed waste, but those from low income areas seem more reluctant to prevent these risks.

4.2 The Gambia

The Gambia is facing major problems with the collection and disposal of the increasing amount of waste in the country (Larsson, 2006). The councils are responsible for the solid waste management, but they do not receive any subventions from the Government to finance the services. The service, that is done house-to-house, but has instead to be financed through taxes, income generating projects and vendor services. CBOs and formal and informal enterprises are also involved in the waste management. The CBOs are mainly helping out where the council fails to maintain a proper service, mostly by “cleaning days”, while the enterprises mostly handling recycling. Larsson also points out the important role households have in waste management. In areas where the collection is rare it is their responsibility to transport their waste to an authorized dumpsite, and in better managed areas to put out the waste at the right day and time.

Larsson establish the fact that the cleaning services are impossible for the council to handle all alone, but it is difficult to find the main problem. There is a network of actors, but it has deficiencies. The actors lack for example in trust, which is necessary to build a successful network. The CBOs are not always trusted by the council when they need support, and the households do not trust the Council when it comes to corruption. Lack of coordination makes some actors working partly independent when they get no place in the network. Larsson suggests that the waste management in the Gambia is more of an actor net, than a actor network, some parts are still missing to make it a cooperative unit. She continues
that it is important to get the public involved in the network and to get them to understand that the solid waste management is not a responsibility of the government alone.

4.3 Dar es Salaam, Tanzania

Dar es Salaam is one of the fastest growing cities in the world and has faced big problems with solid waste (Myers, 2005). In the beginning of the 1990’s the city became the model city of the United Nation’s Sustainable Cities Program, SCP. The program advocated neo-liberalism and decentralization and the SCP tried to empower urban poor to provide their own services and build local economics in the process. This have been very popular among donors, among others the Swedish development agency SIDA. The people who advocate SCP see it as a program to raise the effectiveness of inter-agency coordination within states during urban service provision. Other thinks that the decentralization is not questioned at all, and when the state is pulling back, the reliance on foreign aid becomes stronger.

The neo-liberalism led to privatization of the solid waste management in un-serviced areas, and enterprises took over the operational role. After the introduction of the project, the city became much cleaner and the amount of collected waste increased. The companies and CBOs have removed the waste from the streets and partnership with scavengers has been successful and a lot of recycling has been made. When the CBOs was kept floating by donors, it was also giving working opportunities. There have been great problems though. The CBOs has not been given certain areas to operate in, but are competing in the rich areas. They also lacked equipment and had problems with households that did not pay. Some thought this system was good and efficient, while others, not least the company’s, did not like the system. The success varied in different parts of the city, and it is still a problem that the private operators are only collecting waste in the areas where people pay. Most of the SCP initiatives in Dar es Salaam lasted until 2005 due to donor assistance, even though they were suffering from organizational and management problems. The initiative is spread all over Tanzania, as a basis for urban planning and the importance of stakeholders’ role in development has started to be taught in planning schools.

The neo-liberalism and structure adjustment program has led to increased environmental problems in Dar es Salaam according to Myers, and there is no sustainable development in the city. It has been top-down instead of bottom-up as planned and after millions of donor-dollars, very little has actually happened in matter of poverty reduction, increased access to service and better living conditions. Myers does not think that the government, nor the CBOs and NGOs, has lived up to the ideals of EPM. It has been a lot of “performing” partnership, but no practicing. It has all been a play for the donors. The SCP
has failed to engage the state apparatus, but also to involve the residents. According to Myers the SCP has been a short term success in Dar es Salaam on the expense of longer term possibilities for reconstructing relationship between residents and local and national state.
5. Case study: Babati, Tanzania

Babati is a fast growing town. Since it became Town Council more people have moved to the town looking for work and a lot of bureaucrats have also been transferred there (Kweka, 2008). There are many challenges to a growing town. Housing, transport and working opportunities are the main concerns. But the solid waste management is also a challenge (Munishi, 2008).

5.1 Solid Waste management in Babati

According to interviews made, Babati used to be a rather dirty town with a lot of waste on the streets. In 2005, before the changes begun, disposal of waste was only accessible for half the population of Babati (Babati Town Council, 2006). Even though the waste had low priority among the residents a huge change has been made towards a cleaner town. A national initiative to clean the country was taken and there was a challenge some years ago between villages, wards and council of which was the cleanest. Babati came second in the competition between towns. The waste management now has a high priority in Babati Town according to Mr. Kweka, the town planner in Babati. The citizens have also changed attitude and want to have a clean town so they cooperate with the authorities to keep the streets free from litter.

The solid waste management is operating under the Health department in Babati Town. Today the council is responsible for the streets and market and 20 council cleaners are sweeping the streets, while a CBO and some private operators are collecting domestic waste (Masunga, 2008).

When Babati was upgraded to town council, a lot of new laws and regulation were introduced. Waste pits were earlier the common way to get rid of the waste. It was pits were the waste were placed and then burned to become smaller in size. When the pit was full it was buried with mud and a new pit was made. Even though pits now are forbidden in the central parts of Babati, where the density of people is high, it is still a common way to handle the waste. People in the town are supposed to have a refuse bin and be part of a refuse collecting system, while the legal way to handle waste in rural parts still is to have a pit (Masunga, 2008).

The solid waste system in Babati makes the streets free from waste, but the next steps are not as developed. There is no separation of the waste. Organic waste, plastics and batteries all end up at the crude dump in the middle of the town. There is knowledge of the benefits of composting and waste separation in the town, but they don’t have the possibilities and money to do so (Kweka, 2008).
opinion among the bureaucrats interviewed is also that hazardous waste is no problem in Babati since it is so little that it will make no harm to the people or nature. The waste generation in Babati is estimated to 0.5 kg per person and day, which is the generally number used in developing country. Most things are taken care of in the own household, in a kind of re-use within the house (Masunga, 2008).

Babati Town Council has statistics of the waste production and collection since 2005 (Table 1). The collection is calculated on how much a push cart can take and how many carts that comes to the dump every month (Masunga, 2008). The amount of generated waste is calculated of a generation of 0.5 kg/person/day. As visible in table 1 the amount of refuse generated is increasing in Babati Town. The amount of collected waste has also increased a lot since the CBO took over parts of the services. The council still collects more waste, probably because they are responsible for the market that generates a lot of waste, and also the fact that some people still are giving their domestic waste to the council workers without need to pay.

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<td>359 (CBO 118, Council 241)</td>
</tr>
</tbody>
</table>

Table 1: Generated vs. collected waste in Babati Town Council (Masunga, 2008).

5.2 Future plans

The dump in Babati is situated in the centre of the town, very close to the market. It has been in use for 20 years and is soon full. The location is not optimal, especially not from a health perspective (Masunga, 2008).

The planning for a new landfill started in 2004 (Masunga, 2008). The criteria were that no water was supposed to be contaminated, it was also important that it was far from housing and in the right wind direction (Munishi, 2008). To be sure the landfill is meeting the national standards an EIA study is being produced and will hopefully be ready the summer 2008 (Kweka, 2008). The new landfill is situated 9 km north of Babati in Kiongozi. According to Mr. Kweka no protection of the crater is needed, there will be no contamination anyway he says. The crater is very big and he thinks it will last about 100-200
years before it is full, even though the town is growing. The place will be a crude landfill with no composting or any other separation of organic or hazardous waste (Kweka, 2008).

At the moment the transport to the landfill is a big problem. There is no lorry that can take the waste from town to the new site, and without a lorry it is also impossible to move the old dump. Hopefully they will get one in this years budget, otherwise they have to hope for a contribution from abroad (Masunga, 2008).

Last year a CBO took over the domestic waste collection from the council, and in the end of the summer 2008 CBOs will hopefully take over all the waste management, including the street cleaning and the market. This will be a cheaper and more efficient arrangement for the council. The CBO will get paid by the households for the domestic refuse collection, and the council will only pay the CBO to get the public places cleaned (Masunga, 2008).

At the moment there is only one CBO operating in Babati town. In the future Mr. Masunga, the health officer in Babati, hopes there will be at least two CBOs so there will be some competition. To be allowed to operate, the CBO has to prove their knowledge about waste management to ensure they will do a satisfactory job, after that the council look at the pricing. If the CBO fulfill the criteria they will get a contract. The council workers who are cleaning the streets at the moment are temporary workers, so the council has no obligations towards them (Masunga, 2008). Mr. Kweka said that the workers have been encouraged by the council to organize themselves and to make their own CBO and start operating. The workers I talked to didn’t know anything about this though (Kweka, 2008).

Mr. Kweka thinks that CBOs are more suited for waste collection since they are closer to the people and has a smaller organization and can therefore give better services to the costumers. The transition to the CBOs is also a part of the decentralization campaign that is going on in Tanzania at the moment (Kweka, 2008). Even though Mr. Masunga also thinks CBOs is the best way to handle the waste management, he is a little concerned about the introduction phase. He doesn’t think it works perfectly at the moment and thinks it can take some time before everyone knows their new positions and every household knows and follows the new regulations (Masunga, 2008). Mr. Kweka hopes there will be time for them to sit down with the CBOs to discuss how to handle waste to improve their work. To increase the knowledge about solid waste management and to get a cleaner town, the council educates
sub-ward leaders and committees in solid waste management. These leaders will then hopefully disseminate the information to the residents in their areas (Kweka, 2008).

To meet the new regulations from the central government new by-laws are prepared about the solid waste management, the introduction of CBOs and how to generate incomes and reduce poverty. Also laws about not throwing litter on the streets are being prepared making it possible to fine people who do this (Kweka, 2008).

5.3 Funding
The health department in Babati makes a budget every year of the cost of solid waste management. The budget is then sent to the town director and later to the central government to be approved. The central government sends back some money, but never enough to cover the budget. This year the health department has budgeted for a lorry to be able to start using the new landfill, but they do not know yet if they will receive the money (Masunga, 2008).

The council also has some incomes which they can use for public services. Among other things, fees are generated from the market stands, guesthouses, and bus stand and public toilets. They have also received money from Urban Development and Environmental Management (UDEM), World Bank, DANIDA and SIDA during the years (Kweka, 2008).

5.4 Stakeholders
There are a lot of people and organizations in Babati that have a stake in waste management. The health department that is responsible for the waste management and the planning department that are in charge of planning issues, community leaders who have the position to influence people in the neighbourhood, the CBO carrying out the service, micro- and small enterprises, representatives of the market and manufacturing businesses, the households, schools and the transport sector. All have an important role. The opinion of the authorities is already given, but here are some opinions from other stakeholders.

5.4.1 CBO
The CBO in Babati is called UAAE, Usafi Afaya Ajira Endevu kwa Vijana. The seven boys who are working for the organization collect domestic waste all over Babati. They come to the office in the morning getting to know where to go and pick up the waste. The customers can choose how often they want the service and come to the office and pay weekly. A small box costs about 200 shilling (0.17
USD) The money is then split between the boys. The about 15 push carts of waste they collect every day give about 2000 shilling a day per person. Even though the boys are doing a great job, 7 persons are not enough to cover the whole town. They want to hire more people, but don’t have enough money (Workers at the CBO).

A worker at Mawingu Luxury Bar and restaurant (2008) says that the service the CBO offers is much better then before when the council was operating. The Council workers were lazy and not very flexible. With the CBO they can choose how they want the service and are able to get the waste collected three times a day. Even though it is more expensive they think it is worth the cost. The lady has noticed that the town has become cleaner the past years. It is a problem though for the people who can not afford to have the waste collected. They might throw the waste in the water drains in the night, but she think that it will be worse for the people who lives nearby.

5.4.2 Street children

In a house next to the dump twelve boys live without parents. They are between nine and fourteen years old and have run away from home or had parents who have died. They borrow the house from a man who doesn’t live there and in favor they take care of the house. Some of the kids have been living there
for five years; others have come along the years. Most of them go to school, but since they don’t have any money for uniforms and books, the government pays for them. The house has a Shamba where they grow their own maize and onions, but to make a living the boys collect things at the dump and sell. They get just enough to survive. Charcoal and coconuts which are used as fuel are collected, and sold to minimarkets. They also look for other valuable things like copper, aluminum or whole objects they can sell. When the council workers, CBO-people or people from the market come with their push carts during the day the boys look them through trying to find things that are useful for them (Street children, 2008). This is an annoying behavior according to a neighbour, a council worker. It takes time for them when they come to the dump and the kids are messing up the dump (Council worker, 2008).

The boys seem to be in quite good condition, but they tell me they have problems with bacteria, cholera, chest pain and they also hurt themselves on sharp objects since they don’t have any protective clothing (Street children, 2008). The health department knows the boys are living next to the dump and spend their days there, but they don’t have any special program for the boys. It is also illegal to take things from the dump but no one cares, as Mr. Masunga said “What else should they do?” (Masunga, 2008) They don’t get any support from the council.

There are more wastes today then formerly. There are also more valuable things. The disposal from homes is normally not valuable, the households take care of their own things, the things from the shops and streets are much more valuable for the kids (Street children, 2008).

The boys says that when the dump is moved they will follow and continue their work, they will walk the 9 km to the dump every day and then back to sleep in the house at night (Street children, 2008).
5.4.3 Neighbours

The dump is situated in the town very close to the market. It is surrounded by banana trees so you hardly see it from the street, but the smell and smoke witness of what is behind. Two of the neighbours of the dump, ladies of the age 23 and 55, both dislike the location of the dump. The older lady’s husband and some friends tried to stop the project 20 years ago, but without success. The younger of the two says they have been promised for two years that the dump should be moved, but nothing has happened. They both complain about the smell when waste is burned or when it rains. The rain also spread the waste into Fatuma’s garden which is bordering the dump (Neighbours, 2008).

When the younger lady moved to the house two years ago she started coughing, she is not sure it has to do with the dump, but it is very likely. The health is also an issue to the older one. She has a problem with the small children. They are complaining about headache and chest pain. The dump is also a breeding ground for mosquitoes so many are also suffering from malaria (Neighbours, 2008).

Mr. Masunga (2008) agrees that waste can cause many health problems and that the position of the dump is not ideal. The smell is really bad, especially when it rains or when they burn plastic and organic material. Like the neighbours have experienced, the smoke cause bronchitis and chest pain and the wet waste is a breeding place for mosquitoes and other insects. The place is also full of bacteria. Under the dump there are water pipes from the mountain. They are in a quite bad condition and bacteria from the
dump come into the pipes causing diarrhea, typhoid and amoeba, things that the ladies and their families have also experienced. Hopefully all these problems will disappear when the dump is moved.

Even though the ladies live so close to the dump they don’t go there themselves. The younger lady has a pit in her yard where she throws her waste; she doesn’t want to go to the dump, while the older gives her waste to the council workers who are passing by, or let one of the street children take the waste for a bit of money. The younger doesn’t like the street children at all. They come into her garden, have a bad language and influence her children. They are also stealing things, she says (Neighbours, 2008).
6. Analysis
Here in the analyzing part I will put together the situation in Babati with the ISWM concept. My sub-questions will be analyzed, and later, in the discussion part, the head question will be wider discussed and analyzed.

How does the waste system work in Babati today, and what are the plans for the future?
The waste system in Babati works fairly well when it comes to removal of waste from households and streets. But the next step is worse. There is a crude dump where everything ends up with no separation making the mountain of waste unnecessary big. The only separation work made is the work carried out by the street children. The current waste system in Babati also lack of cooperation and participation of stakeholders. So even if the waste management seems to work out from the first sight, you can see when you go more in depth that the ideas from SCP and EPM have not reached Babati fully. Babati is also far away from the ideals that are pointed out in ISWM. The four principles according to ISWM are not fulfilled for example.

Equity meaning the citizens is entitled to an appropriate waste management is not fulfilled since the system today let many families in the central parts bury their waste when they are not offered a satisfying removal system.

It is also in conflict with Effectiveness saying the management should lead to a safe removal of waste. It will also be a problem in the future on these points. If all residents has to pay for the removal of waste it will not be a system entitled to everyone, because in a town where a lot of people are struggling to make both ends meet, there might be no extra money for paying for removal of waste. This will lead to a left out of these people, making a less effective management system and more waste on the streets.

The principle Efficiency is not totally reached either. The introduction of CBOs is a step towards a minimizing of costs for the council, but hardly for the citizens. Hopefully the optimizing of recourses will be better. According to interviews made, the CBOs are working harder and have a more efficient management than the council, and therefore making the town cleaner.

The management system in Babati today is hardly Sustainable. What works today will probably not work tomorrow with growing population and changes in consumption patterns. The system is not rooted in the community and not seen from different angles, but is more or less an economic solution forced on
the town from the central government with little or no consideration to local conditions or involvement of local stakeholders.

Babati does not live up to the dimensions of ISWM either. ISWM advocate that the whole life cycle for materials is important in waste management, from processing to final treatment and disposal. This is nothing that is taken into consideration in Babati. There are no campaigns of waste minimization, reuse and recycling, even though a lot of used items are reused in the homes and some are also taken care of by the street children, there is no deliberately strategy from the council. The treatment and disposal of the solid waste are also points where Babati is not matching the ideas of ISWM. Basically there is no treatment, everything ends up at the same crude dump with no separation between organic, non-organic and hazardous waste. The authorities know this is a problem and that more of the waste could be recycled or used in some other way, but there is no money for such activities. As mentioned before the ISWM aspects are not taken into the consideration in Babati. To be sustainable, according to the ISWM, the waste management has to be seen through different lenses. One important lens that seems to be missing in Babati is the environmental one. Waste management operates under the health department and therefore the environment gets a subordinated role. This can lead to serious consequences in the future when the amount of hazardous waste is growing with car batteries and electronic equipment that can do a lot of harm to the nature and also to human beings. The third dimension, stakeholders, will be analyzed more in detail further down.

Who are the stakeholders in Babati, and how do they cooperate?
There are a lot of people and organizations in Babati that have a stake in waste management. The health department and the planning department which are responsible for the services, Community leaders, the CBO, micro- and small enterprises, representatives of the market and manufacturing businesses, the households, schools and the transport sector. They might not all see themselves as stakeholders, but they are all affected by decisions concerning waste, and are all able to make a difference in the system, making it work or not. The most important stakeholders of them all are the council, the CBO, the street children and the community.

Further on, there is little or no ability in Babati to take advantage of the knowledge of the platform of stakeholders who are involved in the decision-making that ISWM promote. In Babati there is little cooperation between stakeholders and little or no participating of stakeholders in the decision-making even if big changes are going on in the town, with planning of a new land fill and transition to a solid
waste system based on CBO. The community has become a little more involved in the waste management in recent years. With the introduction of the CBO, the citizens, or the ones who can afford it, can now decide when and how often their waste should be picked up. The ability to choose yourself and have power of the situation will hopefully contribute to a positive view of the waste system. The last year’s meetings have been held by the council in order to inform community leader about waste and how to handle it, so they can spread this information among the residents in their areas. But this initiative was taken by the authorities and how many who participated or what the outcome has been is not known. Clearly is that information seems to get lost on the way to the citizens and very little information seems to be rooted in the community. The street children who are living by the dump making their income there, did not know that the dump were to be moved and the council workers I spoke to did not know about the transition to CBOs; even though Mr. Kweka told me they were encourage building their own CBO.

What is the role of micro- and small enterprises and community based organizations in Babati?
The ISWM-concept is promoting the involvement of MSEs and CBOs in the daily work of solid waste management. This is something that most cities and towns in the South are adopting, often cheered by IMF and the World Bank as a lead towards privatization. The MSEs and CBOs are often working as a bridge where the public services fail to fulfill their duties. According to ISWM the MSEs and CBOs often know the neighborhood better; have more capital than the local government and therefore more likely to do a satisfying job.

The CBO in Babati is something between a traditional CBO and a MSE and is the only business that is dealing directly with waste. The introduction of a CBO in Babati has led to improvement in managing the waste system, as it says it should in the ISWM and hopefully the introduction of more CBOs will improve the situation further. It could also be a market for CBOs and MSE working with the waste in forms of reusing, recycling and composting. Making the waste mountain smaller and create incomes for some people. The street children is doing parts of this job and ISWM advocate a legalization of their work to make them more involved in the system and make their work more sustainable. This is a problem because they are children and the council can not promote child labor.
7. Discussion

How can Babati maintain a well managed solid waste system in the future?

The waste is a growing problem all over the world. If we are not taking the problem serious today we will probably have a big disaster tomorrow. The mountain of waste is growing and the amount of hazardous waste steadily increases. The authorities of Babati has today a great opportunity to do something about this and get a sustainable solid waste system. Babati are just about to change the waste system and are in a period of changes in the society with increased population and changed consumption patterns. The town only needs involvement and engagement to be able to achieve this.

To look at the ISWM concept and to do a deep assessment to really see what people want and need in Babati would be good. But as a start it is also important to investigate how much waste that is actually generated and deposited in the town. The numbers of the amount of waste generated, used today is out of date. Moreover, the same number has been used all over Africa and could be seen more as a generalization, making it very inaccurate. Updated analysis of the amount of generated waste would be a good start of departure when about to change the waste management system. After that an ISWM assessment can be done. The ISWM concept is well experienced, and is investigating the waste problem from many different angles. The concept is used on cities and towns of different sizes, but is mainly adopted by bigger towns than Babati, or parts of bigger towns. I still think it is applicable on Babati, and since the town is growing it might be good to be a step ahead. Babati is quite far from fulfilling the ideas of ISWM, but are on the right track.

The importance of involvement of stakeholders and cooperation is stated in the ISWM and also in the goals for Tanzania, in Kampala and in The Gambia. An involvement will make the stakeholders more interested and hopefully the engagement and commitment to the task will rise. But in all studied cites this seems to fail. All stakeholders are not involved and there seems to be lack of cooperation of the ones who are. It appears to be a problem of both guidelines from the authorities and lack of interest from the citizens. To get around this problem it is important that the authority, together with all stakeholders, make clear frames for the solid waste management. It is also important that the authorities encourage and trust in their citizens, using their knowledge and care about their needs. But the authorities can not take all the responsibility. Waste management is affecting everyone and should therefore also be taken care of by everyone. But if the citizens should get involved it is important that they understand the importance of a well functioned solid waste system and how expensive it gets, both economically and health wise, if the waste is not treated in a proper way.
One reason the citizens are not that involved in the waste management in Babati might be because the system has improved a lot in recent years and therefore they got faith in the council regarding the management of the waste. Another reason could be the fact that there are a lot of other issues the citizens believe is more important to get involved in, like for example to get food, water and a work.

It is important to remember that there is not one solution of solid waste management that works for all towns or parts of towns. Even in Babati which is a small town, different systems could be needed. In Kampala for example, they have a system with both House-to-house service and Central collection service. This works out very well, making it possible to get rid of the waste no matter you have money or not. This could be a good solution for Babati. A lot of people in Babati are poor and might not be able to afford that extra cost, to get the waste collected by the door by a CBO. Moreover, since waste management is an essential public service which benefits all in the society and it is not feasible to leave anyone out, it is important to find systems that are suitable for everyone. In examples from other parts of Africa, it is shown that it is important not to trust the market powers fully and to see privatization as the only savior, but important for the council to still keep the responsibility of the waste management even though someone externally is carrying out the daily services. They have to be able to react and support towards the CBO, if it is failing in its mission. The example of Dar es Salaam shows that it is also important to divide the city between the CBOs to get a satisfying service all over the town, not favoring the rich parts of the cities where the payment is probably higher. To make the services sustainable it is of great importance that the pricing is right. The CBOs has to get enough money from the council for carrying out the services in public areas, so that it motivates them to do a satisfying job. The households also have to pay the right amount for the services. It has to be on a level that the households can afford, but on the same time it has to bring a descent income to the CBO.

Babati has great opportunities to encourage new CBOs and MSEs to develop waste business. The recycling can be developed and a composting system can be made. These will both benefit the environment and the people who will get an income by the created profession. The truck the council wants to buy could also be a business opportunity. One option would be that a private company bought the truck and rented their services to the council. In that way a company could earn some money transporting waste and additionally use the truck for other transports, and the council would not need to make such a big investment of a vehicle they have a limited use of. But no matter who owns the truck, there will be a problem if the truck breaks. If the owner cannot afford to fix it, Babati will drown in
waste because there are no alternatives to transport or place to put the waste. As someone said, “it is better with a living donkey, than a dead vehicle”. In this case it is important to have a back-up plan with for example an alternative deposit site.

Regarding the stakeholders and the people who are working with the waste it is very important to remember the street children. They are doing a great job when it comes to recycling. Even though they are working in the informal sector, are under aged and dealing with an illegal activity, it is important to listen to them and get them involved in decisions. It might be hard to do as ISWM suggest, giving the scavengers legal status, because that would be to encourage child labor. But they are doing an important job that is giving them an income. One solution could be to help these kids attend to school and let them work some hours under more restricted and protected conditions. But most of all, listen to them, they have the best knowledge about the composition of waste.
8. Conclusion and suggestions

To get a sustainable solid waste management in Babati, meeting the new needs of the future, some changes will be necessary to make. The authorities and community now have an opportunity to develop the solid waste system and build a system that is deeply rooted in the community. That would make the system more sustainable, before the population and waste mountain increase too much. Some suggestions for a sustainable system are:

- To have parallel systems for waste collecting because not everyone can afford a pick up service.
- To encourage more people to get involved in the waste business, including sorting, recycling and composting.
- To involve all stakeholders in the decision-making, including the street children, and make them communicate, cooperate and share their knowledge.
- To have consultation meetings with citizens, especially with women and children who are often taking care of the waste in households, to see what their needs are and also to inform about the risks with untreated waste.

If this is fulfilled and waste continues to have a high priority in the town, Babati will hopefully continue to be one of the cleanest towns in Tanzania.
References


Interviews

Mr. Munishi (march 2008). Regional Planner Babati, Tanzania. (Interviewer: Stina Jaensson)

Mr. Masunga (march 2008). Health Officer Babati, Tanzania. (Interviewer: Stina Jaensson)

Mr. Kweka (march 2008). Town Planner Babati, Tanzania. (Interviewer: Stina Jaensson)

Anonymous interviews


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Table 1: Mr. Masunga (march 2008). Health Officer Babati.

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Picture 1: Photographer: Stina Jaensson, march 2008

Picture 2: Photographer: Stina Jaensson, march 2008

Front page photograph

Some street children are sorting out valuable things in the waste at the dump, Photographer: Stina Jaensson, march 2008