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„Waste in Dar es Salaam
A socio-historical study on waste handling in Dar es
Salaam, Tanzania“

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Foreword:

Waste is an issue which addresses us all. The way we handle it shows us the way our society works. In western countries, waste doesn't seem to be a big issue. The remaining wastes in our daily lives are taken out of cities, away from our view. But the amount that we produce is immense. It is much more waste produced in so called "First World Countries" than in "Third World Countries". But western visitors to developing countries use to think: "Oh my god, how dirty is this city/ country!" This was also my point of view in 2003 when I arrived for the first time on the African continent. By that time I have visited Ghana and lived in Kumasi for six months. I didn't understand why people there could not use waste bins, as I was used to it in Austria. How could somebody throw waste on the road? By that time, I was quite young and I could not yet understand most of the coherences between wealthy and poor countries in our capitalized world.

When I started my studies on African history, my perception began to change; I saw things which I have not seen before. During the last couple of years I took classes in Environmental Education and I decided to find out the history of waste problems in African countries. By that time, I have already been to Tanzania for an exchange semester, I speak Kiswahili and I had the connections I needed in Dar es Salaam. Therefore it is Dar es Salaam, which I use as an example for other African countries to give an overview on the history of waste handling since colonial times.

Graphics No. 1: Sign that says “It is not allowed to throw waste in this ground”



Source: Picture taken by Christan Pfabigan (5.12.2009)

My special thanks go to all the people that supported me during my research:

Fidel Papa, a former waste picker in DSM who showed me around and escorted me to lots of informal and formal waste disposal places and points of sale for wastes.

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Waste in Dar es Salaam
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Abstract

An official waste management system in Dar es Salaam was introduced by German colonialists. They set the foundation for racial segregation which was later enforced by the British. African areas did not have the same access to the waste collection system as Europeans did by that time. These privileged areas in terms of infrastructure and also of waste collection provisions consist up to now.

Policy formulation was also done in colonial times. The content of the laws has not changed significantly after independence and even nowadays these laws are only slightly revised.

The amount of generated waste is closely connected to the increase of population. Therefore, and because of weak policies and the abolition of local authorities, the city of DSM was extremely dirty for centuries after independence. This was the time when the UN intervened in environmental issues and implemented the SCP in DSM in 1992. The consequence was the privatization of part of the waste collection system. At the beginning, many private companies originated and also CBOs and NGOs were operating. But as the time went by it became obvious that waste collection was not a profitable business due to the fact, that householders were not willing to pay collection charges. Therefore a new problematic phase in the history of waste collection of Dar es Salaam has just started a few years ago.

Abbreviations

CBO	...	Community based organization
CCM	...	Chama cha Mapinduzi (“Revolution Party”)
DCC	...	Dar es Salaam City Council
DDT	...	Dichlordiphenyltrichloroethan
DSM	...	Dar es Salaam
ME	...	Municipal Engineer
MOH	...	Medical Officer of Health
MSW	...	Municipal Solid Waste
NGO	...	Non Governmental Organization
PC	...	Provincial Commissioner
PHD	...	Public Health Department
PHD	...	Public Health Department
RCC	...	Refuse Collection Charge
SCP	...	Sustainable City Program
SDP	...	Sustainable Dar es Salaam Project
SWCPC	...	Solid Waste Collection Private Contractor
TANU	...	Tanganyika African National Union
UDSM	...	University of Dar es Salaam
UN	...	United Nations

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1. Introduction

Waste management is a topic of current international interest. People in the western world produce the more substantial amount of waste. They shift the waste out of the towns by well established waste management systems. Western countries spend lots of money on recycling and reusing. Science is continually developing new methods and technical facilities for the purpose of waste minimization and final disposal.

People in the so called third world are often surrounded by their waste which leads to problems like environmental degradation and health risks.

Within the academic world, waste is mainly discussed within technical science. Lots of scientific papers about recycling methods and nonhazardous deposition at landfills exist. Some political background studies about the waste management process are also available. But there are only few academics, who are engaged in the socio-cultural background of waste handling.

This study is an attempt to combine natural science with social science and to give an overview about changing waste handling processes in Dar es Salaam (DSM) since colonial times.

As the study reviews waste issues at different historical times, this work is divided into three main parts. The colonial time; the time after independence up to the 1990s – the period of nation building; and the time of democratization and liberalization, which takes place since the 1990s until now. The division of these three parts is popular by scientists dealing with African history. It is also very suitable for the description of the waste management in DSM in this report, as one of the most important changes concerning the official waste collection and disposal system was the privatization of the collection system in 1994. Therefore the last chapter deals with waste collection and disposal processes after this privatization.

1.1. How to handle this study

As already mentioned, this study is divided into three main parts. The goal of the work was to compare these different times and to find out how waste management processes have changed

over the years. The main question was always: How did people handle their waste during those different periods. The information material I could get to answer this question was not always the same. Therefore not each and every outcome can be compared to all times. I always tried to find information on the legal background. How were laws about waste handled and formulated and were these rules really executed?

Further I give information about how waste was handled and which actors were involved. This is considerably easier for the contemporary time than for the past. There I was either dependent on files from the National Archive of Tanzania or to secondary literature.

Another challenge was the amount and composition of waste. I tried to find data to compare structure and quantities of waste generation at different times.

In addition a description of the dumpsites during the different phases seemed to be interesting to me.

Therefore the big topics, which occur in each chapter, are:

Legislation, execution, environment and behaviour of the citizens.

But in addition the reader will find specific information in every chapter, expressing their singularity.

1.2. Definition of terms and topic

The subject of this study deals with municipal solid waste (MSW) at the household level in DSM. It will give an overview about how the amounts of generated waste and also the habit on waste handling have changed over the years since the arrival of the Germans. Legislating and executing agents involved in the waste management process are depicted as well as home dwellers.

In a teaching book which deals with the maintenance of a proper environment, waste is defined as following:

“Takataka ni kitu chochote ambacho kimetupwa au kimewekwa mahali pasipostahili na kisichohitajika tena kwa matumizi ya binadamu amabacho ni maudhi kuonekana tena katika mazingira yetu. Takataka hizo ni mabaki ya vyakula, masalio ya makaa, majani, nyasi,

makaratasi, nguo zilizopasukapasuka, vifuu vya nazi, makumbi, makuti, chupa, na glasi zilizovunyika, maganda vya ndizi na machungwa, maganda ya karanga na miwa, masuke ya mtama na vigunzi vya mahindi, vigae vya vyungu vilivyovunjika, takataka ya useremala, vipande vya mbao, vipande vya bati na madebe n.k.”¹
(Tutuunze usafi wa mazingira yetu 1986, 41)

This text is from the 1980s but it is still relevant in showing us the difference between waste in European countries and waste in Tanzania. Particularly people living in the country side do not produce much of incombustible waste.

MSW at the household level, as defined above, is the main topic of this study. But by considering environmental issues, like pollution from dumpsites, industrial and hospital waste is inevitably among.

The research questions of the study are:

- What are the major changes in terms of waste composition and handling in DSM over the last 150 years and why did these changes occur?
- In which ways did different agents affect these changes and how was the society affected by the changes?
- How did the contemporary waste handling in DSM originate?

1.3. Methods

Conform to the historical hermeneutics different literary sources will be analysed and combined, so that answers to the research questions can be found.

The sources of the study are Primary Literature in form of colonial documents found in the National Archive. These include UN- Reports, project descriptions, newspaper articles and interviews with different experts; as well as Secondary Literature like scientific papers, dissertations, etc....

¹ “Waste is anything which is thrown or put somewhere where it is undesired, which is not needed again for the use of men and which is an annoyance to be seen again within our environment. This kind of waste includes food debris, remains of charcoal, foliage, grasses, papers, broken clothes, coconut shells, husks, coconut leaves, bottles, and broken glasses, banana and orange skins, peanut shells, stones, corn leaves, broken clay vessels, wastes from carpentry, pieces of wood, pieces of metal and tins etc.”

First, the available literature in Austria was analysed. After that the information obtained in the National Archive of DSM, University Libraries in DSM, the Main Library of DSM as well as conducted interviews with officers and professors involved in waste management in DSM were worked into the thesis. The outcome of the literature review which is discussed and analysed within the Conclusion was an overview about waste handling during different time periods.

1.4. Difficulties of the study

Research on site in DSM was not always easy. Many obstacles like power cuts, different understanding of time, language barrier as well as cultural barriers have lead to small problems concerning the access of information.

Data on waste amounts are to be considered carefully. A considerable amount of numbers and data could be found during the research and some is presented here. The correctness of these numbers is sometimes doubtable, as they diversify from author to author. However, these numbers and data can give us an idea of the dimension of waste generation and collection in DSM.

Within the research found in the National Archive of DSM, much more documents about drainage system and sewage were available. It seems that the drainage issue has been a more dominant subject in Colonial times than solid waste issues. Information on solid waste management was not found in many documents where I would have expected it, as for example in Annual District Reports, in the Administration Officers Conferences, in the Estimates of Public Works or the Town Development Bill of 1936 (“An Ordinance to make provision for Controlling Development in Townships and Minor Settlements”).

1.5. Early history of the city Dar es Salaam

Before the foundation of DSM as a summer residence for the Sultan of Zanzibar in 1867, the Wazaramo lived in the area of today’s DSM. (Hosier 1994, 1999) This was the time, when the village called Mzizima was renamed Dar es Salaam, which means “Haven of Peace”. (A Guide to Dar es Salaam 1965, 11)

Sultan Seyyid Majid imported slaves from Zanzibar to clear bushes; he employed dockers and porters as well as garrisons and established a somewhat modern infrastructure in the area. Zaramo and Shirazi families inhabited the region. They, together with slaves, which were later freed, formed the first inhabitants of DSM. (Leslie 1963, 19f.)

In 1870 the sultan was abandoned (or according to Leslie (1963) just died). His successor was his brother Seyyid Barghash (Taylor 1963, 12). Hence the development of the town went backwards. When the British began to construct the Dar es Salaam – Nyasaland road, DSM was revived. The road was also abandoned after 83 miles. Eventually a steady growth in the area of DSM was reached by the arrival of Germans who appeared in the 1880s and in 1891 they declared Dar es Salaam the capital of German East Africa. (Hosier 1994, 9)

During First World War the power shifted to the British and since then they ruled the area and renamed it Tanganyika. Their city planning was influenced by racial segregation.

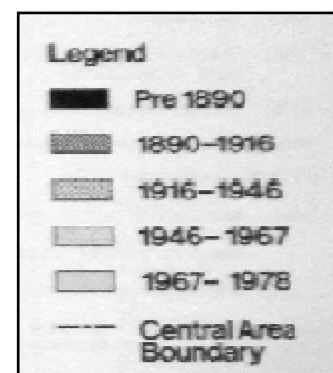
“Residential locations were strictly segregated. Kariakoo, home of markets and bus terminals, became the quarter for the African manual labourers. (...) Upanga became the home to the Asians who filled the skilled labour positions and ran most businesses. Kinondoni and Oyster Bay served the Europeans who filled governmental and managerial posts.” (Hosier 1994, 9f.)

Tanzania gained independence December 9th in 1961. Segregation remained after independence as well. (Hosier 1994, 3)

Graphics No. 2: History of the Development of the Central Area of Dar es Salaam:



Source: Dar es Salaam Master Plan 1979



1.6. Population growth of Dar es Salaam

Early estimations on the population of DSM are not easily available and I only found three authors providing information on this topic: Hosier, Leslie and Mwasumbi. Leslie (1963, 21) and Hosier (1994, 10) talk about African population, whereas Hosier (1994, 10) says, that

“The 1957 population differs as this estimate includes the non-African population as well as the African population.”

For Leslie (1963, 20f.) it is important to note that

“The population is estimated to have risen from a few dozen before Seiyid Majid, to 5,000, by Colonel Kitchener’s (later Field-Marshal Earl) estimates in 1886, including 107 Indians, 100 Arabs and 600 – 700 Zanzibar Royal slaves.”

It is interesting, that those authors may have used the same source but their population numbers still differ. It is not explainable whether it is a result of Mwasumbi (2003, 90) talking about the whole population of DSM, including Europeans and Indians (not defined) or whether it is caused by weak citation. However, by combining all these estimations we can conjecture the number of people in DSM during different times. Besides varying numbers it is assumable that in all three cases, the population grows faster as time goes by.

Table No.1: Estimated number of the population of DSM during different years from 1867 – 1988

Year	Leslie 1963	Hosier 1994²	Mwasumbi 2003
1867	-	900	900 ³
1886-87	5 000	3 000 – 4 000	5 000 ⁴
1894	9 000 ⁵	10 000	11 000 ⁶
1900	18 000 ⁵	20 000	20 000 ⁶
1913	19 000 ⁵	22 500	22 500 ⁶
1921	20 000 ⁷	24 600	24 600 ⁷
1931	24 000 ⁷	34 300	34 300 ⁷
1943	37 000 ⁸	45 100	-
1948	51 000 ⁷	69 140	69 227 ⁷
1951	72 000 ⁷	-	99 140 ⁷
1952	-	99140	-
1957	92 330 ⁷	128 742 ⁹	128 742 ⁷
1967	-	272 515	272 515 ¹⁰
1978	-	769 445 ¹¹	737 836 ⁷
1988	-	1 214 251 ¹²	1 360 850 ⁷
			2 497 940 ⁷

² Source: A.C. Mascarenhas. Urban Development in Dar Es Salaam, unpublished MA thesis (Geography). University of California, Los Angeles. Also J.E.G. Sutton. 'Dar es Salaam: a sketch of a hundred years'. Tanzania Notes and Records, Vol 71. 1970. pp 1-20.

³ Source: Sutton, 1970

⁴ Source: Kitcheners Estimate. Sporrek. 1985

⁵ Source: Deutsche Kolonial Blatt estimate

⁶ Source: Deutsche Colonial Blatt Estimate: Kironde, 1995

⁷ Source: Census

⁸ Estimate based on hut count

⁹ The same population rate is mentioned in the „Tanganyika Population Census 1957 of the East African Statistical Department“ cited in Taylor 1963, 36: These include 4 479 Europeans, 30 900 Asians and 93 363 Africans.

¹⁰ Source: De Blij

¹¹ Source: Central Bureau of Statistics (CBS). 1978 Population Census, Government Printers, Dar es Salaam. 1981

¹² Central Bureau of Statistics (CBS). 1988 Population Census, Government Printers, Dar es Salaam. 1990

2. Description of the waste situation in Colonial times

Documentation on waste issues started during German rule. Unfortunately waste management is mentioned little in documents concerning German administration available in The National Archive of Tanzania. Nonetheless it shows that they had already implemented a collection service system and furthermore, that racial segregation began to be an issue during German rule.

Before the arrival of the Germans, Dar es Salaam was very small and traditional ways of waste disposal were practised. The original way to dispose kitchen waste was to put it on the fields. So people were practising a kind of composting as the organic waste functioned as a fertiliser for the crops. Additional things, which were not needed any more, were simply burned in front of their compounds. These were for example leaves or coconut shells. (Interviews: Mama Msosa 2009, Juliana 2009)

2.1. German Rule 1889 – 1914

The Germans set the groundwork for a waste collection system as we know it today in DSM. The waste collection service was only provided in the city centre in the areas inhabited by Germans whose majority were businessmen or working for the Governor. This area was situated in the eastern part of the town where all European authorities lived. The district was well kept, quiet and beautiful and visitors would even compare it with a *Kurort* ¹³ in Germany. The native population was forced to live in the western parts of DSM where infrastructure and living conditions were poor. (Kironde 1994, 107ff.) In the “Bauordnung”¹⁴ of 1891 the German rulers ensured that only Europeans could live in that area. Paragraph 4 and 5 of that “Bauordnung” claimed that only European houses could be built in the eastern part of the city. Native houses were generally not allowed in the inner city.

¹³ German spa town
¹⁴ Building regulations

„§4

Von diesen 46 Loosen sind die Loose I, III bis X und die dem Hafen zugekehrte Seite des Looses II, ferner die Loose XLIV, XLV und XLVI und die dem Hafen zugekehrte Seite der Loose XXVI, XXVII, XXVIII, XXIX, XXX und XXXI ausschließlich für die europäische Niederlassung bestimmt, d.h. es dürfen auf ihnen bloß solide Gebäude im europäischen Stile aufgeführt werden.

§5

Auf der Rückseite der Loose II, der Loose XXVI bis XXXI, auf den Loosen XI und XII, in der Barra Rafta und der Inder Straße sind auch andere Gebäude zulässig soweit dieselben aus solidem Material bestehen und nicht unter die Kategorie der „Negerhütten“ fallen.” (File No. G – 7/1989, 10)

The waste collection service in the European area was conducted by cattle trucks (File No. G – 4/16) and the collected waste was burned. (File No. G – 7/209, 7f.)

Street sweeping was also provided by the city. Up to 1910 it was mainly provided by prisoners. (File No. G – 4/15, 70)

In a letter from 1907, the city council informed the governor about a contract with owners of Indian shops. The city council provided sweepers who swept the streets in front of the Indian houses. In exchange these Indians paid money to the city council. This initiative was started by the Indians themselves. (File No. G – 4/55, 56)

2.1.1. The development of a formal waste collection system

When the Germans arrived in the 1880s, they started building communes in different areas of the territory and set thus the premier base for a city development. These communities were called “Kommunalverbände”¹⁵ and existed as official administrative bodies starting first of April 1898. Initially these communes were not directly guided by the central government in terms of their duties and rights. In a letter to the Office of Foreign Affairs in Berlin, the Governor of German East Africa stated to be very satisfied about how well these communities had administrated their areas so far. They had managed to provide all basic needs and in addition a waste collection service was introduced independently.

¹⁵ Kironde 1994, 104 calls them *Communal Unions*

“Die Beleuchtung und Reinigung der städtischen Straßen einschliesslich Müllabfuhr haben die Kommunen sämtlich aus eigenem Antriebe übernommen. Die Kommunen Dar-es-Salâm und Tanga werden dadurch naturgemäss sehr belastet, da den durch die zahlreichen Beamten und Fremden hochgesteigerten Ansprüchen, keine entsprechenden Einnahmen an Steuern gegenüber stehen.“ (File No. G – 4/3, 41f.)

After a short time the “Kommunalverbände” were lacking finances and services became poor. Therefore an ordinance was established in March 1901 to turn it into a legal duty of the “Kommunalverbände” to provide waste collection and street cleansing services and to provide these services without funds from the Government. (File No. G – 4/3, 48 & 153)

By that time it was already common in British territories in Africa to collect fees for the cleansing of towns. They could cite a legal foundation for charging waste disposal since 1902, namely *Edwardi Septimi Regis No. 19 - An Act to Consolidate and Amend the Laws relating to Local Authorities* (File No. G - 4/1, 201).

The Germans also allowed their “Kommunalverbände” to implement a waste collection charge as they had a quite autonomous status. Charges for waste collection were collected four times a year. Initially, these charges were very low and the expenditures for the waste collection service could not be covered. For 1906 the city of DSM received 1500 Rupees from charges while expenses came to 5500 Rupees for the provision of the collection service. (File No. G – 4/2, 110)

Later the “Kommunalverbände” were abolished as they were not operating satisfactorily. Furthermore the government demanded direct power to oversee and guide those communities. (File No. G – 4/14) The Germans used the system of direct rule. It was the duty of everybody working under the government to ensure that all decisions, laws and other activities were conducted by the government. (Rweyendera 1991, 2)

Meanwhile the communes of Dar es Salaam and Tanga, gained the status of a city, called “Stadtgemeinde”¹⁶, and they were still allowed to collect charges because of their high population number compared to other towns.

¹⁶ Kironde 1994, 194 calls them *Town Councils*

“Die Stadtgemeinden sind berechtigt, zur Deckung ihrer Ausgaben und Bedürfnisse Gebühren und Beiträge, indirekte und direkte Steuern zu erheben sowie Naturaliendienste zu fordern.“ (File No. G – 4/10, 9)

The waste collection service was financed through a fee. This charge was measured on the „Haus und Hüttensteuer“¹⁷. The waste collection charge was raised up to 40 percent of the “Haus und Hüttensteuer” in 1910. (File No. G – 4/55, 5ff.) A new ordinance concerning the waste collection – the “Müllabfuhrverordnung”, did not only enhance the fee but it also forced all owners of the premises to join the collection service. This led to a big increase of revenues. As in 1909 the revenues for waste collection in DSM were 2000 Rupees and after the enforcement of the ordinance the fee went up to 4000 Rupees in 1910. Thus there was also the need to enlarge the waste collection and cleansing system.

New vehicles, donkeys and highly concentrated fodder were bought. More people were employed and goods for the draught were stored. A new stable was built in Kurasini area which included an apartment for the officer in charge. Therefore the expenditure in 1910 was very high (11352 Rupees). (File No. G- 4/15, 63ff.) The costs could still not be fully covered in 1912 when the revenues for waste collection and street cleansing were 12300 Rupees and the city council spent 14788 Rupees that year. The district authority, which was the head of the city, asked for equalization payments from the government, as the city treasury could not cope with the costs of the road construction. The expenditures for waste collection were significantly higher than expected – in 1912 the city spent 10788 Rupees. (File No. G – 4/15, 160)

Eventually in 1914 the expenditures and revenues were coincidental. (File No. G – 4/16, 99)

2.1.2. Obstacles to the waste management process

Problems concerning waste collection service occurred for example in terms of responsibilities of payment. In September 1914 a correspondence about the question of responsibility concerning the payment of the waste collection service for government owned houses utilized by the German East African Company was carried out by the city council of DSM, the district authority, the German East African Company and the governor.

¹⁷ House and hut tax

As the premises were owned by the governor he refused to pay the German East African Company which led to the result that city treasury was lacking a lot of money. (File No. G – 4/55, 94ff.)

Another issue was the provision of adequate waste collection containers. In an exchange of letters between the governor and the city council the production of uniform waste storage containers for DSM was discussed. The correspondence mentioned ideas about the material and shape of these new containers and even a questionnaire to the householders of the city was distributed. The residents wanted to use a barrel made of cement, but a wooden box was preferred by the authorities, as this could be cheaply produced by a craft school. A final agreement was not found in the archive. (File No. G – 4/55, 22, 26, 27, 30, 31)

Furthermore the final disposal of the waste was difficult to provide. In 1913 the city of DSM intended to establish a waste incinerating area at the beach but the government assessed it was too close to residential premises. As an alternative the governor suggested Msasani or Magogoni. (File No. G - 7/209, 7-8) I assume that there were times when no official dump or incineration area existed.

2.2. British Rule 1918 -1961

When the British took over control of the territory after the First World War German East Africa was renamed Tanganyika Territory. Like other colonial powers during those times, the British governed their mandate by people of British origin only. Major urban areas like DSM were managed by townships authorities appointed by the governor. This was possible through the *Township Ordinance* of 1920 which gave the governor the power to declare an area a township and to formulate rules for health, order, and good governance within the townships. These townships were founded and guided by the central government. (Kironde 1999, 106f.)

2.2.1. Legal background and responsibilities for waste collection in Tanganyika

The *Regulations for Peace and Good Order* of 1919 were one of the first legal acts written by the British. These rules didn't say anything precise about waste but the expression *nuisance* was already used, which led to present day's *Kinondoni Municipal Commission (Waste*

Management and Refuse Collection Fees) 2000 an important expression closely related to waste¹⁸. Section 16 of the Regulations for Peace and Good Order says:

“No person shall in any public place be drunk, riotous or disorderly or commit any act which is a nuisance or is calculated to disturb or annoy persons residing in or resorting to the locality.”

One month later the *Rules for the Township of Dar-es-Salaam 1919* were implemented, which were more concrete about waste:

“16. (c) No person shall in any street or open space, throw or lay down any dirt, filth, rubbish, or stone, or building materials, or cause or allow any offensive matter to run from any house-pantry, dung-heap, or the like, (...) “

About one year later the *Sanitary Rules for the Township of Dar-es-Salaam 1920* were formulated and provided the fundamentals for all following rules about waste collection. They gave the Medical Officer of Health (MOH) powers to handle the suppression of mosquitoes, to deal with sanitary nuisances like waste and unsanitary premises. Therefore it was the right of the MOH and the so called Sanitary Inspectors to enter any premises at any daytime for observations on the sanitary situation in the houses. This law exists up to now but unlike the past it is nowadays not practised very often.

The *Sanitary Rules for the Township of Dar-es-Salaam* was then incorporated into the *Township Rules* of 1923. What has changed here was that the owner of any premises was responsible for the provision of a dust bin.

Rule 23 of the Township Rules says:

“The occupier of any building or premises shall provide and maintain to the satisfaction of the Authority a receptacle for ashes and other non-liquid domestic refuse of a sufficient size, and fitted with a good and efficient lid and shall daily cause to be placed within such dustbin the domestic refuse from the said building or premises in so far as the said dustbin shall be sufficient to contain the same: Provided in the case of any house occupied by more tenants than the owner shall be

¹⁸ Within several laws waste is described as a nuisance. The definition of nuisance within the laws varies gradually.

deemed to be the occupier for the purpose of this rule.” (File No.189 – 4, 6)

Rule 25 forbids to throw waste on the streets:

“No person shall throw or deposit in or upon any street or other public place any accumulation of dust, refuse, garbage, decaying animal, vegetable, or noxious matter. Any such accumulation being immediately in front of any house shall be prima facie evidence that the same has been thrown there or deposited by the occupier of such house.” (File No.189 – 4, 6)

Proceedings were taken to people who offended one of these rules.

Keeping the city clean was the responsibility of the cities Medical Health Department administered by the Senior Commissioner who was appointed by the governor. The MOH must have been already in charge of the town’s cleansing from the very beginning. This is visible through a letter to the District Political Officer on the 17th of April 1919, which was sent before the implementation of the *Sanitary Rules for the Township of Dar-es-Salaam* of 1920. The MHO ordered the improvement of sanitary conditions at the market. Engaged in this case were also a Sanitary Inspector, the Director of Public Works, as well as the Executive Engineer of the Public Works Department. (File No. AB - 154) The Medical or Senior Health Officer also had the responsibility to act as the executive officer providing cleansing to towns (File No. AB 26). However, certain townships, like Tabora or Bukoba did not have a clear definition of responsibilities for cleanliness. In several letters sent to the Chief Secretary in DSM is asking about the liability of cleanliness of towns. The prompt answer always declared the Health Department responsible for all sanitary issues including the refuse of collection and cleanliness of the streets and markets. (File No. J – 11478)

In DSM there was no document found which could state such confusion. This might have been for the fact that the central government was located in DSM and a closer connection existed.

Waste collection and disposal issues were generally seen as a health issue. The role model was always Europe. In Europe the development of a proper waste management systems has mostly be initiated by health care. A medium allowing the distribution of knowledge about tropical health care to the entire colonised world was the *Bulletin of Health*. It was published by the *Bureau of Tropical Disease* located in the UK. Topics also included waste handling and removal. (File No. AB – 897, 14)

Since the implementation of the *Township (Township Authorities) (Amendments) Rules* of 1935 the authorities in DSM consisted of the following departments: department for medical and health issues, department for public works, land and mines issues and department for finances. They were conducted by the municipality secretary who acted as the executive officer. (File No. U – 10906 Vol. I, 82)

The MOH was a very important person in terms of urban administration in general. His responsibilities included several decisions concerning town planning and management. (Kironde 1999, 107) This is not surprising as even the Principal medical officer as a council of Tanganyika took a main function in governing the country. (Rweyendera 1991, 3)

In the *Memorandum on the Reorganization of the Medical and Sanitary Department* of 1933, it is stated as well, that the MOH is responsible for the maintenance of services. These services include cleansing – with the refuse of collection and disposal and conservancy – as well as the administration of sections of township rules and building rules. (File No. J 20691, 128ff.)

In early 1944 the MOHs in Tanganyika felt overwhelmed by work. The director of health and sanitary services tried to convince the provincial commissioners (PCs) that some of the duties of the Health Department could be shifted to other departments, especially in larger townships. The duties he wanted to shift concerned cleansing of the city, like the removal of refuse. (File No. 450 - 357, 260) He sent the letter to the PCs as they were most likely easier to convince than the chief secretary. And indeed some agreed with his recommendations. However, in the end legislation didn't cope with his ideas.

As some revises of the composition of urban authorities occurred, the Planning Committee appointed a Township Development Subcommittee which was established to achieve development after World War II. Its purpose was to improve the activities of the township. The DSM township authority was reorganized in three committees, which were responsible for *Finance and General Purposes*, *Public Health and Works* and *Native Affairs*.

“Care and general supervision of all matters relating to public health and the sanitary condition and cleanliness of the township; and the prevention and abatement of nuisances causing annoyance or danger or injury to health.”...

...was the duty of the public Health and Works Committee. (File No. 450 - 643/3, 51)

Furthermore a motion for local-authority status for DSM was developed since the 1930s, which was finally written down in the *Municipalities Ordinance of 1946*. Its roots can also be found within the recommendations of the Township Development Subcommittee. (File No. 450 - 643/3, 53) It enabled the establishment of municipalities in places sufficiently advanced – in terms of population and commercial importance – so that a transfer of legal, administrative and financial control from the central government to local authorities could be possible. These local authorities were now acting under a municipality instead of a township. The *Kenya Municipalities (Local Government) Ordinance, 1923* provided the pattern for the *Municipalities Ordinance of 1946* but was reviewed and adapted for the case of Tanganyika. For example, whereas in Kenya members of the municipalities were elected, members of municipalities in Tanganyika were appointed by the governor. (File No. U – 32591, 268)

Many central-governmental powers and responsibilities of urban management were transferred to the Municipal Council of Dar es Salaam after the implementation of the ordinance and DSM municipality was a self-financing authority. (Taylor 1963, 208). It was still the duty of any local authority to

“(…) establish, maintain and carry out such sanitary services for the removal and destruction of, or otherwise dealing with night soil, slops, rubbish, carcasses of dead animals, and all kinds of refuse and effluent; (...) to take all necessary and reasonably practicable measures (...) for maintaining the municipality in a clean and sanitary condition (...)” (File No. U – 32591, 266)

DSM was declared a municipality coming into effect 1st of January 1949. Principles of waste handling for townships remained almost the same as in 1923. From this event on the municipalities were requested to provide their own by-laws. In Part IX of the *Municipalities Laws*, No. 3: Sanitation, rules about the establishment of such by-laws were written down. These included the establishment of sanitary services (including the removal of refuse) as well as the establishment of laws to keep streets clean and laws about the prohibition to throw rubbish on the ground. It was also possible to take proceedings to persons which would cause nuisances or offence the rules etc.

Although the *Municipal Ordinance* recommended the authorities to implement by-laws for sanitary issues none could be found in the archive. As cited above, waste handling orders were written down directly in the *Municipal Ordinance*. The *Township Rules* which were more precise about waste issues were still in effect for municipalities (for a long time DSM

was the only municipality in the country). I also found waste matters within the *Dar es Salaam Municipality (Street) By-Laws* (G.N. 1951 No. 163), which stated that rubbish may not be disposed on the streets. In addition I read about waste in the *The Dar es Salaam (Restaurant) By-Laws* (G.N. 1945 No.6) which encouraged the owner of any eating place to provide dustbins. (Tanganyika Townships – Chapter 101 of the Laws (revised) 1960 & Tanganyika Municipalities – Chapter 105 of the laws (revised) (Principal Legislation) 1958)

In a monthly report of the MOH in January 1954 the establishment of sanitary by-laws was recommended. According to my research, they were only implemented after independence.

“... It is proposed, subject to the Committee’s approval, to delay action on Minute No.8, Public health Committee, of 19th December 1953, as it may be advisable that bye-Laws (Sic.) be made in respect of these services¹⁹, and in that case, standards for dustbins could form a part of these bye-laws (sic.).” (File No. 450 - 39/2, 73)

This *Municipalities Ordinance of 1946* was followed by the *Local Government Ordinance of 1953* (which was superseded by the *Local Government Act* in 1982). Henceforward urban authorities all over Tanganyika were given powers to raise revenues, to create by-laws, and to deal with many matters of local governance, including waste management. Their major problems were the lack of equipment, knowledge and finance. (Kironde 1999, 108)

Within the framework of the *Local Government Ordinance* the government implemented Town Councils, which

“Have a measure of autonomy similar to that of local authorities in the United Kingdom; they frame their own estimates of revenue and expenditure, impose rates and make bye-laws.”

DSM was the only so called Municipal Council whose members were elected.

Their duty remained to take...

“... responsibility in the fields of road construction and maintenance; traffic control and street lightening; drainage and sewage; housing and the scrutiny of building plans; markets; fire fighting; public health and refuse disposal.” (File No. 593 – LG/5/1)

¹⁹ „Cleansing Services“ are meant here

The different committees of the Municipality Council held monthly meetings handling decisions of present issues and requests. During the first meeting of every year, a chairman was elected and an appointment of sub-committees was done. The Public Health and Highway Committee (former called Public Health and Works Committee, later only called Public Health Committee) was responsible for refuse collection and street cleansing. In 1949 the Municipal Engineer (ME), dean of the Highways and Works Committee, took over the operation of the cleansing services from the MOH. (File No.U – 38788/3, 1) In 1951 the responsibility for the refuse collection and disposal was handed over from the Highways and Works Committee to the Public Works Committee again. (File No. 540 – 27/7)

“The first elections for the Dar es Salaam Municipal Council took place in January 1960 and resulted in an entirely elected council of 24 members. The new council elected Dar es Salaam’s first African mayor, Sheikh Amri Abedi, at its initial meeting. During the 1961 independence celebrations, Dar es Salaam was raised from the status of a municipality to that of a city, and royal charter granted by the Queen was conferred by the Duke of Edinburgh.” (Taylor 1963, 210)

2.2.2. Waste management operations

Street cleansing and waste collection was carried out by men employed under different committees and departments: Public Health Department (PHD), Public Health Committee, Public Health and Works Committee, Public Health and Highways Committee (or however the city’s health section was called in different times). In 1927 wages ranged from 20 Shillings to 30 Shillings and labour was employed on an annual incremental basis. On average duration of employment of people working in the PHD was longer than of other departments. (File No. 450 – 39/14)

In earlier periods of the British administration, forced labour was still utilized. Compulsory labour was mainly used for road construction if volunteer labour was not available, but in some cases it also included cleansing issues (as read in the *Tanganyika Annual Report* of 1926). In general householders in native quarters were asked to keep the streets clean themselves.

“Labour in lieu of taxation is only permitted if the native is unable to pay his hut tax and has made no effort to discharge his liability. In this case he is require to work for such a period as is necessary to earn the amount at the rage of wages prevailing locally for unskilled labour. (...) District roads, apart from metalled or trunk roads which are maintained by the Public Works Department, are kept clean by the natives in accordance with long-established custom. Cleansing, as a rule, is only necessary for a few days after the rainy season. Each village is responsible for the strip of road within its boarders and the work is distributed equally among the householders.” (AB – 8)

Prisoners were taken as labourers for the cleansing progress of the towns as well.

As early as 1928 the Acting Chief Secretary of Dodoma asked the Commissioner of Police and Prisons of DSM about prison labour provision for the purpose of cleaning the market of Dodoma. Her request was approved provided that work was completed by the time the market is closed (specifically during nights). (File No. J – 11478)

Later on Section 87 of the Prisons Ordinance 1933 officially allowed prisoners the employment on public works unconnected to the prison for up to six months. (File No. 590 – 136, 552). The municipalities could order prison labour for free whereas other bodies had to pay. As the city kept expanding, prison was located closer to residential areas. Therefore the Public Health and Highways Committee recommended the shift to another area as the risk of harming surrounding houses concerning dirt and nuisance existed. In contrary easy access to prison labour was lost and the idea of taking tax-defaulters as free labourers for cleansing issues arose. (File No. U – 38788/3)

Up to the late 1950s huge technical improvements were achieved, which caused that all operations in the collection and cleansing process done by ox carts were replaced by motorised vehicles.

In March 1949 the Public Works Department handed over nine trucks to the Cleansing Service Subcommittee. But two were not operating at all. Seven vehicles had to clean the whole city together with 38 draft oxen and 13 carts. Every day one of the vehicle was under repair and one of the six remaining vehicles was only working part of the day caused by engine troubles. The ME requested at least two more vehicles. (File No. U – 38788/3)

The cleansing costs in Tanganyika were provided by the Medical Department which received the revenues from taxes. (File No. 450 – 357, 248) Fees for removal of refuse and for sanitation were generally included in the House Tax or Site Rent. This can be cited for the

case of Tabora (File No. AB 837, 1) where the sanitary fees including the “removal of refuse” made 1/6 of the House tax.

2.2.3. Cleanliness and Town Zoning

Kironde (1999, 107) argues that racial segregation was the basis of the colonial system for urban management. Services were mainly limited to areas of the Europeans:

"Medical considerations were usually put forward to justify racial-segregation policies, change of township boundaries, land reclamation and drainage schemes, land servicing, differentiated land use schemes, building regulations, etc." (Kironde 1999, 107)

The laws dealing with racial division of the town were written down in the Government Notice No. 160 describing the creation of Township Rules 1923, in September 1924.

“Firstly, in the area specified in the First Schedule hereto, residential buildings of European type only may be erected. Such area shall be called Zone I.

Secondly, in the area specified in the Second Schedule hereto, residential and trading buildings only may be erected. Such area shall be called Zone II.

Thirdly, in the area specified in the Third Schedule hereto, native quarters may be erected. Such area shall be called Zone III.” (File No. AB - 516, 38)

In the subsequent schedules the locations of the different zones were specifically described. As population increased steadily (especially after Second World War) these zones had to be extended continually.

Within the framework of the *Bauordnung* of 1914 the Germans had already divided the city into these three zones. One month after it was published, war broke out. So the British imposed the zoning of the town properly. (Kironde 1994, 135)

Graphics No. 3: Zoning of the town in 1941:



Source: National Records Office Tanzania

According to what people told me about the cleanliness of the city in colonial times, it must have been much cleaner than today. All my informants agreed that waste collection went well during those times. But evaluating this information one must be aware that people talk about the final years of colonialism and not about the whole implementation phase. By the expiration of colonial times native population had become more powerful and their rights were further considered, also in terms of cleanliness.

According to the documents of The National Archive of Tanzania problems concerning waste collection and cleanliness occurred regularly and dirty spots could always be found.

In 1941 a newspaper article about Township Authorities in DSM stated the following:

“Perhaps the blackest spot on the sanitation side of the town can be found on the harbour front, where an offensive smell periodically

emanates. Tourists and visitors take away with them a bad impression (...)" (File No. 450 – 357, 168)

The author of this article probably talks about the dirtiest spot within zone I and II and not only solid waste but also sewage is likely meant as well. However, one can see that cleanliness was an issue in DSM.

In terms of solid waste collection, markets caused troubles again and again. The authorities often discussed the problems of unsanitary conditions, lack of dustbins and lack of market sweepers, especially in early times of British colonialism. (File No. AB – 154, File No. AB – 326, 3, File No. AB – 1103)

In a meeting of the Public Health and Highways Committee in March 1950, one of the biggest cleanliness problem in DSM was discussed – the lack of resources – a problem existing up to now:

"Vacant sites, particularly near the road frontage, are often used as general dumping grounds and are dirty and untidy. Periodic cleaning of larger refuse from roads and vacant plots using a 2 or 3 ton vehicle is necessary. It is at present impossible to maintain a vehicle for this purpose only. Constant supervision and inspection must be provided before any improvement may be anticipated." (File No. U – 38788/3)

In 1954 there was an introduction of Sunday refuse collection and street cleansing in commercial areas as trading operations on weekends entailed lots of decay. (File No. 450 – 39/2, 74f.)

Up to World War II street cleansing was performed by so called street orderlies. The problem was that work outweighed resources and workers alone could not cope with the big amount of waste on roads. The municipal authorities were upset that without supervision waste tended to simply be 'flicked' on the roadside instead of being collected. Street orderlies used hands instead of the provided shovels for collecting and discarded waste randomly hoping it not to be found. (File No. U – 38788/3)

Around 1950 the cleansing authorities were still complaining about the need of more street sweepers. (File No. 450 – 39/2, 74)

In February 1949 the Public Health and Highways Committee warned that even the present position of cleansing service was a risk to health and improvements were required. (File No. U – 38788/3)

2.2.3.1. European Area

For the most part authorities were quite satisfied with the cleanliness of the European area. Establishing a proper system for this zone was a quite long progress. Discussions emerged about whether residents should transport their waste themselves to a dumping area, whether the size of waste bins was adequate for collection and whether dustbins should be placed at household level.

The question was if the bins should be placed in the backyards of the houses to avoid an unsightly picture in the front which was later enforced. Furthermore garden refuse was an issue in the European zone as it represented a big percentage of the waste generated. Originally people put their garden refuse randomly out of their premises. This was later prohibited. (File No. 61 – 247/1, 1ff.)

Another annoyance to the population was the iron dump at Pugu Road. It was owned by an inhabitant intending to sell the old iron. Although even people complained about it, the site could not be removed compulsory as it was not a real nuisance to the surrounding population. Consequently only a regular inspection but no removal was possible by law until a real nuisance would emerge. (File No. 61 – 247/1, 68ff.)

Another problem occurred when the areas of Oyster Bay, Msasani, Kurasini and Pugu Road had grown beyond their roads. The authorities were afraid that the high standards of cleansing in the area could not be sustained. The nearby prison was also an annoyance as dirt gathered around the prison. In a meeting of the Public Health and Highways Committee they argued:

“Therefore they should be safeguarded to the best of our ability against dirt, disease and insect infestation, in order to make them safe and comfortable residential areas which they set out to be, and to do so as cheaply to the ratepayer as possible.” (File No. U – 38788/3)

Sometimes special clean-ups were needed in the European areas, as in 1954 in Msasani. (File No. 540 - 47/37)

In Msasani and Oyster Bay the length of haul per bin seemed to be uneconomical to executing authorities. In a meeting of the Public Health and Highways Committee in 1949 three ways of speeding up collection were recommended:

- the increase of labour and supervision

- to make householders responsible for carrying bins to and from the plot boundary
- the provision of municipal dustbins (empty bins being able to be carried in and full bins carried out) (File No. U – 38788/3, 2)

It was in 1954 when street litter baskets were put into place in public spaces on bars of DARESCO²⁰ street lights for the first time. (File No. 540 - 47/37)

In January 1954 the frequency of collection in Oyster Bay area was decreased from once daily to every other day in order to be able to provide satisfactory cleanliness in the area of Pugu Road as well. (File No. 450 – 39/2, 73f.)

2.2.3.2. African Area

As written above, services were distributed unequally between the different zones. Problematic in the African zone was that the level of infrastructure was not satisfactory. Bad roads, overcrowding and lack of adequate sanitary facilities have contributed to the untidiness of the “native area”. On the one hand the Department for Native Affairs encouraged natives to move from distant and isolated parts to more crucial administered centres (Rweyendera 1991, 5) as labour force for the establishment and the upkeep of zone I and zone II was needed. But on the other hand overcrowding was a problem and squatting began already within colonial times.

“(…) increase in accommodation has not kept pace with the growth of the population: while the population has increased by over 50% since 1939 the number of houses, assuming that the building rate outside Kariakoo and Ilala has been the same as within those areas, has increased by only 11%.” (Dar es Salaam District Book, 1948-1957)

Agnes Mwasumbi (2003) thinks that the trend of informal settlement has started back in the 1920s with the implementation of the *Township Building Rules*. However, the Germans had already introduced the division of various areas for differently built houses with the *Bauordnung* of 1891. As Africans were not able to build “European” houses they were forced to informal settlements a short distance outside the city centre. (Compare chapter 2.1.)

²⁰ Dar es Salaam and District Electric Supply Company Ltd.

“(...) first natives developed the mentality that they were fit to live in houses constructed of traditional materials and second they became accustomed to living in substandard housing. Many of the existing informal settlements developed as peri-urban villages but became part of the city following extension of township boundaries.” (Mwasumbi 2003, 92)

In 1927 a weekly clean up was provided in the Native quarter supervised by two Jumbos²¹. The idea of hiring a private contractor for the cleaning of the whole city within one month occurred as the city was very dirty at that time. But funding failed. (File No. 61 – 247/1, 1f.)

A cutting from the Tanganyika Standard (November 1948) states, that waste collection was often not practised at all in African areas as the example of Ilala shows:

“The gardens of the houses along the side of Kichwele St. were not a good advertisement for the estate, many containing rubbish and showing evidence of neglect. It was stated that this was partly due to the absence of any refuse disposal service.” (File No. V – 32575, 473)

Around 1950 the African area was cleansed by seven handcarts and ten ox wagons and two refuse Lorries working on hard roads. With the lack of equipment and roads being poor keeping this area clean was difficult.

“(...) it is impossible to keep sand roads tidy and travelling over them is heavy work for any type of vehicle.” (File No. U – 38788/3)

The provision of tractors was requested, as they could withstand the poor conditions of the roads (so far tractors were only borrowed from the Section of Road Construction). New settlements built for the increasing population (like Temeke, Kinondoni and Magomeni) were not served for a long time after construction. The authorities stated that the reason was the difficult practise of waste collection in these areas, as the roads were of soft sand. To provide earth roads as a minimal standard was recommended so leastwise tractors could operate. But this was likely another simple excuse, as ox carts for collection purposes could have been sent

²¹ Liwalis, Akidas and Jumbos were native local authorities appointed by the Colonialists. Jumbos were normally working under general orders of an Akida.

more often. In addition it was believed that supervision and education could help to keep these areas cleaner. (File No. U – 38788/3)

Periods of non-collection of refuse in the African zones occurred regularly, as for example in 1950 in the area of Kariakoo (File No. 450 – 27/7 Vol.I) and in 1954 for many months in Ilala. (File No. 450 – 39/2, 78)

Another problem related to the cleansing process was, that the Municipal Engineer's Department could not provide running water in Ilala and Kariakoo during daytime for a long time. Therefore water was kept in drums for cleaning processes. (File No. 450 – 27/7) These water drums were attractive to mosquitoes.

In October 1951 the sanitary conditions in Kariakoo were so poor, that the Department of Survey & Town Planning of DSM recommended a separate strategy for the development of Karikoo. These measures did not necessarily imply an improvement for the native population but it aimed to keep a clean impression for the European inhabitants of the city. The Chief Town Planning Officer sent the following recommendation to the Town Clerk:

“Again, you will see from the plan I recommend that a fringe of better-class residential development (residential only) be encouraged along the line of the major thoroughfares in order to screen the poorer development behind.” (File No. 27/7)

In the 1950s a reorganisations of the waste collection system in African areas took place and most of the ox carts were replaced by motorised vehicles. In Feb 1951 the road construction in Ilala was finished and motorised vehicles were able to operate. (File No. 450 - 27/7) In March 1954 ox-carts were only left in Kinondoni und Magomeni. (File No. 450 – 39/2, 75)

“The Establishment Subordinate Service is approximately 320 men, which is a saving of 80 men on the average strength for 1953. The 18 budgeted for in 1953 have had their tasks extended so as to replace the ox carts in Temeke, Ilala and the greater part of Kariakoo. (...) A reduction of the frequency of collection in any particular district, however, cannot be considered until there is adequate provision of dust bins there.” (File No. 450 – 39/2, 74)

Recommendations for the increase of public dustbins were nothing new, as this was suggested several times. (File No. U – 38788/3, 17)

2.2.4. Tipping, dumping and recycling

During the first period of the British rule collected waste was burned in open incinerators which were constructed of old steel railway sleepers. The scorched material was then put into land depressions to avoid mosquito breeding. Later a permanent incinerator was constructed in Ilala ignoring Indians against this establishment being too close to the Indian Central School. (File No. U – 11292, 1 ff.) In 1936 the system changed from burning to regulated tipping but smell still occurred from vehicles filled with waste. The filling of depressions went on. (File No. 61 – 247/1, 57)

Up to World War II the dump established by the Germans was overtaken by the British and continuously used. It was placed between Kongo and Bagamoyo Streets. (File No. 61 – 247/1, 57) More tips kept being implemented and land depressions followed. Even an observant referred that the refuse tips of the city were not in a bad condition. In 1949 three tips operated by the township authority were closed and controlled tipping in Msimbazi Creek in the area of Jangwani was introduced. (File No. U – 38788/3) One of the closed dumps was the dump of Ilala which was treated with DDT²² and covered with rice husks and sand in 1951. (File No. 540 – 27/7) In 1954 they opened the Ilala area for dumping again. (File No. 540 - 47/37)

During the years of the World War II the idea of recycling became an increasing issue in DSM coinciding with other parts of the world. Waste paper was sent to the Boma where the Government Paper Factory was operating. Waste rubber was needed for the present shortage of tires, tins was directly reused and silver paper and toothpaste tubes were used for munitions. “The Battle of Supplies”, as written in the Tanganyika Standard (May 1942), was familiar to everyone, but what nobody knows is that the salvage activities are also a “Campaign against waste”. An East African Command Economy Committee was formed.

“It has its objective the most provident use of materials, as well as the elimination of waste. Its motto is “Save for a Purpose” and it takes as its badge a squirrel, collecting nuts. (...) The duties of unit economy

²² Dichlorodiphenyltrichloroethane, a quite toxic insecticide

officers will be to keep eagle eye on economy measures within their units, particularly in the prosecution of the waste of petrol, paper, Clothing and food. (...) A monthly return will have to be rendered to the Chairman of the Economy Committee at Command Headquarters (...).” (File No. W – 30534, 2)

In addition civil salvage was introduced at that time and waste paper was collected from the municipal office once a household had gathered enough material. A waste-paper-telephone-number was published in the newspaper for this purpose. All markets opened receiving points and some refuse lorry attendants and street sweepers were equipped with special bags to collect waste papers, metal foils and tins. (File No. W – 30534, 1ff.)

2.2.5. Amounts of Wastes and Materials

Documents including the topic of waste amounts and conditions were hardly available and only little information was found.

In March 1950 the Municipal Engineer stated that about 28000 gallons (127120 litres) of waste including trade refuses and household refuse was collected each day. (File No. U – 38788/3)

Table No 2: Amounts of domestic and trade refuse in DSM in different months during the year 1954 (in tons):

March 1954	1943
April 1954	2078
May 1954	2214
June 1954	2172
July 1954	2157
August 1954	2242
October 1954	2329

Source: File No. 450 – 39/2; File No. 540 – 47/37

The increase of the amount of waste of about $\frac{1}{4}$ can be reasoned by the normal population growth but also the increase of collection labourers and equipment may have been a factor.

Table No. 3: Items collected and buried during different months in 1950, 1953 and 1954:

	Feb. 1950	Oct. 1953	Nov. 1953	Dec. 1953	March 1954	April 1954	June 1954	July 1954	August 1954
Tin	23963	28685	26547	23649	25737	39160	29046	39212	35886
Coconut Shells	18112	13604	11022	13118	10041	17854	8613	17938	18371
Bottles	1180	1424	1855	1241	1087	3308	2018	1891	2033
Lamps	82	456	410	451	524	1088	870	643	588
Glasses	227	-	422	278	497	805	733	640	562
Snail Shells	1285	319	363	420	513	1326	680	836	830
Cups	159	102	176	221	318	318	305	533	525
Plates	193	202	180	260	245	241	288	587	537
Pots	137	10	28	55	96	63	181	138	129
Jugs	131	135	108	143	131	288	155	86	80
Basins	49	12	35	57	138	244	137	103	135
Metal Bowls	-	96	80	160	249	311	103	166	277
Tea Pots	69	36	44	-	126	263	96	380	403
Buckets	32	4	5	6	73	86	60	54	64
Sauce Pans	93	-	56	28	103	278	53	151	183
Total	45716	45162	41331	50086	39878	66328	43338	62978	60623

Source: File No. 450 – 39/2

Although examining these statistics many questions stay unanswered. In the files giving information on collected items for disposal, many writing mistakes occurred. This leads to the assumption that staff employed for waste disposals was not a well educated one. The

collection of these items was probably mainly done in the European areas. But did Europeans use this many coconut shells, as adding coconut milk to foods is more an African than a European tradition? From February 1950 to August 1954 the amount of buried items had increased about one third. This is probably due to increase of population and also due the increase of removal vehicles and personal. What is obvious by reviewing these statistics is that the dimension of waste removal in colonial times was very different from nowadays.

3. Waste handling from independence to the 90s

After Independence, the waste management system went on as it did in times of colonial rule.

“...local authorities were responsible for providing clinics and dispensaries, solid waste disposal, sanitation, water supply, road construction and maintenance within the council’s boundaries, fire fighting and the control of buildings and trades.” (Hosier 1994, 4)

But self-reliance and power of local authorities were weakened as discussed below. Therefore waste management operations were suffering after independence.

3.1. Legal background

In 1965, Tanzania adopted the one-party political system. The ruling party was TANU under Nyerere. All urban authorities had to be members of the TANU²³. Elected mayor posts were abolished and the District Party Chair took over their authorities. Therefore urban governments were acting under the supervision and guidance of the central government under the Ministry of Local Government.

The City Council Public Health Department remained responsible for personal health issues as well as for environmental health issues. (Kirundu 1965, 20)

“These local authorities continued to administer directly the public health services of their towns, manned by the sanitary labourers and technicians, health inspectors, and medical officers of health. (...) Refuse collection and disposal in towns was generally satisfactory, but a frequent sight of overflowing refuse receptacles in many towns indicated that there was room for improvement.” (Ministry of Health and Social Welfare 1966, 22f.)

The Health Inspectors remained responsible for cleanliness of towns and could enter and visit any premises during daytime. Institutions which did not operate as requested by the law were closed. A letter from a health officer to the Ministry of Health shows the example of a pub closure due to unsatisfactory sanitary conditions. The letters state that the owner of the pub was first taken to court and the pub closure followed. (File No. 540 – DC17/7, 9ff.)

²³ TANU was renamed into CCM in 1977 when Zanzibar became part of the Tanganyika Territory which was from then on called Tanzania.

Although local governments had various problems, central government rather weakened than strengthen them. One example was the abolition of the poll tax system in 1969, which had been a major source of income for local governments. (Kironde 1999, 109) When local authorities were weakened the waste collection system deteriorated badly.

Between 1972 and 1974 the government even replaced all local governments by the central authority calling it decentralization. The officially declared goal was to empower people and to support grassroots-developments, but it is obvious that the opposite happened.

“During the decentralization period, the treasury funded the entire budget of urban councils. Nevertheless, major deterioration occurred in urban services and infrastructure. Services like water, power supply, sewage disposal, refuse collection, road and drain provision and maintenance, land-use regulation, fire protection, and malaria control deteriorated badly, and the public raised an outcry over worsening urban conditions.” (Kironde 1999, 110)

Mawishe (2008, 27) argues, that during times of decentralization, local authorities were demolished and the solid waste system started depreciating badly.

Since 1976 the government recognized the problem and with the Local Government (Urban Authorities) Act of 1982, urban governments were implemented again.

Responsibilities, duties and control were distributed novel. Urban governments were ruled by an elected council and local members of parliament were nominated by the Ministry of Local Government. (Kironde 1999, 121ff.)

It was again the obligation of the local authorities to handle the waste collection and disposal. It was their duty to... “... keep and maintain in good order and repair all public latrines, urinals, cesspits, dustbins and other receptacles for the temporary deposit and collection of rubbish, and public bathing and washing places, and to provide for the removal of all refuse and filth from any public or private place, and provide for the removal of night soil and the disposal of sewage from all premises and houses in its area, so as to prevent injury to health;” (The Local Government (Urban Authorities) Act, 1982: 62 (1) (g))

Since 1984 the municipality of DSM consisted of rural and urban areas. It was then divided into the three districts Kinondoni, Ilala and Temeke. Each district was divided into wards. The Dar es Salaam City Council (DCC) was the administrative body of the city, chaired by the

mayor of DSM. DCC standing committees were monitoring and evaluating policies and advising the DCC with final decisions. The executive apparatus to effectuate the policies was headed by the City Director. Nine executive departments were operating. Departments dealing with solid waste matters were the Urban Planning Department, the Health Department and the Engineering Department. (Ngiloi 1992, 49ff.)

According to Kironde (1999, 111) the relationship between the DCC and the City Director was tense, which led to a high turnover of the City Directors. This prevented the establishment of a stable management tradition.

The Committee for Health and Social Welfare which was part of the City Health Department was divided into two sections – a curative section and a preventive section. The latter was in charge of dealing with waste management. Each zone of the town, Ilala, Kinondoni and Temeke, had (and still has) their own Health Officer in charge, operating independently. (Nkyami 1984, 14) A sub department called City Cleansing Services was the principal executing body for solid waste collection. Its duties were the collection and disposal of solid waste, the maintenance of the vehicles (as the Engineering Dept. was responsible for the upkeep of the vehicles) and policy preparation on solid waste management to the city Engineering Department. Decisions on finances concerning the provision of equipment were done by the City Finance Office and decisions concerning the staff of waste management service were accomplished by the City Personnel office. The City Cleansing therefore suffered a lack of autonomy. (Ngiloi 1992, 78).

In 1990 the Dar es Salaam City Council (Disposal of Refuse) By-Laws were established, which did not differ significantly from the general rules concerning waste disposal within the Township Rules. These By-Laws dealt with the prevention of nuisances including the facts that the occupier of a premise was responsible for dustbin provision and the prohibition of throwing waste on the roads.

But the By-laws were more detailed than the laws of the Township Rules. They agreed upon a fine of no less than 10.000 TSH or three months in prison if laws were disobeyed. (The Dar es Salaam City Council (Disposal of Refuse) By-Laws 1990) In 1993 by-laws were renewed in terms of urban authority being able to provide services through a private contractor and collecting charges. These by-laws were part of the Local Government (Urban Authorities) Act, 1982.

“7. The Council shall arrange for disposal of trade and domestic refuse collected respectively from premises and from domestic dwellings and the Council shall collect and dispose or arrange for the collection and disposal of all refuse deposited as specified in By-laws 6 hereof.

(...)

8. There shall be paid in every financial year by every member of the Public by so much Refuse Collection Charge and in such manner as is provided in Schedule “C”. Upon failure of pay Refuse Collection Charge or part thereof on time a member of the Public shall be liable to a penalty of 25% of the Refuse Collection Charge or part thereof for a period of one month after payment is due shall be liable to penalty of 50% of Refuse Collection Charge due and in each such case shall also be guilty of an offence under By-law 19 hereof.” (The Dar es Salaam City (Collection and Disposal of Refuse) By-Laws, 1993)

Central Government and general institutions were and still are involved in the solid household waste management process. They comprise of:

- *Prime Minister's Office* (PMO) –surveillance of all financial transactions, responsibilities for the approval of by-laws
- *Ministry of Land, Housing and Urban Development* (MLHUD) –decisions regarding land provision for waste management
- *National Planning Commission* – urban development section e.g. infrastructure
- *Ministry of Health* – responsibilities for public health in general, preparations of laws concerning waste management
- *Ministry of Natural Resources, Tourism and Environment* – e.g. prevention of pollution from indiscriminate disposal of waste
- *National Environmental Management Council* (NEMC) – control and information on proper disposal.

(Kironde 1999, 119f.)

NEMC was created due the *National Environmental Management Act* of 1983. (Kironde 1999, 123)

3.2. Development of the disposal system after independence

As already mentioned, up to the 1970s local authorities were lacking powerful and eventually abolished in 1972. By the time of decentralization it was the government's aim to organize the population in local groups. This type of Tanzanian socialism was called Ujamaa and people all over the country were organized within these Ujamaa villages. Most people acted as farmers or workers for the nation. Education was free and highly categorized during that time. Women were mostly organized in women groups. These groups already occurred in the late years of colonial rule. By that time they were mainly dealing with literacy, small scale farming, and gardening and built women empowerment groups. But they were also taught sanitary and environmental issues like proper waste disposal. In May 1956 the Department of Social Development created a woman's training course schedule which included "refuse disposal and cleanliness of the house". (File No. 450 – 1238, 182f.)

Later "Community Development Groups" were founded and in December 1964 the Magomeni Community Centre stated within a monthly report that in Kigogo a committee of women was responsible for the cleanliness of the surrounding area. (File No. 540 – DR/22/11, 117)

3.2.1. Problematic waste collection operations

Waste collection was quite unsatisfactory during the late 1960s and 1970s which was even noticed by the authorities. But partial blame was shifted onto the labourers. In a meeting of the Communication and Building Committee in 1969 the following was written down:

"Councillor Baker stated that refuse collection needed more efficient service than was presently available. The Workers engaged on this job were in the habit of throwing dustbins and parking the vehicles in the middle of the road blocking traffic;" (City Council of DSM 1969)

As time went by the situation worsened. More and more people lived in squatter areas as the authorities could not provide enough houses for the vast increase of population.

“As a result to these developments, more than half of urban dwellers live in squatter settlements under squalid conditions. These conditions (sic.) are characterized by lack of basic amenities, such as clean and safe water, proper sanitation facilities, access roads, solid waste disposal facilities, storm water drainage etc.” (Mashauri/ Mayo 1993, 21)

The official waste collection service was mainly provided in the central and wealthy areas.

In places where the official waste collection service was not operating and no women groups were providing refuse collection, other methods of waste disposal were practiced. For example in Manzese, waste collection was only provided for the market and some restaurants by the City Council. Residential areas were not served due poor road access. Only five percent of the residents there collected their waste in small containers and brought it to the main road to a collection point. Most people would just put it on open spaces or pits and others were burying or burning their waste. (Nkyami 1984, 13)

Up to the early 1990s solid waste collection was generally divided in primary and secondary collection, both organized at district or ward level.

Primary collection means the collection of waste from the generator – in our case the households, and the transport and disposal at an intermediate storage location. Households collected their waste in standard bins manufactured by SIDO project in DSM. (Dar es Salaam Masterplan 1979, 157) The intermediate storage location (also called collection point or transfer station) could be a container, refuse bin or an open storage area. It also includes the removal of waste from streets is part of primary collection.

Secondary collection means the transport from the collection points to the final dump. The secondary collection system operated with a tipper truck system and a compactor truck system. The tipper trucks collected waste piles and private dust from bins from shops, restaurants, hotels and other institutions. Compactor trucks operated in domestic areas. (Ngiloi 1992, 71ff.) In 1968 the DSM City Council had 14 compactors (15 m³) and 10 side loaders (11 m³). In 1978 10 side load lorries and 8 lorries with a capacity of 100 tons/day were operating. (Nyello 1987, 8 & Dar es Salaam Masterplan 1979, 157) In 1992 they had 30 tipper trucks and 6 compactor trucks. Each truck covered a specific zone. The trucks were

manually loaded by six labourers who used rakes and bamboo baskets not provided with protective clothing. Before unloading the truck it was supposed to pass a check point within its district to check if it was loaded up to its capacity. If this was not the case it was sent back to continue loading. (Ngiloi 1992, 72ff.&106)

A container truck system also existed. Therefore the city had three trucks and 30 containers, each with a capacity of 5 cubic meters. Many containers were located at markets, some in residential areas and two at Muhimbili Hospital. Most of them were located in the City Center. (Ngiloi 1992, 107)

The City Cleansing sub department collected domestic, commercial, institutional, hospital, market, street and drain waste which was all disposed at the same dump. City Cleansing employed up to 800 people. (Ngioli 1992, 73)

Private collection was already possible for institutions. For example, the Kariakoo Market Cooperation and the Tanzanian Harbours Authority had their own collectors who brought the waste directly to the dump. (Ngiloi 1992, 74)

Collection services were provided twice per week up to every day in the commercial city areas. (Dar es Salaam Masterplan 1979, 157) As mentioned above waste collection was mainly provided in the city center and prosperous areas. In other places services were limited to markets.

But not even the city operated refuse collection was a guarantee for a clean environment.

“Upanga, for example, a medium density area in Dar es Salaam is supposed to store refuse in bulk bins placed in front of houses and collected by the city council once or twice a week. At present the number of bins isn't sufficient and it's common nowadays to see (Sic.) pits flooded with refuse in that area.

Oyster bay, a low density area in Dar es Salaam is supposed to use small bins placed in kitchen and when full be placed near the road for collection. The frequency of collection can be biweekly or once a week. Today pits and smoke from burnt refuse and burnt burials are common in that area.” (Nyello 1987, 8)

Foreign donations only brought a short improvement.

“In spite of the waste collection problems, it is however no secret that in the past decades Dar es Salaam also received a number of foreign donations for waste management. Furthermore the Government of Japan and Italy (GOI and GOJ) donated 39 trucks for refuse collection

service from 1987 – 1991. The refuse collection rate increased significantly due to this donation. However, the improvement did not last long as only 5 vehicles out of 39 were operational by July 1992. The City Authorities (CA) collected insufficient revenues to pay adequate amounts of fuel and oil led alone the costs of maintenance and replacement.” (Saskia et al., 2000 after Mawishe 2008, 28)

All in all the greater amount of waste was not collected and people outside the city center burnt or buried their waste or disposed it on-site. The waste was also littered on streets which could clog drains. The burying of waste in wide spaced areas was even encouraged by the City Council. Where flooding occurs during the rainy season or where groundwater table was high, this could have led to the pollution of drinking water. (Ngiloi 1999, 72&79f.)

The population was taught to bury the waste. In a textbook about a clean environment people were required to bury their waste and not throw it on public places. (Tutuunze usafi wa mazingira yetu 1986, 41f.)

Graphics No. 4: Areas in DSM where refuse collection was provided in the late 70s:



Source: Dar es Salaam Master Plan 1979

3.2.2. Recycling, Scavenging and Dumping

Recycling at domestic level was only sometimes done in terms of discarded consumer goods like fans, refrigerators, furniture and wood. Materials like glasses, plastics and metals were hardly recycled. Recycling was mainly done by scavengers at the dumpsite. Waste from the Kariakoo market was sometimes given to farmers where they used it as raw compost. (Ngiloi 1992, 76)

Industrial waste was recycled on a small amount as for examples plastics like PVC. Tins were used as lamps, doors and wall covers. Paper bags and cuttings were reused for manufacturing toilet paper. Car wrecks were sometimes used as spare part pools and steel iron parts for blast furnace plants. (Ngiloi 1992, 77)

The first dumpsite which was established after independence was located at Tabata.

“Tabata dump site was established in year 1965, the time Tabata was the outskirt of the city and no settlement patterns assumed to gain the proximity say of 200m from site. The land use authority claimed the site is a (Sic.) unproductive one in terms of agriculture and due to the financial position of the country the bulky refuse was tipped haphazardly to fill the lowland around Luhanga River. Urbanisation has launched a challenge to the responsible authorities as were caught unaware in early 70’s. Tabata today is a made plateaux of about 6 meters above the original ground level.” (Rugeyasila 1988, 8)

All waste collected in the city was dumped here. Rugeyasila (1988, 9f.) summarized the waste in her study about scavengers at Tabata in six categories.

- Industrial including packing materials, food wastes, discarded metal, plastic and textiles, fuel-burning residual, spent processing chemicals etc...
- residential waste like food wastes, organic waste but also furniture, papers, bottles, cans, tins and plastic containers
- commercial waste, consisting of organic waste mostly, because of the market waste, but also papers;
- institutional waste, like haphazard hospital waste or waste from schools like paper, plastic, metal and glass;
- street sweeping waste like dirt and litter.

Waste was just tipped haphazardly at the dump. For a short time in 1978 one of the two bulldozers was repaired and spread numerous piles of industrial waste. Only during that time the municipal lorries were tipping their contents in a well organised manner. (Dar es Salaam Masterplan 1979, 157)

Generally substantial environmental and health impacts occurred. An example is the increase of pollution loads nearby Msimbazi River. (Mashauri and Mayo 1989, 24; cited after Malangalila, 1985) the dump was placed directly along the Luhanga River, a tributary of the Msimbazi River. But also problems for people living in the surrounding areas or sorting at the dump occurred like smoke nuisances, as the waste was treated by uncontrolled burning, accidents through broken glasses and metal scraps or the transmission of disease through rodents and rats or insects like hookworms, roundworms and anopheles fly etc... (Rugeyasila 1988, 10f.)

Scavenging was not looked upon favourably by the town authorities.

“(...) At first the city council (sic.) Fenced the area to ban scavenging. As the fill grew higher the fence was buried in the waste. Since then the attitude of the city council (sic.) has been apparently neither for nor against scavenging.” (Rugeyasila 1988, 13)

On her study on scavengers at Tabata, Rugayasila (1988, 16ff.) discovered that many more men than women and no children were operating. Most people lived close to the area but no information is given on people living at the dump. From 90 up to 140 scavengers were doing their business daily there. Their average income was higher than the minimum legal wage. Some women built huts and started out eating facilities. In terms of sorting operations, people picked items by hand and it was a common practise to enter the trucks (if it was not a tipper truck) at arrival to sort out useful items already inside. This as well was done by crew members of the waste collection team and led to delays in returning to waste collection operations. That is why it was more attractive to collect the waste from rich residential areas as more reusable items were found there. (Rugeyasila 1988, 20f.)

“From discussion done on items scavenged at Tabata dumping site material of real market value are of leather, wood, plastic or metallic nature. Other items such as food stuffs are of little or no economic value except to the scavengers themselves who either eat them or sell them to unknown customers.” (Rugeyasila 1988, 30)

Industries benefiting from scavenging were particularly small scale like the Dar es Salaam small scale industry cooperative (DASICO), Songo Songo or Cassaner partners. DASICO was the biggest industry with about 800 members which started its operations in 1974 and was located in Gerezani. People there built new things out of waste. (Rugeyasila 1988, 33f.)

When Tabata got overloaded by waste, the government attempted to shift the dump to Kimara but this was prevented by local protests.

In September 1991 the site was moved from Tabata to Vingunguti.

In Vingunguti there was a city cleansing checkpoint which registered municipal compactor and tipper trucks. The roads to the dump were rough and muddy. (Ngiloi 1992, 75) Unlike in Tabata, scavengers were already living directly at the dump.

“At the dump a large number of individuals privately sort out waste components like plastics, foam plastics, metals, waste wood etc. Among scavengers are many bare footed children and adults. It is dangerous for them especially due to frequent broken bottles thrown in the dump. Some of the waste is smouldering. Gases such as methane are commonly produced in dumps by anaerobic microbiological processes.” (Ngiloi 1992, 75)

Another risk for scavengers is contact with infected hospital waste or rotten food. Even though hospital waste was often packed and collected in plastic bags, scavengers open them by searching for items. Hence disease could be easily transferred. (Ngiloi 1992, 76)

The problem of selling bad foodstuffs still existed. (Ngiloi 1992, 76)

As already mentioned above the generated waste was not only dumped at the dumpsites. Many people did not have access to waste collection service and as a result they would throw the waste on public spaces. This happened not only on streets but also at beaches leading to water pollution.

“Pollution occurs through waste disposal direct to the sea, via rivers or sewers. For instance Oyster Bay is said to be polluted with debris deposited at Msimbazi bay, also Ocean road beach, Banda beach is said to be polluted with sewage outfall at Ocean road causing localised pollution. These wastes are drifted at Oyster Bay beach and hence endanger the life of the beach user at this particular beach especially for swimmers.” (Homanga 1990, 57)

3.3. Amounts and composition of wastes

Table No. 4: Estimations on waste generation per day in Dar es Salaam city in different years:

Year	Generated amount of waste per day in tons	Collected amount of waste per day in tons
1968		175 ²⁴
1978		100 ²⁵
1987	1140 ²⁶	
1992		138, 18 ²⁷

These numbers are not very credible. E.g. the Dar es Salaam Master Plan 1979 talks about a waste generation rate of 0,17 kg/ cap/ day in squatter areas and 0,33 kg/ cap/ day in other residential areas in 1978. A population number of 750000 can be estimated during that time. In other words, the generated waste would have been somewhere between 127 tons and 247, 5 tons. An increase of waste generation of about 1000 tons within nine years is not realistically presumable. It is estimated that the DSM Master Plan underrated the waste generation rate.

²⁴Source: Dar es Salaam Master Plan 1979

²⁵Source: Dar es Salaam Master Plan 1979

²⁶Source: Mashauri/ Mayo 1993 as cited in Haskoning and M-Konsult 1987

²⁷Source: Ngiloi 1992, 136

Table No. 5: Composition of domestic solid waste dumped at Vingunguti dumpsite in February 1992:

Constituent	Percentage, %
Vegetable/ Putrescible	62,5
Paper	6,2
Glass	0,3
Metal	1,2
Textiles	1,2
Plastic & Rubber	1,8
Bones	0,3
Inert matter, sand, ash, stones, pottery	27,3
Density M.C.	390 kg/m ³ ; 58%

Source: Ngiloi 1992, 113&136

3.4. Problems of waste management operations

Problems mentioned above including the high population influx and the loss of power of the local authorities had a deep impact on waste management processes. But also other difficulties were analysed by different authors.

3.4.1. Reasons for a weak waste management service after Independence

Nyello (1986, 9f.) argues that waste collection services were poor due to various reasons. He thinks that one mistake done by the authorities was to ignore the fact, that vehicle costs are very high compared to labour costs in Tanzania. An optimum number of crew sizes were not employed. Instead lots of vehicles were used being very expensive to operate and the costs for reparations could often not be covered. Another problem was the law. Not only was it weak but the fines for punishing disobediences were too small and it could not prevent people from disobeying it. But worse, the laws were not actually enforced as it was rarely seen that

somebody was charged for throwing waste on streets. Furthermore dustbins in front of premises were not common.

Other difficulties, mentioned by Mashauri and Mayo (1993, 23ff.), were operational inefficiencies; inadequate storage, collection and final disposal facilities; the choice of the dumpsites and the question about who would pay for the solid waste management

“Unlike other services such as water supply, health care, electricity etc., solid waste management receives even a small share of meagre resources available. (...) Even the trucks received from foreign donors do not get adequate service because of inadequate funding and probably because of mismanagement of funds and other resources allocated.” (Mashauri/ Mayo 1993, 28)

This also means that solid waste collection was simply not as prioritized as other things.

“It is not uncommon to see solid waste collection trucks being used for unnecessary city campaigns unrelated to solid waste management while garbage is left piling in the city.” (Mashauri/ Mayo 1993, 23)

3.4.2. Attempts to improve the waste situation

Different strategies were tempted to solve the waste disposal problems. One example is the Dar es Salaam Master Plan.

Three master plans were implemented in the city. The first, established in 1948, envisioned an upper population limit of 200.000 people, racial segregation, the isolation of industries from residential areas and the reduction of malaria. The second one, established in 1968, had an emphasis in linking the different population and activity nodes within the city and the third, implemented in 1979 wanted to establish proper management systems to help control urban growth. But only few actions considered in these plans were really implemented within politics. (Hosier 1994, 10)

The first plan for DSM was a very descriptive and impressionistic. Its main contents were architectural descriptions and little was said about technologies and the environment. (Kironde 1994, 353)

In the Masterplan of 1968 efforts concerning servicing were done in terms of electricity and water provision but only few actions concerning sewage, drainage and solid waste disposal were accomplished. (Dar es Salaam Master Plan 1979, 106)

“To reflect some aspect of Tanzania’s socio-political preferences, the 1968 Dar Master plan proposed to breakdown racial segregation, and to create a variety of plot sizes in each area. Densities too were to be reduced in high density areas, and increased in low density ones.” (Kironde 1994, 355)

No activities were taken to put the idea into practice. The Master Plan of 1968 suggested a governmental investment exceeding practicable aims. It created non-realistic land use schemes and the tendency of decentralization of economic activities to other areas of the country was ignored. Therefore it remained rather unnoticed by Tanzania’s leaders. Payments to the Canadian company which drafted the Master Plan took place, but the content wasn’t used. (Kironde 1994, 355f.)

In 1979 another Canadian company was commissioned to write a new Master Plan, which was funded by a Swedish grant-in-aid. In terms of waste management this Master Plan rethought different methods of waste disposal, like incineration, composting, sanitary land filling and even ocean dumping. (Dar es Salaam Master Plan 1979, 158)

Finally none of the Master Plans was ever truly utilized to improve waste management operations. Other attempts to improve the situation of the polluted city were cleanliness competitions arranged by the government. In 1991 for example, a cleanliness competition for hospitals took place. The cleanest hospital would win 500000 TSH. In the same year, leaders at district and wards levels were menaced to be held responsible for enforcing cleanliness in their respective places. (Ministry of Health 1991, 24)

It was only two years later when the government invoked an emergency clean-up for DSM. (Kironde 1999, 121)

4. The waste situation from the 1990s up to now

In the early 1990's, population growth in the city was extremely high due to factors like the inauguration of the open market and others.

“There are a number of factors that contribute to the problem of solid waste management. In Tanzania, one of the factors is the introduction of economic structural adjustment policies in the mid 1980's. Tanzania turned from a socialist economy to the market economy. Such a turn, attracted foreign investors who concentrated their investments mainly in Dar es Salaam, attracting an influx of job seekers. This situation seemed to have not gone parallel with the provision of public social services that could, among other things, provide sufficient mechanism for efficient management of domestic solid wastes.” (Massamu 2007, 3)

This high number of population led to an increased waste generation rate, greater number of squatter areas and more people without access to the official waste collection system.

The arrival of the new material of plastic in DSM in the 1980s caused the degradation of the waste situation in the city.

“At the mid of the 80s, when plastics started arriving also many people came from the urban areas to town and the population was increasing. By that time the city became so dirty, it was extremely dirty. In the early 90s the city became dirtier and dirtier every day. The waste was being dumped in one place what is called Nazi Moja. At that time the City Council tried to do it level based but by that time they had no vehicles to transport this waste.” (Interview: Mama Msosa 2009)

In 1994 the central government invoked an emergency clean up for the city, as even those areas with access to the waste collection service of the city were very polluted. Resources for this clean-up were provided by the government. This was one of the first actions performed under the guidance of the Sustainable Dar es Salaam Programme, discussed below. (Kironde 1999, 129f.)

From this time on, agents involved in waste management operations comprised the city council, the three municipalities, private companies, non governmental organizations (NGOs), community based organizations (CBOs) and second economy workers.

As you will read below, the SDP was introduced by the UN and its main aim was to privatize the waste collection process. MSW is highly interlinked with Globalization and Urbanization and both create a negative impact on waste generation and on waste management processes. (Achankeng 2003)

4.1. Private involvement in the waste management process

In 1994, the DCC made the decision to privatize solid-waste collection in the 10 wards of the central area. This privatization was interlinked with the SDP, which started under the auspices of the Habitat Sustainable Cities Programme. Its main aim was to bring together the various actors (central and local government, private companies, NGOs, CBOs, donor organisations) to address environmental issues. (Kironde 1999, 129)

Halla (as cited in Myers 2005, 44) argued that the central government's *Ministry of Local Government* asked *UN-Habitat* for support to revise the 1979 Master Plan in 1989. But their suggestion was rejected and another strategy for urban planning developed by the UN was created. UN-Habitat addressed their plans directly to the Prime Minister and found acceptance. In 1992 *UN-Habitat* initiated the start-up fund for the SDP, with the improvement of solid waste management as one of its highest prioritized subject. DSM became the first city in the world to implement the Environmental Program Management (EPM) approach, a strategic urban development plan devised by the UN which was later applied in many cities. (Kitilla, cited in Myers 2005, 45)

In 1992 the SDP organized the Dar es Salaam City Consultation on Environmental Issues, a five-point strategy of intervention was established and working groups for further help were initialized:

- Emergency clean-up of the city (which was done in 1994) with provided resources from the central government and different donor communities
- Privatizing part of the collection system
- Improving management of disposal sites
- Establishing community-based collection systems
- Encouraging waste recycling (Kironde 1999, 129f; compare also CCS 2008)

The CCM accepted these points because of marketing strategies. Kironde (1999, 140) argues, that this emergency clean-up (initialized by the local government who had the elections in mind), helped the ruling party, the CCM, to win all the seats in the DCC.

Kironde (1999, 130) exposes, that the DCC was never in favour if the privatization of the waste removal process. The reason for implementation were only the proposal of external agencies and foreign donations for the new system.

From 1994 to 1996 the DCC was democratically elected. But after 1996 it was replaced by the DSM City Commission and all memberships were nominated by the Prime Minister. At that time the new commissioner Charles Keenja, who was later highly honoured by the UN for his successful leadership, quickly implemented several action plans like the privatization of solid waste management. (Myers 2005, 44f)

In the following citation it is visible – as also Myers (2005, 47) argues – that the government of Tanzania was an instrument created by western donors, like the *UN-Habitat* was in this case (Kironde (1999, 139):

“During the preparations to privatize solid-waste collection, the DCC’s original acceptance of waste-collection points (where households would take their refuse for the contractor to pick up) was perhaps a result of foreign- consultant intervention, as these collection points had major disadvantages that would have been obvious to local people.”

But black and white thinking is not suitable within this opinion, as for example Mama Msosa, the founder of a CBO dealing with waste collection, was pleased of those collection points.

“The municipality used to come first to some collection points and took the waste to Mtoni²⁸, but then they abolished those transfer station, so since that time, we are bringing the waste by ourselves to the dumpsite. (...) Therefore, it would be really better if we could have a transfer station. So that we could bring the waste to a certain collection point and then the municipalities could come with their big vehicles and move the waste to the dumpsite.” (Mama Msosa 2009)

Areas alongside main roads could take their advantages from the implementation of the privatisation of waste collection operations due the Sustainable City Program (SCP). Visible areas are kept cleaner then before. But remote regions inhabited by the majority of the population could hardly profit from the new order, as they were not able or willing to pay the fees. (Myers 2008, 53)

Other authors including Ali and Mbuligwe (2006, 779) come to the conclusion that the privatisation of solid waste collection in DSM has brought several advantages as it helped to

²⁸ = name of the location of the dumpsite

create employment among the DSM residents and to improve the cleanliness of the city. They state that the quality of services improved significantly.

Nevertheless, many problems concerning the privatization occurred. A report by the ILO in 1998 (as cited in Massamu 2003, 4) demonstrates these problems:

„These included contractors who were insufficient customer oriented, lack of relevant experience; and failure to enforce payment, and refusing to pay collection charges for domestic wastes. There were also additional problems, which included the regulatory weakness of the City Commission and a low level of community awareness and involvement, lack of appropriate waste-handling technology as well as disposal sites.”

After the passage of the Dar es Salaam (Collection and Disposal of Refuse) Bye Laws in 1993, the DCC was enabled to impose refuse-collection charges (RCCs) now claimable through a court suit. Private contractors were responsible for collection and transportation of the waste and sometimes for street sweeping. (Kironde 1999, 129f)

The first private contractor for waste management services was Multinet, which started to collect the waste within the ten city centre wards. (Myers 2005, 50)

„The privatization of solid-waste management in the central area of Dar es Salaam shows all signs of the part played by politics in determining the RCCs and the areas to be privatized. The central area was privatized first, not only because of its political importance, but also because it is occupied chiefly by Aborigines and business people. Here, the RCCs were much more likely to be accepted than in other areas. Charges were also determined so that business people paid 80% of the expected charges, and residents in predominantly non-African areas paid as much as seven times the fees paid by residents in African areas.“ (Kironde 1999, 142)

Later on, the SDP was encouraging the formation of NGOs and CBOs to deal with environmental issues. In the area of Hannah Nassif the first civic bodies developed to deal with waste management. (Kironde 1999, 133)

“The most well known among the community-based collecting contractors that survived the Keenja era is the Kinondoni Moscow

Women's Development Association (Kimwoda) of Hanna Nassif in Kinondoni municipality.” (Myers 2005, 51)

“To survive the Keenja era” was not easy. Another women group called KIWODET which was already operating before the SDP was implemented. These women believed that their area is too dirty and started waste collection on their own. Mama Msosa, the founder of this CBO, argued that before the privatization of the SWM process, they could operate as they wished. After the SDP was introduced, they were forced to collect the charges for the service at the end of the months as this was a principle of the SDP. At the beginning KIWODET collected the charges before they were providing the service. At that time people were paying the fees. When fees were collected at the end of the month many people rejected to pay. (Interview: Mama Msosa 2009)

4.1. Legislation and institutional setup

4.1.1. The Central Government

The Central Government is involved in waste management as the legislative body which formulates the laws. But it sometimes performs as an executive body, e.g. when it sustains emergency clean-ups and provides resources.

Laws concerning waste management are not always known or accepted by the society, e.g. it is prohibited to throw waste on the street. Nevertheless throwing waste on the street while walking or throwing it out of the dalladalla²⁹ is a common habit in DSM. (Kironde 1999, 119f.)

4.1.2. Policies

Urban authorities have a considerable responsibility for waste collection and disposal since the formulation of the *Local Government (Urban Authorities) Act of 1982*. Their responsibilities are to remove and collect the waste from private and public places, to provide and maintain receptacles for temporary deposit and collection of waste and to prevent public nuisances that may injure public health or good order. Lots of by-laws concerning the *Local*

²⁹ = mini busses for public transport

Government Act were formulated to the Local Government Act: the *Dar es Salaam City Council (Animals, City Area) By Laws of 1990*, the *Dar es Salaam City Council (Hawkin and Street Trading) Amendment By Laws* and the *Dar es Salaam (Collection and Disposal of Refuse) By Law of 1993*. (Kironde 1999, 121ff.; Massamu 2007, 31f.)

The *Dar es Salaam (Collection and Disposal of Refuse) By Law of 1993* already enabled private waste collection operations for institutions and companies. To empower the privatization of the waste disposal in the whole city the *Dar es Salaam (Collection and Disposal of Refuse) By Law of 2000* was formulated. (Masamu 2007, 32) Later on by-laws for each district were formulated:

- Ilala Council (Solid Waste Management) (Collection and Disposal of Refuse) By-Laws 2001
- Kinondoni Municipal Commission (Waste Management and Refuse Collecion Fees) By-Laws, 2000
- Temeke Municipal Council (Solid Waste Management)(Collection and Disposal of Refuse) By-Laws 2001

The by-laws for the different municipalities in Dar es Salaam do not differ significantly. The refuse collection charges vary slightly. In low income residential areas, households have to pay 700TSH per month in Ilala, 500THS in Kinondoni and Temeke. Households situated in middle income areas pay 1000TSH per month in all three municipalities. People living in high income areas pay 2000TSH in Kinondoni and Ilala whereas in Temeke, high income areas are not mentioned.

All by-laws state the duty of an owner of a premise to provide a dustbin, in Kinondoni this dustbin must have 50m³.

By-laws for DSM generally quote, that people littering are charged a fine of 5000TSH. It is possible for authorities to enter houses and premises ensure that laws concerning cleanliness are abided. (The Dar es Salaam City Solid Waste Treatment, Disposal and Street Littering By-Laws, 2004)

Furthermore waste management guidelines exist influencing disposal services. These guidelines are only recommendations to help saving the environment and to prevent health problems of the citizens. Local authorities are also required to follow them as a basis for setting mandatory conditions in their areas of jurisdiction. Unfortunately specification lacks.

“In August 2003, the Ministry of Health came up with the waste management guidelines. The guidelines have the main objective of providing guide on how waste should be properly managed at all level in the rural and urban settings. They provide quick reference materials for technical personnel, decision makers and communities, promote good practices and encourage partnership and multi-sectoral approach in waste management, ultimately creating uniformity in approaches and the state of art for the waste management across country.” (Massamu 2007, 32)

Other laws governing the waste management process in Tanzania are *The Public Health Act* of 2008, *The Environmental Management Act* of 2004, *The Industrial and Consumer Chemicals (management and control) Act* of 2003, *The Tanzania Food, Drugs and Cosmetics Act* of 2003, *The Atomic Energy Act* of 2002, *The Plant Protection Act* of 1997, *The Mining Act* and *The Local Government Act*. (National Waste Management Guidelines 2009, 55)

4.1.3. The City Council and the Municipalities

In 2000 the CCM subdivided the city into the three municipalities Ilala, Kinondoni and Temeke. Each municipality has its own elected council and its own SCP office. Since 2005 the DCC consists of five councillors nominated by each of the three municipal councils. Within the DCC there is an EPM coordination unit and solid waste management unit to oversee all three SCP offices. (Myers 2005, 45)

The three municipalities together with the solid waste collection private contractors (SWCPC) carry out solid waste collection and disposal in DSM.

“The SWCPC also include non-governmental organisations (NGOs) and community based organisations (CBOs). The CBOs normally specialise in primary collection (from household to collection points or enclosures), while SWCPC and some NGOs collect wastes from both primary and secondary collection (collection from household level, collection centres and open spaces and roadside, i.e. illegal mini dumps) and haul it to the final disposal. The three municipalities deal only with secondary collection, i.e. solid waste from collection points (enclosures) and from the illegal mini dumps (i.e. open spaces, roadside, etc.).” (Kaseva/ Mbuligwe 2005, 358f.)

Therefore city-based governments are involved in the waste management process. The main administrative body is the DCC. It oversees the work of the three municipalities. The municipalities are directly cooperating with the private contractors, CBOs and NGOs and they are also executive bodies in terms of waste collection. They provide a certain area for their contractors and assign the tasks of waste and revenues to them. Private companies provide primary and secondary collection. They supply house to house collection and dump the waste directly at the main dumpsite.

CBOs provide primary collection only but they are requested to transport the waste to the transfer stations. These collection points are either fixed, like in Temeke or they exist in form of trailers, like in Kinondoni. The municipalities provide secondary collection as they transport the waste from the collection points to the main dumpsite. Street sweepers are usually employed and paid by the municipalities. (Interview with Samuel Bubegwa, Waste Officer Ilala)

Local governments recognise that there is a waste collection problematic in DSM. The main difficulty is the lack of resources including finances as well as equipment. But the overall power of politicians plays part in this problematic situation as well.

“The problem is that here in Tanzania we don’t have eco-groups and NGOs dealing with the environment and so all the decisions and ideas are politically initiated.” (Interview with Kizito Kladslaus, Waste Officer Kinondoni)

Municipals sometimes get foreign support, as for example Temeke Municipal has a tight contact with the city of Hamburg. The waste officer of Temeke attended workshops there and vehicles were donated. Japan also donated vehicles. Further the Clinton Foundation supports a project concerning composting with Bill Clinton visiting an international CIFAL³⁰ meeting for African Countries concerning waste management. (Interview with Mr. Hatib, Waste Officer in Temeke)

Other waste officers receive less support.

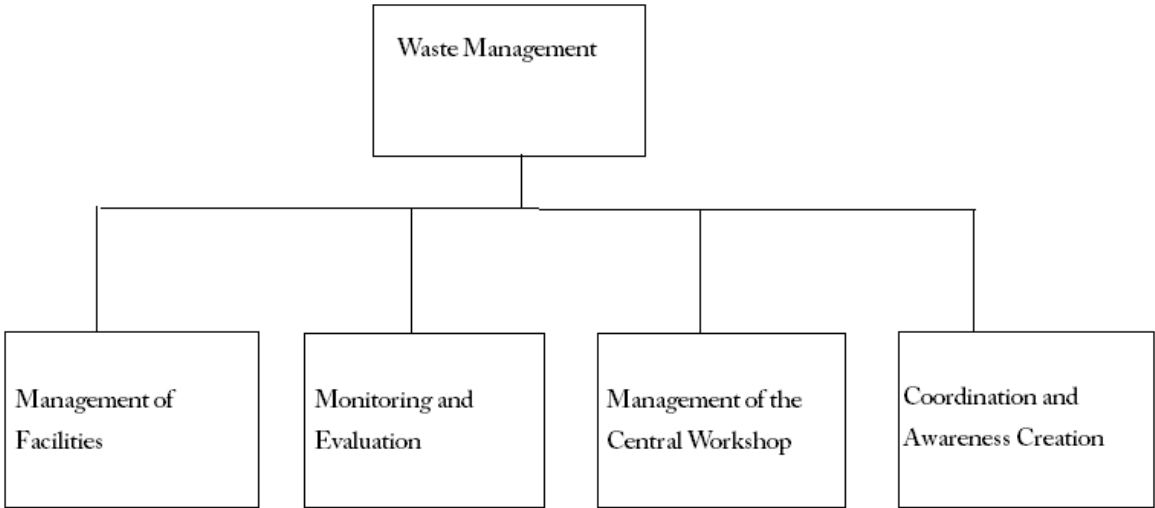
“In terms of foreign support we have to say that it is very few. We did not get any donations here in Kinondoni except two compactor trucks

³⁰ „Centre International de Formation des Autorités/Acteurs Locaux”, holding organization is UNITAR (United Nations, Institute for Training and Research)

from Japan which were already used and survived only for four months. “(Interview with Kladslaus Kizito, Waste Officer Kinondoni)

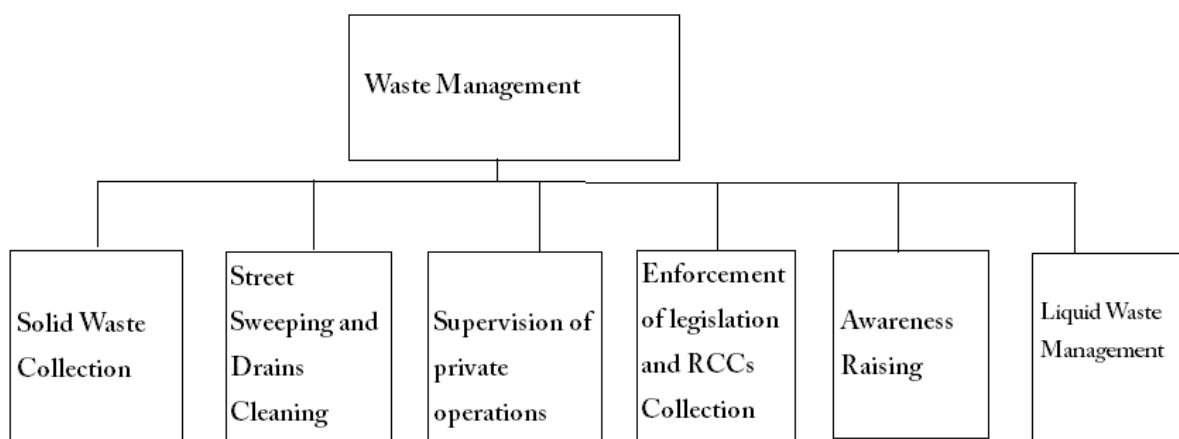
The City Council of DSM operates at three levels. The City Council itself oversees and guides the work of the three municipalities. The municipalities oversee and guide the work of their wards. The responsibilities of the different levels are show below.

Graphics No. 5: Responsibilities at the City Level:



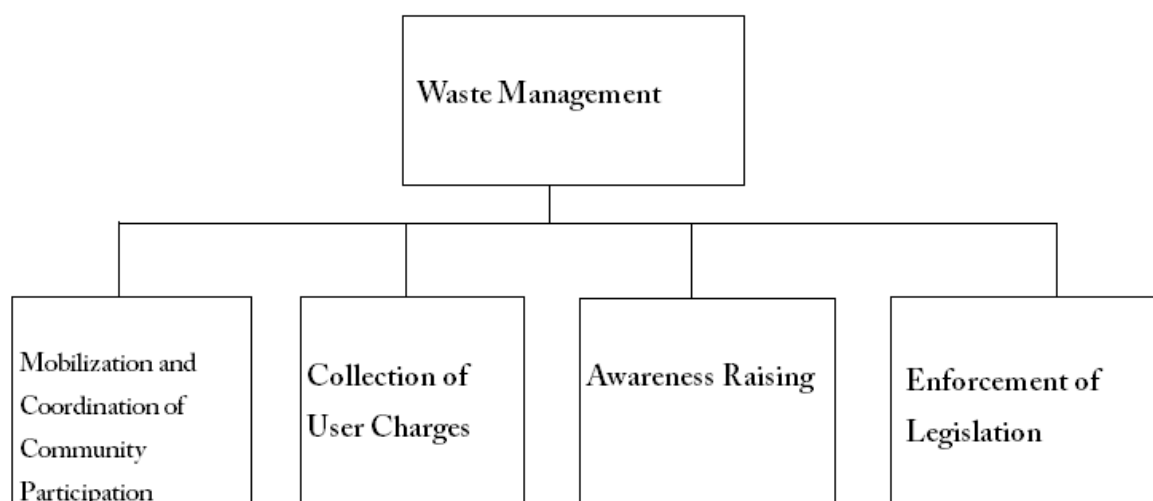
Source: Dar es Salaam City report provided by the City Council of DSM

Graphics No.6: Responsibilities at the Municipal Level:



Source: Dar es Salaam City report provided by the City Council of DSM

Graphics No.7: Responsibilities at the Ward Level:



Source: Dar es Salaam City report provided by the City Council of DSM

4.2. Private contractors' operation and their problems

DSM local governments grant monopoly to private contractors for servicing a specified time in a specified area. The service provider is responsible for the fee collection directly from the waste generators. (Coad 2003, 13)

Private companies become less as most people are not willing to pay the charges.

“Nowadays private companies are only providing services in one of the 24 wards. In 2002 there was a private contractor for almost every ward, because they thought, they can make business. But as people are not very willing to pay the refusal fees, most of them have stopped their work since 2007, as they could not finance the company's operations.” (Interview with Ally Hatib, Waste Officer Temeke)

Contractors often complain that the households they serve, do not pay the RCCs. Some franchisees even claim that less than 10% of the households served pay the collection charges. That is why some started to collect the fee directly when taking the waste bags from the households. Normally people collecting the RCCs walk from house to house to collect the fee and to inform the residents about the needs and reasons to pay the costs. (Coad 2003, 18ff.)

But the information is either described obscure or poorly communicated as other authors claim that the majority of the population in DSM has little idea why charges need to be paid.

„It is worth mentioning that this study reveals that the households in DSM are not aware about their service providers and privatisation as a whole. During the survey it was observed that most households receive a collection service but they do not know if the service provider is from the private sector, public sector or agent who is already paid by the City Council, and this is one of the obstacles to contribution.” (Ali/ Kassim 2006, 777)

Ali and Kassim (2006, 778) argue that the DCC has failed to inform their citizens about the alternated situation. The DCC left this duty to the SWCPCs.

If private contractors have a good relationship to their customers, they are more likely to pay. One example is the area of Buguruni, one of the low-income areas. Before private contractors

had a direct relationship to the households, less than 30% paid the fees. When interactions intensified more than 50% are willing to pay.

The paper from the Coastal City Summit (CSS 2008) states, that the level of awareness of solid waste collection charges is still very low:

“Peoples’ mindsets (as well as some leaders on SWM aspects) are still rigid and tied up with cultural ways of waste handling, thus, they do not see the essence of paying the RCCs. Whereas contractors have been trained on several techniques of waste management both within and outside the country, they have not been able to impart the knowledge they have gained to the people they serve. The concentration of contractors seems to be skewed along the collection of RCCs from the people.”

The paper claims that people refuse to pay the fees due to lack of sensitisation. It states that households are not satisfied with the quality of the services and the refusal is furthermore linked to the long list of other charged services e.g. water, energy, transport, education and health care.

Mbuligwe et al. (2003, 190) argue that expenditure by households on solid waste management is ranked lowest among all other service expenditures.

According to the CCS paper (2008) it is this lack of willingness to pay the RCCs that leads to failures of the SWCPCs to do a proper collection as required. If the contractors do not get paid they do not suffice paying the labourers, fuel or vehicle repair and maintenance.

There are a number of CBOs which have obviously started their operations with the aim of being funded by external partners:

“Indeed, some of the better known CBOs are highly dependent on external agencies for funding and motivation, and this may not be a good thing, as such CBOs may lack sustainability if the external funding dries up.” (Kironde 1999, 134)

As written above, the three municipalities divide their areas in high-, middle- and low income areas and there are different fee rates in each municipality and area. Fees can range from 200TSh to 3000TSh as Ali and Kassim (2006, 776) state. As Rutalebwa (2000, 51) concerning a study of the JICA (1997) finds out, that people living in so called urban areas as for example Kariakoo, Kisutu, Kivukoni, Upanga etc. pay 2000TSh per month, semi-urban planned developed areas like Gerezani, Jangwani, Michikichini, Kinondoni, Magomeni

etc. pay 1000TSh. People with low income who live in the so called semi-unplanned developed areas pay 500TSh per month. Areas classified as rural like Ubungu, Kigamboni, Kunduchi etc. are not connected to any collection service.

The fact, that low income areas pay only a small amount compared to the high income areas makes them even less attractive for companies to serve. They receive less money as it is even harder to collect waste at the poorly kept roads. (Coad 2003, 21f.)

Most households in DSM use additional informal services. (Mawishe 2008, 67)

4.3. Examples of companies, NGOs and CBOs

In general, the motivations of the franchisees to found a waste disposal organization are :

- Profit
- to generate employment within the community
- to improve living environment in the vicinity of the members' houses
- to avoid that children have to carry the households' waste (sometimes they have to do it even at night so they would not be seen). (Coad 2003, 13)

During the following pages some companies and CBOs are described to get an idea of how they operate and their problems.

4.3.1. Private Companies

At the beginning of the new millennium companies dealing with waste collection were booming. It seemed to be a good business and more sensible than other ways to make money. But as time went by it became obvious that there were no profit in this business as the majority of the people were not willing to pay collection fees. (Interview with Ally Hatib, Waste management officer Temeke; Interview with Kizito Kladislaus, Waste management officer Kinondoni)

4.3.1.1. SINCON

Peter P. Siniga opened his company SINCON for waste collection in 1999. He had enough capital to establish the company due to a disbursement of privatization of a Tabacco company. From 1999 to 2002 he worked under the guidance of the City Council and from 2002 on he worked under the guidance of the Ilala Municipality. SINCON serves residential areas in the City Centre and Kariakoo. They provide a daily house to house collection because Kariakoo is a market area. Mr. Siniga is still operating the business, although not gaining profit.

“In the end of the months we go to collect the refuse collection charges, but only about 20% of the households we serve are paying. By the time we started they were even less. We take those people, who are not paying to court, but the process takes a very long time and we are still providing the service without gaining enough money. The company can only survive because we are also dealing with liquid waste collection, which is usually not done by one and the same company. If people want to get rid of their drainage and sewage waste they call us and the good thing about it is, that they have to pay immediately for the service. Street cleansing in our area is done by another private company. “(Interview with Peter P. Siniga Jr., Head of SINCON)

Other problems are the high costs for fuel. Even though he owns very useful waste collection trucks he cannot operate them as they require a substantial amount of fuel. This problem increased since the dump was situated in far away Pugu.

“When the dumps were closer all the enterprises together could at least bring 80% of the waste there every day, nowadays we are only able to dispose 20% there every day because we cannot go there several times a day. (...) Protective gear for the labourers is there but we don't want to give it to them as our labourers are employed on a daily basis and if we give them the helmets and gloves, they will sell them. It is very common for private contractors to use labour on daily basis. They come in the morning and we choose how much we can employ for the day.” (Interview with Peter P. Siniga Jr., Head of SINCON)

Peter P. Siniga is well equipped with protective clothing for his labourers but he never distributes them to his workers.

“Protective gear for the labourers is there but we don’t want to give it to them as our labourers are employed on a daily basis and if we give them the helmets and gloves, they will sell them. It is very common for private contractors to use labour on daily basis.” (Interview with Peter P. Siniga Jr., Head of SINCON)

4.3.1.2. Lyoto Ltd.

Lyoto Ltd. was established by Manfred Lyoto who started his company investing three months of capital (3 million TSh) before the first revenues started dribbling. He had to hire trucks for secondary collection which was quite challenging. Most firms were not enthusiastic about lending trucks for waste collection as they deteriorate faster. Today he owns 6 trucks. Mr. Lyoto provides service for 4000- 5000 costumers of whom 55% pay the RCCs. He employs 40 workers for the collection progress and his company is involved in sweeping and recycling employing 39 workers. The workers are of mixed age and especially sweepers are mainly women. (Coad 2003, 61)

4.3.2. NGOs/ CBOs

As written above, right after the implementation of private contractors doing waste collection operations, many private waste companies emerged in DSM. As they declined more CBOs had to be created to collect the waste.

“In 2002 there was a private contractor for almost every ward, because they thought, they can make business. But as people are not very willing to pay the refusal fees, most of them have stopped their work since 2007, as they could not finance the company’s operations. The CBOs provide also house to house collection, but they only bring the waste to the collection points from where the Municipality is collecting the waste to transport it to the main dump in Pugu, Kinyamwezi. We have 6 collection points which means one collection point serves three wards. The CBOs have either established themselves and came to the Municipality to get further advices or Ward Executive Officers namely the Health Officers organise the society of a ward to build a CBO and to provide the collection service.” (Interview with Ally Hatib, Waste Management Officer Temeke)

The operation of CBOs varies in the three municipalities. Collecting waste at the collection points is not common everywhere. Other areas do not have permanent collection points. This can be an advantage, as the surrounding inhabitants often dislike waste transfer stations close to their houses. (Interview with Kizito Kladislaus, Waste Management Officer Kinondoni)

Coad (2003, 62) discovered, that the various systems (companies, NGOs and CBOs) are quite similar. A company manager, who participated in a discussion on waste management in DSM thinks, that it is easier to manage a company led by a boss system instead of a member system. NGOs are profit orientated like companies, even if they use the gained money in different ways. The CBOs also want to be like NGOs and companies. The municipalities treat all the same, no matter which status they have, but tax systems differ. The disposal fee is the same for all, but companies have to pay license fees, tender fees and a city service levy whereas the CBOs and NGOs only pay tender document fees.

Finding employees is no problem for either systems, but it is interesting, that duration of employment in CBOs last longer than in NGOs or companies.

A solid waste contractors' association exists which meets monthly. (Coad 2003, 62)

4.3.2.1. KIWODET

Mama Msosa, the founder of the NGO Kiwodet (Kisutu Women Development Trust Fund) arrived in Dar es Salaam in the early 1970s, when waste collection services were only provided in the central area of DSM. In her area no waste collection services were available. Only some homeless people would sometimes collect waste from households for a small fee. But the area was very dirty and so Mama Msosa gathered 20 women who were willing to clean up the area and provide waste collection for the households.

“Then we decided that to inaugurate our services we have to sweep the area. And it was on the 25th of June 1978 when all of us we started sweeping this area, without a single cent, we swept the roads. Then, the following day we went from house to house telling people that it is better to collect our waste and we told them we will collect it and they shall pay a little money. Each woman has to pay 100 Shillings. On the first day we collected 1000 Shillings, and we went to Kariakoo and bought 1000 of plastic bags and gave it to the people

which wanted to cooperate with us and told them to fill it. We said they should not throw it anywhere, we will come and collect it, and for that they should pay us 200 Shillings. They agreed.” (Interview with Mama Msosa, founder of KIWODET)

KIWODET was even established before the franchise system was implemented. For the implementation of laws concerning private waste collection operators meant a degradation of their income and facilities.

“But what they said was that we should not collect on the spot. We have to collect the money in the end of the month... and that was the time when they spoiled everything. Because people were ready to get the waste collected but after that they were not willing to pay anymore because it was already collected. I think, they didn’t think properly by establishing this new rule. “(Interview with Mama Msosa, founder of KIWODET)

Another challenge was the closure of a nearby collection point. Since that time Pugu was the main dump women from KIWODET had to use. That brings much more expenditures because of the high costs for fuel. Daily waste transfer to the dump with tractor and trailer is not possible nowadays due to finances.

4.3.2.2. Tabata Development Fund

The Tabata Development Fund CBO was formed after successful requirements to move the city landfill from their area. It has managed to mobilize the people, raised resources and encouraged partnerships to construct a bridge, rehabilitate local roads, plant trees, and construct storm drains. This CBO even won an award from the World Bank for promoting the improvement of the infrastructure in their area. (Kironde 1999, 133f.)

4.4. The role of the informal sector

In DSM, like most African cities, there has developed an informal market for waste collection. Men collect rubbish, mostly with handcarts, from the households and take it to the

public dumpsites or burn it. (Kironde 1999, 134f. & Msoka/ Rajabu s.a.) Others pick up waste from dumps or from the streets and sell it. These people are called “Machinga” which is according to Hammer-Athumani (2003, 12) a general term for people working within the unofficial economy in Tanzania.

The informal system of waste management is promoted by various facts. Already mentioned is a lack of official services, which let the “Machinga” to collect waste while others wanted to gain profit out of it. Weak politics can sometimes lead to informal operations like the implementation of common collection points as already referred in chapter 4.3.1. People are not accustomed to bringing their waste to a certain collection point. They rather pay fees to an informal collector to bring their waste to those points. (Msoka/ Rajabu s.a., 10)

The city does not provide any recycling, so the informal recyclers (are now more integrated into the system, as mentioned above) are the only people that respond to that market force on the positive side they help reduce the amount of waste at the dumpsite. (Msoka/Rajabu s.a., 8)

4.4.1. House to house collection

Msoka and Rajabu (s.a.) Clarify, that informal waste collectors are filling an important gap in which city authorities cannot. (p.10) Usually they assist areas, where the formal system does not exist, areas that are not accessible by roads. (p.9) Occasionally more than one unofficial collector is operating in the same area and this sparks controversy sometimes. (p.8) It's regularly seen, for example in areas of Manyanya, Tunisia road and Studio- Mkwajuni, that young people or children go around to houses asking for waste to dispose. (p.10)

The “Machinga” collect waste in officially unserved areas as well as in officially served areas. These unauthorized collectors collect waste also in areas where private companies already operate. “Machinga” charge lower fees for their services due to the fact they do not have to transfer waste to the official dumpsites where disposal fees apply. Occasionally they dispose waste at unauthorized places or even dump it at the transfer sites, where official companies are responsible for loading the waste into trucks and transport it to final disposal sites. In this circumstance private contractors have to pay the disposal fees without getting any reimbursement from waste generators. Issues like this often lead to conflicts between companies and informal collectors or even with municipalities, which have guaranteed monopoly of waste collection in the specific area to the enterprises. (Coad 2003, 18)

4.4.2. Scavengers

Informal workers involved in waste management exist in form of recycler's resp. scavengers or waste pickers. They are found at main dumpsites as well as collection points. They generally collect plastic, glass, tins, scarp material, paper or coconut shells. They are usually sold to middle men who accumulate sufficient quantities to sell the rubbish to end users such as Kioo Ltd. (glass), Simba Plastics, Tanpak and Kibo Match Group (paper) and Aluminium Africa. Even if those scavengers live mostly hand-to-mouth and their monthly income is hard to elevate, it is estimated, that they earn more than the official minimum wage of 50.000TSh per month. (FACET 2004, 3)

Scavengers are seen everywhere on the streets collecting mainly plastic bottles which are nowadays sold to Chinese. Chinese companies buy PET bottles for a small amount per kilo, manufacture it to pallets and ship them out to China to produce new plastics.

Informal waste recycling is actually opposed by municipal authorities because waste pickers scatter the waste making it more troublesome to load into trucks. But as this recycling reduces the waste, municipal officers are often hostile to informal recyclers. (Coad 2003, 11/12)

Kironde (1999, 136) explains, that the "Machinga" have neither any organized form nor any relationship with the DCC. But Myers (2005, 52f.) states that nowadays those recyclers have built organisations and are more integrated:

"First, the organization of scavengers union at the city dumpsites in Vingunguti and then Mtoni, together with an intensive effort by the City Council solid waste and EPM units to forge partnerships between this union and private firms, has resulted in an impressive record of recycling."

Also in a paper carried out by the ILO it is said, there are two official waste picker associations operating at the Mtoni dumpsite, UTADA and JITUME. (FACET 2004, 7)

4.4.3. Gerezani

As mentioned in chapter 3.2.1. a company that bought materials from scavengers and producing new commodities has existed in Gerezani since the 1970s. Nowadays not one single company operates on this base but there is a long street next to the old prison, where everyone can bring old articles like cars or even parts of houses. They are fractionizes, new products are created and directly sold. In terms of cars these new products are for example: iron bars, huge iron pots, iron sheets, fire pits or huge cooking spoons.

4.5. Waste handling operations at the household level

The report of the CCS (2008) states, that solid waste disposal practices like open dumping, burning, burying etc. are common in the city.

“The most common way to dispose the waste here in Dar es Salaam is to use pits. People use to dig out pits and burn or burry the waste. Composting is also done... but this is not so common nowadays. (...) If there is no bin, if there is no container, if there is no common place, if they even live in a flat, where do people throw away their waste? The waste will be packet in small small plastic bags and these will be illegally dumped. So people wake up early in the morning and dump these plastic bags on the street and then they run away to their homes.” (Interview with Coleman Msoka, Lecturer at the University of DSM)

But not only people living in unplanned areas take advantage of these unofficial ways of waste disposal.

“I want to say also that 70% of the people who live in Dar es Salaam; they live either in informal settlement or in un-serviced areas. That means they are planned but not serviced. Approximately only 30% live in areas which are formal and serviced. Mainly most of the people here do not get house to house service. Out of the 70% they could have access to waste disposal service in the sense that there is a collection point somewhere, but they do not have a clear way on how they are going dispose their waste. But that does not mean that all 70% of the city is very dirty. People have their own ways of disposing

the waste by using the pits. I, for example live in a place where I have a big spaced compound. So I can build the pit within my compound and burn the waste by myself so I can make sure, that my environment remains clean. I live in a planned settlement, I live in Tegeta but we do not have waste trucks there. Everybody has a big plot there, so we do the pit thing. It is very common.” (Interview with Coleman Msoka, Lecturer at the University of DSM)

People connected to the official collection system use keep their waste in containers before collection. These containers are often plastic buckets or sacks which are usually not covered. As they are stored outside near the house, the waste is exposed to rain, sun and winds resulting litter and the creation of unhygienic conditions as leachate and odour emerge. Only few houses in high- income areas use standard containers. (Ali/ Kassim 2006, 6)

As women are responsible for the cleanliness of the houses, waste management is often their duty. Also house servants are frequently responsible for the waste disposal. (Ali/ Kassim 2006, 5; Massamu 2003, 30)

In terms of protests and insurgencies DSM citizens are very quiet. When the SAPs forced the central treasury to reduce support for local governments, which had very bad impacts on the city concerning the services, people did not organize themselves in big riots as they did in other African cities at that time. (Myers 2005, 49) Only newspapers criticised the waste management process now and then. (Kironde 1999, 132)

Kironde (1999, 149) thinks, that people in DSM are already used to live within their waste:

“They have come to accept having to live with this waste in their environment. It only suffices for one to remove the waste from one’s own backyard. Little consideration is shown for waste dumped in common areas, although the people interviewed agreed that this pollutes the environment.”

But there were some protests to force the DCC to prevent the establishment of dumping sites, for example in Kunduchi, Mbagala etc. (Kironde 1999, 132)

4.5.1. Language discourse

In a conversation with Professor Sewangi teaching at the Kiswahili Institute of UDSM, he explained, that there were no major changes in terms of names for waste. Before waste was a specific thing to be handled, it was mainly only called *uchaju*³¹ or *mabaki wa mboga*³² etc. Since it was an issue to handle waste, it was called *takataka*³³ and during the past few years it has divided into *taka ngumu*³⁴ and *taka maji*³⁵

4.6. Final Waste Disposal

Since the early 1990s the main final dumpsite was relocated several times. After many year of dumping at Tabata dumpsite, it was shifted to Vingunguti, Mtoni, Kigogo and nowadays the dumpsite is located at Pugu - Kinyanwezi. None meet European standards of ultimate waste storage. Recycling or even the elimination of dangerous waste is not provided even though Tanzania is part of the Basel Convention. Electronic devices are not treated separately and they are either repaired in repair shops and sold again or mixed up with other kinds of solid waste and dumped at the final dumpsite. Many people simply do not know where to bring their broken gadgets hence many people store e-waste within their premises. As a result e-waste is a major problem in Tanzania like in other developing countries. Western countries sell their old gadgets to Tanzania and many of these electronic machines are already out of function. (Raphael 2008, 43ff.)

Furthermore a large amount of waste still ends up in public places which leads to negative impacts on the surrounding environment

³¹ „dirt“

³² „food debris“

³³ „waste“

³⁴ „solid waste“

³⁵ „liquid waste“

4.6.1. Official dumpsites

After dumping the waste at Vingunguti area (which was already discussed in chapter 3.2.1.) a new dumpsite was established in Mtoni area in 2001. The closure of the dumpsite in Vingunguti was caused due to an initiative of local residents when they went to court. (FACET 2004, 2)

Already during times of dumping in Vingunguti associations of waste pickers have emerged. They sorted and sold usable materials collectively and to achieve a better price. An association, called JITUME, generated money through a National Micro-finance Bank to ensure the welfare of their members. In 2007 they closed Mtoni dumpsite because of a court injunction sought by residents of the neighbourhood. (Mawishe 2008, 8) Moreover its environmental impact was tremendous.

“Further, the recently closed dumpsite located at Mtoni along the seashore largely impacts the coastal ecosystem in the sense that leachate spills off into the ocean, bioaccumulation through heavy metal impacts into the ocean and its ecosystem particularly fish which people consume, insufficient sunlight that impacts the marine biodiversity. The impacts are many include dirtying the ocean water from that point towards inner-ocean by the solid waste and by leachate water from that point towards inner-ocean by the solid waste and by leachate dripping-off from decomposing waste, scavengers; all these changing the coastal ecosystem. These impacts will continue to impact the coastal biodiversity for a number of years to come.” (CCS 2008, s.p.)

After the closure of Mtoni dumpsite, a United Nations Framework Convention on Climate Change (UNFCCC) guided project, conducted by the Italian organisation Consorzio Stabile Globus started to establish a biogas plant there.

„The purpose of this project is to flare the dump gas captured and use it for electricity generation in Mtoni Dumpsite, Dar es Salaam, Tanzania. This project will effect a reduction in greenhouse gas emissions through the combustion of methane contained in the biogas extracted from the dump site. “(CDM – Executive Board. 2007)

Unfortunately the amount of methane-gas was insignificant for generating electricity. (Interview with Mr. Mkumba, Dumpsite Manager)

When DSM had to close Mtoni dump they wanted to build a sanitary landfill in Kunduchi. The City Council already had an agreement with Danida (Ministry of Foreign Affairs of Denmark) about receiving a loan of six million US dollars. But residents of Kunduchi area took the City Council to court and prevented the establishment. (Mayers 2005, 53)

As no place for the establishment of a landfill could be found between 2007 and 2009 waste was delivered to Kigogo. Mr. Mkumba, the dumpsite manager of the DCC did not mention this dumpsite in Kigogo, whereas Peter Singida, the boss of the private contractor SINCON only mentioned Kigogo as a normal dumpsite. The Waste Officer from Temeke, Ally Hatib explained:

“Whereas Kigogo used from February 2007 up to September 2009, was an unofficial dump which was used only because Pugu was not yet ready for dumping.”

Since 2009 the new sanitary landfill is located in Pugu – Kinyamwezi. According to observations on site, people live directly at the dump. No waste picker associations are yet established and the rising keen competition between waste pickers on the dump and those in the streets leads to hard living conditions for scavengers on the landfill.

The dumpsite in Pugu – Kinyamwezi was established with the help of Environmental Consultants Inc. (ERC). (DCC 2004) It can be called sanitary landfill now, as waste is regularly mixed with soil.

4.6.2. Uncontrolled dumping

Waste is dumped right on the street or at unofficial dumpsites.

“In some cases the solid waste is thrown very close to bridges and that can cause damage to the bridge especially when you have heavy rains. Another thing that can happen to the bridge, when solid wastes are thrown there, you will find that people set the solid waste on fire. Therefore this fire can also deteriorate the scaffold of the bridge. And a third injury, I would say, in places where you have a bridge and the solid waste is on fire, that causes obstructions to the drivers, and that can cause accidents.” (Interview with Dr. Rongo, Lecturer at Muhimbili University)

Sometimes informal dumps are located close to water pipelines.

“(...) I have one example in Ubungu area, where you have a pipeline by the side of the bridge and when the people are throwing solid waste around that area, part of the solid waste damaged the surface of the pipeline and decomposes and then there are holes. In the end there are some parts where you can even see clean water comes out of the pipeline. Maybe before the clean water comes out there is also some contamination of the save water for drinking. This is quite possible.”
(Interview with Dr. Rongo, Lecturer at Muhimbili University)

Another issue is that if waste is thrown on the street it often ends up in open drains. This leads to flooding of the surrounding areas.

“Low income neighbourhoods and locations like Central Business Districts (CBD) were severely affected by flooding due to drain blockages and air pollution resulting from decay and rotting of uncollected heaps of wastes.” (CCS 2008, s.p.)

4.7. Hard data

Data on amounts of waste is to handle with care. In developing countries, the waste management process is unsatisfactorily documented Available statistics stem either from responsible authorities who may present their work in a better light, or from researchers, who never have the resources to collect entire data. The following lists are the most actual accessible and seem to be comparable with other information. But the numbers and amounts of waste still differ at the following sources.

Table No. 6: Waste generation and collection in DSM from 1994 – 2007:

Year	Generation/ (tons) day	Collection/ (tons) day	Percentage (%) of collected waste
1994	1500	185	12
1995	1620	230	14
1996	1772	260	15
1997	1850	300	16
1998	1980	380	20
1999	2144	454	21
2000	2200	354	16
2001	2300	476	21
2002	2400	719	30
2003	2600	792	30
2004	3091	849	27,5
2005	3156	900	28
2006	3350	1207	36
2007	3500	1406	40

Source: Dar es Salaam City Report, provided by the City Council of DSM

Table No. 7: Solid waste generation in Dar es Salaam city

Waste source	Total waste generated (tons/day)	% of total
Household	1360	56,1
Commercial establishments	80	3,3
Institutions	185	7,6
Markets	375	15,5
Others including industrial	425	17,5
Total	2425	100

Source: Kaseva/ Mbuligwe 2005, 359

Households produce most of the waste in Dar es Salaam

Table No. 8: Collection methods for households

Door-to-door	Shared Container	Do not receive service
57%	13%	30%

Source: Ali/ Kassim 2006, 774

According to the statistic more than half of the households in DSM are connected to a waste management service. This deflects to what Coleman Msoka stated in the interview.

More than half of the households in DSM need improvements in the waste management services, if we count those not receiving any service as well.

Table No. 9: Satisfaction level of the service

Very satisfied	Satisfied	Needs improvement	Not receiving service	Don't know
7%	33%	27%	30%	3%

Source: Ali/ Kasim 2006, 777

Table No. 10: Composition of household solid waste

Waste Group type	Individual Waste type	Mass (%)
Garbage	Leftovers from cooking etc.	78,04
Combustible waste	Paper	8,4
Combustible waste	Plastics	4,3
Combustible waste	Wood	1,1
Combustible waste	Boxes	0,5
Combustible waste	Leather	0,37
Combustible waste	Textiles	0,2
Combustible waste	Garden trimmings	0,1
Combustible waste	Rubber	0,1
Bulky refuse	Glass	2,5
Bulky refuse	Metal	4,19
Dirt	Ash	0,2

Source: Mbuligwe et al. 2003, 185

The highest amount of generated waste in DSM, as typical for African countries (Achankeng 2003, 12), is organic waste.

5. Analysis and Conclusion

Waste collection and disposal strategies in Dar es Salaam have their roots in German colonialism. Up to now waste management processes and laws are still strongly influenced by colonial times. Laws have not changed significantly since Tanzania was under British rule. The areas provided for the more or less well established waste collection system remained the same up to present days.

Waste collection processes have not altered much from colonial times either. The major renewals were the changeover from hand- and ox-carts to motorised vehicles within most areas during British colonialism and the privatization of the collection system in the 1990s.

Various characters interfered in waste management processes in DSM. Many were foreigners, commencing with the German colonialists up to UN interventions nowadays. Apart from a short break the local governments were ab initio the relevant authorities concerning waste management in the early 1970s.

Environmental issues are more relevant now than in the past, but little is done to prevent environmental degradation.

It becomes obvious when looking at waste handling processes in DSM that we live in a capitalized world and money is ruling it and it is not environmentalism or the desire to live within a clean area. What gets people moving is money. Privatization of solid waste management was the first step, showing us, that people are willing/interested to collect waste when profit is in sight. As a result operators provide their business mainly in rich areas, where more money due to higher revenue rates can be earned. Another indicator are the informal waste pickers, who sort and pick waste for their daily income. They know very little about pollution and environmental issues. The only interest is profit. People are even willing to risk health and life when money stands before anything.

But money in DSM, like in many other African cities, is exactly the reason why things cannot happen. Most householders are not willing to pay fees leading to the deterioration of the waste collection system. One result are none-operating vehicles in the backyards of companies, NGOs and municipalities.

5.1. Waste management processes

Establishing a waste collection system operated by local authorities dates back to the ideas of the Germans. They were first to implement an official waste management system. Services from German local leaders were provided even without demand from higher authorities

Prison labour was used for waste collection purposes. Inhabitants of the inner city were more involved in decision making than today, as even a questionnaire was distributed concerning the shape of collection containers. But residents of the inner city were also the only ones to be served by a waste collection system. When the British took over control, they enhanced the racial system established by the Germans implementing the three zones of the town. Officially, all three zones should be served with a waste collection system. According to several reports from the National Archive of Tanzania state reality was different. Labour sometimes comprised of prisoners but most of them operated optional. Working under the foreign rulers seemed to be a quite beneficial job.

After Independence the waste collection processes deteriorated. Policies on waste collection and cleanliness of the city were not a major issue as the independent state had to handle more crucial issues.

Women groups were sometimes responsible for the cleanliness of their surrounding environment. Citizens' initiatives were requested. But as people do not prioritise waste handling issues, the efforts for a clean environment were weak. As a result and also because of weakening or partially none-existence of local authorities, the waste collection system deteriorated worse in the end of the 1990s. This was the chance for the UN to intervene in city operations and to shape waste management operations in DSM. A privatization for parts of the waste collection system was the outcome. First this seemed to be quite an improvement in terms of waste collection but as time went by it became obvious, that the problem of financing the collection system was still the main handicap. People were simply not willing to pay collection charges.

Statistics state that over the years the amount of collected waste has grown faster than waste generation did. It can be estimated that the waste collection system improved. But according to the statements of waste officers at the municipal level, waste collection is again weakening since 2007, because of lack of finances and the unwillingness of served households to pay the fees.

Finances were not the only culprit repeatedly mentioned by the authorities. Another problem was seen in the labourers. Since colonial times, they have been accused to be lazy, to operate sloppy and not to be trustable. This opinion sometimes even leads to the refusal of the provision of protective clothing in fear of labourers selling or loosing them.

Astonishingly informal waste collectors, but also CBOs and NGOs often use handcarts for the purpose of collection. By the end of colonial rule, ox-carts and handcarts were mostly replaced by motorised vehicles. But nowadays, as the city has grown immense and fuel prices exceeded these practises became useful again.

5.2. Waste collection policies

The *Township Rules* of 1923 provided the basis for all rules in terms of waste handling, which were introduced in Tanzania so far. Its content was not very different from the *Dar es Salaam City Solid Waste Treatment, Disposal and Street Littering By-Laws* of 2004. What has changed is the franchise system implemented by the UN. But the duties of the population of DSM remain the same as in colonial times. From the beginning on it was prohibited to throw waste on public places. The reason for the majority of people in DSM habitually breaking this law may be caused by several reasons.

First of all foreign authorities implemented the law without regarding habits and costumes of the locals. Further this law is not enforced nowadays. You can throw your bottle out of the dalladalla, sitting next to a policeman and he will not punish you for it. Other reasons may be the lack of knowledge about environmental issues or simply ignorance, as common ground is never valued as high as private ground. Another aspect is that public waste bins are often missing. In the inner city and on main roads, you may find an adequate number, but as soon as you reach an informal or remote area, not a single waste bin will be found.

The provision of dustbins is still the duty of the owners of premises, shops or restaurants. The problem here is that laws have even become tighter by defining how containers have to look like. Many shop owners provide rubbish bins in front of their stores, but most of them are in form of cardboard boxes, which is not legitimate according to the laws.

Generally rules were more intensively enforced in colonial times. One example is the Sanitary Inspector who entered houses to control sanitary issues in the past. Nowadays this is sometimes performed in restaurants or shops, but rarely done in private premises.

5.3. Environmental Impacts

Reuse of materials occurs more often in neglected and poor areas. Those are the ones to suffer most from environmental degradation caused by wastes. Not only that official dumpsites were located in poorer areas during all three periods, there is also the problem of lack of resources like waste disposal equipment or knowledge. Further problems including proper waste disposal are not as highly prioritized as other actions. Even if inhabitants of an area want to dispose their waste appropriately, the chance is often not given. Missing or far distanced transfer stations lead to informal dumps. These dumps are not controlled or supervised in any way which can result in further problems for the environment and human kind.

It is not a surprise that environmental degradation caused by waste as well as amounts continued to rise with the number of population. In colonial times dangerous liquids like DDT were used to sterilize closed dumps, but the negative impact on the environment was still lower than today as dumps were smaller. The inauguration of plastics caused a substantial change in terms of the amount of waste. Nowadays water and food is always sold packed in plastic mostly ends up on public ground.

German and British authorities burnt part of the waste in incinerators. This was possible as the amount of collected waste was substantially smaller than in recent times. Many items were buried during colonial times. Some of them were of organic nature like coconut shells. But those made of tin emit metal ions in the soil. The impact leads to floor loading causing soil to be unusable for agriculture. The question of the dangers to ground water arises.

Dumpsites after independence were not treated at all. Some of them like Mtoni dump had a extremely negative impact on the environment. The recent dumpsite in Pugu is said to be a sanitary landfill, but the only thing done was the mix up compact of waste with soil. Other areas where a dump has existed just some years ago, like Tabata area, are used as residential areas again. People there live on a hill of waste. An impact to the residents cannot be stated so far.

Education and raising awareness was already an issue since German colonialism. Up to now it is thought, that this could lead to an improvement of environmental issues. Many campaigns were already implemented, but the problem of a polluted environment still exists. When will the measures be effective?

5.4. Foreign Interventions

One of the significant impacts to waste management and collection in DSM is the differentiation between served and not served areas. This distinction was established by foreigners, the colonialists. They separated themselves from local people and provided a much better infrastructure for themselves. The areas where waste collection operations were already at work during colonial times are still benefit nowadays. This can be cited as one example for the deep, still ongoing impact, that colonialism brought to African cities.

Another impact, but not in the same extent, was the privatization of waste collection operations in DSM in the 1990s. One major thing that has certainly changed is the fact, that private households have to pay for the service now and many are not willing to do so. This caused many companies to shut down their business and therefore municipalities and local governments are responsible for the waste disposal once again.

Donors, like in all “developing” countries, are always foreigners. Their assistances are mostly accepted with thanks. Donations in form of vehicles occurred, but maintenance and operations often failed. Furthermore donations in form of money were given, but supported projects, like the DSM Master Plan of 1978 or the attempt to gain electricity due a biogas plant, often failed work out satisfactorily.

Knowledge can also be donated, as for example waste officers are attending congresses in foreign countries free of charge. But often the knowledge forwarded is not suitable for their country or not viable due to lack of resources and finances.

6. Appendix

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Table No. 2: Amounts of domestic and trade refuse in DSM in different months during the year 1954 (in tons)

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6.2. List of graphics

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6.3. Abstracts

English:

An official waste management system in Dar es Salaam was introduced by German colonialists. They set the infrastructure for racial segregation which was later enforced by the British. African Areas did not have the same access to waste collection systems as Europeans did at that time. The privileged areas in terms of infrastructure and also of waste collection provisions consist up to now.

Policy formulations were created in colonial times as well. The content of the laws has not changed much after independence and even nowadays these laws only slightly revised.

The amount of generated waste is closely connected to the increase of population. Therefore, and as a result of weak policies and the abolition of local authorities, the city of DSM was extremely polluted for centuries after independence. At this time the UN initiated interventions in environmental issues and implemented the SCP in DSM in 1992. The consequence was the privatization of part of the waste collection system. Initially many private companies originated and also CBOs and NGOs were operating. As time went by it became obvious that waste collection was not profitable due to the fact that householders refused to pay collection charges. Therefore a new problematic phase in the history of waste collection in Dar es Salaam has just started few years ago.

German:

Ein offizielles Abfallwirtschaftssystem wurde in Dar es Salaam von den deutschen Kolonialisten eingeführt. Diese legten den Grundstein für Rassenseparation. Die Briten waren es schließlich, die diese etablierten. Die Gebiete der afrikanischen Bevölkerung hatten nicht denselben Zugang zur Abfallentsorgung wie die der Europäer. Die Gebiete der weißen Bevölkerung mit guter Infrastruktur, in denen die Abfallentsorgung gut etabliert war, sind bis heute jene Gebiete, die durch die Abfallwirtschaft am besten versorgt werden.

Auch die Gesetze wurden von den Kolonialisten formuliert. Der Inhalt von Verordnungen und Gesetzen hat sich seit damals nicht sehr viel verändert.

Die Menge an produziertem Abfall ist sehr stark verbunden mit dem Bevölkerungsanstieg. Deshalb, und auch bedingt durch die vorübergehende Aufhebung der lokalen Regierungen, gab es in den Jahrzehnten nach der Unabhängigkeitserklärung des Landes enorme Müllprobleme in der Stadt DSM. In dieser Zeit begann die UN sich in die Umweltangelegenheiten der Stadt einzumischen und setzte das SCP in DSM durch, was die teilweise Privatisierung der Abfallentsorgung zur Folge hatte. Zuerst entstanden viele Firmen und auch CBOs und NGOS, welche sich der Abfallwirtschaft annahmen. Doch bald wurde klar, dass dies kein besonders lukratives Geschäft ist, denn die Bevölkerung ist einfach nicht bereit Gebühren für die Müllabfuhr zu bezahlen. Nun ist Dar es Salaam seit wenigen Jahren wieder in einer sehr problematischen Phase die Abfallwirtschaft betreffend.

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Acc. 189: Ministry of Lands, Settlements and water Developments, Survey Division, Dar es Salaam

File. No. 189 – 4. Township Rules (1929)

Acc. 450: Ministry of Health

³⁶ The File No. here includes also the Accession No. which is either in form of letters or in form of a
number set before the File No. You may read the numbers as follows: Acc.No. – File No., Page (if available)

File No. 450 – 39/2. Monthly Sanitation Report M.O.H. Municipality- Dar es Salaam. (1953-1954)

File No. 450 – 39/14. Native Labour Dar es Salaam. (1927)

File No. 450 – 136. Prisons General. (1933-1948)

File No. 450 – 357. Township Authorities (1928-1952)

File No. 450 – 643/3. Township Development Subcommittee. (1944)

File No. 450 – 1238. Public Health Education technique of training. (1953-1956)

Acc. 540: District of Ilala

File No. 540 – 27/7. Township. Municipal Council of DSM. Minutes of all the meetings. (1950-1951)

File No. 540 - 47/37. Minutes on Public Health and Sub Committees. (1954)

File No. 540 – DC17/7.

File No. 540 – DR/22/11. Monthly Reports (incoming). (1957-1969)

Acc. 593: Orodha ya Majazada, Idara ya habari

File No. 593 – LG/5/1. The Development of urban local government in Tanganyika. (1959-1960)

Acc. AB: Shelf List & Index to Secretariat Archives. Early Series

File No. AB – 8. Annual Report 1926

File No. AB – 26. Annual Report – Dar es Salaam 1924

File No. AB – 154. Market, Dar es Salaam. (1920-1926)

File No. AB – 326. Estimates 1921 – 1922: DSM District. (1920-1921)

File No. AB – 516. Dar es Salaam Town planning, Open Spaces. 1923 (1920-1926)

File No. AB – 837. Township Rules. (1921-1924)

File No. AB – 897. Tropical Health Care. (1925)

File No. AB – 1103. Estimates DSM District. (1923)

Acc. G: German Records

File No. G – 4/1. Kommunalangelegenheiten allgemein. (1901-1905)

File No. G – 4/2. Wirtschaftspläne der kommunalen Verbände. (1901-1906)

File No. G – 4/3. Aufgaben der Kommunalverbände. (1902-1905)

File No. G – 4/14. Aufhebung der kommunalen Verbände. (1908-1913)

File No. G – 4/15. Stadthaushaltsplan Daressalam. (1908-1912)

File No. G – 4/16. Stadthaushaltspläne Daressalam. (1911-1916)

File No. G – 4/55. Kommunalabgaben und Gebühren Dar es Salaam. (1907-1916)

File No. G - 7/209. Stadt- und Baupläne, Grundeigentumsverkehr, DSM. (1913-1916)

File No. G – 7/1989. Stadt- und Bau-Plan. Bauordnung. An-und Verkauf von Grundstücken, DSM. BDI (1881-1893)

Acc. J: Sanitary

File No. J – 11478. Sanitary Labour in Larger Townships duties. (1927-1928)

File No. J – 20691. Organisation and Policy of Medical Department. (1952)

Acc. U: Municipalities, Townships, Trading, Centres, etc

File No. U – 10906 Vol. I. Township Authority, Dar es Salaam. (1927-1938)

File No. U – 11292 Vol. I. Incinerators for Refuse Burning. (1927-1937)

File No. U – 32591. The Local Government (Municipalities) Bills. (1946-1947)

File No. U – 38788/3. Dar es Salaam Municipality – Minutes of Public health and Highways Committee. (1949)

Acc. V: Native Affairs

File No. V – 32575. Native House Scheme – Dar es Salaam Township – Ilala. (1948-1953)

Acc. W: World War

File No. W – 30534. Salvage – Collection of Waste Tin etc. (1942-1943)

Interviews and Conversations held in Dar es Salaam

(Between 16th of October 2009 to 22nd of December 2009)

Ally Hatib. Waste Management Officer, Temeke Municipality. (20.11.2009)

Coleman Msoka, Lecturer of Urban Studies at the University of DSM, Department of Development Studies. (23.10.2009)

Dr. Rongo, Lecturer at the Department Environmental and Occupational Health at the Muhimbili University of DSM. (2.11.2009)

Juliana. Head of the Guesthouse Kimata in Gezaoloe and operator of Cultural Programmes. (8.11.2009)

Kizito Kladislaus. Waste Management Officer, Kinondoni Municipality. (20.11.2009)

Mama Msosa. Founder of the CBO KIWODET in Kinondoni, Hanna Nassif. (28.10.2009)

Mr. Mkumba. Dumpsite Manager; City Council. (10.11.2009)

Peter P. Siniga Jr. Head of SINCON enterprise. (21.11.2009)

Samuel Bubegwa. Waste Management Officer. Ilala Municipality. (10.11.2009)

8. Curriculum Vitae

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Vienna, March 1st 2010

Name:	Johanna Emig
Birthday:	20.10.1984
Place of Birth:	Salzburg
Parents:	Auguste Emig (Commercial Academy Professor) Boris Sauper (Sales representative)
Family status:	single
Formal Education:	1990-1994 Volksschule Lehen (Salzburg) 1994-2003 Bundesgymnasium Zaunergasse (Salzburg)
Further Education:	Recent Studies: <i>African Studies</i> at the University of Vienna <i>Bio- und Umweltressourcenmanagement</i> at the University of Natural Resources and Applied Life Sciences, Vienna
Languages:	German, English, Kiswahili, French

Previous Job

2000- 2001	Mc Donald's (Salzburg)
July 2002	Mc Donald's (Salzburg)
August to December 2003	Gastronomiewelt Sternbräu (Salzburg)
January to July 2004	Children's Home (Kumasi/ Ghana)
September 2004	Franz Josepfs Höhe (Großglockner)
June to September 2005	Austrotel Salzburg
November & December 2005	UNICEF-Stand am Christkindlmarkt (Rathausplatz, Vienna)
November & December	UNICEF-Stand am Christkindlmarkt (Freyung, Vienna)

2006

June 2007	HNO-Ärztetkongress/ Firma Mondial (Hofburg, Vienna)
October 2007 up to now	Childcare at Landgut Cobenzl (Vienna)
September 2009	Internship at the Freiwilligenzentrum Salzburg, Caritas

Other Activities:

June 2006	Collaboration at a workshop about Africa at the HLW Ried am Wolfgangsee (Salzkammergut)
October 2006 up to now	Classes and volunteering for the Integrationshaus Wien
January to June 2007	Exchange Semester in Tanzania, Dar es Salaam
March 2009	Publication: Sprichwörter in Kiswahili, Eine Anthologie: http://www.swahili-literatur.at/links/Sprichwoerter_Kiswahili-Deutsch.pdf
April& May 2009	Assistance at the street festival „Moving Culture, Moving People“ in Vienna
September 2009	Working for Caritas Salzburg: Freiwilligenzentrum
October to December 2009	Research in Dar es Salaam, Tanzania for my final thesis „Waste in Dar es Salaam. A social-historical study on waste handling in Dar es Salaam, Tanzania“

Further Interests:

Music/ Guitar, Environmentalism/ Waste/ Nature, Africa, Travelling, Politic