# Chang'ombe Status Assessment Report

Dodoma, February, 2008

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## TABLE OF CONTENTS

**Acronyms**

| | |
|---|---|
| CBHI | Community Health Based Initiative (development project) |
| CBO | Community-based Organisation |
| CDA | Capital Development Authority |
| DUWASA | Dodoma Urban Water Supply and Sewerage Authority |
| FGD | Focus group discussion |
| HCES | Household-Centred Environmental Sanitation |
| IHRDC | Ifakara Health Research & Development Centre |
| IRDP | Institute of Rural Development Planning |
| MAMADO | Maji na Maendeleo (NGO) |
| MDGs | Millennium Development Goals |
| MW | Ministry of Water |
| NAWAPO | National Water Policy |
| Sandec | Water & Sanitation for Developing Countries (based in Uswisi) |
| UESS | Urban Environmental Sanitation Services |
| WAMMA | Wawezeshaji wa Maji, Mazingira na Afya |
| WSS | Water supply and sanitation |

## Introduction

## Introduction

This assessment report was prepared within the framework of the on-going household-centred environmental sanitation process being implemented in Chang'ombe settlement, Dodoma.

The goal of applying the HCES approach to urban environmental sanitation is to provide stakeholders at every level, but particularly at the household and neighbourhood level, with the opportunity to participate in the planning, implementation and operation of better urban environmental sanitation services. By doing so, it will create sustainable systems of urban UESS delivery that will help ensure protection of the natural environment and a significant improvement in people's health, and directly contributing to socio-economic improvements. It will also enhance service coverage amongst the poor, thus accelerating total service coverage in Dodoma.

This report contains the most up-to-date and complete assessment of environmental conditions in the unplanned settlement of Chang'ombe in Dodoma and pulls together information from various sources, including household surveys, focus group discussions and key informant interviews. The following institutions were involved in producing the report: Maji na Maendeleo (MAMADO), Ifakara Health Research & Development Centre and Sandec (Water & Sanitation for Developing Countries).

*Dodoma, 08. February 2008*

## 1.0 Background

Dodoma has been Tanzania's capital city since the 1970s and is the substantive seat of the Union Parliament. Today the city has about 380'000 inhabitants with a strong yearly population growth rate of 3.4%[1]. This high population growth rate is putting increasing pressure on the existing infrastructure.

**Table 1:** Projected population growth rate of Dodoma, based on 1988 and 2002 national census

| Year | 2002 | 2005 | 2010 | 2015 |
|---|---|---|---|---|
| Population | 324'347 | 358'482 | 422'942 | 497'934 |

Source: Seureca/Netwas (2003)

Administratively, Dodoma Municipality is divided into 4 divisions, 30 wards and 40 villages. Dodoma Urban Division has 17 wards; the remaining 13 wards are rural. Each ward is represented by a ward councilor who is a member of the Municipal Council. Below ward level, there are so-called *mitaa*, or sub-locations/streets, represented by elected chairpersons. Chang'ombe is part of the Chamwino Ward with a current population of about 50'000.

## 2.0 Enabling Environment

### *2.1 What is an enabling environment?*

An enabling environment can be seen as the set of inter-related conditions that impact the potential to bring about sustained and effective change (Eawag, 2005). This includes the political, legal, institutional, financial and social conditions that are created to encourage and support certain activities. An enabling environment is important for the success of any development investment; without it, the resources committed to bringing about change will be ineffective. This chapter analyses the main features of the enabling environment found in Dodoma and at the national level in Tanzania and puts them into the context of an overall assessment.

[1] based on National Census 2002 figures

### *2.2 National Water Policy (NAWAPO) and the National Water Sector Development Strategy*

In 2002, the Government of Tanzania passed a new National Water Policy which devolves the management of water services to the lowest appropriate level and introduces an integrated approach to water resources management. In addition to NAWAPO, the Millennium Development Goals (MDGs), and the new National Water Sector Development Strategy form the defining elements of the sector framework. The National Water Sector Development Strategy of the Ministry of Water (MW) contains a new definition of the overall institutional framework for both water supply and sanitation. This strategy calls for a clear definition of roles and responsibilities on all levels and spells out the division of powers between the Ministry and Local Government following the principle of subsidiarity. Sanitation is still accorded a lower priority than water supply, despite low coverage rates throughout the country.

**Table 2:** Selected Socio-economic indicators of Tanzania

| Indicator | Year | No. |
|---|---|---|
| Population | 2003 | 37m |
| Urban Population | 2003 | 35% |
| Access to safe water (rural) | 2005 | 53% |
| Access to safe water (urban) | 2005 | 73% |
| Access to sanitation | 2002 | *87%** |

* this number reflects percentage of households using a toilet of any type and is not in accordance with the JMP criteria (*access to improved sanitation*) used for MDG monitoring.

### *2.3 Institutional framework and sectoral responsibilities*

The current institutional framework for the provision of water supply and sanitation services is based on a separation between urban water & sanitation/sewerage services and rural water supply services. Two distinct programmes are currently under implementation involving multi-donor funding to implement the National Strategy:

- National Rural Water Supply and Sanitation Program (RWSS), and the
- National Strategy for the Improvement of Urban Water Supply and Sewerage

**Table 3:** Functional responsibilities for water supply and sanitation in urban areas

| Institution | Responsibility |
|---|---|
| MW | • Prepares and implements national sector policies & strategies;<br>• Co-ordinates planning for projects of national importance;<br>• Secures finance for projects of national importance;<br>• Monitors performance;<br>• Provides technical guidance to Councils; |
| Local Governments | • Responsibility for public service provision;<br>• Environmental sanitation including solid waste management; |
| Energy and Water Utilities Regulatory Authority | • Regulation of urban utilities in the major cities (functional since 2007) |
| Urban Water Supply and Sewerage Authorities (UWASAs) | • Own, manage and develop water supply and sewerage assets;<br>• Business plans to provide water supply and sanitation services;<br>• Secure finance for capital investment and relevant subsidies;<br>• Contract and manage service providers;<br>• Formulate by-laws for service provision; |
| Independent Service Providers | • regulated by UWASAs |

2.3.1 DUWASA

Urban Water Supply and Sewerage Authorities (UWASAs) are semi-autonomous entities in each of the 20 major towns of Tanzania and are directly accountable to the Ministry (MW). A policy framework guides the UWASAs countrywide and a Memorandum of Understanding stipulates the respective roles and responsibilities of both partners. The Urban Water Supply and Sewerage Authority of Dodoma DUWASA is headed by a Board of Directors appointed by the Ministry. This board comprises the Chairman, the Managing Director (as secretary), representatives of MW, the Region, the Municipal Council, Consumer Group Representatives for Women, Industry and Business. DUWASA is a category 'A' authority, meaning that its revenue must cover the operation and maintenance costs. Category A authorities

are run on performance-based structures including the right to hire and fire and the definition of the salary structure.

In Dodoma, infrastructure assets have been transferred from the Central Government to DUWASA. However, the transferred assets are not always fungible as collateral for a bank loan. The Central Government and donors are still financing the majority of capital investments for UWASAs (e.g. seco in Tabora and Dodoma). Since 2007, the Swiss State Secretariat for Economic Affairs (seco) has been supporting DUWASA in a three year project to improve overall management, billing, tariff collection and routine maintenance of DUWASA's portfolio of responsibilities. A network extension for water supply is planned for 7 areas of town and Chang'ombe is among them. A sewer network extension with an additional 31km of new lateral pipes is also proposed for Chadula, Hazina and Area 'A'.

**Table 4:** Key indicators of DUWASA's performance

| Indicator | No. |
|---|---|
| Staffing levels | 9 staff per 1000 connections |
| Installed capacity of all boreholes | 40'000 $m^3$ |
| Revenue collection efficiency | 95% |
| Unaccounted-for-water | 30 - 35% |
| % of Dodoma's population connected to water supply (metered connection) | 27% |
| % of DUWASA customers with metered connections | 100% |
| % of households served by sewerage system | approx. 10% of urban households |

*source: Basler & Hofmann, 2005 and personal communication from DUWASA*

2.3.2 Other sector institutions: WAMMA, local NGOs

WAMMA (Wawezeshaji wa Maji, Mazingira na Afya) is the most important cross-sectoral coordinating body which includes representatives of MW, Ministry of Health, District Officers from various other Ministries and additionally, is working in partnership with sectoral NGOs.

There are only three NGOs exclusively working in water and sanitation in Dodoma: Water Aid Maji na Maendeleo (MAMADO), CMSR, an Italian NGO working in the Dodoma Region, both rural & urban and Water Aid. Water Aid is a UK-based international NGO that has a regional office based in Dodoma, but most of its work is based in rural areas of Dodoma District. Water Aid is currently running a two-year

programme with Dodoma Municipality on environmental sanitation in Dodoma's rural wards. MAMADO is a small regional NGO whose mission is to support the communities within the Dodoma region to improve their quality of life through provision of sustainable water supply, health education and sanitation services. Following communications, MAMADO worked together with SANDEC to prepare and facilitate local stakeholder involvement in both the community and launching workshops as the first steps in the HCES process.

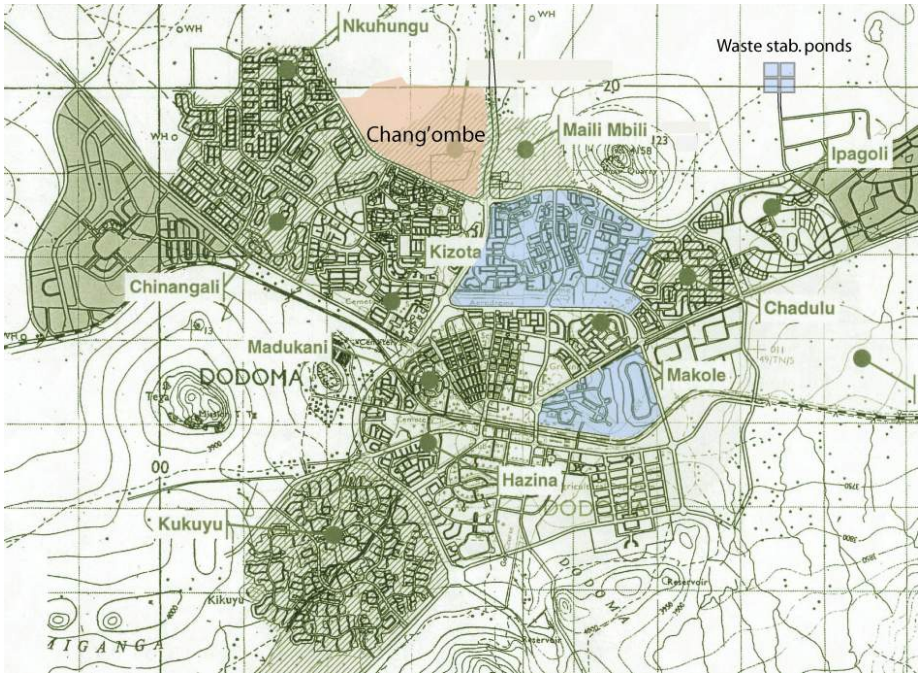
### *2.4 Existing Sanitation and Sewer Services in Dodoma*

The majority of Dodoma's households rely on simple pit latrines (approximately 75%), especially in the poor areas of town. In low-income areas like Chang'ombe, a substantial number of households do not have toilets at all. Depending on neighbourhood and ward, septic tanks are also frequent. Only a small part of Dodoma is connected to the sewer system. Although the sewer system is serving only 10% of Dodoma's urban population, it probably has the largest sewered network of all of Tanzania's towns with 24km of trunk sewers and 21km of lateral sewers (see map below). Dodoma's sewered wastewater is treated through 2 waste stabilization ponds located behind Mlimwa Hill to the North of Ipagaa. Treatment capacity is given at 24'000$m^3$, although due to inadequate lateral sewers the treatment facility is currently underutilized.

**Image 1:** Simple pit latrine in Chang'ombe

**Image 2:** Dodoma's waste stabilization ponds

**Map 1:** Sewered areas of Dodoma (in blue)




## 3. Site Validation

### *3.1 Historical Background*

Chang'ombe settlement is an unplanned neighbourhood in Chamwino Ward, the fastest growing ward of Dodoma Municipality (population growth rate 1988 - 2002: 5.45%)[2]. The name Chang'ombe connotes a place where cows were once kept from the Swahili term *ngombe* = cows.

The settlement of Chang'ombe is closely linked to the creation of Dodoma as the nation's capital city in the 1970s. The Capital Development Authority (CDA) started formalizing land tenure in the entire town following the implementation of the 1976 Dodoma Master Plan. Many poor population segments who were unable to purchase their plots moved to the city fringe to find "free" alternatives and squatted in Chang'ombe in ever greater numbers. Since the 1980s, the neighbourhood also began attracting rural migrants from Dodoma region in search of a better life.

[2] National Census Data, 2002

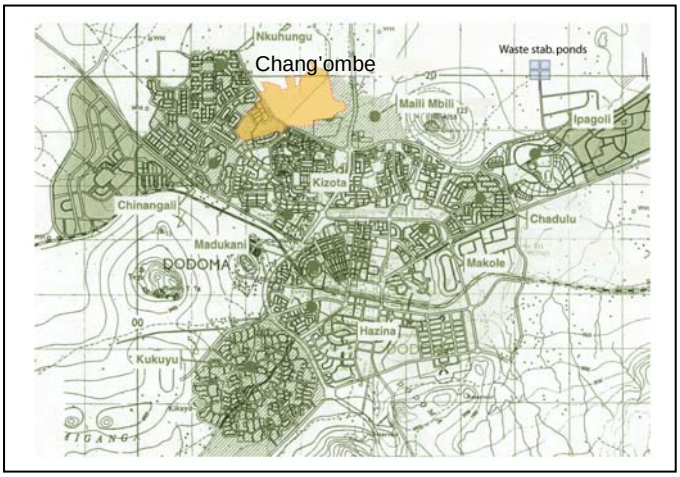
### *3.2 Justification of site selection*

During the Sandec/seco reconnaissance mission in June 2007 a number of low-income areas of Dodoma were visited and analyzed. It was finally decided to choose Chang'ombe settlement for the following reasons:

- Chang'ombe is today the largest and poorest unplanned area in Dodoma Municipality with a large number of people living on less than 1 US$ a day;
- the lack of proper water and environmental sanitation systems greatly jeopardize the health of Chang'ombe residents;
- the high incidence of water-related diseases, including typhoid, intestinal worms, malaria, dysentery as well as skin infections. Cholera remains endemic in Chang'ombe and outbreaks are frequent during the rainy seasons.
- the neighbourhood has a well organised community willing to improve their situation, witnessed by the number of citizens organised in self-help groups and CBOs.
- the possibility of accessing external assistance for improving water supply and sanitation within the framework of the Swiss-funded water project

### *3.3 Location*

Chang'ombe neighborhood is situated 6 km north of Dodoma town centre, to the left of the Great Northern Road leading to Babati and Arusha. A detailed map of Chang'ombe is provided in Annex 1.




**Map 2:** Location of Chang'ombe settlement in Dodoma

## 4. Process and Methodology

To gather information for this assessment report, both qualitative and quantitative research methodologies were applied. In a one-day community workshop in October 2007, thematic working groups gathered information from community stakeholders and key informants. Additionally, two separate household surveys using structured questionnaires were carried out in Chang'ombe to determine socio-economic characteristics and assess water and sanitation infrastructure and consumption patterns at household level. The results in chapters 5 and 6 draw heavily from these findings.

### *4.1 HCES community & launching workshops, October 2007*

The community & launching workshops are the starting point of the 10-step HCES planning process. The HCES Chang'ombe community workshop took place 24. Oct, 2007 at Super Narum Hall based in the area of project operation and was opened by the Ward Executive Officer of Chamwino ward in which Chang'ombe is located. This event brought together over 70 participants including land owners, tenants, and representatives from each of the 4 sub-locations in Chang'ombe (Kati, Mazengo, Juu, Hamvu). The one-day workshop had two main parts: a morning session with presentations on the health, hygiene and sanitation status of Chang'ombe community by the Ward Health Officer, and a presentation by Sandec explaining the household-centred approach. The afternoon session was organised as group work, focusing on environmental problem mapping of the main WSS problems encountered in Chang'ombe. A *Google Earth* satellite image was utilized to demarcate the project intervention areas. The workshop facilitator was Augustine Rukeha, a MAMADO project officer.

The official HCES Launching Workshop with 50 participants took place on 26$^{th}$ October, 2007 at CCT Conference Centre and was facilitated by Mr. Mawi, a Hygiene and Sanitation Specialist working with WaterAid. The workshop was opened by Mr. Yunnis Rugaiyamu, the Regional Water Engineer, as the Guest of Honour. Highlights of the launching workshop included a summary of the community workshop findings, a presentation of the 10 step HCES process by Sandec, an overview of existing community hygiene & sanitation approaches by Water Aid, a speech by the Municipal Health Officer (reflecting key health challenges for Chang'ombe community), and

finally a stakeholder analysis of all stakeholders involved in the project, distinguishing between primary and secondary stakeholders.

**Image 3:** Community workshop: Ward health officer presenting health & hygiene issues

### *4.2 Data collection and surveys*

Two structured questionnaires were developed and administered in Chang'ombe. One was carried out in July 2007 with a total of 173 household questionnaires, (Kessy, 2008); the other involved 44 households and was carried out in December 2007 (MAMADO, 2008). The main findings of these questionnaires are presented in chapters 5 and 6.

Focus groups discussions (FGD) were held at the community level to gain insights on community-wide perceptions regarding access to safe and clean water and sanitation services, health risks related to poor waste management, community wide involvement in waste management (interactions, networks) and community wide options for solid waste management and averting health risks. A total of 14 FGDs were conducted. The FGDs were categorized into adult men, adult female, mixed adult, and mixed youth.

In addition, key informant interviews were carried out with several stakeholders to gain further insights. Key informants included: Community level leaders, Ward Development Committee, Health Committee, the Swiss-funded Community Health Based Initiative (CHBI), the Capital Development Authority, other CBOs working in

the neighbourhood, private dispensary staff, institutional leaders like teachers, religious leaders, etc. The Health Department of the Municipality was visited to obtain secondary data regarding the health status of Chang'ombe. The health officers acknowledged that despite a partial decrease in diarrhea cases for people of Chang'ombe and recent measures to combat water-borne diseases, Chang'ombe continues to lead of Dodoma Municipality with the number of people suffering from water borne diseases.

## 5. Baseline Conditions of Chang'ombe

### *5.1 Socio-economic data*

A population of 27'700 inhabitants was recorded in the 2002 census of Chang'ombe. Given the 5% growth rate for Chamwino ward, the total population was calculated to be 35'000 in 2007. This results in an average population density of 212 inhabitants per hectare (total of 165 hectares for Chang'ombe)

The residents of Chang'ombe belong to the poorest segments of Dodoma's urban population. The majority of people are low-income labourers, small-scale farmers, petty traders and *machingas* (hawkers) and unemployed- especially youths. There is a higher female than male population. Per capital income of people is low and people live on under $1 USD a day. Many households take a meal only once a day and they called this "*Maisha ya Ramadhani"* -which means that people are involuntary fasting like during the month of Ramadan. The area experiences a generally poor economic situation, manifested in other variables like lack of permanent pit latrines, lack of piped water connections, a filthy environment which acts as breeding sites for mosquitoes, etc. The existing environment is detrimental to human health and the situation is said to be worst during rainy seasons.

The high level of poverty was also confirmed by a socio-economic survey carried out in February 2005 in Chamwino Ward, commissioned by the Swiss funded water project. Three quarter of respondents were found to have a per capita income of less than Tsh 50'000 per month, none of the respondents owned a car and only 3% owned a television (Wagner, 2005)

### *5.2 Political situation*

The majority of Chang'ombe's residents support the ruling CCM party, while some others support the opposition parties. It was noted that community leaders and the community in general do not mix political activities with local development activities.

### *5.3 Health and Hygiene*

The community perceives the environmental situation as being risky to their health. The environment is associated with disease outbreaks, e.g. cholera, especially during the rainy season (November – March). Other diseases mentioned included malaria, typhoid, diarrhea, dysentery, etc. However, for the past 2 years the situation has not been severe: early 2007 Chang'ombe reported over 20 cases of cholera for the whole ward, without any deaths. The incidence of cholera was reported in almost all mitaa visited.

Community members attribute part of the disease burden to low economic standing. The cost to empty a full pit latrine is between 25,000/= to 30,000/= which is beyond the means of most residents. Added to the difficulty of pit emptying is the fact that most roads in Chang'ombe are impassable by car/trucks; the ability to afford pit emptying does not therefore guarantee it can be done.

Through community-level programmes, health officers are gradually educating the community about important health, hygiene and sanitation practices with a specific emphasis on diarrhea and cholera awareness. These programmes are considered essential, given the number of water-borne disease related deaths that the community has suffered in the past.

Apart from cholera and diarrhea (which happen mostly during the rainy seasons) there are numerous other diseases which are constant and are directly linked to poor hygiene and sanitation practices. Reported diseases include typhoid, intestinal worms, malaria, fungus, dysentery as well as skin infections- all of which are caused by a lack of proper sanitation, solid waste and drainage facilities.

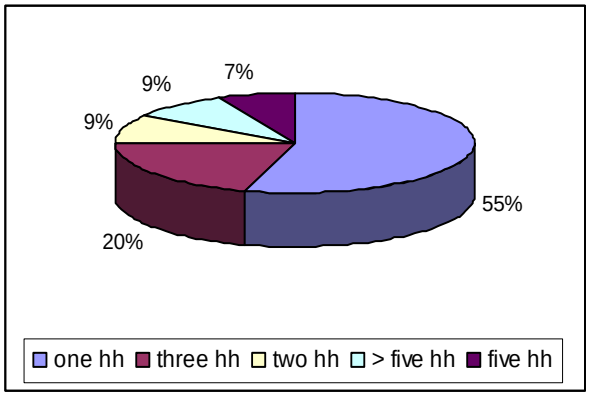
### *5.4 Land ownership*

Although Chang'ombe has all the characteristics of an informal, unplanned settlement, technically it is a regularized settlement with formal land tenure. In the past years, the Capital Development Authority (CDA) has carried out a topographic survey and identified structure owners. All residents in Chang'ombe are now either landlords or tenants, no squatters are to be found. CDA is now following up with a participatory infrastructure upgrading programme which aims to provide basic urban infrastructure in Chang'ombe. Two major roads plus drainage are to be built in the Financial Year 2008/9 to improve access to the area. The households who will have to be resettled to make way for the roads will be compensated with a new plot in Chang'ombe Extension.

### *5.5 Shelter and housing*

Most houses in Chang'ombe are built of mud and wattle and with corrugated iron sheets for roofing. The preferred low-cost building material is sun-dried mud bricks using natural earth. The very few permanent structures made of stone or cement bricks belong to residents who are able to invest higher amounts for improved shelter. Most structures house one household but a few houses have multiple households living under one roof. The average household size found was 5.5 persons but almost 20% of houses have more than 8 persons.

**Graph 1:** No. of households per plot




*source: MAMADO, 2007*

**Image 4:** Typical housing in Chang'ombe

### *5.6 Physical & social infrastructure in Chang'ombe*

Chang'ombe has poor physical infrastructure, i.e., very few roads are passable by cars since they are severely eroded. Poor access by road, especially during the rainy season when many roads become impassable is one of the main problems mentioned by the residents. A lack of social infrastructure such as health facilities and enough schools is a further problem. Social services, particularly, health facilities are not easily accessible, which increases the costs on treatments among the already deprived people. Furthermore, transport has become more difficult (e.g. high costs, impassable during rain seasons, distance and unavailability), which further complicates the situation.

The maintenance needed to improve infrastructure is very huge; with only manpower to offer, the community is demanding better services and an improved situation.

The CDA plan for upgrading Chang'ombe envisages improved basic infrastructure, primarily roads and drainage, and is to be implemented in the coming financial year (2008/2009).

### *5.7 Geography, topography, climate*

Dodoma Region is located in the centre of Tanzania. Dodoma is a semi-arid region at an altitude of 1000-1100m. The average rainfall is around 570mm per year. There is one rainy season in Dodoma Region lasting from December to April. Dodoma's main water source is an underground aquifer, 30km north of town in Mzakwe. Most of Dodoma has acidic clay soils with low soil permeability making frequent emptying of pit latrines a necessity. Large parts also feature a high water table at about 1 metre below ground level, especially during the rainy season.

## 6.0 Environmental Sanitation Status

During focus group discussions, interviewees attributed the existence of their poor surrounding environments to their low income, which causes a vicious cycle of poverty. The explanations were that poor environments cause health problems (diseases) which in turn drain their money for treatments and as a result they were unable to improve their environments. For example, a family that can not afford for a

pit latrine to be emptied, may experience more diseases, and yet is still unable to afford health services.

### *6.1 Water Supply, Access and Sources*

The Chang'ombe community gets water from different sources including traditional hand dug wells, hand pump wells and piped water supply. It is estimated that DUWASA supplies about 70% of water for the community; the other 30% use water from traditional shallow wells and hand pump wells (Kessy, 2008). The water source depends on one's financial status. DUWASA has installed public water points but currently only three such distribution points exist in Chang'ombe settlement (see image below).

The majority of the community uses untreated water for drinking, hence the water borne diseases. The quantity of water is insufficient, especially safe and affordable drinking-quality water. The majority of people can't afford sufficient water due to the high price - especially that supplied by DUWASA. Due to the scarcity of affordable water, water use for washing, bathing and drinking is severely limited.

**Image 5:** DUWASA distribution point

There was a clear understanding and differentiation between clean water and safe water among those that participated in various group discussions. The major difference rested on the water source. Regarding clean water, some associated it with colour, i.e., white water or colourless. Some defined clean water as that which is fetched from the tap, no matter what the water looked like. Others even considered water from shallow wells as clean.

> "Clean water is that water flowing from the tap or a well but must be colorless (meupe) and clean. Safe water must be boiled and if possible filtered". (Kessy, 2008)

On average, it was stated that about 30-40% of households in Chang'ombe boil their water. The majority boil the water during outbreaks of diseases. About 200 households currently use solar disinfection technology (SODIS), a low-cost alternative to treat water from shallow wells. Very few people are connected to piped water from DUWASA - an estimated 10% of households have water taps at home. The connection fee is too high for most people. The connection fee to the household ranges between Tshs 110,000 to 120,000, depending on the distance from the main line. Several households form associations or groups to reduce the cost of individual piped connections. Materials for connecting must be bought from DUWASA not elsewhere, otherwise DUWASA would not be ready to provide a water connection.

### *6.1.1 The cost and value of water*

The price for piped water in Chang'ombe is considered high by the residents. Because there are hardly any safe alternatives they have no choice and they are compelled to buy water from private vendors for the price of 40-50 Tshs per 20L bucket or jerry can. Therefore, many rely on unsafe shallow well sources, which have poor water quality. Water availability varies from place to place; some people get water from a neighbour's tap or from one of the few DUWASA domestic points. In one focus group interview it was stated that:

> "You fetch one container of water (20 liters) at a far distance, there is not enough time to boil and children need water, you have to make calculations on how to use the water".

The majority of households interviewed found that piped drinking water in Chang'ombe is very expensive. According to the DUWASA rate, the charge is Tshs 25.- for 20L of tap water. Private tap owners then add a charge to make a profit. The rate which was stated as affordable was given at 25.-. A number of interviewees suggested that DUWASA should opt to construct public water kiosks to help people of low income.

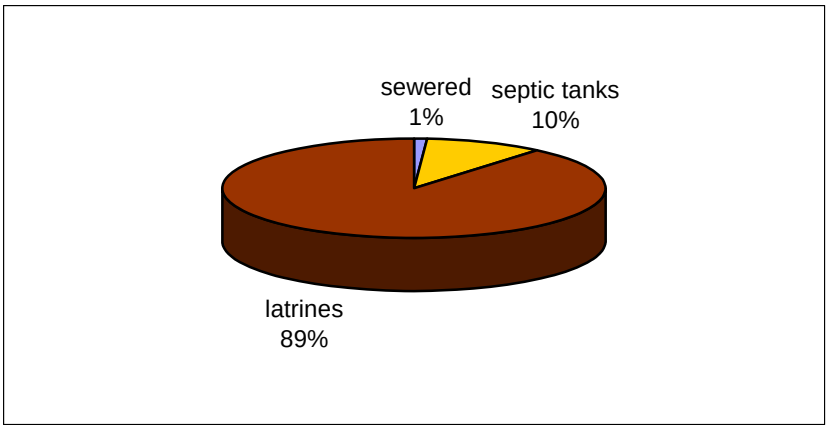
### *6.2 Sanitation Facilities*

Sanitation facilities are very poor in the whole of Chang'ombe (see cover page of report) and the main source of the appallingly poor environmental conditions found in

Chang'ombe . The majority use very basic pit latrines which often collapse especially during the rainy season.

From the two surveys carried out in 2007, it is estimated that over 80% of households use simple pit latrines, while around 10% use septic tanks. There were households without facilities and these people use their neighbours' facility. In another Mtaa, the community stated that the majority (95%) used pit latrines, while those relying on septic tanks was represented by 5% of households. Very few were connected to Duwasa's central sewer system- less than 1% of households. From another area it was reported that there were traditional pit latrines of which 50% were treated as permanent and another 50% as temporary ones. It was also stated that there were also some flying toilets *(kutupa kwa mifuko ya rambo kwenye vyoo vya watu)* – throwing a paper bag with dirty stuff in the neighbours' pits.

**Graph 3:** Estimated use of sanitation infrastructure in Chang'ombe (%)




When pit latrines get full, the owners normally abandoned them by burying them and constructed new ones. Some make a hole or side pit and let the sludge flow into the adjacent pit. The main problem faced by people was lack of space for constructing new facilities. When a pit gets full, owners are normally given 21 days by the ward health authority to have a new one in place. Compliance is enforced through the Baraza Kata (Ward Baraza); the fine for non-compliance is Tshs 5,000.

Behaviour & habits

As there are very few pour-flush toilets in Chang'ombe, most residents squat when defecating. Depending on cultural and religious backgrounds, both "washers" and "wipers" are prevalent. Water from the shallow wells is used for anal cleansing by washers and scrap paper by wipers.

It should also be noted that the basic government guideline requires 25 students per latrine, though generally, latrine use in schools is currently much higher at 180 students per latrine (Chang'ombe Primary).

In addition to the poor sanitation infrastructure there are also risky behavior patterns:

- Some people empty toilets during heavy rains by releasing faeces into the stormwater runoff;
- Manual emptying with buckets without safe disposal of excreta; (interview in Mazengo: "There is a man who does emptying using a bucket and disposes secretly wherever he knows, and then you just find dirty water flowing haphazardly. He does so at midnight. You can see waste water flowing in the morning".)
- Building new simple pits near existing shallow wells;

Emptying costs:

Excavation of a new pit by a local fundi costs Tshs 5'000 to 10'000, making this the cheapest option. The construction of a new (improved) pit latrine including the superstructure can cost up to Tshs 200'000. A private exhauster truck costs between Tshs 20,000 to 30,000 to empty a pit. There are 3 private operators and 1 municipal truck. DUWASA plans to purchase its own exhauster truck. The municipal truck charges a lower rate of 15,000 per trip, but there are quite some delays as they only offer services if there are at least 2-5 households that need to empty in the same area for cost effective reasons.

Other sanitation projects

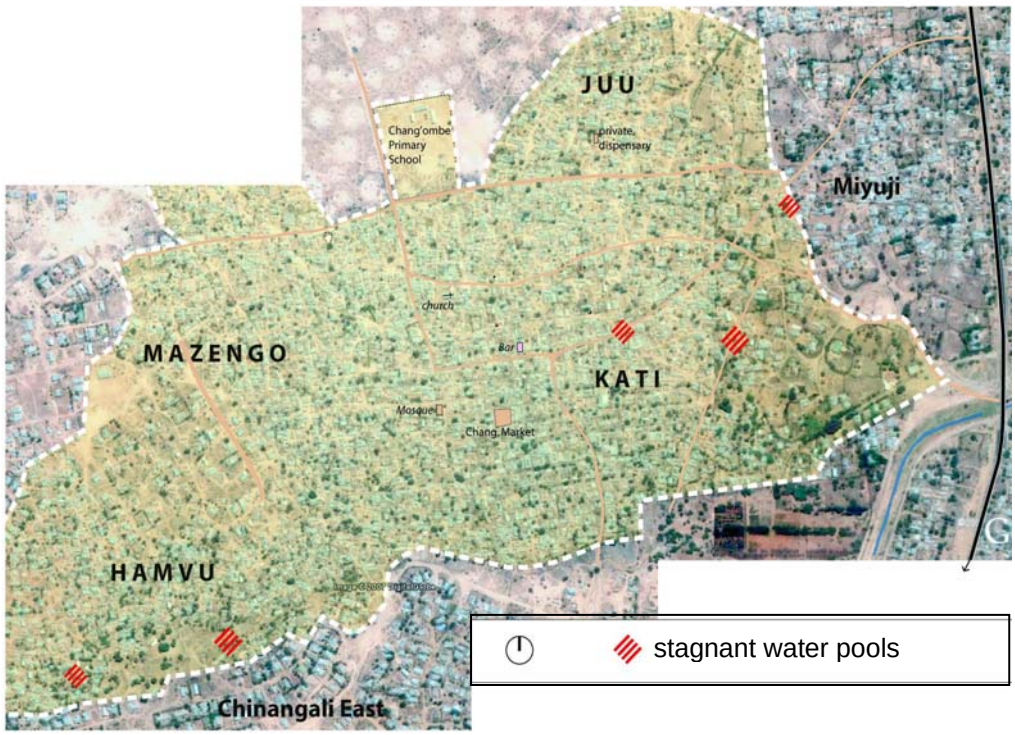
A local CBO, Centre for Community Initiatives (CCI) has begun working in the community to train members to, construct and provide loans to build on-site sanitation solutions. Primarily the organization is building lined pit-latrines with floor slabs and 'Ecosan' toilets. The organization has already accumulated 17 million Tsh to be used for micro-financing schemes for the provision of sanitation facilities of its members. CCI has plans to build 30 latrines for its members in the coming year.

### *6.3 Drainage in Chang'ombe*

Stormwater and greywater drainage are a further source of urban environmental degradation. Currently rain water drains haphazardly without any drainage channels. As Chang'ombe is an unplanned area it is a main obstacle for the actual construction

of proper drainage systems in Chang'ombe. The absence of drainage also constitutes a major health risk as uncontrolled stormwater spreads the contents of the poorly constructed latrines around lower lying areas. The community has managed to identify areas with pools of highly contaminated stagnant water which form during the rainy season. Participants from each street were able to locate the hot spots within their localities. The map below shows these areas:

**Map 3:** Areas with stagnant water during rainy season in Chang'ombe




Greywater management

The majority of the residents tend to wash their kitchen utensils outside their houses and then let the greywater soak into the soil. Some households have excavated soak pits which collect greywater although many of the households let greywater flow haphazardly in the streets. Uncontrolled greywater disposal with the current population densities (212 p/ha) certainly contributes to the formation of water ponds and the destruction of pit latrines by weakening the soil around pit latrines.

### *6.4 Solid Waste Management*

Solid waste management in Chang'ombe is almost non-existent. Households are expected to dispose of their wastes on-site in pits. This practice of course, is

unsustainable as available land is not infinite. In light of this, burning is the most common form of 'waste disposal' practiced.

The municipal authority has located one community dump site near Chang'ombe Primary School for the whole of Chang'ombe. Unfortunately, this site is approximately 2 km away from the centre of town, which makes it inconvenient and sometimes difficult for people to carry their garbage there. Without transport- either for the residents or for the garbage itself, this site is unlikely to be used as a permanent, solid waste solution.

The allocation of a future waste disposal site would be possible in collaboration with other development actors, for example DUWASA, the Municipality and indeed CDA which is responsible for land surveys and allocating sites as per specific plans.

Chang'ombe produces a large and varied amount of solid waste which includes: polythene bags, coconut shells, domestic rubbish, old clothes, waste from small-scale businesses such as carpentry or hair salons.

### *6.5 Other issues raised by the Chang'ombe community*

The community survey raised a number of issues including:

- Community to be supported in terms of working facilities such as gloves, wheelbarrows, spades, trucks and bridging impassable roads within Chang'ombe.
- Training on basic hygiene and sanitation practices
- Training local community artisans who could improve basic infrastructure
- Capacity building through workshops & training regarding project ownership

## 7.0 Stakeholder Analysis

This stakeholder analysis was done in a participatory way during the launching workshop on 26. October 2007, involving all important stakeholders involved in the HCES project. In the plenary session the participants differentiated between primary and secondary stakeholders.

The following **primary** stakeholders were identified:

- Chang'ombe Community
- Mamado (process facilitator)
- CBOs within project area like CCI
- Health, Environmental, Social & Economic Committees
- Health institutions such as Dispensaries and Laboratories
- Primary and Secondary Schools
- Department of Planning and solid waste management department
- Municipal Health Department
- Municipal Community Development Department
- Dodoma Urban and Sewerage Authority (DUWASA)

The following **secondary** stakeholders were identified:
- Registered local private sector experts – e.g. engineers
- Institute of Rural Development Planning (IRDP)
- Regional Administrative Secretariat
- Regional Water Engineer & District Water Engineer
- WAMMA team
- Private Exhauster Trucks
- Political Parties
- Church, Mosque leaders
- SECO

The launching workshop participants also proposed an HCES Task Force to guide the further planning process with these members:
- a representative of the Municipal Health Department
- a representative of the facilitating institution MAMADO
- a community representative (Chairman)

This report will serve as a baseline for planning improvements to Chang'ombe's environmental sanitation conditions in the coming months and will be presented in the Step 4 user priorities workshop.

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