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Abstract

What is the purpose of and the reason for this research? The main reason for carrying out this research was that I wondered why poverty has not yet been eradicated despite all the possibilities available today. This research looks at one of the constructions for improving the situation of the citizens living in the slums of Nairobi, Kenya. The constructions, of which there are now 52 in Nairobi, are the bio-centers in the slum areas which all together hold 60% of Nairobi's 4 million inhabitants. The bio-centers are sanitation buildings with biogas production under the hygiene floor with its toilets and showers. Above those sanitary facilities, the second floor has meeting rooms or offices. These bio-centers contribute to the development of their area and thus they play a part in eradication of poverty in a broad perspective. Anyone can use the facilities for a small fee, and people can even be allowed in if they request access to toilets and have no money that day.

It is of importance to underline that this work is thought as a set of tools to further develop the use of the bio-centers in Kibera using the conclusions I have found through my analysis. They may be used as tools for the people working in Kibera slum on an everyday basis but they may also provide insight knowledge to funding organizations within the field.

This research has been based on empirical data collected on three levels, the users of bio-centers, the employees at the NGO, Umande Trust, and the family with whom I stayed. Focus is on the influence of the bio-centers concerning the inhabitants' possibilities for development, therefore looking at issues associated with problems as well as those without. To underline the purpose of this work it is important to stress that my aim was to meet the people and talk to them about their everyday life as it is lived in the slum.

The method for doing this was based on qualitative interviews and participatory observations within the field of social science. The gathered data have been sorted, using Barney G. Glaser's Grounded Theory and as a complementary angle to psychological behavior among the inhabitants Pierre Bourdieu's social concepts has been used.

The analysis consists of two parts: the first one based primarily on my working questions using the Grounded Theory method to find the concepts connected to my main concern and to see what has improved after the initiation of bio-centers in Kibera and how these concepts are related. In the second part I have primarily used Bourdieu's social concepts to get a deeper understanding of the underlying psychological patterns connected to culture and tradition, the patterns, which control people and make us behave the way we do.

My problem formulation has been answered on the basis of the empirical data as well as the theories employed.

Introduction

The purpose of this chapter is to allow the readers to get acquainted with the subject of the thesis seen from different aspects at the same time delimitating the subject and lastly closing the chapter with my working questions and the problem formulation.

Presentation of focus area

Poverty eradication has been on the development agenda for many, many years. Therefore, arriving Kibera slum and finding people who live on very little- in every concern- frustrates me and still makes me wonder. Why are the developing countries still struggling with severe poverty and what does poverty look like in 2012 in a Sub- Sahara slum area like Kibera.

“poverty and inequality appear as resilient as ever and human development understood as development that prioritizes human well-being and aims at enlarging opportunities, freedom and choices continues to proceed slowly, with recent evidence painting a rather gloomy picture” the quote is from the book “Poverty and Elusive Development”¹

Every day people move to Kibera slum in the outskirts of Nairobi city. They come because they hope to benefit from the economical activity connected to the large city. They are looking for a job to improve their living standards but since poverty is what has driven them to leave their previous homes, most of the people who migrate can only afford to come to Nairobi’s informal settlements (Kibera) to live.

As the settlement is informal, the local administration does not feel an obligation to support the area with basic services, leaving the inhabitants of Kibera with large problems concerning, e.g. access to clean water, toilets, drainage and waste disposal systems.

Due to the large number of people living in Kibera, and the constant growth of the population, the existing and limited facilities are under constant pressure. The NGOs operating in Kibera take part in handling the many challenges. Among other projects Umande Trust, the organisation with which I cooperate, participates in constructing bio-centres to meet the above mentioned needs of

¹Banik, Dan p.1

the inhabitants. However, combined with the good intentions of building the bio-centres, a number of problems arise. On one hand, sociological problems occur related to habits, tribal behaviour and religious concerns, and on the other hand practical and technical problems are plenty.

Development and sanitation- a look at the correlation

Looking at the big picture of developing the third world and eradication of poverty one might ask why investigation in sanitation is significant. Investigators in the development field tend to focus on elevated issues as world crises, trickle down mechanisms etc. However, a micro perspective like that of my focus makes sense when slum dwellers themselves explain the challenges they experience every day and which implications this has for their ability to make long term plans for their lives. This intention of this analysis therefore is to prove the importance of fulfilling basic needs as a catalyst for development both from a physical need as well as from a psychological need taking the future perspective into consideration. Like in many other fields, development within sanitation also concerns getting and taking ownership of your own life. Having this idea in mind and using the following working questions, my problem formulation occurred. The problem formulation will be answered both theoretically and empirically using the following working questions;

- How do the bio-centres work today?
- How do the inhabitants of Kibera use the bio-centers, and are there any problems connected to the use of the bio centres?
- Which potentials are connected to the bio-centers? For example do they have a poverty eradicating effect?
- How do the daily users feel a difference in their everyday life when comparing the past with the present in relation to the access to a bio-centre, and do the users see the bio-centre as a development agent in a future perspective?

Problem formulation

How can we increase the access to good sanitation for the slum dwellers in Kibera, Kenya, and simultaneously increase their understanding of the importance of the easy access to sanitation facilities seen in a future perspective? How, in this context, can the bio-centres play a role?

Concepts

The concepts in this thesis are divided into three parts.

1. Working concepts: My own formulation of the concepts used for gathering empirical data.
2. Working tools: Grounded Theory concepts.
3. Social concepts: Pierre Bourdieu.

1. Concepts for gathering empirical data

The concepts for my research method have been

- Open minded interviews, allowing the person interviewed to co-steer the interview, to allow it to go towards the aspects which are most important for that person.
- Common ground perspectives, finding general understanding of development and taking interview themes from that kind of common/mutual knowledge.
- Recurring analysis of empirical data, making the most intensive use of empirical data collected both in 2005 and 2012.

2. Grounded Theory

- Collection of data from a direct contact with the reality with specific focus on societal processes. The researcher is interested in unknown areas of research. The researcher has a observing or/and participatory observing role.
- An ongoing process of comparing data until there is no more to deduce.
- The emerging theory can be reviewed any time in accordance to new knowledge.²

² Jacobsen, Michael Hviid et. al. p. 84

3. Bourdieu's concepts in a prioritized list, relevant for this research.

- A. Habitus, refers to the unconscious power that controls your way of behaving and acting and it influences on your capability to change patterns. Habitus is representing a strong social reproduction.
- B. Field, the space in which humans, in Bourdieus concepts also called agents, interact socially.
- C. Capital both cultural and social understood as a way to range people within a field. One type of capital can be converted into another type of capital.
- D. Power, is the ability to influence the behavior of people.
- E. Symbolic violence, the power to control somebody without their knowledge.
- F. Masculine dominance refers to the unequal position between males and females.
- G. Game. The concept of game refers to what is going on between the agents in the field.
- H. Doxa is defined by some basic rules, these rules must be accepted by the agents.³

³ Wilken, Lisanne p. 41, 45,55, 58

Methodology, method and reflections.

During my research period in Kibera, I was using a combination of methods. I was making an effort on the one hand to be objective about the informant's life, actions and their statements, influenced as they were by the surroundings they were living in. On the other hand I wanted to be neutral about my own perspectives as a stranger with an opinion. I made an effort to analyze and to control my own cultural background from becoming a part of the analysis.⁴

But the most important focus was to be aware of what was on peoples' minds or using a term from Barney. G Glaser "What is going on"⁵, in other words using a descriptive as well as an explorative angle in order to see the problems in a social situation from the perspective of the people involved and how they are dealing with the problem.⁶

In the following I will discuss the different ways of approaching the fieldwork as a researcher. Looking at Hammersley's and Atkinson's⁷ descriptions they say that the alienation or the distance is the foundation for a meeting between the researcher and the culture studied. They advise the researcher to be aware and not be fully participating as this may lead to a so-called over identification. At the same time it may prevent your possibilities for collecting data, because in the long run you can get so accustomed to the conditions that you no longer wonder but feel comfortably at home. If you, as a researcher, feel too much at home, this must be seen as a sign of danger, as it is of great importance that there is a social as well as an intellectual distance. In the space created by this distance, the researcher's analytic work takes place⁸. Without this distance you can, as a researcher, only contribute with a self biography. The distance creates the methodological and epistemological foundation for all anthropological activity.

⁴ Jacobsen, Michael Hviid et.al p. 54

⁵ Glaser, Barney G., p. 115

⁶ Jacobsen, Michael Hviid et.al p. 80-81

⁷ Hammersley's and Atkinson's in, Jacobsen, Michael Hviid et.al p. 138

⁸ Ibid.138

On the other hand you may find those arguing in the completely opposite direction. As a researcher you need to have some kind of understanding for the people you are observing. Erving Goffman argues that participatory observation is all about putting yourself in the same conditions as the people you are studying⁹.

Having distance can also lead to naivety; to think you know something that you really don't know. In order to understand you need to identify yourself with the informants¹⁰.

In my study I can hardly claim that I did any of the two but a complete mixture. However, my knowledge from working in the slum on a previous project and the fact that I was living with people who had lived their entire life in the slum, gave me a profound look into the field of study and an excellent possibility to put myself in the place of a slum dweller.

It was of great importance that my data were gathered by a direct contact with real life situations, working this way I am hoping that my research can influence the ongoing process of bio-domes and contribute with new knowledge within the field of sanitation issues in slums.

In my search for the perception of hygiene, my first intention was to visit both the bio-centers as well as people's homes to observe hygiene standards in order to be able to find the Kibera standard of hygiene. However, as it was a struggle just to convince my Kenyan colleagues to let me visit the slum and the bio-centers, the possibility of visiting the slum dwellers in their houses did not arise until very late in my investigation. Due to limited time for visiting a sufficient number of homes, this never took place. As Erving Goffman argues, you can try to work among the lowest ranking in a group.¹¹ In my field study this was very difficult and I did not, until the end of my visit, succeed to walk around the slum with the lowest ranking people, those who actually lived in the slum.

⁹ Jacobsen, Michael Hviid et.al p. 139

¹⁰ Ibid. p. 139

¹¹ Ibid. p. 140

Methodical reflections

Looking for what could be called a hygiene standard/ the way things are done or the hygiene possibilities you have, living in a slum, I endeavored to remain neutral. Trying to find the standard in Kibera, I was looking to find what Alfred Schutz and Pierre Bourdieu call the common sense-perception. Bourdieu argues that this is one of the most important obstacles for a scientific understanding.¹² There is no doubt that entering a world that different from my own, I had to be very aware.

But why look for a standard at all? I believe looking for a standard would help me answer my working questions:

- *How do the inhabitants of Kibera use the bio-centres, and are there any problems connected to the use of the bio centres?*
- *Which potentials are connected to the bio-centers. For example, do they have a poverty eradicating effect?*

As described later in this chapter I did not have the possibility to participate in an everyday life situation with the families living in the slum. Instead I had the possibility to observe in the private home where I stayed. This opportunity to observe the way a poor family handled their visits to the toilet, cleaning of their small house and hygiene in the kitchen, preparing and cleaning after meals was a good starting point. I did not make any interviews with my hosts Rahab (f) and Isaac (m) as this would have seemed forced in the familiar context, living in their home. The observations will be mentioned briefly and they will mainly be used as background knowledge as well as the knowledge I have from my first research in Pumwani in 2005.

Searching for the bio-center's position to change society this will be made clear in the analysis chapter one, where the former and existing sanitation facilities will be compared with the bio-centers.

¹² Ibid. p. 136

Ethical perspectives

My position as a researcher.

Carrying out an empirical work while being in direct contact with the people in the field of study is doubtless a challenge to you both as a person and as a researcher. Being good at it requires skills as in every other craftsmanship, in this type of research the movement between the inductive and the deductive¹³. Even though I had one research behind me, in Pumwani 2005, the research period in Kibera was quite different as it involved me in more direct contact with both the habitants of Kibera, the employees at Umande Trust and my hosts. In the Methodology, method and reflections chapter I have already discussed my considerations on how to deal with the objectivity as a researcher and advantages and disadvantages in carrying out a research in an unknown culture. However, this chapter is going one step deeper into demonstrating the obstacles I met. I was trying very hard to do what Bourdieu states as,

*“only reflexive conduct reflexivity based on a craft of sociological “sense” or “having an eye for” makes you capable –on location- while the interview is going on- to obtain and investigate the effects of the social structure in which it is taking place”.*¹⁴

Meeting people in bio-centers, however, as they came to, for most people to go to the toilet, I also found myself affected and I was afraid of not being capable of comprehending and registering what was going on.

The gap of time between gathering the data and working with the data gave me a more distanced approach to the information. Although there is a dominant idea going that “working with your empirical material immediately, makes the process flow best”, in my work it was quite opposite.

As the interviews were ongoing and I was in the field observing, a lot of emotions were present. During the interviews I had to tone down my own emotions as they were no good for the process

¹³ Brinkmann, Svend & Lene Tangaard p. 207-208

¹⁴ Bourdieu et al., 1999:608 in Kvale, Steinar & Brinkmann, Svend p. 143

of getting information. Due to issues connected with taboo, like human feces and where to go to the toilet etc., I was always very, alert wanting people to feel comfortable, for I knew that this was a difficult subject to confront. As a result of always trying to make the informants feel comfortable, I was shutting down a lot of my own emotions but still they were a part of my experience and at the time I feared that they would interfere with the work and the empirical data. Afterwards I experienced that this was not the case and that I could work more professionally with the statements because they were distant.

Ethical considerations and dilemmas.

Although I felt affected during the interviews and observations, there are some indispensable issues to be aware of in connection to the relation between me as a researcher and the informants i.e. the asymmetrical situation. This asymmetrical issue was there all the time as I was representing the Danish organization funding the project - especially when I was at Umande Trust. At the bio-centers everybody was aware that a white person doing a research is also connected to some kind of financial contribution. The only place where I felt an absolutely equal was where I was staying. As I was a paying guest in their house, they were of course interested in a good relationship but beyond that, the atmosphere between us was more friendly and intercultural.

In the chapter on method I have described the difficulties connected to having me walk into the slum and the confrontations I had with my contact. To some degree I believe that the problems were connected to this asymmetrical situation between him and me. I had the feeling that he did not understand my interest in the slum problems. I was there for a short period of time but for him this was everyday life. He told me directly that he was hoping to get a job outside the slum in the future. For this reason I think that my deeply felt interest in the slum seemed to provoke him. Within Bourdieu's concepts this unequal position in power is called symbolic violence¹⁵, i.e. that I, as a part of the society, represented those who "control" others. The feeling that my contact had, is of course understandable and just another obstruction to be aware of as a researcher. Every

¹⁵ Prieur, Annick & Sestoft, Carsten p. 50

year a lot of people from the donor countries come to monitor the projects they are funding, to do research etc. and I fully understand the inhabitants feeling of being “an animal zoo”.

Although, this asymmetrical relation cannot be removed, it is of great importance to be aware of it. On the other hand, you yourself have a deep interest in your field of study; you respect and appreciate the people you meet.

Considering the ethical aspects of this research, I turn to Bourdieu again, who says: it is the relation between people that is important to consider. It is so to speak the relation between the informant and the researcher that is at stake.

‘In my opinion it is useless to turn to the innumerable so-called ‘methodological’ texts on interview techniques. At any rate they do not provide that which researchers have always implied and known –justice. Researchers have respect and sensitivity towards their object and are most aware to the almost infinitely subtle strategies which social actors display in their everyday life.’¹⁶

Using Bourdieu’s perspective, it is of great importance to reflect on how this final product has occurred. There is, of course, the ethical responsibility of the researcher to take into consideration,

“the analyst not only has to accept the role of transmitter of their symbolic efficacy, but, above all, risks allowing people free play in the game of reading, that is, in the spontaneous (even wild) constructions each reader necessarily puts on things read”¹⁷

What I have been doing in the analysis is an objectification¹⁸ of the information gathered in the interviews and observations. In other words, they have been chosen by me. The meanings that I have focused on may have had other meanings for the informants. This, however, is the objectification that takes place simultaneously with the symbolic violence that I am causing my informants. But to leave out parts that are less pleasant to read for the people involved would be

¹⁶ Kvale, Steinar & Brinkmann,svend 2009:102 in, Bourdieu, 2009:607

¹⁷ Ibid. P. 623

¹⁸ Kvale, Steinar& Brinkmann, Svend:208 p. 234

a high price to pay for the quality of this work. I can only try to be aware of the system of which I am part and by whose social categories I have been structured.

The following quote from Bourdieu unites very well what the researchers as well as the informants are up against in a meeting.

Without an understanding of the entire structure of objective relationships that define positions in this field, of the specific forms of censorship each imposes, and without knowledge of the trajectories and linguistic dispositions of those who occupy these positions, it is impossible to fully explicate processes of communication—why something is said or not said, by whom, what is meant, what is understood, and, most importantly, with what social effects.¹⁹

¹⁹ Bourdieu, Pierre & Wacquant, L.J.D. (Eds.)(The English version): p. 150

Empirical presentation

Empirical perspectives where and why

The empirical part is produced in Kibera slum, Kenya involving different actors connected to the sanitation issues and the bio-centres.

My Kenyan partner in the investigation is the organisation Umande Trust and their team working with sanitation. The sanitation team members have different tasks both in connection with their everyday position but also connect to the cooperation with me and my research, and therefore some functioned as guides, showing me around in the slum while others had more theoretical angles to the research.

The empirical data have been gathered at 8 different bio-domes in Kibera and concern four groups of actors.

1. Inhabitants of the surrounding area where the respective bio-centres are situated. They were therefore not selected but interviewed as they entered the bio-center to use the different facilities.
2. Some of the managers of the bio-centres were interviewed about experience and management of different bio-centres.
3. Some of the members of the groups connected to each bio-centre were interviewed.
4. Finally, interviews were made with two people from the sanitation team, Michael Francis and the founder of Umande Trust, Josiah Omotto.

The reason for doing the research in Kibera, alternatively doing it from Denmark, was the obvious need to observe the facilitations myself and talk directly to the daily users of the bio-centres, the managers and the sanitation workers in Umande Trust, in other words, provide a research that brings fresh data and knowledge collected in situ..

While investigating the sanitation issue in Kibera, I was staying at the private house of a young couple where the female part also works as a social worker in Kibera in relation to sanitation as

well. Staying in their home was the opportunity to get first hand impression of how life is lived in a poor household in Kenya, though several levels higher than the levels of living in the slum. It also gave me the opportunity to discuss different professional issues concerning social work in the slum and increase my knowledge in that area. Some ethical considerations will be elaborated on later in the chapter Ethical Considerations and Dilemmas.

The knowledge I was looking for in Kibera concerned the problems connected to lack of proper sanitation, and therefore the function and the challenges of bio- centres, is seen from different perspectives, i.e. the daily users and the sanitation team and to a lesser extent the managers. Furthermore I was investigating coherence between the ideas behind building the bio-centres and the daily users' actual use of the bio-centres.

Observation

The observation and to some extent the participatory observation taking place during my research in Kibera can roughly be divided into three parts. The main observation the bio-centers, the observation in the organisation Umande Trust and finally the observations made where I lived. Before going into the field an observation guide had been produced to allow me to stay focused on what to observe see Appendix p. 58.

Bio-centers - function and philosophy behind.

There is a general term identifying all places with some kind of bio-technology as bio-centeres however focus in my investigation will primarily be at the three level buildings using bio-centeres and bio-domes as synonyms.

The area of Kibera holds 52 bio-centres all built as a cooperative between Umande Trust and a donor fund. The idea behind the construction of bio –domes is borrowed from a similar construction in India, where the founder of Umande Trust, Josiah Omotto, visited a construction made by an Indian NGO, Sulabh International Social Service,²⁰ and saw an opportunity in copying

²⁰ <http://www.sulabhinternational.org/>

this structure and philosophy for the area of Kibera, where he grew up and later started the NGO Umande Trust²¹.

The construction is typically a three level, round building. However, some are only two levels. The construction technology behind the building is not to occupy a lot of space, since space is very limited in the slum. The bio-technology consists of gathering human waste from the toilets. Instead of being dependent on sewers and a cleaning systems, the human waste from a bio-center is gathered in a so-called digester, a container system, where the natural production of gas from human waste, is used for cooking in the kitchen facility area in the building.

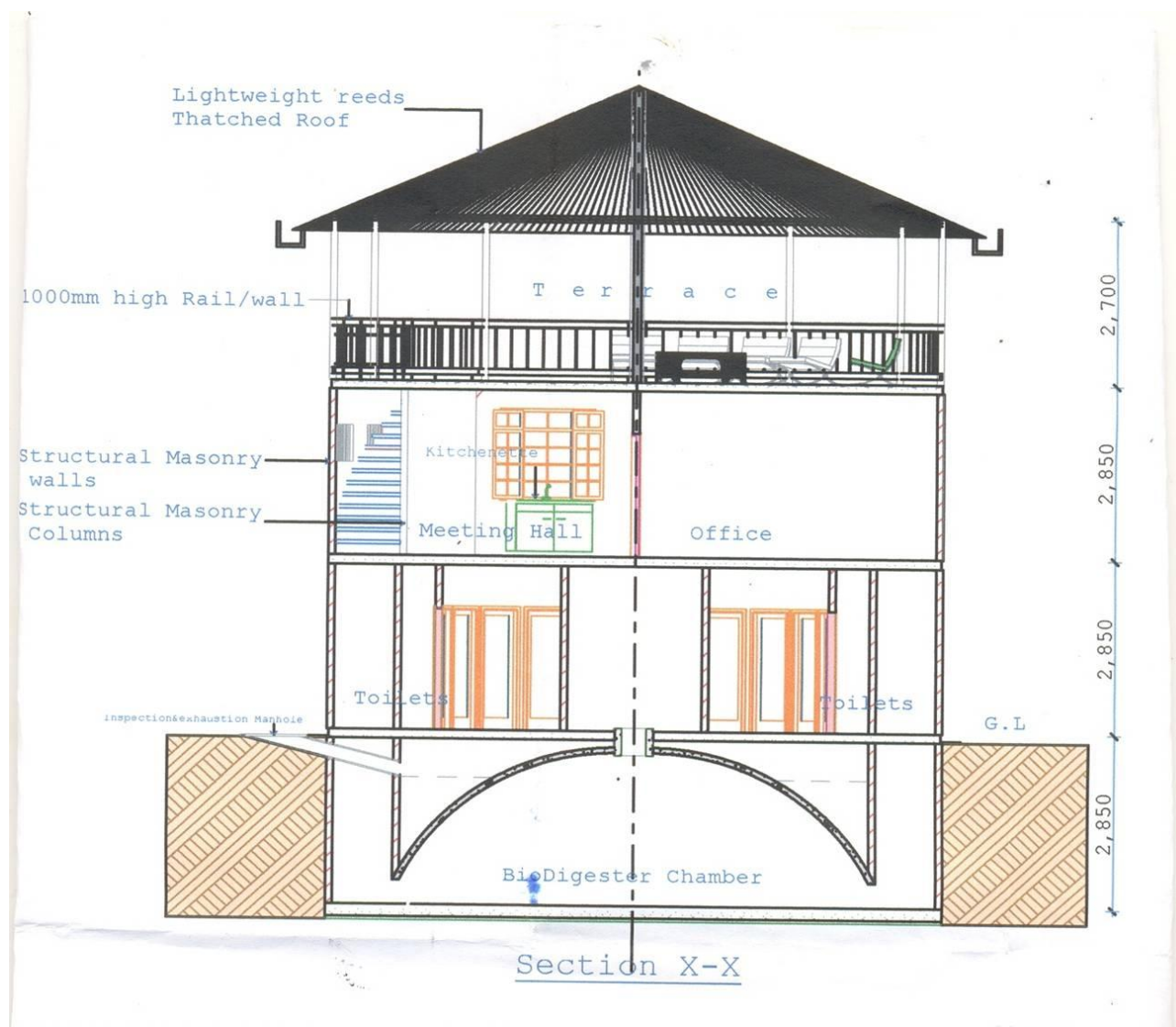
The lower floor has the toilet, bath and water kiosk facilities, the middle level serves as rooms for renting, for the group members' office and/or small business offices, some also have small computer rooms where they give computer classes for children during weekends. The upper floor is a hall used for different purposes as education, service, gatherings in connection to weddings or funerals or to watch a payment-football game.

The group managing the bio-dome is accountable for the daily running of the centre and they are obliged to save money every month for a fund. Besides this obligation the earnings that are made from running the centre are wages for the group members.

The centres have been built as a service to the slum dwellers living in this particular area. The payment for buying water or using the toilet ranks between 2-5-10(hot water) Kenyan shillings which the majority of the people are able to pay²². Those not able to pay are also allowed to use the facilities; the managers put a lot of effort into talking to people about paying when possible, as the upkeep of the centres is very important for the continued existence of the centres. Children under the age of 8 are also allowed to use the facility for free however; they must pay for water like everybody else.

²¹ Transcript 2, Interview with Josiah Omotto, Appendix p. 76

²² Reference to what the interviewed told at the locations



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²³ http://challenge.bfi.org/sites/challenge.bfi.org/files/Plan_2.jpg

Observation of hygiene in bio- centers.

Hygiene levels are very different from one bio centre to another.

Taking point of reference in observing the different bio centers it was visible that the standard of hygiene was dependent on every specific group's knowledge about sanitation and the correlation with hygiene.

Some of the bio centers were very clean, i.e. that the floor and the lavatory bowl were washed after every visit while other bio-centers were dirty with human waste lying on the floor as well as in the lavatory bowl. The odor varied depending both on the construction of the bio centre and on the level of cleaning.

In some places my attention was caught by information sheets telling about the importance of hand wash after visit to the toilet, followed up by a plastic bowl, a water tank and a piece of hand soap or a wash basin with running water at the exit of the bio dome.

In other places another kind of information sheets were placed in the bio domes, explaining about the most common illnesses connected to lack of hygiene or other health related issues as HIV, pregnancy, rape etc.

In other places no written information was given at all and hand washing facilities lacked.

The existing facilities are of very different levels. The obvious reason for building the bio domes are seen as you visit the predominant toilet facilities. These are simply constructed earth closets "pit latrines", not connected to a sewer. As the toilet fill up, they often become blocked due to lack of organization to maintain the toilets including the missing collection of human waste.

Different donors have donated toilet facilities but the maintenance is not carried out. You can observe several toilets in different standards both well built and poor shacks with poor roofs and doors, exposing the user, in a defenseless situation, to dangerous behavior from other dwellers.

Interview-practical conduct

In my search for answers on my working questions about bio-centres I visited the different sites in Kibera together with a member of the sanitation team and a student, Christina, doing her internship at Umande Trust. In the situation of visiting the bio-centres in Kibera, the team member had a limited function as the one taking me to the bio-centre and introducing me to the manager/group member(s) and briefly introducing the manager /group member(s) to my research.

The student functioned as my translator, my secretary but most important as mediator between me as a stranger in the slum and the residents. Having her along was of great importance, since she was a representative of Umande Trust, but also because she herself is black and speaks Kiswahili- in this way she was a channel for me to get me closer to the field of study; the users of bio-centres.

The connotation of a representative from Umande Trust was very important; in most situations people saw me as a person representing something positive- because Umande Trust has a very positive status in the slum as a trustable development agent. As Michael Francis is saying in his interview: *“..if it is a word from the center it is like a call from home”* ²⁴

Before going to Kibera I had considered how to address the respondents to prepare them for my visit and interviews. I considered email communication through the sanitation group members but thinking about the difference in perception, the risk of misunderstanding the intentions with the interview etc., I decided to interview people as I met them and not making arrangements in advance. The area of investigation that I´m doing is connected to a lot of taboo and therefore as just mentioned above only direct communication was preferred.

I experienced that this had unpredicted advantages.

²⁴ Transcript 1, Interview with Michael Francis, Appendix p. 69

Challenges in the empirical data collection

Prior to my visit to Kibera I was in email contact with UT where I also presented my plan for the research. My first intention was to participate in everyday tasks with different families living in Kibera; in other words to follow daily life in families. However, this was never a possibility due to security reasons hindering this way of working. Seen from a personal security point of view, Kibera slum is a dangerous place to be. In spite of the good reputation UT has, special arrangements were made when I was going deep into the slum. Besides problems with security, other issues were also obstacles for my research.

The NGO's working in Kibera are dependent on foreign aid or funding and this affects the way you, as a representative from a foreign organisation, are treated. I had a constant feeling of being spared the reality of Kibera as the Umande Trust-members, especially those representing Under The Same Sky Project, tried to avoid taking me to the slum. There was an ongoing struggle between me and my primary contact as he constantly made up new explanations to why there were obstacles when I wanted to visit the bio-centres.

Finally I asked some of the low status team members to take me to the slum. In this way I succeeded to convince them that it was important for my research to be in situ.

There is a general need to please the visitors from the funding organisations. This situation exists, because the NGOs depend on continuing funding. Therefore, I was also pleased that I did not arrange for interviews in advance, as I am sure pre-arranged interviews would have been arranged with the best functioning group of habitants. This impression emerged from experiences at several bio-centres, where the managers were calling specific persons to give interview as I entered the bio-domes. Through dialogue I made it clear that I needed representatives from all levels of users.

The weaknesses connected to not making agreements in advance were people's lack of preparation for answering questions. Some respondents were uncomfortable with the situation, some were under the influence of alcohol or drugs and others were affected by emotions as desperation, anger and sorrow.

However, the major part of the respondents was in contact with their views on bio-centres and the development factor the centres have in the explicit areas and they were capable of answering in a satisfactory way. I was, however, surprised to meet respondents who had a lot of thoughts and opinions on the subject. That was a clear proof that the subject of my research is of great importance and occupies the minds of the inhabitants.

I was prepared to meet resistance when asking questions about sensitive and private information. For example, talking about using human waste for the production of gas for cooking as well as talking about going to the toilet alternatively leaving your droppings in a plastic bag(so called flying toilets) going to the river to use it as toilet etc. Beforehand I was even prepared to change the line of research to only involve the specialists if the slum dwellers did not feel like answering however, this was never necessary.

Interview method

In the interview situation I used Kvale and Brinkmann's qualitative research on interview method.²⁵

In the interview situation I asked for basic information to break the ice and get the interview going. Furthermore, I asked if it is a family with children as this is often very important information as to how people perceive life and the need for basic services like sanitation facilities. I informed about the research, the purpose of doing it and to a less degree about my person. However, I always told that I was married and the mother of four children myself. The reason for doing that was that I wished to meet the respondents on a more equal level trying to make them understand that I could imagine, without problems, the difficulty they experienced as a parent. Doing this, I hoped to get better data as an interview situation among equals is resulting in a better output. However, I knew that the situation always would always be asymmetrical²⁶. Using Bourdieu's concept Capital I knew that my capital was high compared to that of the respondents but if I could

²⁵ Kvale Steinar & Brinkmann, Svend 2008 p. 41

²⁶ Ibid 2008 p. 41

transform some of my capital as a white, “rich”, European into capital of a parent, we would be more equal.

The interviews made in the bio-centers had a different form than the ones made with the employees at Umande Trust, as the situations were very different and as I was looking for different experiences depending on who was interviewed. In the bio-center interviews I was using a simpler interview technique.

Afterwards, working on the interview answers, I use the tool “open coding” from Grounded Theory²⁷. The themes addressed by the persons interviewed are systematically placed in categories and conceptualized. Afterwards they are ready to use in the analysis together with the themes appearing as a result of the meaning condensation of the transcribed interviews. In the Appendix p.91 the complete scheme can be viewed however, here are two examples of the first step in sorting the statements from the interviews.

Dignity	<ul style="list-style-type: none"> • Not mocked if you tell you’re from Kibera=awareness that improvements are being made (in the rest of society) • Before robbed when going to the river in the evening
	<ul style="list-style-type: none"> • Improved dignity
	<ul style="list-style-type: none"> • People used to suffer before • Feels more comfortable
	<ul style="list-style-type: none"> • The facility is clean, makes people dignified. If you have a visitor you are not embarrassed to bring them here

²⁷Brinkmann, Svend & Lene Tangaard et. Al p.. 215

Bio-gas	<p>Users of bio-gas:</p> <ul style="list-style-type: none"> • The bio-gas is what has helped the most to save money. Now enough money to feed himself and son. Before went to hotel to eat=not enough money=not enough food for the child • Uses the bio-gas • Cheaper • Cleaner • Uses from time to time • Likes the bio-gas • Will use when it begins functioning in my center • Has reduced smoke • Saves energy and money • Will use it if it gets cheaper than other sources of energy • Will use in future as it is faster and cleaner than paraffin and charcoal
	<p>Piping/cylinders:</p> <ul style="list-style-type: none"> • Need pipelines to houses because cooking is a private matter • Waiting for it to get portable • Filling on gas-cylinder to bring home
	<p>Problems:</p> <ul style="list-style-type: none"> • Not enough space • Will not cook on human waste • Need to cook in the evening but the bio-center is closed

	<ul style="list-style-type: none"> • Does not use bio-gas
	Information: <ul style="list-style-type: none"> • Lack information about bio-gas

Another approach to interviewing was used when interviewing the sanitation group members and the founder of Umande Trust. The situation was quite different as we were doing the interviews at the organization campus in an office. The more equal situation of professional interest which was present among me and both Michael and Josiah gave me the opportunity to dig deeper into unfulfilled answers. I used Bourdieu's way to work with confronting questions where I was trying to challenge an opinion through my question. It could also be called to make the informants subjective, understanding the objective...it is a way to suggest not to force a different view or position a "Socratic way of asking"²⁸. This way of asking, being a bit more direct and rough, was more possible in the situation with the members of UmandeTrust than in the interview situations at the bio-domes, due to different reasons. One of these that we were not controlled by limited time to do the interview. The interviews were taped and afterwards transcribed, a complete transcription of the two interviews can be found in the Appendix p. 64.

Transcribing interviews as long as half an hour produces many pages therefore the following process has been a part of getting the points to appear clearly and thereby producing a profound use of the interview material, leading to a larger complexity in the analysis part.

Condensation of meanings entails that the opinions expressed by those interviewed are made shorter. The essence of what has been said is stressed and long passages are made short by reformulating the points into few words.²⁹ It supports the "open coding method" in Grounded Theory.

²⁸ Kvale, Steinar & Brinkmann, Svend 2008 p. 52-52

²⁹ Ibid. P. 223

Using this approach to condensation I have followed this method.

- Reading the entire interview getting to know the complete content.
- Secondly the investigator decides the significant meanings as they are expressed by the informants.
- The most dominant themes are written down as simple as possibly. The meanings have now been thematized in respect of the response answers and viewpoints.
- The next step includes asking questions to the thematized meanings in respect of the specific area of investigation.
- Finally the most important themes in the interview are brought together in descriptive meanings where the most essential parts appear clear and ready to be used in the analysis.

Theoretical perspectives

Two complementary methods are employed, Grounded Theory and Bourdieu's Social Concepts.

While being on my first research on the theme of bio-centers in Nairobi slums, I encountered so many contradictions in my field of investigation that I realized before returning in 2012 that I could expect no end of different answers to my interview questions

It was of great importance for me to enter the slum open-minded. I wanted to know what was on people's minds without being steered in a certain direction by an already cemented theory or method. Even a researcher working on university level would need, I knew, a backbone to lean on, would need to have a theory ready into whose framework the empirical data would fit. Although I was doing a research at university level I needed to have a theory ready into whose framework the empirical data would fit. I chose Grounded Theory and Pierre Bourdieu's social Concepts, as they both have sociological points of origin used on anthropological studies and empirical data collection.

The process agenda for the research was as follows.

- Starting with an area of interest- “The bio-centers’ position as an agent for development”- but without having a professionally preconceived problem.
- Gathering the empirical data, sorting by themes and the relation among the themes.
- Finally analyzing the prevalent themes on a deeper level.

In the following the two methods employed are presented, first Barney G. Glaser’s Grounded Theory, secondly Pierre Bourdieu’s Social Concepts.

The purpose of Barney G. Glaser’s Grounded Theory is to, **“Investigate the obviously problematic in a given social situation seen from the perspectives of the persons involved and how they are trying to deal with it.”**³⁰ It is important to stress that Grounded Theory is not, as many other theories are, trying to verify already existing theory and that is the very reason why this method has been chosen. I wanted to avoid that my research was forced into an already existing theory, making it useless or in the worst case only having the ensuing result blur the picture of what you were searching for. Furthermore, the purpose of Grounded Theory is to investigate an area that contributes with new knowledge which is *useful* for the people involved and thus to avoid doing an academic work for the reason of the academic field itself.³¹

To amplify the method other theories and methods have been used complementary. In order to elaborate on the ethical perspectives, which have been found to be of importance, a special chapter has been added, describing my ethical considerations. The chapter is *Ethical considerations and dilemmas*.

Grounded Theory and Pierre Bourdieu’s social concepts

This chapter aims to give an introduction to the theories applied to this thesis or rather to explain the theories and methods which have supported the empirical work, and at the same time they have been giving life to a new approach in the field.

³⁰ Jacobsen, Michael Hviid, p. 81

³¹ Glaser, Barney G., 116

Barney G. Glaser's "Grounded Theory" has been employed together with Pierre Bourdieu's different social concepts. Grounded Theory was used for getting into the field of research, in other words looking for data before using theory, whereas Bourdieu's methodology has been used to achieve a deeper understanding of the actions taking place among the agents in the field, explicitly *"What is going on"*. Bourdieu and Barney are complementary as theory and practice are developed in a process of interaction. As Bourdieu states, his concepts come alive when they are used in practice –and then you generate theory. This complementary aspect- is seen in the following quote from Doing Grounded Theory,.

*"the world exists; it will not go away; even if it doesn't go your way.....Do not worry, just discover and generate theory"*³²

Grounded Theory is actually not a theory but a qualitative methodological approach whose purpose is to generate theory solidly founded on empirical data³³. In the process of collecting data, concepts and hypotheses are produced simultaneously. This way of working functioned well, as I had limited time in Kibera to do my research. It is a very intensive way to work. In particular it challenges your sensibility to the reality of the place and the situation in which you find yourself, while you are looking for fixed points, patterns and repetitions to provide you with knowledge about the field you are investigating. In this way fact-finding in the authentic environment, talking to the best informants supported the task of generating a new theory³⁴.

*"Always keep in mind, that grounded theory is an inductive approach that calls for emphasis on the experience of the participants. The goal for grounded theory is to generate a theory that accounts for the patterns of their behavior which are relevant and problematic for the participants"*³⁵.

The beauty of this theory is that you might be the first person to have precisely this angle to a problem or issue because it is related to exactly this group of persons in this exact area. Then you

³² Glaser, Barney G. ,p. 116

³³ Jacobsen, Michael Hviid, p. 78

³⁴ Ibid. 99

³⁵ Glaser, Barney G. ,p. 117

produce new theory exclusively on behalf of these people and their needs, and you are not trying to squeeze this reality into an already existing theory. The new theory emerges as you work your way through the gathered information and ongoing dialogue.

However, in this case Grounded Theory must not be understood as in its original form, neither can it be expected to function as in its original form as the research I was doing was of a limited time not allowing me to go back and forth to the field over months and years. Nevertheless, it must be stressed that the same methods are used, as I have been working with the empirical output and after a period of time returning to the interviews and records over and over again, each time seeing and exploring new aspects which elaborate on the information already gathered.

*"Grounded theory accounts for the action in a substantive area. In order to accomplish this goal, grounded theory tries to understand the action in a substantive area from the point of view of the actors involved"*³⁶.

This quote is very relevant as it underlines the absolutely, most important function of the researcher; to get to the very core of what the actors involved experience and to get the "real" picture. I have been combining interviews with participatory observations in the slum; at the bio-center as well as in the interview situation with the people at Umande Trust, and where I stayed privately. I did this in my constant search for *understanding the action*.

*"This understanding revolves around the main concern of the participants whose behavior continually resolves their concern. Their continual resolving is the core variable. It is the prime mover of most of the behavior seen and talked about in a substantive area. It is what is going on! It emerges as the overriding pattern"*³⁷.

Taking this into account, both the employees at Umande Trust, the managers' of the bio-centers and the users' voices are heard, when Grounded Theory is employed. They all take some kind of action in connection to the use and the problems connected to the use of the bio-centers. As will be evident in the analysis, a lot of energy is being invested in making the best use of the bio-

³⁶ Ibid. p.115

³⁷ Ibid. P.117

centers, and behavior becomes a key word. Talking about behavior, Bourdieu and his concepts become very relevant and in that sense there is a crossroads.

“The core category is the pattern of behavior which is most related to all the other categories and their properties in the theory which explain how the participants resolve their main concern”³⁸

Resolving problems or concerns is what it’s all about in a given situation and especially **behavior** will be of great importance through- out the analysis, as behavior is what is essential in order to change the patterns, to see the world with new eyes and adapt to changes.

Grounded Theory is a theory that supports the researcher in being open-minded. For the theory to be correctly implemented, the researcher should go into the field not exactly sure of what she brings home. She should remain curious and accept that not everything is known in advance.

“For the researcher, receiving all this data and remaining determined to knowing nothing, concepts will emerge quickly and then the participants’ main concern and beginning ways it is constantly resolved”³⁹

Further to that aspect,

...“He needed no model or theory. It would have burdened and delayed him to no avail”⁴⁰

I knew a lot about the slum problem when I arrived in Kibera and knowing also made me believe that I knew what was going on in connection to the bio-centers. Some years previously, in 2005, I had been to Pumwani where sanitation facilities were very problematic. I had a clear idea of what was good, bad and what could be done. I was, however, proved wrong several times, especially about how multi complex the problem of access to toilets was for the inhabitants. This lack of knowledge turned out to be good. It made me able to be receptive and enter the area unbiased. A real advantage about not knowing was that I had to ask questions, talk a lot, then ask questions again. This was particularly possible in the family where I stayed.

³⁸ Ibid. P.117

³⁹ Ibid. P. 124

⁴⁰ Ibid. P. 124

My experience was this: When you ask a lot of questions about people's everyday lives they often tend to tell a lot and also to tell things that you did not expect to get any information about.

"It shows that relevance comes only in the perspective of the subjects. Listening to the subjects opens up the research to new concepts and shuts down forcing a problem on them as beside the point. Preconceived questions that would force a problem on participants soon dissipate as subjects only open and vent on their true, real concerns and their venting momentum continues" ⁴¹

This was indeed also my experience as I often had one plan for the interview but the participants turned it in another direction in relation to what was really on their minds. Using a term from Bordieu the "Socratic" way of asking⁴² was useful in those situations. The fact, that you are curiously asking open question instead of having a fixed attitude to the answers will invariably help you, when suddenly you feel the interview taking a different turn from where you expected it to go. Several of my interviews had this pattern e.g. Oliver, the 32 year old father. He spent most of the time telling me about his concern for a sick child who had previously been ill very often. This child now has a much better life than before the bio-centers were there, because he, the father, has access to clean, safe water every day.⁴³

The concepts of Pierre Bourdieu

According to Bourdieu the result of an empirical investigation is a theoretical model, meaning that you formulate the empirical observations using a theoretical language. It could also be called "empirical model".

Though Bourdieu did his work within the Western philosophy, his concepts and ways of addressing the process taking place are of great relevance when we concerned about behavior and change of behavior. I have found them very useful for understanding the "what is going on" in Kibera.

⁴¹ Ibid. P. 117

⁴² Kvale, Steinar & Brinkmann 2008, p. 53

⁴³ Interview 4 with Oliver, Lindi USAFI Bio-center, Appendix p.109.

Bourdieu places himself among the sociologists who argue for an epistemological approach to empirical research. He emphasizes the role of not being only theoretical in a research but also to look at practice. He says:

“You either swear by objectivism or by subjectivism; you either refer to underlying structures or you explain with a reference to rationally founded action; you either formulate abstract theory or you lose yourself in empirical data; you either carry out microanalysis or you carry out macroanalysis. Both of these, however, have in them important fragments for the understanding of how social life is produced and reproduced.”⁴⁴

Bourdieu’s concepts are, so to speak a set of open tools, useful in a research on the social interaction of human beings.

When studying a person or a group of persons, searching for the core of what prevents change, it is of importance to see the relations of which this human being is a part. You are a product of your culture, family, language, religion, color etc. No matter where you live, there are specific patterns and mechanisms that make you behave the way you do. In that sense Bourdieu’s tools become universal.

“(…)Concepts as Field and Habitus, Position, Disposition, Capital etc. These concepts are known as open concepts meaning quite abstract concepts whose significance are determined in relation to explicit empiric data-in other words the concepts are designed for use”⁴⁵

In that respect a lot of theoretical discussion on the concepts will not be found in this chapter as it is the empirical data that give life to the concepts and make them vibrant. The concepts will be used in the Analysis Part Two.

⁴⁴ Wilken, Lianne, p. 40

⁴⁵ Ibid. P. 213.214

Analysis

Analysis part one; Before and now.

This chapter should be understood as an introduction to understand the different perspectives that have arisen in the interviews and observations. To fully understand the following analysis parts, using the concepts of Bourdieu and Grounded Theory this chapter one looks at;

- Perspectives on the past and the present referring to the situation before the bio-centers were there.
- What constitutes the main difference(s)?

Just like the Kenyan authorities and the inhabitants of the area, we do not know the exact number of people living in Kibera. Nor will it be possible to assess the amount of users the bio-centers have. In that concern we must also expect that the answers received will only represent a small part of the entire population living there and using the centers. Likewise it is of importance to mention that the respondents are mixed in all possible ways; some have lived their entire lives in Kibera, others just moved there. We deal with different tribes, cultures and religions within the East African area, and finally the respondents represent all kinds of social resources.

As referred to in the *Empirical Presentation*, the statements have been sorted under different themes in respect of what those interviewed have been stressing. The overall statement is that conditions for living in Kibera have improved dramatically with the bio-centers. The answers are linked to both physical as well as social improvements. However, some are more related to one aspect than to the other. In the following, these themes have been accentuated in their context by use of broad typography.

The users' experience

The question *“What is your experience compared to before and today? How can you feel a difference (if any)?* Very often gives this respond,

*“before there was a lot of human waste in the neighborhood due to flying toilets. This contamination of the area led to a lot of **diseases**. Many respondents have personal experiences of relatives or neighbors suffering or dying from cholera. Others suffering from diarrhoea and vomiting as a result of using unclean water and lacking the option to boil the water. In this answer you have a combination of both the physical and social change that has taken place as a cleaner society leads to less illness, and less illness gives you the possibility to work and go to school. So,*

living in a clean environment is crucial to personal as well a societal development. Andeline Mueni at Kidyot Bio-center said; *“The most important thing in Kibera is the toilets. It leads to cleanness”*⁴⁶

One of my questions in the interview guide was *“What does it mean to you when you, your partner or the children are ill?”* Access to clean environments, i.e. reducing the illness has had positive social consequences. Several of those interviewed tell about being financially drained due to sickness both among themselves, the adults, and among their children.

Another aspect of having access to a bio-center is that you are **safer** when going to the toilet. The risk of being robbed and/- or raped has diminished because you no longer have to go to e.g. the river, the forest or another unsafe place. The bio centers are placed where people live and some have lighting during the dark hours.⁴⁷ *“Previously she used to go to the forest for calls of nature but it was insecure and there were rape cases. Now she uses the toilet in the bio-centre and has generally seen improvement in sanitation and illness like diarrhoea has reduced.”*⁴⁸

Not having to think about where to go to the toilet or the risk connected to this, saves the inhabitants some of their worries and anxieties.

At Kibera Lindi Youth, Linet stressed that, *“sanitary conditions have improved and, “according to her” if this continues, it might lead to a healthy community and a developed society”*.⁴⁹

Many respondents also explain about a new **independence**. Before they were dependent on their landlords to allow them access to a pit latrine although these are locked and the landlord has the key. Dependence is converted in-to **ownership**. The people taking care of the centers are inhabitants of the area themselves make a living there. Therefore you have people feeling responsible for making their business prosper and develop; they have a natural interest in keeping the centers clean, functional and attractive for the users. The users benefit.

They explain, *“ Before the latrines were in poor condition, dirty and locked”*⁵⁰. The bio-centers have had a big impact on **pricing** in connection to **water**. Before the bio-centers were constructed, the vendors of water could decide the price according to availability on the market. Now the bio-centers sell water at a fixed price and at the same time store water in big containers. Therefore ir regularity of water does not jeopardize the consumers’ access to water. However, some bio-centers are still short of water, even though they store water. The consequence of lacking water

⁴⁶ Appendix p- 98

⁴⁷ Interview 1 with James Maebo, Tasha Bio-center, Appendix. p. 114

⁴⁸ Interview 7 with Jacinta Kainyu, Nicofeli Bio-center, Appendix p. 106

⁴⁹ Interview 2 with Lindi, Kibera Lindi Youth, Kiliyo Bio- center, Appendix p. 102

⁵⁰ Interview 2 with Edward, Tasha 1 Bio-center, Appendix p. 114

makes it difficult to keep up the minimum of hygiene in the households especially where families with small children are concerned.

“Water supply in the village was very scarce and they used to get it from the vendors who sold/sell water at a very expensive price.”⁵¹

Particularly the **accessibility to water** is mentioned several times as an important change. Previously water was fetched far away and large families had to use a lot of time as they need much water. Some people also went to fetch water at natural springs near the river. However, during the rainy season the springs were contaminated by the river. That also caused severe outbreaks of illness among the Kibera population.

Dignity is stressed a lot in the interviews at Umande Trust and even some of the users also mention this. Dignity is connected to different things: Primarily that you know where to find a real toilet that you may access. Your “self- value”, as Josiah Omotto calls it, is intact when you have possibility to relieve yourself under dignified conditions instead of going to some obscure place.

“I grew up in Kibera in the seventies. Sanitation was just one of the variables. I grew up in Kibera when the toilets were there. In the seventies it was like 10 houses one toilet. Today it is like 16/17 houses one toilet. But even then you could see and imagine..... the toilet existed... but I quickly saw the saturating conditions.”⁵²

Josiah continues,

“I remember the times I used to go to the railway line. We used to wait for the train. The moment the train left, the space appeared. At that time it served very good but particularly now people are living next to the railway line, so you don’t have that prerequisite that we were doing.”⁵³

A deeper analysis on the theme dignity and education is found in the next chapter.

The pit latrines have no regular caretakers. Many mention the physical conditions of the pit latrines as a problem. Both the lack of maintenance resulting in blocked/filled toilets with the ensuing uselessness and the stench caused by this.

Contrary to this, also heard people saying that they were no longer embarrassed to either say they lived in Kibera or to have visitors because the toilets function, *“if you have visitors you are not embarrassed to bring them here.”⁵⁴*

⁵¹ Interview 3 with Dennis, Kibera Lindi Youth, Kiliyo Bio- center Appendix p.103

⁵² Interview with Josiah Omotto, Transcript 2, Appendix p. 84

⁵³ Ibid p. 84

In reply to the question about using **bio-gas**, only a minority of those not using it were direct about the fact that they will not cook on human waste. I received many evasive answers. The fact that a lot of taboo is connected to the bio-gas, only occurred when I was interviewing the people at Umande Trust. A lot of explanations are relevant to take in to consideration in connection with this. In some interview situations the obvious taboo was present. I made the following note interviewing Peter at Kibera Lindi Youth, Kiliyo Bio centre.

“Peter was very limited in his interview it was obvious that he felt uncomfortable that I interviewed him about taboo issues and because of that, it was very difficult to develop further the interview with him.”⁵⁵

Talking to James Maebo at Tasha Bio-center 1. For him using bio-gas in the center is not an option at all. He argues that he has not been using gas as it has not yet been piped to his house or filled on bags. He will not be cooking in the bio-center as cooking is *“a private matter no one shall see what he is cooking!”*⁵⁶ Furthermore there is not enough space.

On the contrary those using the bio-gas for cooking without having any taboo connected to this, told me about it, as if it was the most obvious thing to do.

The bio-centers offer change in more ways than those already mentioned. Apart from the obvious, salaries paid to caretakers and maintenance staff the mere existence of open/common areas, typically on the second floor in the bio centers, centers have also opened opportunities for other groups, mainly social activities. This is a completely new opportunity for people with very small or no abodes, and **social changes** may occur because of the meeting places. The following example mentions this extra use of the bio center:

“Uses the bio dome and lives around. Uses the facility every day, uses toilet, boils water using the bio- gas. Watches matches in the hall”⁵⁷

As a result of the income generating activities in the bio-centers a lot of social activities are now possible. In the open/meeting areas in the bio centers some groups have started a cyber café with tutorial classes for children every weekend, thus empowering the children with new skills. Other arrangements could be tutorial classes on hygiene or health, arranged by the bio center itself, the luxury of- watching a football match, having meetings etc.

⁵⁴ Interview 2 with Charles Ochieng Ororo, Kidyt Bio-center, p.99

⁵⁵ Interview 1 with Peter, Kibera Lindi Youth, Kiliyo Bio centre, Appendix p.103.

⁵⁶ Interview 1 with James Maebo, Tasha Bio-center 1, Appendix p.114

⁵⁷ Interview 2 with Edward, Tasha Bio-center, Appendix p.115.

Analysis part two; The obvious problems

The main focus in this part of the analysis will be to explore which social patterns can be identified, how (if) they are related and how they are/can be changed?

As the first part of the analysis stressed, the bio-domes have had great impact on life in Kibera in manners both practical and social. I dare even say that there are signs, although small, that the bio-centers will contribute to a better future for the inhabitants of the area. However, there are still some difficulties connected to the complete use of the bio-centers.

If the human mind could easily be changed, an optimal use of the bio-centers would be seen overnight. However, humans are complex and we operate in terms of different patterns, adapted over a long period of time.

In this chapter I will endeavor to look at the changes which have taken place as well as those more challenging to change. The themes undergoing the analysis are the ones that appearing in the interviews and observations. Later on they have been categorized in core and sub core concepts. Through this process of categorizing a wealth of categories has appeared. It is impossible, though aggravating, to analyze them all therefore only the most important ones, according to me, is present here. The categories are to be found in the Appendix; meaning condensation p. 76 and 87, observation p. 90 and matrix on core and subcore categories p.92

Throughout the analysis Bourdieu's concepts; Habitus, Capital and Symbolic Violence as well as using Grounded Theory will be employed in the observations.

The following themes will be analyzed.

- Bio-gas
- Behavior in the bio-centers
- Change of practical behavior
- Being the good example
- Umande Trust
- Adaptation
- Gender

- Dignity
- Education
- Dependency on those in power

Looking into one of Bourdieu's most important concepts in connection to this research i.e. Habitus⁵⁸ a lot of the themes are related to this.

Bio-gas is already stressed as a main concern both in reports made by other researchers in the field e.g the report "Biocentres in Nairobi- A combined sanitation and energy solution"⁵⁹ the sanitation group in Umande Trust and the users of the bio-centers. They all talk about objections to using bio-gas. Bio- gas is connected to a taboo as it comes from human waste but it is also connected to tradition within tribe and culture. This tradition or objection to use the bio-gas has been and is currently causing a lot of problems as bio-gas is a cornerstone in the use of a bio-center. But where do these objections come from?

For a clearer understanding, let me employ Bourdieu's concept of Habitus: Habitus is divided into three different levels, 1. an individual level 2. a collective level and 3. a societal level⁶⁰. This offers different aspects in the understanding of the option of using or not using biogas. If, as a child, you have learned that human waste is connected to strong aversion, it will be very difficult to change this attitude as a grown-up.

The reason for this is, that habitus is a so- called "product" of an early socialization. This socialization is very important for the formation of predispositions from which any individual will act.⁶¹ In early childhood a, primarily unconscious, internalization of objective structures takes place. This happens mostly through experience and to a lesser degree through explanation. What you see your parents do or any other primary persons do, is what you learn to be "the right way".

⁵⁸ Prieur, Annick, p. 39

⁵⁹ Hendriksen, Karen Præstegaard et.al

⁶⁰ Wilken, Lianne, p. 44

⁶¹ Ibid. P. 43-44

Human beings get an understanding of what is good and bad, right and wrong, possible and not possible. So, when an answer like “Using bio-gas is not an option!” is presented there are many possibilities to why a respondent has this attitude. The predispositions in habitus are characterized by having been acquired. However, the process of acquiring has been forgotten or repressed and in that sense it is an unconscious force guiding the person’s action.⁶²

As to how change takes place, through his analysis of a changing Algerian Society, Bourdieu has stressed that habitus can be changed. However, that process is characterized by inertia. This possibility to change offers many opportunities in relation to the situation in Kibera. However, another aspect of habitus has caught my attention, namely that Bourdieu argues that habitus can “fall out of step” if there is a discrepancy between the primary and secondary experience in habitus. An example of persons experiencing this could be; refugees, immigrants, unemployed or severely ill persons, all representing incidents resulting in new life conditions.⁶³ This takes place in Kibera every day. People are forced to move to the outskirts of Nairobi in search of a better life. Several interviews state that people come to Kibera from very different places with very different backgrounds. Cultures and habits are very unlike the way life is lived in Kibera and understandably so, concerning how you use a bio-center center which is by no means a facility encountered elsewhere. In the interview with Michael Francis this was mentioned,

F: We have actually tried to provide those bins but not a lot have been achieved. But still you find those who want to put those parts in the toilet. That is a whole, whole, whole....discern

F: We will just keep educating. “So I paid, so I must spoil”

A: So,” I’m the owner of the toilet for two minutes”.

F: yeah. Some are giving toilet paper but you still find like socks, panties, stones (A: All kinds of weird things?) even clothes pullovers, after using.... it’s a pity. It’s difficult- to imagine.⁶⁴

⁶² Ibid. P.44

⁶³ Ibid. P.45

⁶⁴ Transcript 3 Appendix p.72

This lack of understanding of how to use the toilets correctly made me wonder a lot. There is no explanation given from Michael who also wonders, but held together with a conversation I had with my host, the thought occurred that we were dealing with people feeling completely lost in a new environment or to use a Bourdieu phrase; *“a discrepancy between the primary and secondary experience in habitus”*. In the conversation with my female host, Rahab I asked about these “strange” behaviors and she explained that I needed to understand that people come from different regions of East Africa. They bring their culture from their home district. Some of the experience she herself had, was a lack of basic hygiene knowledge e.g. no hand washing after toilet use, relieving oneself anywhere, using the river as a dumping site/bathing site even though taking the same water for cooking. This is making hygiene problematic and in general terms there is a big need for information on hygiene both to children and to adults.⁶⁵ So, if habitus reflects the social stories of an individual, this behavior is no longer weird.

The collective level of habitus is obtained in a social environment, usually in some kind of a community which provides its members with a common understanding. This collective level makes up the framework for the acts of the individual as well as for your behavior and the expectations the community have to you.

⁶⁵ Conversation 15.th of February 2012

Active doing makes the change

Bourdieu is also interested in how things are done⁶⁶. This should be understood as a practical action i.e. it is by active doing that things change. Michael Francis is explains something about this in the following lines from my interview with him.

“A: But do you give courses? Do you like give education courses or how do you do? I couldn’t really read that, so that is also interesting.

F: We have this. We have lessons. We have the hygiene formation. When it comes to hygiene problems, we have started working with the people that normally go to the bio-center. They come to the meetings. We teach people the importance of using soap after toilet. We have installed wash buckets in at least every bio-center.

Then we have lessons. Teach people the importance of washing their hands with soap after using the toilet. Not everything then but when and how to use, to wash your hands. We have two people to those lessons who are doing that, so...

A: And people are willing to learn? Are they interested?

F: People are willing to learn, we have posters in bio- centers showing the importance of hand wash so how to do it.”⁶⁷

However, counteractive to this knowledge about the importance of hand hygiene, it surprised me that the rest rooms in the organization Umande Trust always lacked soap for washing hands and that quite often there was no water for flushing the toilet. Several times I wondered about this. I saw that there was a contradiction between what was known to be a good standard, and what was in fact the reality. I.e. there was a discrepancy between- what the sanitation members were trying to teach the users at the bio-centers, and the missing implementation in the office building of the organization. Referring to Grounded Theory, a main tool is to have focus on the

⁶⁶ Bourdieu, Pierre: Af praktiske grunde p. 21

⁶⁷ Interview with Michael Francis Transcrib 3 Appendix p. 73

experienced level as well as the symbolic level⁶⁸ in order to look for either compliance or discrepancy. Without doubt a clear proof of discrepancy was represented in this situation and a deeper look into what was the underlying reason for this was given a lot of thought. However, a definitive answer did not occur.

I did, however explain some of it to myself with the composition of employees at Umande Trust. Some of the employees at Umande are slum dwellers themselves or have been previously. Using Bourdieu's Habitus again, their habitus may not have changed even though they know the importance of hand hygiene or their habitus is changing but characterized by inertia.

It is quite possible be that the soap "vanishes" into somebody's own home to be used for washing the little ones or the family's clothes. The lack of water is a different matter. It may be that some of the employees take home some water, e.g. a can of 2-3 gallons, every day, especially if they know that they will have to go and fetch water somewhere after work. It is only natural that the rain tanks run dry now and then, particularly in the dry seasons.

A divided organization

Observing while being a part of the daily life at Umande also gave me insight in a strongly divided organization. The main house was made up of different groups all working for Umande. In this house there was a mix of employees coming both from Kibera and other parts of Nairobi. In the annex, the group of people managing "Under the Same Sky" had their office. This was also where I worked. The composition of people working here was quite different, as all of them had a university degree or were just finishing their studies, and none of them lived in the slum. It was obvious both in the way they addressed people and their attitude towards going into the slum (and preventing me from going) that they had another status or at least looked at themselves as being different.

Another example of this was that they hardly ever had the lunch prepared at Umande but instead drove to a restaurant outside the slum. I wondered: Was it because the lunch was prepared on bio-gas or was the reason a complete different one. When I asked my contact he said that he was

⁶⁸ Jacobsen, Michael Hviid p. 84

from Mombasa and did not like the food prepared in Nairobi especially not all the beans and maize prepared at Umande Trust's kitchen. So, not eating the food been cooked on bio-gas contradicts what Michael Francis is saying *"a word from the center is like a call from home"* because if "we" are not a good examples for using the bio-gas, how will we be able to persuade the inhabitants in Kibera to start using biogas? This, to me, was another contradiction between what was said and done.

In the following note of an observation in what was my private home during my stay is presented.

Note: "Observation on general hygiene. The hygiene level in my host family is high compared to what I have seen in Kibera meaning they know you must wash hands before cooking and after visiting the toilet, though washing only after defecating, not after urinating. On the other hand, it is of less importance that a mouse is living in the house, having access to our food in the kitchen.

These observations helped me understand a lot about the level of hygiene as well as a lot about how difficult it is to change behavior e.g. not washing hands after toilet use even though you are a trained person in the field of sanitation. My landlady Rahab grew up in Kibera herself and has been able to move into Nairobi city because she has an education and now she has a well- paid job in an NGO in Kibera.

Another observation made was in what Michael Francis said.

*"We teach people the importance of using soap after toilet. We have installed wash buckets in at least every bio-center."*⁶⁹

I did not see wash buckets in every bio-center and as I mention in my observation, the level of access to keeping good hand hygiene was very dependent on the bio-center member's knowledge of this issue. I made a note while visiting on Multivision Self Help Groups' bio-center.

A very clean place. A woman was cleaning with soap and a brush after every visit. Posters were all over, telling the users how to prevent cholera and the importance of washing hands. A big water tank with soap was placed close to the exit. In this bio-center there was coherence between the information sheets and the actually possibility to wash hands and the fact that cleaning was taking

⁶⁹ Interview with Michael Francis Transcript 3 Appendix p. 74

place. However, this bio-center was quite unique as this was the only place I saw a joint effort on hygiene.

A forced change

Until now I have found out that change is connected to difficulty on different levels. Nevertheless there are some inhabitants who change behavior in spite of their cultural background etc. The example will again be on the attitude towards bio-gas.

Although they argue that “bio-gas it not for cooking” or “I will not use the bio-gas” behavior within some groups of inhabitants prove the quite opposite. In this part of the interview with Michael Francis we talk about it and about what Michael calls “a situation”.

A: The thing that I’m interested in is how we can change our human behaviors. As human beings we all have some patterns. We do this, we do this, we do that. This is the way I do things. So I’m interested in how we can change our behaviors... what can we do to change it?

A: How can I be a part of changing the way you think about it in Kibera?

F: You know, change does not come over night.

A: No it doesn’t (both laughing).

F: Sometimes it requires a situation...a situation for you to change what about if there was no charcoal and paraffin was not accessible ...not there. Where you used to find it is very expensive.

F: Then people would start like.... (A: to change because they had to?). Let me use this, why not cook with this and they would see people cooking and they will get used to it. But before that it really has to be a habit.⁷⁰

In the same interview Michael Francis says,

⁷⁰ Transcript 3 Michael Francis Appendix p. 71

F: So what has been happening is that.. in some places we have different concepts. In Mukuro it was accepted, maybe because there are so many problems people could..... even if you went there now, there are people cooking, no problem ...people shitting there. The bio-gas is there, the boiler is cooking here (showing with his hands the little distance between the two)...no problem.

F: Here in Kibera you know.... if you, you, you have bio-gas, thank you so much, you can use it to boil water...look around that is a problem (i.e.not having access to clean water).⁷¹

So, sometimes a financial situation or the problems that represent a person's life situation forces you to behave differently from how that person or group of persons want you to.

A look at Bourdieu's concept of Capital⁷² is relevant in this situation. Capital is a way to rank people within the Field. One type of capital can be converted into another; although having capital in one area does not mean that you have it in another e.g. you can have a lot of capital as an "air time" seller (speaking time on your mobile phone) but none as a bio-gas user. I would like to know what is going on between people and how different types of capital affect the process of change. In the Field every agent is fighting for Capital. A synonym to social capital could be respect or credit from other people in the community. So, could this social Capital⁷³ be an agent in changing people's attitude towards bio-gas? If some people with high social capital are using the bio-gas why not follow? Saving money on paraffin and charcoal could also be a way to save money and like this, you have material capital which can be used on e.g. education- yet again another type of capital is thereby obtained namely cultural Capital.

Anyway it is important to understand that the person has to balance the positive and negative consequences connected to converting to becoming a bio-gas user. The fight in the field must be worth fighting.⁷⁴ If I don't want to use the bio-gas what will I gain and vice versa what will I lose by using it? You might relinquish the social Capital you have as a part of your cultural heritage,

⁷¹ Ibid. p. 69

⁷² Wilken, Lisanne, P. 47

⁷³ Ibid p. 49

⁷⁴ Ibid. P.46

tradition, religion and honor. What will this person get in exchange for this breach of tradition and culture and what is really behind the objection to change?

Michael Francis on the theme of cultural tradition,

“Some cultures are so weird. Like where I come from we have.... after urinating after using the toilet you want to add something. That something is ash. In that place you believe that if you don't put ash on your feces like you get a problem with your honor. I don't know. It's a taboo to do that if you come up with that kind of a toilet in my area and you want to put ash they will laugh at you and you would look ridiculous.”⁷⁵

So, a lot of different things, even gender, play a part. Many of the things going on happen unbeknown to you as you are controlled by what Bourdieu recognizes to be Symbolic Violence⁷⁶.

The gender issue

The bio-domes have also had big impact on the girls and women. This was one of my main concerns when leaving Pumwani in 2005 and the thought has been following me since then. The pattern for the females is that they are responsible for a lot of the work connected to the household e.g. fetching water. This process of getting enough water could so to speak steal a lot of hours when they had to walk a long distance. The proximity of the bio-centers has changed the situation. This statement underlines that.

“Before the bio-center she used to go to the pit latrines which were few and in poor condition. She used to cook using paraffin and charcoal and bought water from vendors who were located far away from her house. Now she uses the bio facility together with her children. She gets water from the bio-centre.”⁷⁷

⁷⁵ Transcript 3 with Michael Francis, Appendix p. 71

⁷⁶ Bourdieu, Pierre & Wacquant, L. J.D: Refleksiv sociologi. p.126

⁷⁷ Interview 6 with Jennifer Akinyi, Nicofeli Bio-center, Appendix p. 111

Spending a lot of time getting water or finding the cheapest place to buy fuel also result in less time left for school and education purposes; however, the female inhabitants of Kibera are very important agents in the change of society and obtaining better life conditions in general. An extensive effort in education for girls could be a catalyst for change. The interview with Josiah has strong remarks on this.

“But I certainly think sanitation is very important to improve the health, to attendance at schools among girls.

A: Among girls especially?

J: Especially among girls and also for dignity. You know it’s very, very bad.”⁷⁸

Later, on the same theme, he continues,

“So I really like focus on schools. Getting teachers to have...You need teachers to have...to also have dignity. The women teacher don’t have dignity. They transfer their dignity to the children”⁷⁹.

Josiah is stressing two very important themes; education and dignity. Later on these two will be elaborated.

During my stay in Kibera I visited a local girl, Catherine, of 13 years who was a girl going to one of the schools in the program “Under the Same Sky” I accompanied her two days and she showed me where she fetched water. Catherine is experiencing quite the opposite of what many other girls experience. To be specific on this matter her toilet is very close to the house and the water is also relatively close as is school. As the situation is now, she has time to go to school but her situation is about to be even better, as her school is one of the “Under the Same Sky” schools. In future she will have all the sanitation facilities in the same building, the bio-dome is at her school and her home is very close by. In this respect Catherine is one of the girls who will really benefit from the construction of bio-domes and even though she already has an easier life than many

⁷⁸ Transcript 2 with Josiah Omotto, Appendix p. 84

⁷⁹ Ibid. p. 84

others, her future is looking very bright-that is if we consider access to sanitation and the relation to education.

But what about the general picture of why the females are the ones most inclined to do what it takes to change? I believe there are different aspects to this. First of all there is a strong power to secure the survival of offspring, doing what it takes to make this happen. Furthermore there is the traditional pattern of women doing a lot of the work in the house hold, no matter which culture you belong to in Kibera. And thirdly I believe that there is something else going on i.e. what is in Bourdieu's concept, Capital.

In the interview with Josiah we had a discussion on prices in relation to cooking using bio-gas. Josiah said that many of the men are unwilling to use it. He explains this which is in relation to my first and second statement.

"J: Some men would say 10 bob for bio-gas when it is human waste!

A: So they would prefer to buy coal?

J: Especially men would indicate that.. men are very reluctant.

A: So men especially are very reluctant?

J: Yeah, men are reluctant. Women will use it because they are living in their homes".⁸⁰

Women are focused on getting food for the children. They are the ones in the homes who take care of cooking the family's food and why not do that the cheapest way. Some women have also organized their production in a way that they cook for many days preparing a big portion and afterwards they only use a little bit of money to heat it up in their houses. *"We are seeing a pattern where people operating in all terms within the Kibera, they come and use the bio-gas to cook the long (food that need a long cooking time) peas, maize and beans. So they use that, then quickly take a corner and heat it up- so they are hotel using."*

A: So they prepare for many days and just heat a small portion each day?

⁸⁰ Ibid. p. 80

J: Yes, yes, yes”⁸¹

In doing so, the women adjust to the situation to make sure the family is fed in the best way, economically. In the interviews not a single woman said that she did not want to cook using bio-gas. The men have different attitudes which include objections to biogas made from human waste. However an interview with a man, Oliver, 32 old years at Nicofeli Biocentre confirmed my impression of “securing the survival of offspring”. Oliver was a single parent who had had a rough time being alone with the child who was often ill. For him, bio-gas has been the most important facility in the bio-centers.

*“This is the facility that is most important because it has helped him to save a lot. Previously he used to eat at a hotel together with his son. This was expensive for him because a meal costing 100 Kshs. was not enough for both of them. Now he buys food for example flour and vegetables and cooks in the bio-center at a price of 20 Kshs. This is enough for both of them.”*⁸²

This atypical example of a father who is a lone parent demonstrates that when you are the primary person who takes care of the offspring, bio-gas is useful for achieving this goal. However, tradition and culture force most women to be the ones to continue with this function. Though they were born into these patterns they are still the ones who are able to change their Habitus. One might ask “what is going on?”

For the girls there is so much to achieve by changing pattern. You can get what Bourdieu calls capital. One kind of capital can be exchanged for another and as the girls get education they obtain cultural capital. Having a lot of different kinds capital makes you attractive in different fields and in that way you may have a better possibility to succeed in life. The bottom line is that, you gain from adapting to the situation. It might not be that living conditions get better over a short period of time but your conditions will improve with time.

⁸¹ Ibid. p. 82

⁸² Interview 4 with Oliver, Nicofeli Biocenter, Appendix p.110

My female host was a very good example of this. She had gone to school, was just finishing a course as social worker and had moved out of the slum.

Talking to Josiah about women being held in cultural patterns he was aware that this issue had to be addressed. That includes the issue of men not being willing to adapt e.g. by using the bio-gas and that they need to take more ownership taking part in making the community function. He emphasized the word *citizenship* when we talked.

“A: The most difficult ones to change are the men, you said that?”

J: It’s the men.

J: The men need much more demonstration to call the men.. each of them. I guess that is one thing that we meet at. We need to get men...as the bio-gas plan is being promoted we need to go and make more visits (What he is saying is that it takes more individual contact to persuade the men to come and use the bio-gas).

*We need more citizenship. We men need to go and cook... I think if they cook for the women the women might.. (he is laughing) it will be reverse. The boy should come and cook.”*⁸³

To fully understand the patterns connected to gender and behavior, it will be relevant to review Bourdieu’s description of masculine dominance.⁸⁴ It is a hierarchical classification that puts masculinity above feminism. The concept is, as are all of Bourdieu’s concepts, related to Habitus and you are trained to either behave in a masculine or in a feminine way. It is required in early childhood as in ways of walking, talking, behaving, looking or not looking at the person with whom you talk, sitting down and so forth. The way to behave is taught through everyday life as pedagogical reprimands. The masculine dominance is as normal as are all other opposites. No deeply rooted patterns are changed overnight. Awareness of what contributes to these patterns may help those involved, at all levels, to gain the abilities to change the traditional patterns of how

⁸³ Transcript 2 with Josiah Omotto, Appendix p. 82

⁸⁴ Prieur, Annick p. 56-57

things are done. Guarding the dignity of the people involved in any change is important, as underlined in my interview with Francis. And it is valid, at this point, to underline that awareness capacity may be widened if the proper education takes place.

Education and dignity

“Those who talk about equal possibilities forget that social games(...) are not righteous games”⁸⁵

*J: For me the tragedy in terms of education.. Olympic primary school was put up around 1989 and there have been no other schools since then so what is happening, the population is increasing but the schools... there is free education but there is no investment in terms of education and infrastructure so you can improve sanitation and but unless there are other... what do you call it improvements in other sectors then you also just get suffocation but you... definitely sanitation is one step towards the discovery.*⁸⁶

It is wishful thinking but it would make a great difference if improvement could take place in many areas at one time. Education is important and so is dignity. Your dignity or your “self- value” as Josiah Omotto calls it, is as a result of many different things taken. If you don’t have “self- value” you don’t have anything. Your ability to act is reduced.

The following interview part gives examples on different reasons to why dignity is taken as an important factor for measuring the value of the project of bio-centers and in case of loss, what can be done to regain dignity.

“So I guess in terms of what you could call self-esteem if you go to the toilet in your house.. you don’t have a place..... I guess what is happening...if the esteem is affected you lose your own self

⁸⁵ Wilken, Lianne p. 79

⁸⁶ Transcript 2 with Josiah Omotto, Appendix p. 84

*value and I think that has a very... even in terms of education.. even when somebody goes for interviews....”*⁸⁷

Dignity is strongly generative not to be understood as a physical action taking place but as a part of growing up under certain social condition. When addressing a theme like dignity as important, almost all of Bourdieu's concepts are relevant. Josiah is saying it clearly in his interview, that what you learn in early childhood becomes the standard for most of the children. And having adults around you with a low self-esteem affects the children negatively.

*“ So I really like focus on schools. Getting teacher to have...You need teachers to have...to also have dignity. The women teacher don't have dignity. They transfer their dignity to the children”*⁸⁸.

Continued.

“But if the teacher is drunk they are cruel teachers... their approach. In terms of giving teachers dignity, value, visibility then there is a lack of transfer. When I was growing up some teachers were good but now 30 years later I meet them here so drunk by 10 o'clock by 4 o'clock.

*So that fiscal need you see becomes chronic poverty.. they become idle to chronic poverty”*⁸⁹

Michael Francis is talking about dignity in connection to access to toilets. Here he is both talking as a parent having a “self-value” but also talking about the consequences of lacking the possibility to behave in a dignified manner in front of your children. When your children experience a parent feeling this uncomfortable due to lack of a proper toilet, this feeling is given unconsciously to the children as a primary socialization. The understanding of what is good and bad is present in this situation and the negative connotation will be burned into the mind of the children - we talk of a strongly generative behavior and we talk of delimitations in the possibilities to change the situation.

⁸⁷ Ibid. p. 84

⁸⁸ Ibid. p. 84

⁸⁹ Ibid. p.84

"F: Dignity, your dignity: If you live in such a small house with children some are even grownups, you are to help yourself, you have to do it in the family house. Suppose you are to do that during the day.....ah psychologically it, it, it is a torture kind of...

F: If you can find a place that is clean, accessibly cheap it, it, it adds very much (A: of course) to the dignity of the people -it will be very good.

F: But how will you have to do it, in front of your children, supposing.... I can't do it in the house, I can't do that...It is a situation.

F: But wait until you are in that situation then you will appreciate- this service is important. People wish to have a toilet in their house. But wait until you have a stomach ache look around you can't treat it.

F: For people it happens every day. You are in a house that is your house and it's at night and you have a problem; where do you go, what do you do? How do you do? (A: you don't have an option)

F: You don't have an option. Sometimes it's raining outside and even if it was not raining, you believe you have to go to a toilet. You can't imagine the kind of a toilet you are going in to. Most of them are those pit latrines (A: yes I know them) they are messed to the mount. You are imagining; I want to go to a toilet, where do I stay? (A: the dignity) How about when I come out of it? How will I look like? Should I come up to my house or what? You are looking at both scenarios."⁹⁰

This long part of the interview addresses many of the problems which people are experiencing every day the desperation and frustration the lack of access to a toilet is putting on the inhabitants.

The situation of having to relieve yourself in your family house is "psychologically a torture". These are strong words and explain to the maximum what a feeling is present for many people in an ordinary everyday situation in Kibera. What does living like this do to human beings or what are the consequences?

⁹⁰ Transcript 1 Michael Francis Appendix p. 68

This fixed situation the person experiences is an unsolvable problem as you are dependent on other people go give you access to a toilet. Somebody else is in charge of the situation you are incapable of changing the situation- symbolic violence is taking place. The people in charge e.g. the landlords with the key, the local administration not providing the area with basic services or the Kenyan Government is placing the inhabitants of Kibera in this situation. It is an invisibly power and it has many negative consequences. Though humans are free to believe and think what they want the standard made by those in power becomes the mirror everything else is reflected in. So, being poor, female expelled from education etc. becomes the way you also perceive yourself and a negative spiral is thereby produced. This mechanism is in favor of the domineering and has as a very negative consequence that those being dominated devalue themselves.

Summary

Throughout this analysis strong signs have illustrated that positive change has taken place after the implementation of bio-centers in Kibera. However, there are still some problems connected to a maximum use of these centers but at the same time signs that people are willing to change their behavior, especially the female inhabitants are interested in this context. Furthermore another interesting aspect is the role of the so-called professionals working to implement a complete use of the bio-centers.

Conclusion

This work has given insight in a certain part of the world that has been formed by societal, cultural, religious and historical flows. Though the analysis to some degree highlights that a movement is taking place it simultaneously shows that change is submitted to inertia⁹¹, the concept that Bourdieu refers to when we talk of wanting human beings to change- furthermore change is affected by external factors.

The theoretical as well as the empirical basis of my thesis is this problem formulation,

How can we increase the access to good sanitation for the slum dwellers in Kibera, Kenya, at the same time increasing their understanding of the importance of the easy access to sanitation facilities seen in a future perspective? How, in this context, can the bio-centres play a role?

Through this work I hope to have contributed with some of the answers to the problems in the bio-centers in Kibera. It is my wish that they will be of support to those working with the sanitation problematic in slums on a daily basis as well for those about to put new energy and effort into this field.

Some of the obstacles on the way to succeed with the bio-centers' mission are well known to the people involved, some are not changeable due to governmental decisions and others may have occurred via this paper.

Kenya is known as a melting pot. That is not a force in connection to making the best use of the bio-centers. There are many cultures living together, each of them with their way of doing things. That which is of value in one culture may be worthless in another and vice versa. If things are to change, even in the work with sanitation and bio-centers, a population with more uniform types of habitus could be an answer. That would require change from many sides, however, as mentioned several times- change does not come overnight.

⁹¹ Wilken, Lisanne p.45

A more united population could be an answer but as mentioned several times- change does not come overnight.

There is a strong need to rethink aspects like habits and patterns in connection to culture and religion. In order both for the nation and the bio-centers to succeed, everybody needs to contribute from the highest leader to the lowest user. If change is to come, all the people involved must show genuine interest in the ongoing projects and make the less liked, like the bio-gas, attractive by taking the leader position and showing the way. At the moment two forces are dueling on the one hand acceptance of bio-gas and on the other the disgust with biogas.

Over time and with some modifications, change can take place even where the use of biogas is concerned. There are small signs that the women are able and willing to change their patterns and that the explanations for unwillingness towards bio-gas, using culture as an excuse is not in the long run, a sufficient response.

There is no doubt that the bio-centers are becoming important players in the field of societal development of the slum areas in Nairobi. Positive change has already been seen in several areas both in social, psychological and physical area. All the interviewed inhabitants and sanitation workers, with no exception, had positive stories to tell. However, a large group of people's voice is not heard namely those who cannot use the bio-centers for financial or distance connected reasons. Talking to them would probably bring out completely different pictures.

Education is needed, and in order to educate the inhabitants of the slum areas, common meeting places are needed. Even that aspect of the bio-centers, the meeting places, have a role to play, and are already the basis for education of many kinds.

Perspectives

In this thesis I have focused on the users of the bio-centers hearing their opinions about life conditions before and after the access to bio-centers in Kibera and problems connected to this. However, another aspect could have been interested to investigate, the experience of those who are not using the bio-centers. It is of great importance to also know about this, why are they not using the bio-centers? There is a issue on pricing as stated several times through the interviews with both Michael Francis, Josiah Omotto and some of the users. This is taken care of through developing a weekly or monthly pay, giving free access to those completely unable to pay and also for children under 8 years and then there still is the distance to take into consideration, not all of the inhabitants have a bio-center nearby.

But there is still an unbeknown group not using the bio-center. Through other researchers in Kibera I heard that there were some problems connected to corruption, I weakly asked about that interviewing Josiah Omotto but other answers were given. As this was not a main concern of mine I did not ask further. However, it would be very interesting to see if the position of prior landlords controlling people's access to toilet facilitation is taken over by another group who is making the inhabitants dependent on them. In this concern it would also be interesting to use Bourdieus concepts looking on social violence as well as his other social concepts on how and why people behave the way they do.

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Appendix

Observation and interview guides

Observation guide

Kibera, Nairobi January/February 2012

- Where will I be observing? In Kibera slum.
- How will I get access to observing? Through following the employees at Umande Trust in their daily work with the different community groups and individual persons.

-Through following my host, who also is a social worker in Kibera.

- Who/what will I be observing? Especially the women as they still are the key to change habits concerning sanitation issues, as they are the ones with responsibility for the household, the child upbringing etc.

-I will be visiting the bio-facilities, the bio-domes, water kiosks and toilet facilities.

- What will I be observing? I will be looking at what are the hygienically standards? (Trying to be based in the reality of Kibera).

-How do people behave?

-What are the hygiene standards of the facilitations?

Interview guide 1

Questions for the daily users of bio- domes/bio-facilities.

1. Family portray, who is a member of your family, what do they do go to school/job out of work?

2. For how long have you been living in Kibera?
3. For what purpose do you use the bio-dome/bio facilities?
4. What did you do before the bio-domes were build? Where did you cook, went to the toilet, showered, fetched water?
5. What is your experience compared to before and today? How can you feel a difference (if any)?
6. Can you tell me about being ill, yourselves/husband/ children? What kind of illness do you and your family suffer from?
7. What does it mean to you when you, your husband the children are ill?
8. The bio-domes are meant to give better hygiene to the people using them, what is your experience in that connection?
9. Fetching water. How long do you have to go get water? Does the (long) way for fetching water make you bring less water than you feel your family needs for keeping up a minimum of hygienically standards (what is your standard?)
10. What do you think about the fees for using the bio-facilities? Too expensive, ok, too cheap?
11. Do you use the bio-gas ?

Yes

No- why not ?

12. What could make you change your mind?
13. Is there anything in connection to the bio-domes that you wish to improve or change/connected to hygiene?

Interview guide 2

Questions for employees at Umande Trust/Josiah Omotto

Tell me about the idea behind the building of bio domes

You have knowledge about 44 bio centers, which ideas were behind building bio centers/domes in the first places? Please separate your answers into categories social, environmental and financial answers.

Bio-domes

1. Having in mind the ideas for building the bio domes, how are the bio-domes fulfilling these expectations today?
2. Seen from a social perspective which potentials do the bio-domes have? How are these potentials used today? Which barriers hinder using these potentials?

Bio-gas

3. How come only few people use the produced bio-gas from the bio- domes?
4. Why is there a taboo connected to using bio gas from human waste?
5. Why are there taboos connected to human feces, is there a cultural explanation that is important for me to understand before I ask questions to the users, I have understood that there can be some cultural/tribe issues.
6. Is this taboo to large an obstacle to change the behavior of the users?
7. There are some families using the bio gas, how are they different from those not using the bio gas
 - can high status families be a catalyst for changing this taboo?
8. Did anybody predict the problems concerning bio gas when they were build?

Long and short term benefits

9. My interest in the bio- domes is to investigate if there are any social benefits for the users on short and long term. By short time, I imagine it may be more comfortable using a real, physical toilet instead of a flying one, seen both from a hygienic angle as well as from a personal angle- am I wrong?
10. On long term I think about the possibilities a better hygiene gives in connection to less illness in general among children and adults, less infant mortality. In my perspective these obstacles give different problems both practical as well as psychological problems. I imagine less opportunity to have a job, to apply for a job, in general to have a flow in your everyday life without illness and death as “disturbers”.
11. It is my perception that there is a taboo connected to maintaining the bio centers at the same time it is popular to have a bio -center how do you see these two issues connected in the future, how do Umande Trust address the problem?
12. The toilets are used incorrectly, how do you deal with lack of information about use?
13. Is it every individual group that has to teach their users, or is it Umande?

Interview guide 3

Questions for employees at Umande Trust/Michael Francis

Which distinctions are made? We have bio- domes, bio facilities and sanitation facilities.

1. Having in mind the ideas for building the bio domes, how are the bio-domes fulfilling these expectations today?
2. Seen from a social perspective which potentials do the bio-domes have? How are these potentials used today? Which barriers hinder using these potentials?
3. How come only few people use the produced bio-gas from the bio- domes?
4. Why is there a taboo connected to using bio gas from human waste?
5. Why are there taboos connected to human feces, is there a cultural explanation that is important for me to understand before I ask questions to the users?
6. Is this taboo to large an obstacle to change the behavior of the users?
7. How can high status families be a catalyst for changing this taboo?
8. You have knowledge about 44 bio centers, which ideas were behind building bio centers/domes in the first places? Please separate your answers into categories social, environmental and financial answers.
9. My interest in the bio- domes is to investigate if there are any social benefits for the users on short and long term. By short time, I imagine it may be more comfortable using a real, physical toilet instead of a flying one, seen both from a hygienic angel as well as from a personal angle- am I wrong?
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have a job, to apply for a job, in general to have a flow in your everyday life without illness and death as “disturbers”.

11. It is my perception that there is a taboo connected to maintaining the bio centers at the same time it is popular to have a bio -center how do you see these two issues connected in the future, how do Umande Trust address the problem?

12. The toilets are used incorrectly, how do you deal with lack of information about use?

13. Is it every individual group that has to teach their users, or is it Umande?

14. Corruption is there any corruption taking place

-How comprehensive a problem is this?

-How does this influence on the bio-facilities in general terms?

Transcription of Interviews

Transcript 1 and 3

General comments on the interview with Michael Francis.

He emphasizes words that are important by changing voice and speed after stressing a word he makes a long break ... the last word said is thereby present for a long time. In the transcript these words are marked with an underline_____

Transcript 1

Interview with Michael Francis

A: Okay it is recording

A: I am wondering if you make some distinctions between the different bio-facilities, I know you have the water stations, the bio-domes and you also have some toilets. Do you make any kind of distinctions or do you just call them bio- facilities or sanitation facilities or what is the general term?

F: We call them centers (A: centers) we normally call them bio.

F: We like saying "bio" bio-center. In that respect we are putting many things together. So it becomes a center with other activities. Other than the toilet, the showerthen it attracts many, many other activities.

F: Talk of water tap, talk of shower, talk of meeting point, school, a church all that we like saying center.

A: I don't know a lot about the idea behind building the bio-centers. But I can understand now that it has many purposes. So today how do you feel? Do these centers fulfill the idea behind the original idea, is it working?

F: I would like to say yes it is working. Previously if you look at our center no. 1 it's called Katikera, Tosha bio-center.

A: How old is it?

F: 2006/07 that's the inception period, how many years 5-6? The site itself was a dumping like people used to pass there. It's more or less like ...the place that was like ..there was no respect. That place was like... there were no houses. There were some toilets which were built by the owners of the structures around. So people used to come and relieve themselves there. So it got filled. All the toilets got filled up, the digging was not for the poor people.

F: People preferred to come and just drop (A: the flying toilets and garbage) in the morning especially a lot of trafficking in the morning...passing by that was an easy point.

F: And we realized that instead of these people doing what they do.. could we do something better? Instead of throwing garbage could they be using a toilet?

F: By building the toilets we also looked at the budget of the people. Could they really afford to pay (A: that's an issue) for the toilets or would it be a big budget, instead of just having a toilet we will put other things so that things become rigidly and then we subsidized on the amount they paid instead of 10/ 5 we made it 2 shillings that is affordably (A stressing: that is affordably for everybody almost) when we did that, the facility was met to serve people. Today it costs double.

F: 1200 (users) sometimes it collapses due to the huge number of users. Then we said what can we do to reduce the mass?

F: And then we have built others around to ease the tension that was mounting this one. So we have other toilets close but we really find that even those ones are still overwhelmed they are not easing the tension.

A: So that is actually because there are a lot of users, they use the facilities?

F: The users are many, the users are many, so we see quite a change. The flying toilets are kind of reducing.

A: It is? In 2005 I went to Pumwani and I did not see any facilities at all there. I just saw some blocked toilets and I saw a lot of flying toilets and I can see that this is a bad thing for the hygienic standards for the people, the illness and so on.

A: I think that it is very interesting that in Kibera you have a different attitude to this now –so you don't really use flying toilets as much, that is a very positive development.

A: The next question I have been written is; seen from a social perspective which potentials do the bio-domes have? How are these potentials used today?

F: Say that again.

A: Seen from a social perspective which potentials do the bio-domes have? You tell me that people gather it could be that you also combine meeting centers, schools but I also think about having access to toilet, having access to clean water, having access to cook, can that improve your life conditions on a long term ? That is what I mean by social perspective.

F: Actually it reduces on the feces.

A: It does?

F: It does. You know when, when, when, when like children they, they go... grownups will use the back but the children for them they will just go out and do it there.

F: So what happens when it rains? Kibera is like, the area is like a groove (with his hands he shows the hilly formation and the ravine of Kibera).

F: When it rains all the worst from the other part -it just floats. Where is it floating to? –the river and as it comes, it comes in all types of diseases so if you can reduce that, actually it is a big impact- for the community.

A: The reason that I am asking this or that or that I am talking about Pumwani again is that I met some girls there. They told me that sometimes they had to get up very early in the morning, to stand in line to get water for their family. That meant that they were late for the school bus, late for school, so it actually took a long time getting a little education. I was wondering if you have easy access to water for instance, maybe it will give you a future opportunity to change, to maybe

come to school/go to school get an education and get a job, do you follow? That is my main concern.

A: Does these centers do they develop society on a long term?

F: Well of course they do. When, when, when communities for example...what they do with their collection every one.

F: One center is collecting like a 60.000 Khsh, in the end of the year they are to share the diffident (he must mean surplus). Whit the money they share, there is money kept in a kitty called Shandi (A: I read about it F: you read about that) That money will be able to be lent out,(.... unintelligible mumbling....) they can use their profit to do more centers, if they work. It is actually if you look at it it's long term- it's long term.

Every end of the year you look at the dividend-what they get what each bio-center earned- it is actually long term.

A: But also on a short term I imagine, this is just what I imagine. If you have the possibility to go and use a real toilet instead of a flying one what would also make your living standard her and now better.

F: Dignity, your dignity: If you live in such a small house with children some are even grownups, you are to help yourself, you have to do it in the family house. Suppose you are to do that during the day.....ah psychologically it, it, it is a torture kind of...

F: If you can find a place that is clean, accessibly cheap it, it, it adds very much (A: of course) to the dignity of the people -it will be very good.

F: But how will you have to do it, in front of your children, supposing.... I can't do it in the house, I can't do that...It is a situation.

F: But wait until you are in that situation then you will appreciate- this service is important. People wish to have a toilet in their house. But wait until you have a stomach ache (A LOT OF BACKGROUND NOISE) look around you can't treat it.

F: For people it happens every day. You are in a house that is your house and it's at night and you have a problem; where do you go, what do you do? How do you do? (A: you don't have an option)

F: you don't have an option. Sometimes it's raining outside and even if it was not raining, you believe you have to go to a toilet. You can't imagine the kind of a toilet you are going in to. Most of them are those pit latrines (A: yes I know them) they are messed to the mount. You are imagining; I want to go to a toilet, where do I stay? (A: the dignity) How about when I come out of it? How will I look like? Should I come up to my house or what? You are looking at both scenarios.

A: There are many issues connected to this. Okay.

A: Then I ask you a bit about the bio-gas, from... in the bio-domes okay?

A: When I first heard about this construction I found it to be a very good idea. I thought, okay you have the possibility to use the rest of human waste for actually cooking but I could also read there were some problems connected to that. That people was not comfortable using the bio- gas, that only a few people was comfortably.

F: It is in the human mind right.. that this bio- gas is coming from the shit the same one I'm using to cook and the same place as the toilet, it doesn't adopt.

F: The woman is relative to heaving... this is feces and this is world class and this is food but change does not.... Seem to work somehow.

So what has been happening is that.. in some places we have different concepts. In Mukuro it was accepted maybe because there are so many problems people could..... even if you went there now there are people cooking no problem ...people shitting there. The bio-gas is there the boiler is cooking here (showing with his hands the little distance between the two)...no problem.

F: Here in Kibera you know.... if you you you have bio-gas thank you so much you can use it to boil water...look around that is a problem(not having access to clean water).

A: The thing that is inside our head is what I think is interesting.

F: Today we have like... are trying to change that... we are just thinking what is in our head.

We use gas from the bio-domes to cooke. Even our last two days meals were prepared from bio-gas (comment at Umande the kitchen also used bio gas for cooking a big bio-gas bag was connected to the kitchen stove).

A: I'm used to that in my country.

F: You are used to that....and people here are using that bag to collect gas and it cooks.... even our last two days was out of bio- gas.

F: If you want to get acquainted our selves you..... can't tell somebody else to use it if we are not using it people see that I'm using it they will start using it.

A: So you cant't change her way of feeling if you are not doing it yourself yes if you are not eating it yourself... so the woman people see is using it they will start using it.

M: Yes In Makak we use it and people are using it..... and people listen...

F: But if it is a word from the center it is like a call from home

A: So you could actually change the peoples mind by moving the gas in a pipe line (F: away from the toilet) to a kitchen?

A: Is there any possibility that we can change the way people are thinking about it on top of the toilet on the second floor?

F: On the first floor we have people accepting it.

A: Okay.

F: But not quit, but if you put it away..you try to disconnect the two so you have the gas in the other end it ads up it adds up we are trying that also.

A: So you are doing that, is it a future goal?

F: It is a future goal, it is a future goal you know you need to start from somewhere ...you need to start from somewhere.

A: The thing that I'm interested in is how we can change our human behaviors. As human beings we all have some patterns we do this, we do this we do that. This is the way I do things. So I'm interested in how we can change our behaviors... what can we do to change it?

A: How can I be a part of changing the way you think about it in Kibera?

F: You know change does not come over night.

A: No it doesn't (both laughing).

F: Sometimes it requires a situation...a situation for you to change what about if there was **no** charcoal and paraffin was **not** accessibly ...**not** there. Where you used to find it is very expensive.

F: Then people would start like.... (A: to change because they had to?). Let me use this, why not cook with this and they would see people cooking and they will get used to it. But before that it really has to be a habit.

A: This is not to be impolite but seen from my perspective if you have less than a dollar a day to live then I wouldn't spent a penny on buying coal or paraffin or any kind of fuel. I would go and cook do you follow? So I still think the money they have they could save. But that is hard to explain or hard to convince them or that is just not an option? It is better to spend the little money you have on buying fuel than cooking on the bio-gas?

F: I will tell you that they will say;"I will rather use the money I have so long as there is a place somebody can touch" that person will touch that.

F: **But** if there is no absolutely there is culture there is dignity. Some cultures are so weird. Like where I come from we have.... after urinating after using the toilet you want to add something that something is ash. In that place you believe that if you don't put ash on your feces like you get a problem with your honor. I don't know. It's a taboo to do that if you come up with that kind of a toilet in my area and you want to put ash they will laugh at you and you would look ridiculous.

A: You actually just answered one of my next questions. I ask if there is something I should know about culture.. taboo in connection to feces before I go and ask people in Kibera. You told me in your area there is a taboo connected to ashes and there can be a lot of other taboos connected to

feces. That is an interesting aspect, because in my view it's just like okay this can produce gas, we use all kind of materials to produce gas in my country and we don't think about it we can smell that this doesn't smell good but with our logical sense we know that this doesn't really matter because this is producing gas in an biological way so that we won't burn fuel burn coal. That is okay.

A: I could also read that it is popular to be a part of a group maintaining a bio-centre having a bio-centre. You have different groups connected to right.

F: That is the criteria we use because... you don't have it constructed and then give it away right... it requires maintaining it requires ownership it requires... it's a living it gives you money. It should be **put** into the hands of people. You need an organized group that has a chairman, a secretary, financier etc. those people are the ones who are supposed to run the bio-centers when it stands...that's the reason why we must fast the bullet into a group and land issuing in Kenya is quite complex if you want to make a settlement all the land belongs to the government you must work with the local government (the phone is ringing and Michael is making a lunch appointment).

Transcript 3

Continued interview with Michael Francis.

A: But I also understand that it can also be connected to a taboo to maintain if it is blocked if there is any problem. So how does this connect?

F: They're maintained. We have people who are actually those ones who have just opened up the containers. Their work is fiscally that. They earn their living from that. (I had just been seeing a digester being emptied because of a wrong construction and a new construction was about to begin. Furthermore I had witnessed the daily running of several bio-centers).

A: So that is two different positions?

F: That is two different positions.

A: Okay.

F: It's like you want to clean your toilet you have people who can do that

A: They are kind of employees

F: They are just employees. You call them, they come and clean

F: If it is blocked they come. It's their specialty. They are good at it.

A: So what I saw when I was in Pumwani was a lot blocked toilets, not functioning. So that was actually because there was not some group that would have an employee.

F: Nobody was ready to. The system of Pumwani...Pumwani is government office. When they need.. if- like is blocked...You actually need that money. Nobody will come and do it for free, so unless you are giving out money... so getting money for such kind of work in the government is hard. What I'm saying, the government doesn't care.

A: I'm still interested in the bio-gas. I return to that, because.. My idea is to change the way we think. So if there are some families who use the bio-gas as it is now, on top of the toilet. Could there be some kind of a high status family that could teach the other families that this is okay or will there not be that kind of families? ? Who will kind of be a resource for the rest?

F: As I said before, the change must be in the mind. Right? It has to start somewhere so that people will start to adopt, others will follow... ... if so and so are doing it, one year, two years...

I- why not myself- have used. Then you get another one or two three or or a line of familie just following up...

A: There were no problems in getting used to using the toilets. Instead of just dumping it, then you changed a behavior there right? So maybe it is possibly to change another behavior.

F: It is it is possibly.

A: But do you give courses? Do you like; give education courses or how do you do? I couldn't read really that, so that is also interesting.

F: We have this. We have lessons. We have the hygiene formation. When it comes to hygiene problems, we have started working with the people that normally go to the bio-center. They come

to the meetings. We teach people the importance of using soap after toilet. We have installed wash buckets in at least every bio-center.

Then we have lessons. Teach people the importance of washing their hands with soap after using the toilet. Not everything then but when and how to use, to wash your hands. We have two people to those lessons who are doing that, so...

A: And people are willing to learn? Are they interested?

F: People are willing to learn, we have posters in bio- centers showing the importance of hand wash so how to do it.

A: But that is the way to learn everywhere in the world not only in Kibera. If you go to the swimming pool in Denmark you also get signs of how to do that is everywhere in society you cannot smoke here you cannot drink here etc. It's interesting...

- This is actually a question in connection. Some people don't know how to use the toilets correct, that is also something you teach people every day.

F: Some people are just rude. (A: Hm. They don't care?) a toilet is two shillings. He has paid and he knows somebody is employed to come and clean so he will just come and do it.

A: Just do what we wants?

F: Yeah

A:- but it could be your friend or family who was coming to use it next?

F: Yes so that is one of the thing you must tell the people. It is important to leave the toilet as clean as you found it somebody else who could be your son or your daughter. So what is he going to say when he sees what you have done?

A: But also the women have to learn not to put all the things that they use for women.

F: We have actually tried to provide those bins but not a lot have been achieved. But still you find those who want to put those parts in the toilet. That is a whole, whole, whole....discussion.

A: That is a curiosity also for you? Not only for me so maybe we don't really have an answer for that we will just have to keep on educating people.

F: We will just keep educating. So I paid so I must spoil

A: So I'm the owner of the toilet for two minutes....

F: Yeah. Some are giving toilet paper but you still find like socks, panties, stones (A: All kind of weird things?) even clothes pullovers, after using.... it's a pity. It's difficult to imagine.

A: I still wonder, but maybe I have to think more about it because it really doesn't make sense. Because you would maybe also need your socks after the toilet you would need your pullover when it gets cold in the evening, so I still wonder why but okay, we don't have an answer.

F: We don't have an answer.

A: I think this will be the last question. I imagine that there is also a bit of corruption from some of the groups or?

F: Corruption?

A: Somebody getting access to the toilet without paying?

F: There are people who will not be able to afford two shillings. That is a lot. And we have like trained the caretakers. You find that that person doesn't have the money at all- then they comes in.(They are allowed in).

They request to use the toilet, then they are allowed. But if it becomes a habit: He has the money but he doesn't want to pay....

A: So corruption is not a real problem?

F: The other corruption we could think of is in the construction. We used to like give the money to the group, or to the formed committee members. You had the tender committee, you had the procurers, you had the executive. Each group was to follow the other person to see if they are doing the right, the right thing. So we had the group which would purchase the goods and the group which would proceed and we had the group which would make sure that the works

committees are doing, are being used the right way. Three different groups making sure that the money is used the right way.

So during the process take for example 100.000 to the group to buy things In the process, and some would come up with funny excuses to satisfy their wants, they wanted to find some coins for themselves, so...That happens, that happens. Because everybody wants money. You can imagine I stay in such a set-up. I don't have money. And here you are bringing me 100.000 to just go and buy sand and in my house there is no food. I am not competent but I want to buy food. It happens.. .That trust eludes again. And you for me to maintain the trust I'm still a working person you must teach, that is for us to...

A: So this just a small issue of a lot of larger issues.

....Thank you

F: So we have our lunch.

Meaning condensation transcript 1and 3

1. Bio (as important focus) you are great full to have it.
2. Multi purposed meeting area.
3. Change of behavior (from a dumping to a bio- center, people dropped everything in mornings, could they instead use a toilet).
4. Flying toilets.
5. Budget/affordability.
6. Collapse of bio-centers (To many users).
7. New constructions (many users, a popular initiative, add to your feeling of dignity)
8. Behavioral change (reducing flying toilets).
9. Weather conditions (controlling the water flow and the risk of contamination, impact on society).
10. Fiscal savings (every group saves money that they put into a fund to construct new buildings etc.).
11. Long term perspectives/development (for MF long term is very much connected to a material long term possibility not an investment in human resources education etc.).
12. Dignity (psychically impact of not having access to toilets it is a torture, the fact that you will have to go to the toilet in front of your children/family).

13. Illness (where do you go with a bad stomach ache a problem people experience every day).
14. Human mind (need to be worked to accept bio-gas) we don't change overnight, it needs to be a habit to use bio-gas).
15. Water issue (no clean, safe water).
16. Role model (U.T. is a role model).
17. Trickle down mechanism.
18. Construction design (move the bio-gas away from the toilets, it is accepted on the first floor in the existing bio-centers).
19. Learning by doing (reflection on how to improve).
20. Forced change (if prices rise on coal and paraffin you have no other option than bio-gas).
21. Resilience (not cooking when it is close to unclean environment and toilet).
22. Cultural habits (putting ash on your feces/urine it is not a possibility in the slum in the bio centers so again something preventing the use).
23. Ownership (taking care of/ maintaining the bio centers).
24. land issue (belongs to the government difficult to get land).

Transcript 2 Interview with Josiah Omotto

A: Would you like to tell me a bit about the ideas behind building bio-domes in the first place?

J: I've worked with informal settlement for many years in Nairobi. We were doing latrines 20 years ago and it looked very great becoming internal to peace. Then we realized it could not catch up with the population-make a fair chance (It didn't work). Then we tried to do pit latrines with an exhorting space. It would work we thought getting the dwellers to go to various corners of Kibera or Korikosha or Nakuru but it was not very easy making people go to. *(It is very difficult through the interview to get the exact meaning. Josiah's is saying that; during the last 20 years he has been working on different toilet facilities however difficulties have been either on the construction or on getting people to walk the distance to use the facility).*

J: So I was privileged 10 years ago to go to India- Sulab International. We saw this construction.. very nice it was using bio-gas and half the delegation said no... you cannot take human waste and make it into bio-gas. But we tried it and realized in Kenya people would be changing so we got people in Kibera to go and buy bio-gas and we found it a very vibrant solution. It addresses 1000 of

problems (the bio-domes), we were confronting in terms of filled up toilets (A: blocked toilets) polluting the environment etc...

In five months it is filled up... it is useless (*talking about the classical pit-latrines*). This therefore became a much more..... it is not a perfect match but it is a step in the ladder.

A: Some 5 years ago I went to Pumwani and I didn't see any functioning facilities at all I just saw blocked toilets, blocked toilets...

J: Many of them are locked, they have a key or they are blocked. ((In Kibera the ones who have claimed the land are renting out the shacks. (*Many – previously - railway builders were historically seen coming to the area as working force.*) *Through your rental agreement you have access to a pit latrine or a toilet. You can borrow a key when you need to use the toilets, but the toilets are not maintained properly and therefore many people are without access to toilets.*)

A: You have been mentioning environmental benefits but there are also social benefits I suppose?

J: The social benefits are crucial. The bio gas is for more people than just the one or two... a whole population. For me... starting working on a new idea instead of conventional, conventional.. pit toilets we are thinking we need some changes, thinking about sanitation and environment in the neighborhoods.

A: So the idea is it fulfilling the expectations?

J: Yes and no. Every time you are learning you also realize additively... I agree with the people monitoring... every time people prefer their own toilets.. women, children everybody wants their own private, personal toilet.

A: That's a wish?

J: That is a wish. So right now what we are trying to do is...particularly where the area allow us.. to look on modalities (somebody is entering the room talking about leaving).

J: We are trying now to work on designs that would preta focus and cumul use where the bio-domes are not just a cumuler (mening a place to accumulate human waste).

So that you can start your own toilets, draining... you have done that in ... there is one bio-center up here in Ku (mentioning a name) where we have tried to work with structure owners so that

they do their own toilets.... poor flash. It now comes into the facility so we are learning from the users.

A: But it will need a lot of space I imagine, to have your own toilet?

J: Not quit, you only require a 16 m cube 31 m cube. Small, you can do it and construct other houses on top of it, so we are learning as we move.

J: The other issue is that bio-gas in Kiberea is not being used- as in the site we saw because of the social and anthropological composition. Many of them come from Western Kenya. Where a thing that has to do with human waste is stigmatized.

J: On the contrary in Makuru people has accepted bio-gas for eating. Because that area brings in different populations so the issue about promoting utilization of biogas is for us very critical. It was not realistic in terms of design because all the utilities were located in the toilets.

A: You couldn't have predicted that?

J: We had to do studies but I was so excited... people could come and use the bathroom.

A: But you think when you hear about the idea, I got so excited as well this is just a nice idea.

J: What we are doing now is to locate the kitchen at least 10 m. away. Or if it is in the building, people approach it from outside. You don't have to go to the toilet to go to the kitchen. If you go around you will see some designs where we try to assure that we create a space between. ...a distance between the kitchen and the toilet. I think for us it has been a lesson.

A: So you have to make mental distance as well?

J: Yes a mental distance.

A: I think it is interesting about the different cultures. Some cultures accept the bio-gas next to the toilet others don't. What's the issue about it, what's the...?

J: I think it's much more the culture of using methane gas. You find communities which use bio-gas from cattle creating crises before. Coastal, Central and Distal they really tried, they really promoted from livestock with zero bad dreadful ingredient. That culture was in credence that you could use it from livestock.

J: But when you get people from western or Nyanza province that practice was not rampant then you get..we talk resistance.

That can be overcome through bio-gas education we need to invest more.

A: So you need... that is actually what I would like to know about .How can you change people's mind so that they can have a full....?

J: I guess the most important thing is... the bio-gas, make it affordable because sometimes we make it very unaffordable.

A: So it has to be almost for free?

J: I think we need to start for free and then as the market speaks up. Some men would say 10 bob for bio-gas when it is human waste!

A: So they would prefer to buy coal.

J: Especially men would indicate that.. men are very reluctant.

A: So men especially are very reluctant?

J: Yeah, men are reluctant. Women will use it because they are living in their homes.

A: And they need to cook.

J: They need to cook and the price of charcoal and paraffin has gone very high.

J: But what we are really saying is we will have a middle ground. In terms of our future designs we park the gas outside the toilets.

A: So the bio-domes that are going to be build "Under the Same Sky" project are they going to be different?

J: They are going to be different. The kitchen will be away so even if you can get it 20 m/ 10 m away that will be helpful. The second thing about that: We are really going into packaging. So that it can be packages.

A: And you can bring it to your house?

J: Small packages (pointing out the window) that one is huge and not economical. Smaller, smaller three kilograms packs, people can use it to cook, go back and return it.

A: Is it expensive to buy bags?

J: That bag is expensive but then we are sharing it with the Tramline. Thanks for the trip that Wee organized. When Wee organized this trip to Thailand....

Wee looked for that exact usage..very luxury.

(I don't know anything about this exact cooperation with the organization Wee and therefore I don't know the idea behind the project, the funding etc. But what is important to understand is the possibility to put the bio-gas on portable bags).

But when we saw that the bio-gas can be packed in a pack (A: Really an opportunity) so we are trying to look whether we can get the bags locally (made by locals).

A: I'm surprised it's such a good idea. To have a solution on location. Another problem would be to buy a small stove to cook using the gas?

J: What we thought from our experience this stove can be done by the local at 30 % the marked price.

J: What we want to see is modalities where the revenue from the bio- centers can be given as a credit.

When you are paying there is a small percentage for the bag and a small percentage for the stove (you pay little and a little). Otherwise it is 7.000 not many can afford that. But if you can put that cost over one year then people pay (A: Then it's affordably).

J: Then it's affordably. You can fiscal make it weekly because people get money every week. They can get bio-gas.. weekly payment or two weeks.

A: The most difficult ones to change are the men, you said that?

J: It's the men.

J: The men need much more demonstration to call the men.. each of them. I guess that is one thing that we meet at. We need to get men...as the bio-gas plan is being promoted we need to go and make more visits (What he is saying is that it takes more individual contact to persuade the men to come and use the bio-gas).

We need more citizenship. We men need to go and cook... I think if they cook for the women the women might.. (he is laughing) it will be reverse. The boy should come and cook.

Because when the women come and cook (J. is trying to explain a situation from Tosha 1 with a disinvested man who cooks for many days). We are seeing a pattern where people operating in all terms within the Kibera, they come and use the bio-gas to cook the long (food that need a long cooking time) peas, maize and beans. So they use that then quickly take a corner and heat it up- so they are hotel using.

A: So they prepare for many days and just heat a small portion each day?

J: Yes, yes, yes

J: And then there is a whole world of our schools.... The schools, some schools getting wild food program..food stuffs. Release that market.

J: But again for us the most important thing is to really get within a 60 m (zone) around the biogas centers, bio-gas communities not, not, not people using charcoal and paraffin.

A: It pollutes a lot right?

J: Yeah, and for us that is a passionate sheet... passionate sheetwith the fee internationally. (Sometimes J makes all kind of references that are not relevant to this interview often the comments are not finished and also get to stand alone in the context.)

J: I think monitors focus more on. So for us when people use the facilities for sanitation we are happy because we are talking about one bio- center used 700 people a day.

Other facilities those are 500 and those are 300 and you see that is very good. But right now we have focus on the energy. So this year we are doing a lot of constructions you want to look at... see whether we can organize around energy, something we did not quite look at when we were

designing the programs. We are more a sanitation organization. But now we are quickly becoming a sanitation plus energy.

Fiscally we need to organize around energy.

A: But you learn all the time. (Looking in my interview guide).

A: It might seem as stupid questions but I will ask them anyway.

I would really like people to on a long term have future, and I think if you have a higher standard of hygiene then I imagine that you get less ill, your children get less ill, and when you are not ill you can apply for a job; you can have an everyday life and then maybe you can work so that you can get an education and so on.

Is it also the way you think about these sanitation projects? They give people possibilities also in the future, like on a long term this will change your life conditions?

J: Did you grow up in Kibera? (A: No) I grew up in Kibera in the seventies. Sanitation was just one of the variables. I grew up in Kibera when the toilets were there. In the seventies it was like 10 houses one toilet. Today it is like 16/17 houses one toilet. But even then you could see and imagine..... the toilet existed... but I quickly saw the saturating conditions. There were quite a number of variables about latrines they are approached by.. they look at environment, sanitation and a bit of income generating activities /savings and I think they should go hand in hand. But I certainly sanitation is very important to improve the health, to attendance at schools among girls.

A: Among girls especially?

J: Especially among girls and also for dignity. You know it's very, very bad. I remember the timer I used to go to the railway line we used to wait for the train the moment the train left the space appeared. At that time it served very good but particularly now people are living next to the railway line so you don't have that prerequisite that we were doing.

J: So I guess in terms of what you could call self-esteem if you go to the toilet in your house.. you don't have a place..... I guess what is happening...if the esteem is affected you lose your own self

value and I think that has a very... even in terms of education.. even when somebody goes for interviews.

A: If you don't have self-esteem you don't have (I'm being interrupted..).

J: On the contrary I see a lot of pragmatic children in those situations... very talented. Kibera has so many very highly educated. Very resource full young people. So we need a combination of sanitation, good environment and a little bit of government support.

J: Look who is growing up in the government schools. Now Kibera children growing up 30 years later they can't go to government schools they goes to those third world schools in Kibera where teachers get drunk by 10 or 11 o'clock in the morning.

A: They don't learn anything because the teachers are drunk?

J: So I really like focus on schools. Getting teacher to have...You need teachers to have...to also have dignity. The women teacher don't have dignity. They transfer their dignity to the children.

A: You are a role model as a teacher, you are a role model. So if the children see that the teacher is doing good/ doing well. Then they will look and they I say I will behave well.

J: But if the teacher is drunk they are cruel teachers... their approach. In terms of giving teachers dignity, value, visibility then there is a lack of transfer. When I was growing up some teachers were good but now 30 years later I meet them here so drunk by 10 o'clock by 4 o'clock.

So that fiscal need you see becomes chronic poverty.. they become idle to chronic poverty

And for me that is not very...

A: So by empowering the teachers you can empower the society they are connected to?

J: For me the tragedy in terms of education.. Olympic primary school was put up around 1989 and there have been no other schools since then so what is happening, the population is increasing but the schools... there is free education but there is no investment in terms of education and infrastructure so you can improve sanitation and but unless there are other... what do you call it

improvements in other sectors then you also just get suffocation but you... definitely sanitation is one step towards the discovery.

A: It's not that I'm not aware of that but I only have you know... I can't focus on all the issues you have to narrow it down and keep your focus on this... knowing that everything is connected.

J: For me sanitation is in terms of value change, in terms of espousal, in terms of reuse sanitation waste, in terms of the transportation and exhaustion. Sometimes you have a toilet today. Next month you don't have it (A: Because it's blocked?) Yes... so you know for me sanitation is much more that it's accessibly over two or three years. You are privileged that you have a toilet when you are 4 years old when you are 7 you have a toilet.. then again you have it again when you are 11.

A: It has to be constant?

J: It has to be constant

A: So that you also learn all the hygiene issues connected to using a toilet ...washing your hand and so on. When I went to Pumwani I talked to some girls who were really frustrated because they wanted to have education, they wanted to go to school but they also had to do their duties. Get up very early go for a long walk to fetch water and then they missed the bus and then they didn't come to school. Now I only visited three bio-domes yesterday and I think that it's better here or- I don't know I only saw three. Do you feel that people have easy access to water easy access to toilets?

J: Yes and no (A: It depends on the area?) We are now working on a pricing structure we wanted to promote what we call weekly payment or monthly payment so that you have a card for monthly or a card for weekly... yes, sure for the whole family.

But then I guess that is troublesome or the system is not very good

People going into use, paper use 2 shillings or 3 shillings and our status indicates that within a 60 m radius of only 38% of the people come.. those who really afforded paper use. So we are now looking at pricing structures that would allow what you call significant use. We also try to promote what you call free use for children. That's why we want to make as much money from bio-gas as

much money from and up stairs. (Up stairs refer to small rooms rented out for a different purposes e.g. a shoemaker, office etc. and a hall for meetings e.g. football matches, church service, education purposes etc.).

A: So the toilets and the bath can be free?

J: So it is really affordably. When you asked 5 bobs or 10 bobs for (shillings) bathroom and 3 shillings for toilets, the families sometimes they don't have the money. It becomes very difficult. So we are now catering for work almost the middle income among the poor. That is why the facilities are designed in storeys so that you can make money on the first and second floor. So you know we will try to work on our business unit this year working on those pricing structures so that the facilities can lead to open, defecation free environments.

J: Around the bio-centers you still see maybe 10 m from the bio-centers you will see human feces.. that fiscally means that there are people whom would have liked to use the facilities but because of pricing structures....

A: So it is not a problem that they have to walk? It's a problem that they don't have the money?

J: Yes 3 shilling...yesterday I didn't have money, today I don't have money, the other day I didn't have money. I went to a tailor marked yesterday. I talked to a man who asked me "can you allow me to go for a short" but I guess not everybody have the same social skills to use it for free. And you know you cannot do that every day. We are really working on a pricing structure. Either weekly payment segregating it among the people

(Josiah is giving an example of a person who has so little money that he is asking whether he can use the toilet for free. What J. is trying to say is that not everybody can use it for free you must be in a situation where you have no money at all and that it is necessary to find a system that controls this.). There are citizen who can be allowed to use the facility for free or even get the structure owners to pay per month because people are getting rent so we are looking at what you call various pricing payment modes.

A: It's a good idea. We have the same system depending on what your income is in Denmark the poorest people don't have to pay.

J: I know about a system in a rich country what was it? The U.K... a person wanted help to zip the pants and had a negotiating with the other customers (both laughing).

A: What's your social skills? (Just joking). I think that's about it.

J: For us what we are also doing is human rights. So we have adopted human right approach in sanitation. The new constitution also provides that. So I think for us as far...what we have done is a drop in the ocean so we need to get access to invest in sanitation so that for us is a mediation.

Karibu

Meaning condensation transcript 2

1. Pollution of the environment (primary focus on feces in the environment, less focus on pollution from fossil fuel).
2. Social benefits (the bio centers are for many people).
3. Sanitation issues (a main focus).
4. Private toilets (to be able to be private not sharing).
5. Adapting to the needs (putting gas on packs, making stoves locally).
6. The bio gas problems (human waste is stigmatized, resistance, tradition e.g. Those used to gas from livestock and culture depending on the composition of people).
7. Bio-dome construction (leads or misleads to complete use).
8. Mental distance (people need to mentally separate their own waste from their cooking facility).

9. Affordability (some cannot afford, adapting the payment system).
10. Gender issues (in connection to bio-gas use, more education to men than women, the reverse situation of gender. The bio-centers are important for the girls attendance to school.
11. Self esteem/dignity/loss of “self-value”(when you have to go to the toilet in your house or in a bad place, this affects you so much that your loss of value can lead to no education etc.
12. Value change. (You transfer your lack of dignity as a teacher).
13. Developing the concept. (from sanitation to energy).
14. Education (about bio-gas (men), how to use the bio-toilets (women).
15. Chronically poverty.
16. Empowerment of specific groups of society.
17. Somebody who breaks the mold (children getting education due to the conditions).
18. Support from government (improvements in other sectors).
19. Difference in treatment (depending of which school you attend to government or 3.w schools).
20. Coordinated efforts.
21. Continuity (that you can expect a toilet in every year of your life, that you can have water).

22. Income generating activities (in connection to behavior not affording to pay still doing it in a bag, lead to open, defecation free environments).
23. Social position (adjusted treatment according to social position, economy childhood).
24. Human Rights approach.
25. Changing behavior.
26. History (before in the 70 ties the situation then and now).

Background information about the visited bio-centers in Kibera.

The following information was gathered as we were investigating the conditions in the different bio-domes. The information was given by the managers and the sanitation members of U.T.

In **Soweto** the community uses pit latrines, the charge for which is charged five shillings. However, the toilets are in a poor condition. Some of them are made of iron sheets and are falling. In addition there is a problem with water supply in places like Katwekera because of leakages and break ups of water pipes. Therefore the community has a shortage of water per household. Further to this, vendors sell water twenty liters at four shillings. This is still very expensive for people and it was previously two shillings for twenty liters. In Katwekera there is a problem of poor drainage and solid waste disposal. There is a lot of dirty water mixed with sewage and plastic bags in open ditches. Proper disposal of waste water and solid waste are required in order to increase sanitation standards.

Nyaharwa Community Bio-centre

The group which was assisted to build the bio centre consists of community members who raise money by saving every day. This bio centre is similar to the one at Nicofeli. It has two floors with the top floor being used to make shoes and for holding meetings by the group. The hall can also be

used by members of the community to hold meetings and then pay a certain fee. The ground floor has toilets and bath rooms, where community members can use the facilities at a small fee. There is also clean water supply where water can be fetched and used for daily consumption. Biogas is also harnessed from the bio centre and used for cooking.

Tasho Letu Bio centre

This bio centre was opened by Sweden's Minister for Environment. In order to build a bio centre, the community needs to be fully involved at each stage, for instance provide land for construction, bring materials to the site, and provide skilled and semi-skilled labor for building, while Umande Trust does the supervising and facilitation. In addition the bio centre has a water kiosk by the side which is used as a shop. The group still has building materials which it intends to use to put up a kitchen and build better houses in the area around the bio centre approximately at a radius of sixty meters.

The communities that are close to the bio-centre are grateful because since the introduction of the services of bio-centers cholera cases have been reduced by a great margin.

Other water borne diseases like typhoid have also decreased. This is because there is better hygiene and safe drinking water by the bio- centre. In addition the case of flying toilets which was a very big nuisance earlier on has been reduced as the people use clean toilets in the bio-centre.

Interviews at bio-centers



Kibera Kids Youth Organization (Kidyot)

The bio- centre is in a good condition just like the ones that we had visited earlier and the community had benefited since its opening. The people having small businesses around the bio-center is profiting as a lot of people are passing by.

Interview 1

Name: Andeline Mueni.

Age: 33 years.

Life situation: Married, mother of one girl two boys.

Runs a small she is selling mobile phone accessories. She has been living in Kibera since 2004.

Uses all the bio facilities, toilet, bathroom during the day

Difference: Before this bio-dome was build they used to go to Tosha 1, before that pit latrines but they were not good.

Happy that they have been using it. It has lead to cleanness, people used to suffer before and there were a lot of flying toilets.

Illness: She has not suffered from cholera nor has her family. She does not know any person that has been affected/died from cholera.

Water: Getting water is no problem she can have all the water she likes.

Pricing: The fee is ok it is convenient

Bio-gas: Sometimes she cooks using the bio gas, she likes to use the bio gas it is economical; they also sometimes go to eat at a hotel.

Future: Need to multiply the bio- domes. The children will have a better future with the presence of the bio centres. The most important thing in Kibera is the toilets it leads to cleanness

Interview 2 (he was very drunk and hard to understand).

Name: Charles Ochieng Ororo

Age: 43 years

Life situation: Has a wife and two children, no permanent source of income.

History: Came to Kibera in 1998.

Uses the bio- facility often, uses all facilities in the dome. He gets water from a vendor close to the house. Pleased that the bio dome is here

Difference: Before he used to bath taking water from a bucket.

There is a poor management of city council toilets but the bio domes are managed well that is why it is a good relief. The facility is clean and better it makes people dignified. If you have visitors you are not embarrassed to bring them here.

Illness: People are less ill when they use the facility.

Pricing: The fees are affordable to most people.

Bio-gas: Could not use the bio- gas in his mind you cannot cook on human waste.

Intevview 3

Name: Garishon

Age: 33 years

Life situation: Married has three sons. Has lived in Kibera for 8 years.

Uses the toilet and bathroom.

Pricing: Most people don't have toilets pays 3 Khhs water is also cheap.

Difference: Before pit latrines were used or and flying toilets, they like this now more. People can bath here use the gas in the bio- dome. Everyone's life is better, therefore they want more bio domes.

Illness: Before the bio- domes used to get ill due to sanitation related illness. There is a big difference in the frequency of illness cases have been reduced.

Future: Bio- facility gives people a better future, less illness- go to work- earn money-provide for the family. Changed the life of people in Kibera now for the future

Pricing: Fees cheap compared to other toilets around. Shower 5 Kshs, biogas 10/20 Kshs compared to paraffin because it is 90 Kshs/l

Bio-gas: Wife uses to come at cook using the bio gas

Interview 4

Name: Kevin Aduro

Age: 21

Life situation: Lives around with his brother, goes to college lived here for the last year.

Uses bathroom and toilet

Difference: Before the bio dome was build he used flying toilets or he went to the river in the evening. Conserving the environment, it is cleaner due to no flying toilets, he feels more comfortable

Water: Fetching water he could need to walk a long distance, they only brought little water because of the distance. They used to cook and shower in the house, things has improved after the bio-dome.

Illness: Before there was a lot of diarrhoea because they used to get water from the river (some springs, underground water close to the river, when it rains it all mixes) which was already contaminated which led to illness.

Experience; a friend died in1999 this could not be the case now because sanitation has improved.

Pricing: Fees are affordable by the people.

Bio-gas: Does not use the bio gas for cooking because he buys readymade food. May use it in the future he likes it.



Kibera Lindi Youth, Kiliyo Bio centre.

History

The bio centre was completed last year. The water is not very regular in supply it comes twice a week, namely Tuesdays and Thursdays. The upper floor is rented it can also be hired for individual or group use.

The biogas has not yet started being used. The Kiliyo Group members contributed and bought computers. They set up a cyber café where they basically teach primary school children the basics of computer free of charge. The toilet is charged 5 shillings, the bathroom 10 shillings for cold water and 15 for hot water. Children under 10 years use the facility free of charge.

Interview 1

Name: Peter

Age: 28

Life situation: Married has one child.

Before the bio centre was build his experience was that there were very few toilets and that they were in very poor conditions. The inhabitants used flying toilets initially but since the inception of the Kiliyo Biocentre they started using its facilities.

As for Peter he uses both the toilet and the bathroom facilities and buys water from the bio centre every day. Since the bio centre was set up, his experience is there has been reducing cases of cholera and other sanitation related illnesses like typhoid and diarrhoea.

Peter was very limited in his interview it was obvious that he felt uncomfortable that I interviewed him about taboo issues and in that concern it was very difficult to elaborate the interview with him.

Interview 2

Name: Linet

Age: 23

Life situation: Married has a little girl

She lives next to the centre as she rents a small house owned by the group. She uses all the facilities at the bio-centre. In her experience the bio centre has brought a lot of change to the lives of the people in Kibera, especially because initially they used flying toilets and used to bathe in their houses. Sanitary conditions have improved and according to her if this continues, it might lead to a healthy community and a developed society.

Very shy and uncomplaining, she has an opinion about things but is not able to elaborate on how things will change- how society will develop.

Interview 3

Name: Dennis

Age: 45 years

Life situation: Married with three children.

Experience; has lived in Kibera for more than ten years he came from Western Kenya and moved to the city to work. According to him there were very few toilets in Kibera and people showered in the houses. Water supply in the village was very scarce and they used to get it from the vendors who sold/sell water at a very expensive price.

Difference after building of bio-domes: since their inception, more people have access to water because it is sold at an affordable price of three shillings per twenty liter container. More people have access to toilets therefore; sanitary conditions have improved as there are no more flying toilets.

In his experience, the sickness which was rampant due to poor sanitation has reduced drastically.

Pricing; according to Dennis the water price at the bio-centres is ok. Because three shilling can be afforded by anyone even those who is unemployed.

Bio-gas; since it is not yet being produced, the community is eagerly waiting so that they can start cooking using the gas

Lindi USAFI Bio-centre

History

This bio-centre was opened in 2009 and gets about 30-40 users daily. In the weekends there are 60 users because most people are not at work.

The bio-centre is placed in one of the densest and most insecure places in the slum the shelters were very close to the bio-centre and placed directly along the sewer. The site had previously been a dumpster and signs from this were still evident as plastic bags and other litter stuck up from the ground. It had been very difficult to build the bio-centre on this ground as the shelters were placed very close.

Experience as investigator: The atmosphere was thick with frustration and poverty. The people coming to the centre, as we were there, was very limited in their way of addressing us compared to the way people met us at the others sides. This was the place where I felt the worst conditions for a dignified life. The people did not speak any English and therefore the interviews were made in Swahili and translated to me.

Interview 1

Name: Mercy Achieng

Age: 23

Life situation; married with three children

Experience: she uses both the toilets and the bathrooms. In her view sanitation conditions have improved tremendously since the bio-dome was built. Initially there was a lot of dirt and human waste disposed haphazardly but that has now changed. The environment is now very clean. (and yet we were still in one of the dirtiest and densest populated places in the slum).

Pricing: The pricing is ok. It is affordable by most families who live close to the bio-centre.

Previously they used to pay 60 shilling per household to use the toilet but it has been increased to 100 shilling per month for a household.

Water: Water from the bio-centre also comes twice a week and they buy it at three shilling compared to five shillings when sold by other vendors in the community. She feels that she has enough water for household use and keeping sanitation standards.

Future perspective: The future is brighter because, high sanitation standards leads to less illness, resulting in healthy society and eventually they may have a more developed society.

Interview 2

Name: Gladwell

Age: 18 years

Life situation: married mother of one child.

Experience: Uses water provided at the bio-centre. She goes to the toilet at a neighbours' house in the next plot. She came to Kibera and found the bio-centre already constructed. She did not have a bio-facility where she lived before but they had good toilets and bathrooms. Right now she does not like the idea of paying to use bathrooms and toilets.

Illness: She has suffered once from diahrrhoe and that was before she had access to the bio facility. In her view the presence of the bio-centre has led to improvements in sanitation around the area.

Pricing: She buys water from the facility at three shilling per twenty litre jerrycan. At times when there is no water at the bio centre, she buys it at a higher price from the vendors who are in the village. The vendors are not located very far from her household. In her view the price of water is expensive and should be reduced to two shilling or supplied at no fee at all.

Biogas: It has not started being harnessed but when it is ready, she is willing to use it if it proves to be a cheaper source of energy for cooking.

None of the interviewed persons had anything against bio gas.

Nicofeli Biocentre

About the centre: The bio-centre is situated at Kianda village. The centre has two floors with the ground floor housing clean toilets bathrooms and a water tap where the community fetches clean water for domestic use. The top floor houses the library which can also be used for meetings. The biogas generated from the bio-centre is used for cooking. The centre started operating in August

2011 and up to now, there are approximately five hundreds youths who visit the centre to read books from the library. Power used in the centre is solar energy.

Interview 1

Name: Charles Okuro

Age: 40 years

Life situation: married father of two children.

Employment: casual jobs mainly.

He has lived in Kibera since 1990.

Difference: before they used polythene bags to dispose stool. After the bio-centre was built the people use these facilities and are now very happy. Before they cooked using kerosene and charcoal but now they use biogas which saves energy and money.

Facilities: People mainly use toilets, bathrooms and biogas. Many plots do not have bathrooms and toilets. His wife cooks using gas from the bio centre especially gather (a mixture of maize and beans). However, some people come from far and cannot cook in the evening so he suggests there is a need for gas to be supplied to individuals. His wife takes 30 minutes to reach the bio-centre. Cooking with biogas from the bio-centre has reduced the effects of using charcoal for example smoke and paraffin.

Toilets: Initially there were few pit latrines so most people used flying toilets. He bathes in his house.

Water: Previously he used to buy water from vendors, who would hike the prices any time they liked.

Now they buy water from the bio-centre at three shillings. He has enough water from the bio-centre but due to insufficient funds, sometimes they cannot budget for it. In addition this water is now cleaner and safer than that bought from vendors. However, he still boils the water and treats it before drinking.

Illness; due to a lot of flying toilets and inhaling bad air from trenches it led to cholera, diarrhoea and typhoid. For instance every day an average of five people used to die every day from cholera. This has changed because of improved sanitation and increase in the number of hospitals in the area. This is a general experience that he has made.

Experience: Before the bio-centre was built, his wife once was affected by cholera, was hospitalized and treated.

Future: due to improved sanitation the future of Kibera is brighter. However there is a need to increase the number of bio-centres because of the ever increasing population resulting from Rural-urban migration. Bio-centres are a big step towards a better future because good hygiene leads to improved health and thus to development.

Pricing: The price of the water is very affordable as it ranges from 2-3 Kshs while other vendors provide it at 5-10 Kshs. He now often uses the bio-centres instead of the pitlatrines. It is economical for families to get the monthly card worth 150 Kshs. Umande has changed the life of the community at large.

Interview 2

Name: Maina

Age: 40 years

Life situation: Lives with three children his wife left him.

History: Was born and lives in Kibera

He uses the toilets and bathrooms every day. He does not use the bio-gas. He buys water from the bio-centre and at times from vendors.

Difference: According to him there has been a big difference since this bio-centre was built. The place could have been in worse conditions. Earlier they used to deposit human waste under the railway bridge. In addition they used shallow pit latrines which could fill easily and were very messy.

Illness: There were rampant cases of typhoid and cholera due to fetching rain water from roof tops which were contaminated from flying toilets. In this case he has been sick from typhoid. Even now in areas that are not close to bio-centers, people use basins and throw it in the river then downstream people use the water. This leads to water borne diseases.

Pricing: The price of the water is affordably to him.

Interview 3

Name: Dennis Orodí.

Age: 28 years.

Life situation: Single.

Employment: Sells “air time” (payment for using cell phone).

History: Has lived in Kibera since 2003.

He uses the toilet, bathroom and buys water for domestic use.

Difference: According to him there is a big difference because he used to go to the forest to go to toilet and shower in the house and buy water from vendors. Now he buys water from the bio-centre which is cheaper compared to that of vendors it is clean and the toilets he uses are clean. He also likes the bio-centre because of security.

Illness: Initially he used to suffer from sanitation related illness but now diseases are rare and his living conditions are better.

Water: Previously he used to walk for a long distance that was 2 1/2 km to get water but now it is close, easier to get more water.

Pricing: The water is affordably because it is 5 Kshs per 20 litre jerrycan.

Biogas: He has not used biogas but may use it in the future because it is faster and cleaner than paraffin and charcoal.

Future: Would be much better if there were more the bio-centres because population is increasing and sometimes that puts pressure on the services provided.

Interview 4

A young man on drugs he looked pretty gutted. It was difficult to understand him and he jumped between themes. This is easy to see in the record as a sentence is stopped abrupt. However, he was also one of the respondents that I remember very clearly as he made a big impression on me. I felt sorrow for him. He was a single father and he told quite frankly about the difficulties he had been through keeping the child fed and healthy.

Name: Oliver

Age: 32 years.

Life situation: Has one child but separated with the mother.

He lives around the bio-centre and uses the bio-gas toilet and bathroom- has lived in Kibera for some years.

He works in building and construction. He is one of the masons who built this bio-centre.

Difference: The bio centre has been of great assistance because people cook, use the toilets and bathrooms. In his view hygiene in the neighbourhood has improved because people go to the toilets whereas they used to deposit stool in ditches.

Biogas: This is the facility that is most important because it has helped him to save a lot. Previously he used to eat at a hotel together with his son. This was expensive for him because a meal costing 100 Kshs was not enough for both of them. Now he buys food for example flour and vegetables and cooks in the bio-centre at a price of 20 Kshs. This is enough for both of them.

Illness: He saw many people suffer and die from cholera but now the cases have been reduced.

Experience: His child used to suffer from cholera even twice a month. He had to stop going to work and attend to the child's sickness. This case has now reduced.

Water: he used to get water from far and bathed in Olympic. In the house he used to store water for cooking and drinking. He got the water at 5 Kshs per container it was very far. Now it is 3 Kshs and close to his house. For that reason, he gets more water home which he requires for sanitation.

Pricing: in the bio-centre he cooks for 20 Kshs, the toilet 5 Kshs, bathroom 5 Kshs and it is affordable for most people.

Interview 5

A very angry man who had difficulties understanding the questions. He seemed embarrassed as if it was very humiliating

I had a constant feeling of crossing his personal limits and therefore the interview was very short and not amplified. It seemed as if he was in the area to earn money for the family. He was very well dressed almost a business suit and a shirt

Name: James Muraya.

Age: 61 years.

Life situation: Married with children but the family does not stay with him in Kibera.

He has lived in Kibera since 1997. He lives close to the bio-centre but only uses the toilet and showers in his own house.

Difference: He used to go to hotels to use the toilet but now he uses the bio-centre. According to him he is happy with the facility and so is the community around.

Illness: He has never suffered from sanitation related diseases but has seen neighbours suffer from it.

Pricing: It is affordably for him.

Future: The future is better for the people and there is need a for more bio-centres.

Interview 6

Name: Jennifer Akinyi.

Age: 23 years.

Life situation: Married with two children.

Employment: She has a job.

History: Has lived here her whole life and comes to the bio-centre every day. She uses the toilets, bathrooms and biogas.

Difference: Before the bio-centre she used to go to the pit latrines which were few and in poor condition. She used to cook using paraffin and charcoal and bought water from vendors who were located far away from her house. Now she uses the bio facility together with her children. She gets water from the bio-centre.

Illness: She has never been affected from cholera. Sometimes her children get ill so she has to take them to hospital.

Hygiene: To her bio-centers has led to improvements of hygiene at home. In addition water was scarce and far from their homes but now it has been brought closer.

Biogas: She uses the biogas for cooking because it is cheaper and cleaner than charcoal.

Pricing: The fee charged for water, toilet and bathroom is affordable to her.

Future: When she was small there were few latrines but now there are more. Her children have a better future because of improved sanitation.

Interview 7

Name: Jacinta Kainyu.

Age: 21 years.

Life situation: Married with two children.

Employment: Does casual jobs e.g. washing clothes for people.

History: Has lived in Kibera for twelve years. She uses only the toilet because she could not afford the money to pay for the bathroom. She has not been informed about the biogas.

Difference: Previously she used to go to the forest for calls of nature but it was insecure and there were rape cases. Now she uses the toilet in the bio-centre and has generally seen improvement in sanitation and illness like diarrhoea has reduced.

Water: She used to get water from vendors and boreholes. However, water from boreholes was contaminated and often infected them with rashes. They now get water at four shilling per twenty litre container. She used to go a long distance to fetch water but now it is closer. However, she cannot get all the water that she needs because of inadequate funds. She only buys the amount that she can afford.

Pricing: The price is ok. Even though she has no other option, because she has to go to the toilet.

Future: The future is bright because. Because of improved sanitation the children will be healthier and she can attend to her work because of reduced illness of her children thus she can get more income.

Kiliyo Bio-center Observation and interview answers Kibera 9/2 2012

Started last year in April. The water is not very regular in supply (two days a week) Tuesday up to Thursday. The upper floor is rented it can also be hired for individual or group use. When I visited there was a meeting by a group of members of Kiliyo. The bio-gas has not yet started being used could be ready in April so the community still cooks in their home.

Interview 1

Name: Peter.

Age: 28 years

Life situation: Has a family, a little child.

Water: He buys water from the bio-center and uses the facilities every day toilet and bathrooms.

Differences: Previously a lot of cholera but now cases are reduced. He is very pleased with the bio-dome. Previously there were no toilets but pit latrines in poor conditions.

Pricing: Toilets 5 Kshs, bathroom 10 Kshs, hot water 15 Kshs, children under 10 years use athroom for free.

The group has different activities

They have a cyber classroom where they teach children from primary school in basic computer skills during the weekends up to 60 children attend. They started the cyber-cafe using group savings they contribute 100 Kshs every month. The center has; toilet, a water kiosk and rent out a small business and a house.

Tasha 1 bio- center (toilet, bathroom hall).

Has a small office rented out and a small kiosk/cafeteria

There is a conference centre on the upper floor the centre can also be hired by individuals or groups. We meet a group member, there is a new bio digester being build next to the bio dome. There are too many users. The bio digester is being emptied so that a bigger one can be build. The residue can be used in agriculture as fertilizer, good samples that have been proven good for the purpose.

Interview 1

Name: James Maebo

Age: 22 years

Life situation: Unmarried

Uses the facility in the slum, it has changed a lot since the bio-center was build. Initially he went to the river or had flying toilets. Happy with the facility.

Pricing: Payment/fee is too cheap, the facility is there to help the society.

Gas: Difficult to use because no piping to houses. He hopes a possibility comes for filling gas on cylinders, cannot cook in the bio-center because he believes cooking is a private matter. No one shall see what he is cooking. There is not enough space.

Water: Gets water at the bio centre, now there is a water shortage due to lack of rain. He used to choose the nearest place to buy water, he doesn't look at the price, this because he has no family.

Shower: Most of the times he showers at the bio centres not in his house because it is easy and convenient to shower at the bio-center.

Differences: There is a big difference. Used to be robbed because initially went to the river.

Used to be mocked because of lack of toilets, now he is not being mocked anymore (if you tell you come from Kibera) the dignity has improved. The society has also been boosted. Before the latrines were few, dirty and one could fear for having visitors. Sanitation has improved

How hygiene has improved lives. His experience: used to have an old neighbour who died out of diarrhoea and vomiting. This because of water lack, people selling dirty water. She did not boil the water. That was before the bio centre was there.

Interview 2

Name: Edward

Age: 22 years

Life situation: not yet married

Uses the bio dome and lives around. Uses the facility every day, uses toilet, boils water using the bio- gas. Watches matchers in the hall. Used to boil water using paraffin which was expensive, bio gas is cheaper and available.

Difference: Before they had latrines that were in poor condition, dirty and locked (by landlords). The difference previously had poor condition latrines some people would relieve themselves all over, poor sanitation.

Water: Been buying water but now there is breakage of pipes. Water is cheaper here than other places, used to walk a long distance to get water it is a long distance.

Illness: Was affected by cholera in 2005 was an outbreak and some died, a good change to people here to have a bio dome.

Now people buy water from people who have not been selling. The quality of the water is not known and can lead to sanitation related issues

Pricing: Poole is cheap. It needs to be maintained, toiletpaper etc.

The bio centre gives people at better future, if there were even more it could get even better

When he was sick he was at home and that drained him financially. The future is better with this facility.

Interview 3

Name: Nehemiah Amuochar.

Age: 38.

Life situation: Has a wife and three children, sons (we meet the youngest) class 8, 3 and 2 ½ years. Was born in Kisii Nyanza, came to Kibera in 1997 after college. Works in a factory, with gas East Africa spectre and does security work too.

Uses the bio-center toilet, bath (not often as may be closed or not supply of water

Bio-gas: Do not use the biogas but they plan to as soon it is packed. He is waiting for the ones in charge to compress it so it can be portable and used by families. Biogas has not used it need for supply it after being compressed. Uses charcoal and other gas. His wife used to come and cook.

Difference: Before the bio domes there were latrines they were very shallow. The majority 95% used flying toilets which was not a good experience.

Water: To fetch they had to walk almost a kilometre now 4 m pay 5 Kshs exorbitant. Still lacks water because supply is low. Keeping up a minimum of hygiene is therefore difficult.

Illness: He had children before the bio-dome were build they used to go to the pit latrines and had diarrhoea most of the time. Diarrhoea is reducing because of the bio centre is used by the most community members around.

The bio centres are well distributed to serve the community

Experience: No cholera but a lot of diarrhoea. A huge difference since its inception better than pit latrines, less odour and more dignity.

Pricing: Fees are expensive, because of the size of his family 20 Kshs /a day per month 700 Kshs. He is even one of the rich in his community but some are so poor and to them it is very expensive, the problem is not solved completely.

Fees should be reduced to accommodate the majority, should be paid per month 200 and this is expensive for the majority of those having family.

Core and subcore categories

Pit latrines	Condition: <ul style="list-style-type: none"> • Poor conditions, • Dirty, • Easily filled • So messy • Few • Very shallow
	Risk: <ul style="list-style-type: none"> • Fear of having visitors
	Landlords: <ul style="list-style-type: none"> • Locked by landlords
	Additional comments: <ul style="list-style-type: none"> • Were not good • Many people do not have private toilets

Flying toilets	Behavior: <ul style="list-style-type: none"> • 95% of slum dwellers used flying toilets • Dirt and human waste disposed haphazardly. • Used polythene bags to dispose stool. • People used flying toilets as too few pit latrines. • Used to dispose human waste under railway bridge • Deposit stool in ditches
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Water	Water supply: <ul style="list-style-type: none"> • Not regular in supply • Affects possibility to bath • Difficult to keep up a good hygiene • Scarcity of water • Can have all the water they need. • Comes twice a week this is sufficient to keep sanitation standard • Lacked water before
	Distance: <ul style="list-style-type: none"> • Had to walk 1 km before • Only bought little water as they needed to walk a long distance. • Used to walk 2 1/2 km to get water, now close=easy to get more water • Closer and cheaper=better for sanitation
	Vendors/Bio-center: <ul style="list-style-type: none"> • Bought from vendors • Now buys a bio-center before at vendors
	Pricing: <ul style="list-style-type: none"> • Now more people have access to water due to lower prices • Sometimes they cannot afford to buy water therefore they do not always have the amount they need.
	Preparation: <ul style="list-style-type: none"> • Boils before drinking

Illness	Cholera outbreaks: <ul style="list-style-type: none"> • Personal cholera experience in 2005, some died • Does not know anybody dying from cholera • Wife affected by cholera she was hospitalized and threaded • Child used to suffer from cholera twice a month=farther stopped working • 5 people died every day of cholera
	Diarrhea: <ul style="list-style-type: none"> • People dying of diarrhea and vomiting due to unsafe water from vendors • Children using pit latrines had diarrhea most of the time. • A lot of diarrhea due to getting water from the prings
	Additional comments on illness: <ul style="list-style-type: none"> • No income, drained financially. • Flying toilets=inhaling bad air from trenches= cholera, diarrhea, typhoid fever. • Fetching rainwater from roofs=contaminated water because of the flying toilets=al lot of different illnesses • Never suffered from sanitation related issues but seen neighbors suffer • Never ill himself though children sometimes hospitalized • Less deaths due to bio-centers and more hospitals
	Frequency: <ul style="list-style-type: none"> • A big difference in frequency of illness cases has reduced • Sickness was rampant, has reduced drastically • Used to suffer from sanitation related illness, now sickness is rare=better life condition • Many people suffered and died now this is reduced • Improvement in illness like diarrhea has reduced

Payment for using bio-center	Payment too cheap: <ul style="list-style-type: none"> • Too cheap • Cheap • Cheap especially compared to other toilets and paraffin •
	Additional comments on payment: <ul style="list-style-type: none"> • Price unimportant • Does not like to pay for using toilet/bathroom
	Payment too expensive: <ul style="list-style-type: none"> • Too expensive as majority has a family • Suggest 200 Kshs a month. • Some people are so poor • Should be cheaper or no fee at all
	Payment affordable: <ul style="list-style-type: none"> • Fee is okay • Affordably to most people • Fee is affordable • Even unemployed people can afford the prices • Affordable 60-100 Kshs a household monthly • Affordable it is economically better for families to get a monthly card • Affordable even as a single parent

Additional comments on sanitation	<ul style="list-style-type: none"> • Improved • Less odour • Leads to cleanness • People have access to toilets. This has improved sanitary conditions • NO flying toilets • Went to the river because of call of nature
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Dignity	<ul style="list-style-type: none"> • Not mocked if you tell you're from Kibera=awareness that improvements are being made (in the rest of society)
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	<ul style="list-style-type: none"> • Before robbed when going to the river in the evening
	<ul style="list-style-type: none"> • Improved dignity
	<ul style="list-style-type: none"> • People used to suffer before • Feels more comfortable
	<ul style="list-style-type: none"> • The facility is clean, makes people dignified. If you have a visitor you are not embarrassed to bring them here

Bio-gas	Users of bio-gas: <ul style="list-style-type: none"> • The bio-gas is what has helped the most to save money. Now enough money to feed himself and son. Before went to hotel to eat=not enough money=not enough food for the child • Uses the bio-gas • Cheaper • Cleaner • Uses from time to time • Likes the bio-gas • Will use when it begins functioning in my center • Has reduced smoke • Saves energy and money • Will use it if it gets cheaper than other sources of energy • Will use in future as it is faster and cleaner than paraffin and charcoal
	Piping/cylinders: <ul style="list-style-type: none"> • Need pipelines to houses because cooking is a private matter • Waiting for it to get portable • Filling on gas-cylinder to bring home
	Problems: <ul style="list-style-type: none"> • Not enough space • Will not cook on human waste • Need to cook in the evening but the bio-center is closed • Does not use bio-gas

	Information: <ul style="list-style-type: none"> • Lack information about bio-gas
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Shower	<ul style="list-style-type: none"> • More convenient than in house • Used to shower from a bucket • Used to shower in house • Still showers in the house
	<ul style="list-style-type: none"> • Use it • Can't afford it

Statements on political issues	<ul style="list-style-type: none"> • Poor management of city council toilets. The bio-domes are managed well.
	<ul style="list-style-type: none"> • Water cartels make it difficult to get water and therefore it is difficult to maintain good hygiene e.g. you can't wash hands
	<ul style="list-style-type: none"> • The bio-centers are too far away. Therefore people use basins, they throw the waste into the river=water borne diseases

Additional statements on bio-centers	<ul style="list-style-type: none"> • The future would be much better if bio-centers were multiplied because population is increasing(many come from the rural areas) as this puts pressure on the services
	<ul style="list-style-type: none"> • Has been of great assistance. People cook, use toilet/bath. • Hygiene in the neighborhood has improved.
	<ul style="list-style-type: none"> • Happy with the facility and so is the community around
	<ul style="list-style-type: none"> • Better for the people. Need more bio-centers
	<ul style="list-style-type: none"> • When she was small few latrines. Now there are more.

	<ul style="list-style-type: none"> • Umande Trust has changed the life of the community at large. • Every one's life is better • The bio-centers have brought a lot of change to the lives of the people in Kibera • The bio-centers are used more during the weekends than during work days due to people working • Used to go to hotels but now uses bio-centers
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Future perspectives	<ul style="list-style-type: none"> • Future is brighter, need to increase number of bio-centers
	<ul style="list-style-type: none"> • The bio-centers are a step towards a better future, good hygiene=improved health=development • The children will have a better future • Better future due to less illness gives the possibility to go to work and earn money to provide for the family • Changed the life of people now and in the future • If this continues it might lead to a healthy community and a developed society

Security	<ul style="list-style-type: none"> • Like bio-centers because of security • Used to go to the forest but insecurity and rape cases were normal.
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