



SLUM UPGRADING

THE GATWEKERA TOSHA CASE

CONCEPT

ETH Studio Basel , Ralf Figi und Karin Wegmann

THE NAIROBI STUDIO

ETHZ Studio Basel Contemporary City Institute

Prof. Jaques Herzog

Prof. Pierre de Meuron

Manuel Herz

Ligia Nobre

Shadi Rahbaran

IN COLLABORATION WITH

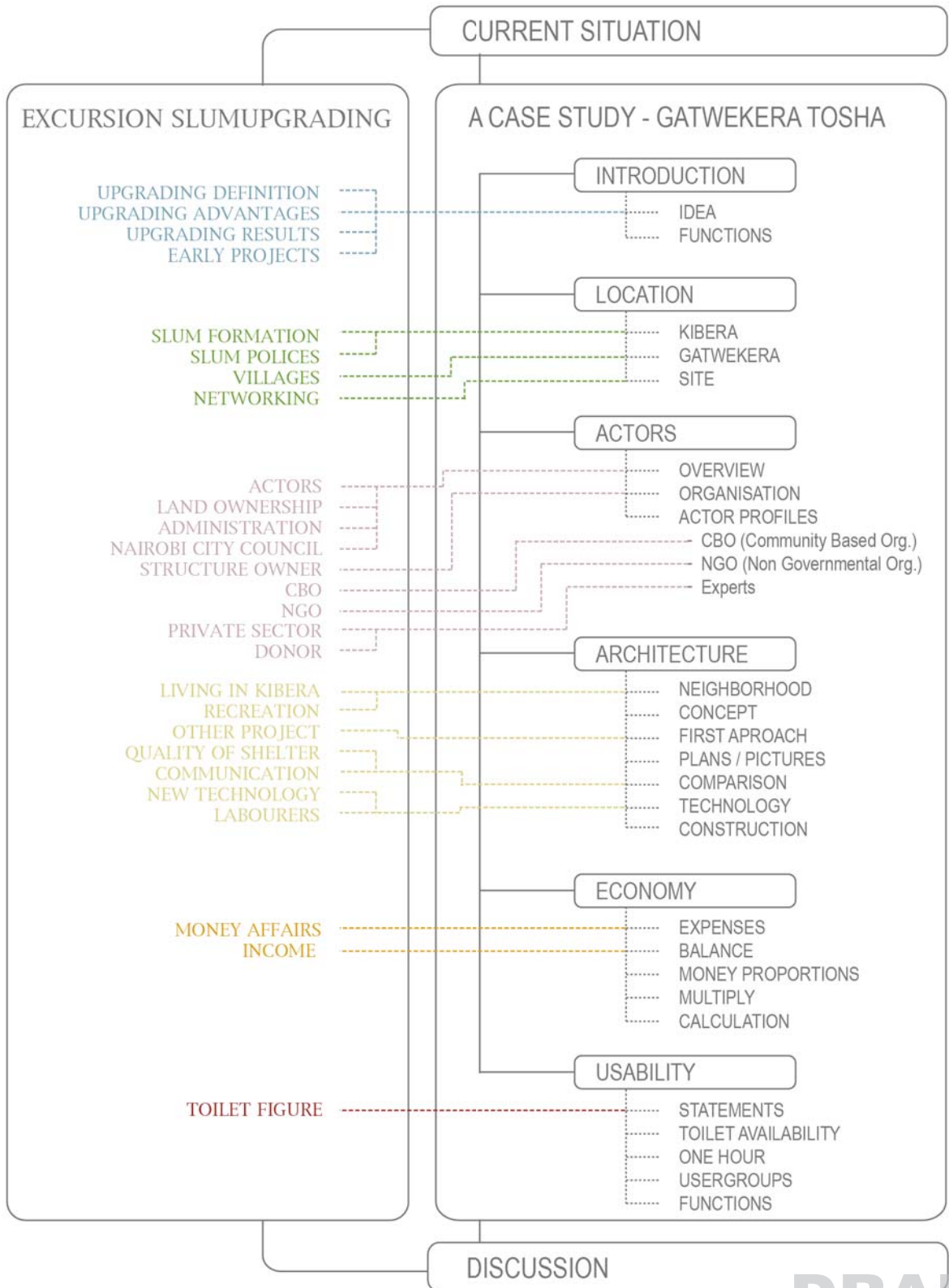
Harvard University Graduate School of Design and

University of Nairobi School of Built Environment

SLUM UPGRADING IN KIBERA

THE GATWEKERA TOSHA CASE









DOCUMENTATION

ONGOING UPGRADING

WATER SUPPLY

TOILETS

BATHROOM

SEWERAGE

INFRASTRUCTURE

MAP OF KIBERA

WATER & SEWERAGE

CURRENT SITUATION

A CASE STUDY - GATWEKERA TOSHA

INTRODUCTION

LOCATION

ACTORS

ARCHITECTURE

ECONOMY

USABILITY

DISCUSSION









Many NGO's are concerned about the situation and try to intervene with projects. The biggest attempt to upgrade whole Kibera is the Kenya Slum Upgrading Programme.

KENSUP is the result of a meeting in November 2000 between the then President of Kenya and the Executive Director of UN-HABITAT at which the Executive Director offered to spearhead a slum upgrading programme for Kenya starting with Nairobi's largest slum, Kibera.

The objective of the programme is to improve the overall livelihoods of people living and working in slums through targeted interventions to address shelter, infrastructure services, land tenure and employment issues, as well as the impact of HIV/AIDS in slum settlements.

Implementations started with establishment Institutional arrangements at the National level and at the Community level. To start the process, social, economic and physical mapping of the 12 villages were made. Later on a layout of development for the twelve villages was made.

Starting with one village, the whole informal settlement will be displaced by six storey houses.

At the moment some of the six storey houses have almost been built but no one could move in by now. The sanitation structures within the slum are still the same.

« THE BIGGEST ATTEMPT TO UPGRADE KIBERA IS KENSUP »



Only about 24% of the households in the slum have access to piped water as compared to 92% in whole Nairobi. Private in-house piped connections do not exist. Most people have to buy water from private water vendors. 20 litres of water cost between 2 Ksh and 20 Ksh. The average price is about ten times higher than in the higher income housing areas where standard pipes into their houses are installed.

« PEOPLE HAVE TO BUY THEIR WATER AT WATER KIOSKS »



CURRENT SITUATION_DOCUMENTATION_TOILETS

The Pit latrines are the most common toilets within Kibera. They are often inadequate and overflowing.

Another way to go to the toilet is to use the so called flying toilet. They dispose their excreta in a plastic bag and throw it away.

The third toilet type is a latrine built by NGO's and maintained by the CBO's or employees. People have to pay for those toilets 2-3 Ksh per usage.

« DEJECTION POLLUTES THE SETTLEMENT »



CURRENT SITUATION_DOCUMENTATION_BATHROOM

Most households lack proper sanitary facilities. They wash themselves without showers. Most of the inhabitants wash in their rooms where they also sleep, live and cook. Others have a small space outside, constructed in wood and iron sheets to have some privacy. Residents call these spaces their bathrooms.

« PEOPLE CALL THESE SPACES THEIR BATHROOMS »



In Kibera no real sewerage system exists. Only two lines are constructed in pre-fabricated concrete elements. All drainages flows through open and often congested trenches. Mostly they are just part of the path.

Due to lack and/or poor drainage around nearly every structure, there are stagnant smelly waters, which provides an optimal breeding ground for mosquitoes and houseflies.

The adjacent Ngong river and Nairobi dam are heavily polluted by silt, solid wastes, overflowing pit latrines, waste waters and all forms of dumping including medical wastes from upstream and the surrounding areas. Nairobi dam is heavily clogged by so much pollution to a point where the colour of water has turned sewer-like and smells foul.

« SEWAGE IS PART OF THE TRACK »



Due to the general absence of infrastructure in Kibera quality of the environment continues to deteriorate at an alarming rate. This is manifested in the loss of bio diversity, accumulation of solid waste and faecal matter, overcrowding dust miscellaneous smells, high disease prevalence. The issues to be addressed under environmental aspects will include solid wastes, land and water pollution and atmospheric pollution.

During the rainy season, runoff water in open drains collects garbage, including human wastes, and poses a real health hazard and general environmental disaster.

Having seen these living conditions in which people have to manage their lives no one can shut his eyes. It is obvious that someone has to change this miserable situation.

« THE ENVIRONMENT IS IN ALARMING CONDITION »



« ONLY TWO SEWERAGE TRACKS FOR OVER ONE MILLION PEOPLE »





WATERPIPES



SEWERAGE





SUPPLIED

 BASCO PAINTS

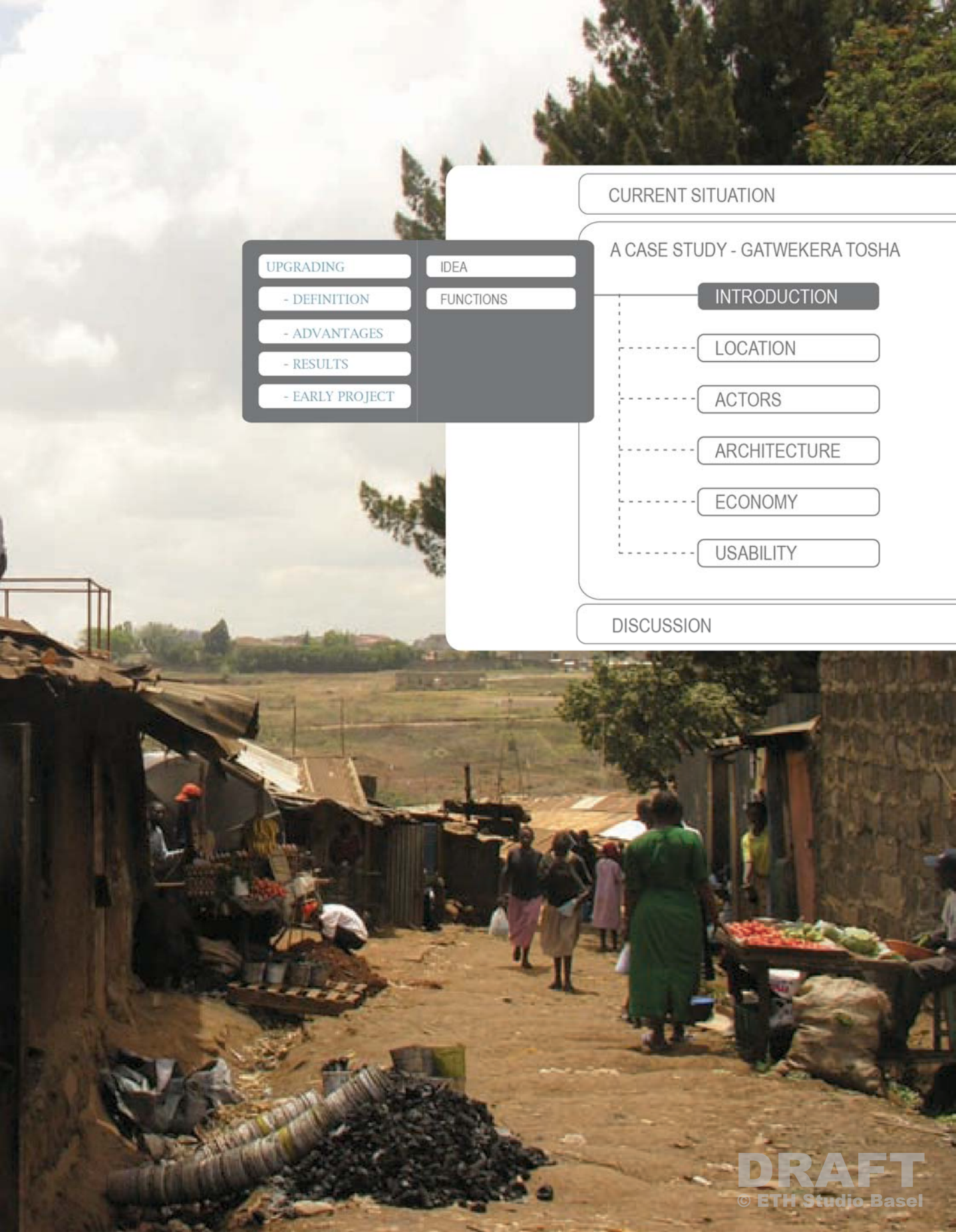
KATWEKERA TUB


KIKATTY

FOR THE PEOPLE

TUNA UZ
SUPUL
MUGU
RENGE
KUGURU
BLENJE
MOKINI


Ks- low
Nate
Noban
GREGA
NUN



CURRENT SITUATION

A CASE STUDY - GATWEKERA TOSHA

UPGRADING

IDEA

- DEFINITION

FUNCTIONS

- ADVANTAGES

- RESULTS

- EARLY PROJECT

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SLUM UPGRADING

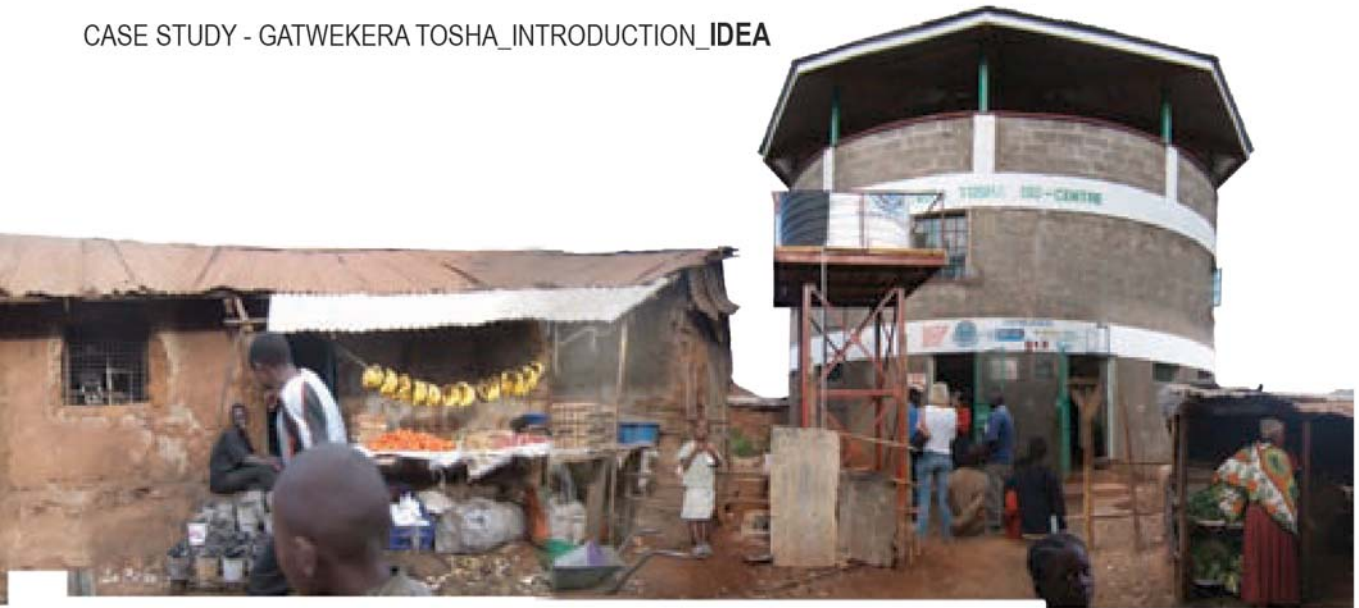
The main objective of slum upgrading is to alleviate the poor living standards of slum dwellers, and to reduce their state of disadvantageousness. The aim is not to replace an informal settlement by something completely different, but to improve an existing condition.

Upgrading has significant advantages. It is not only an affordable alternative to clearance and relocation (which costs up to ten times as much as upgrading), but it is also to minimize the disturbance to the social and economic life of the community.

The results of upgrading should be immediate, highly visible and should make life of the urban poor a significant difference.

Early slum upgrading projects tended to be carried out in isolation. Governments often did not follow through with services, communities did not maintain the facilities and governance structures disappeared once the international experts involved were gone.

SOURCE: UN-HABITAT, General Visit, Analytical Report;
COHRE, A housing rights concern



GATWEKERA TOSHA

Gatwekera: name of the village

Tosha: Total Sanitation Hygiene Access

The community initiated the project. After saving some money within the CBO's (Community Based Organisations), the group asked the NGO Umande Trust for advice. Therefore the community had convince several structure owners to make room for the project by demolishing some of their structures.

After three month of planning, the 3 storey building concept was finished and they started constructing. It is the result of a teamwork between the community, the NGO with technicians and the planning team, the external experts and the donors. The community members helped constructing.

The Biocentre embodies toilets, showers, offices and a community roof and is planned as a community meeting centre. The Biocentre is pilot project because of a new toilet technology, which is borrowed from India and China. The System produces gas which is planned to be used for cooking.

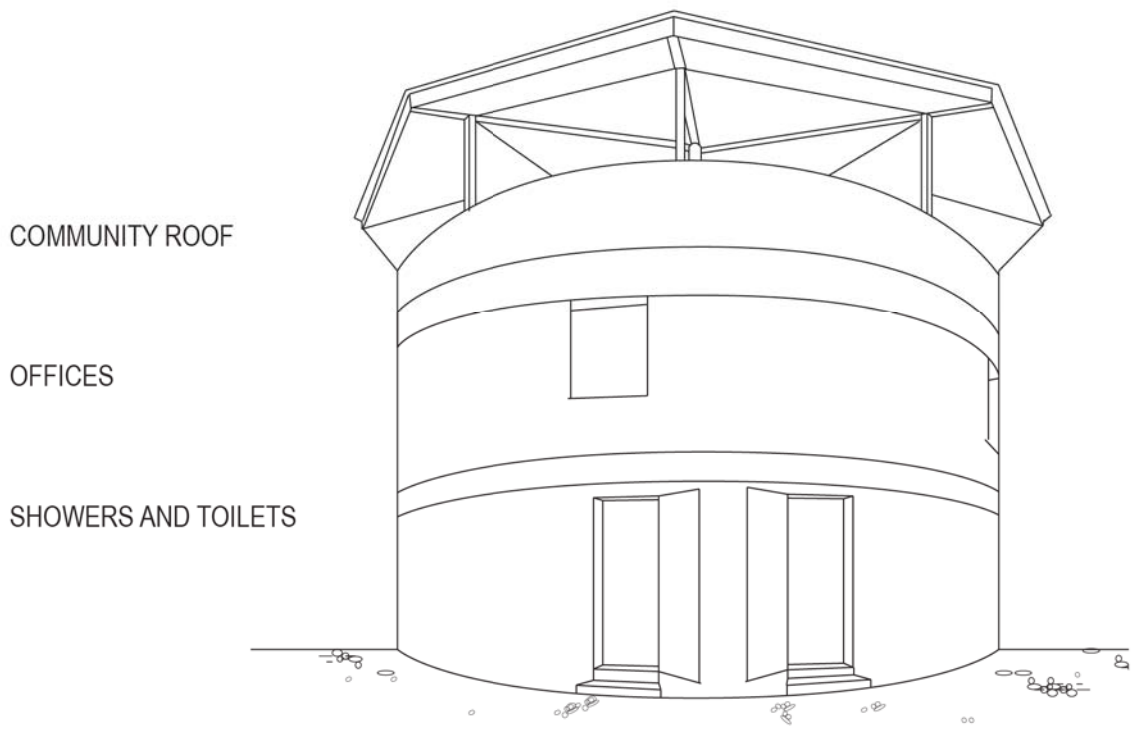
The facility opened in June, 5th, 2007. Today the whole building is still not finished. The gas production of the bio-digester is not aligned yet and around the building the community is still working on the overflow basin and the surrounding. A reed bed for a natural clarification plant is still on planning status.

« THE COMMUNITY
INITIATED THE PROJECT »



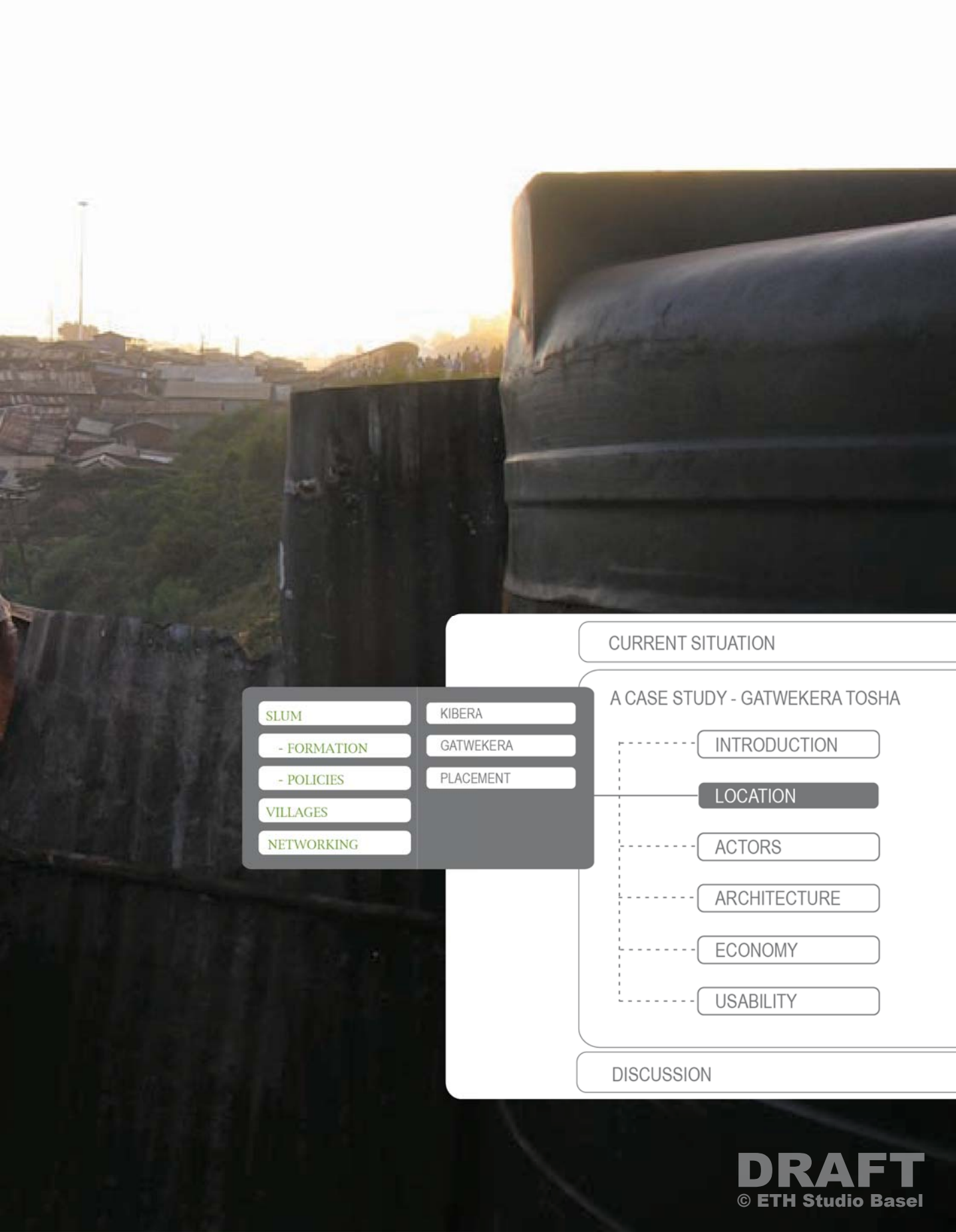
CASE STUDY - GATWEKERA TOSHA_INTRODUCTION_FUNCTION

The Biocentre is planned as a multi functional building.
On the ground floor 9 toilets and 5 shower cabins are placed.
There is a gas removal station for cooking which has not been installed in November 2007.
Three offices are to be found on the first floor and on the top there is a terrace for the community.



« A TOP FLOOR WITH OPEN SIDES AND A SIMPLE THATCHED (MAKUTI) ROOF FOR COMMUNITY MEETINGS AND FUNCTIONS » SOURCE: NGO, UMANDE TRUST





CURRENT SITUATION

A CASE STUDY - GATWEKERA TOSHA

SLUM	KIBERA
- FORMATION	GATWEKERA
- POLICIES	PLACEMENT
VILLAGES	
NETWORKING	

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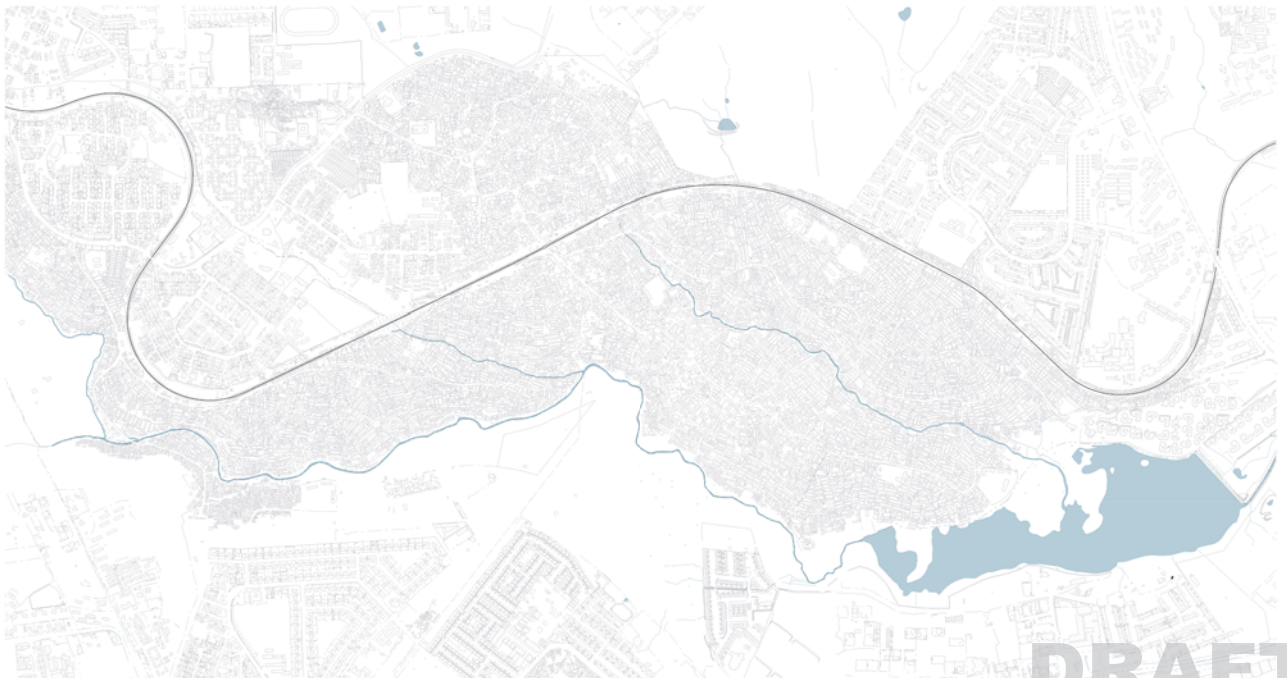
Estimations indicate that more than half of Kenya's urban population now live in slums and informal settlements with deficient housing and infrastructure.

The Government of Kenya recognised the political and financial realities, and the inevitability of informal settlements as early as 1970. Since then, the evolution of policies and interventions dealing with informal settlements in Kenya fits in four chronological stages:

- Provision of minimum services
- Extension of tenure security and physical upgrading
- Recognition of the legitimate role of the low-income earners in urban development



« THE BIGGEST INFORMAL SETTLEMENT IN NAIROBI »



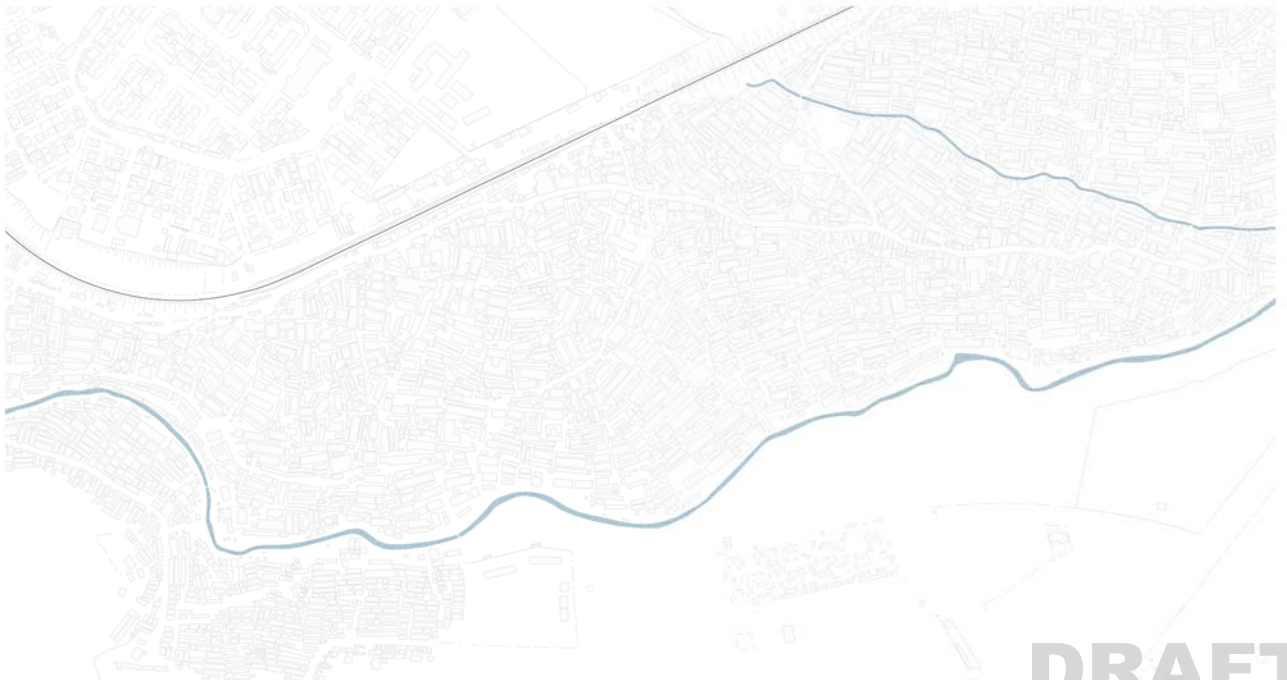


VILLAGE GATWEKERA

Within Kibera there are 11 villages. Each village is unique in terms of actor presence and service provision. All villages have at least one motorable road that leads across it. There are various rivers running across the villages and the railway runs through the settlement. Some actors, especially NGO's are present only in specific villages. This has implications in service provision and for slum upgrading. Notable actors in the village providing services in health, are Missionaries of Christ and Medecins Sans Frontiere.



« KIBERA IS ORGANISED IN VILLAGES »



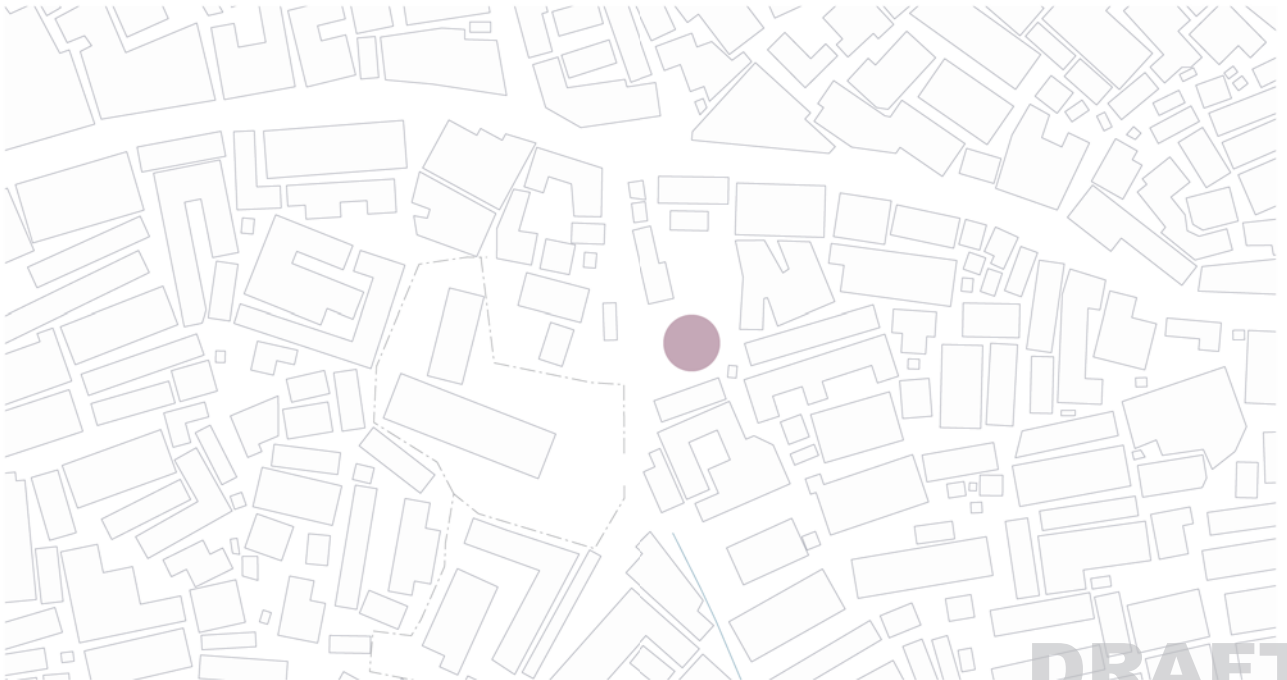
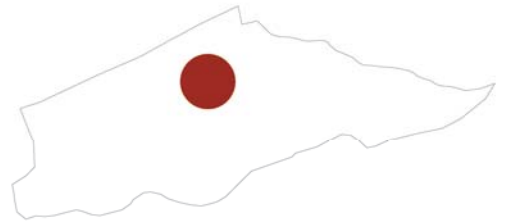


GRASS ROOT ORGANIZATIONS

The grass root organizations (community based organizations, religious organizations, NGOs, and micro-enterprises) participate in policy advocacy and networking sessions, often they do not appear to be integrating their activities effectively in design and implementation of development programs and projects.



« THE BIOCENTER IS LOCATED ON A HILL »







CURRENT SITUATION

A CASE STUDY - GATWEKERA TOSHA

ACTORS

LAND OWNERSHIP

ADMINISTRATION

NCC

STRUCTURE OWNER

CBO/SOCIAL GROUP

NGO

PRIVATE SECTOR

DONOR

OVERVIEW

ORGANISATION

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- CBO

- NGO

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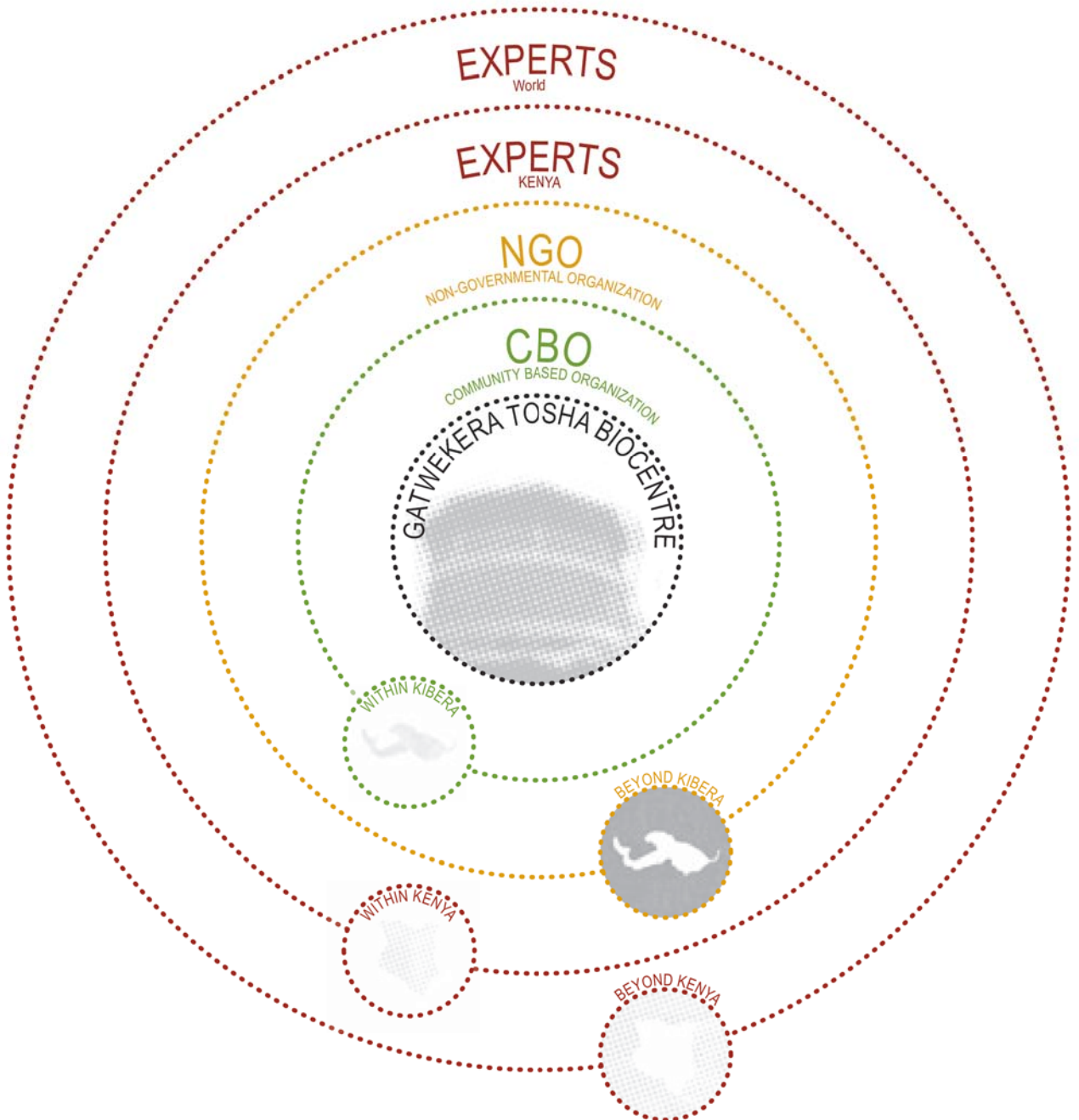
ECONOMY

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CASE STUDY - GATWEKERA TOSHA_ACTORS_OVERVIEW

The actors at the Gatwekera TOSHA Biocentre as introduced below are divided mainly in three different groups. Their activities, the level within the hierarchy, their capacity, the background of origin and their locations are different.



CASE STUDY - GATWEKERA TOSHA_ACTORS_ORGANISATION



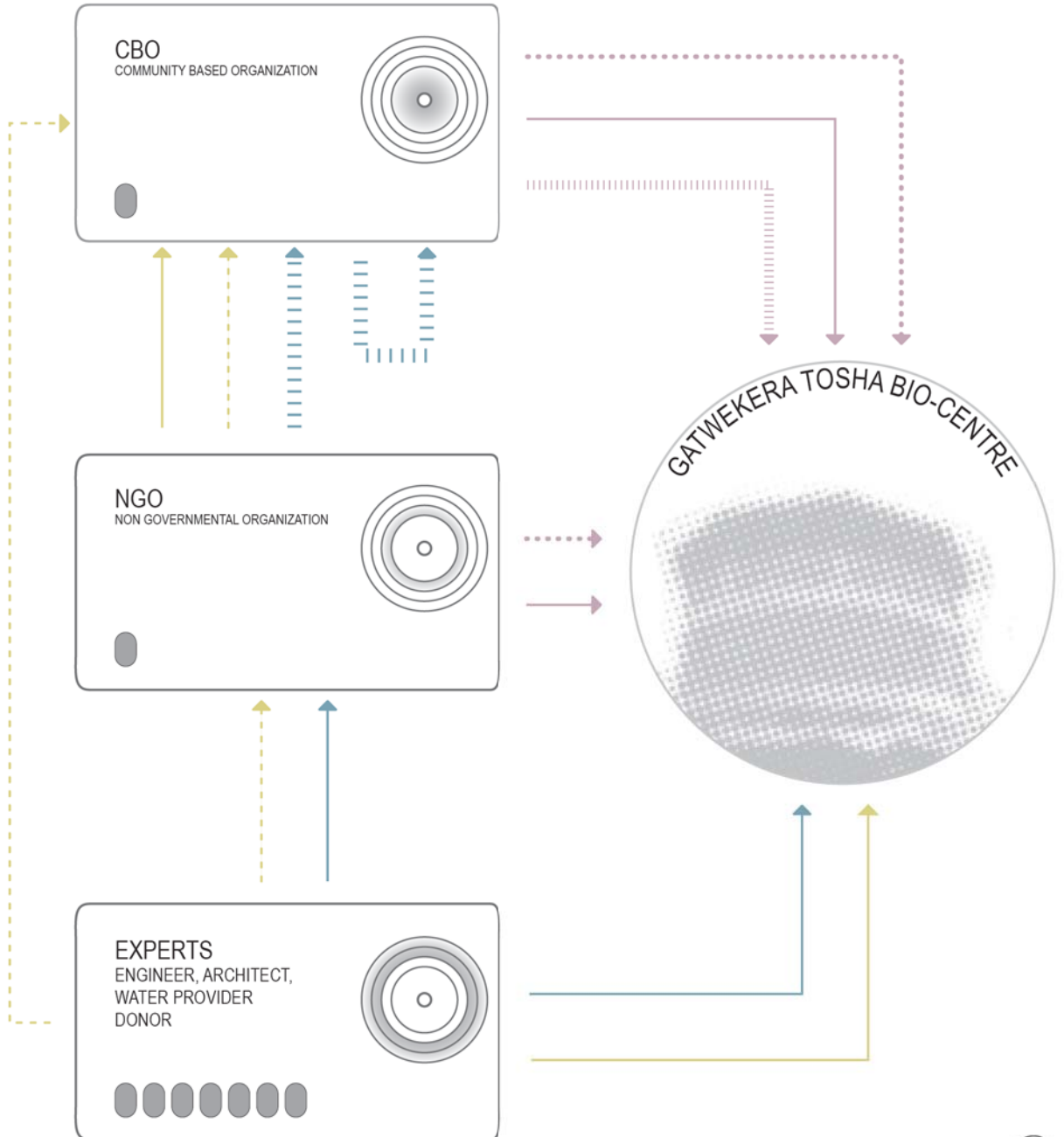
- planning
- constructing
- ||||| maintaining



- controlling
- - - - - instructing



- funding
- ||||| salary





COMMUNITY BASED ORGANIZATIONS (CBO)

CBOs are a common occurrence especially among the poor. Estimated 50% of Kibera inhabitants are members of social groups. There exist many types of groups: Women groups, youth groups, men groups, social welfare groups, business groups, sports clubs, security groups, religious groups, political groups. Whether these groups are sources of proud and identity in many cases, an overwhelming majority of the members do not feel benefited substantively.

SOURCE: UN-HABITAT, Household Survey Report

CASE STUDY - GATWEKERA TOSHA_ACTORS_ACTOR PROFILES



Gatwekera TOSHA 800 members

- Muvi Gorofani (CBO)
160 members
- Mapambano (CBO)
160 members
- Jasho Letu (CBO)
160 members
- Bidii Yetu (CBO)
160 members
- Mama Okinda (CBO)
160 members

These five saving groups (CBO's) from gatwekera are the basis of the TOSHA Biocentre. They allied with each other to Gatwekera Tosha. By saving little money and by coming up with a proposal to the NGO they initiated the whole project.

From a total of 800 members 8 persons are elected to administrate the organization and the biocentre. They earn a little money paid by the community.

The 15 committee members have to point out and to represent the interests of the CBO during meetings with the NGO and officials. The 3 caretaker collecting the fees are paid by these incomes. Furthermore there are some volunteers cleaning and maintaining the building.

There were approximately 400 labours from the village (10 per every week) helped to construct the building were paid by the funds.

Administration

	Chairperson James Onyango	Vice Chairperson Alice Moraa
	Secretary Peter Ogulo	Vize Secretary Teresia Alieno
	Treasurer Roseline Amond	Vice Treasurer Fredrick Oluoch
	Organizer Augustus Maranga	Assistant Organizer Peter Aego

Committee

	Tendering Committee
	Site Supervision
	Savings and Credit

Employees

	Caretaker
--	-----------

Volunteers

	Cleaning and Maintaining
--	--------------------------

« WE ARE SO MUCH COMMITTED. WE ARE NOT LAZY IN FACT »

picture and quotation: CBO Gatwekera Tosha; Roseline Amond

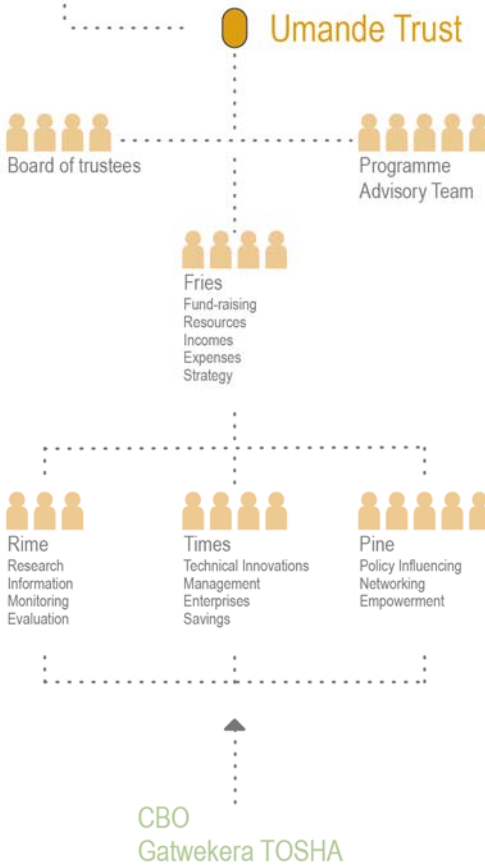




NON-GOVERNMENTAL ORGANIZATIONS (NGO)

A Non-Governmental Organization is a private voluntary grouping of individuals or associations not operated for profit or other commercial purposes but which have organized themselves nationally or internationally for the benefit of the public at large and promotion of social welfare, development, charity or research in the areas inclusive of, but not restricted to health, relief, agriculture, education, industry and supply of amenities and services. SOURCE: UN-HABITAT

CASE STUDY - GATWEKERA TOSHA_ACTORS_ACTOR PROFILES



The NGO Umande Trust is specialized in transforming water and sanitation services. They try to work closely with the community. The Staff operate in four complementary teams. (Fries, Rime, Times, Pine) Within the team there is one architect and one technician. The Board of Trustees goal is to provide overall leadership through policy guidelines and oversight functions. The board is also responsible for the recruitment of the Managing Trust and on a regular basis, reviewing all the governance, operational and strategic development aspects of the organization. The Programme Advisory Team provides the much needed quality assurance function in ensuring that programme initiatives result in positive impacts.

« WE HELP THE COMMUNITY WHERE EVER WE CAN »

picture and quotation: NGO Umande Trust; Joshia Omotto



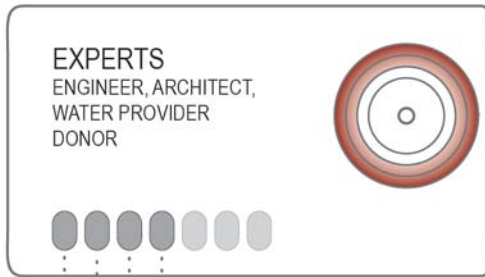


PRIVATE SECTOR

The entry of few professional organisations and the private sector into informal settlements is a recent phenomenon. For decades, these players shared the government perception that slums are illegal and therefore not an area of focus. Local architects saw popular settlements as lacking effective demand for architecture.

SOURCE: UN-HABITAT & Government of Kenya; Nairobi Situation Analysis

CASE STUDY - GATWEKERA TOSHA_ACTORS_ACTOR PROFILES



● Planning System



architect

Planning system is an architecture office domiciled in Nairobi. According to the long tradition (working since more then 40 years within Kenya) and his capacity it has a wide influence in Nairobi. The Office built several high-rise building in the Nairobi CBD . The two principals are British. Concerning the Biocentre they especially act in a advisory capacity.

● Globology Limited



engineer

Globology Limited is a local engineering firm owned by Malcolm Ormiston. He is involved in various developing projects. Within the project he supposed to be the expert for all the technical questions, helping drawing plans and especially instructing on the site.

● Athi Water Service Board



water provider

Athi Water Service Board was formed as part of the Ministry of Water. It has taken a lead role in identifying, contracting and strengthening the capacity of water service providers to deliver efficient and reliable services in Nairobi and the outlying districts.

● Nairobi Water Company



water provider

The Nairobi Water Company as a partner of Athi Water Service Board, has related responsibilities. Together they were involved in the biocentre project by supporting the communal waterpoint.

« FIRST OF ALL PROJECTS HAVE TO GENERATE MONEY »



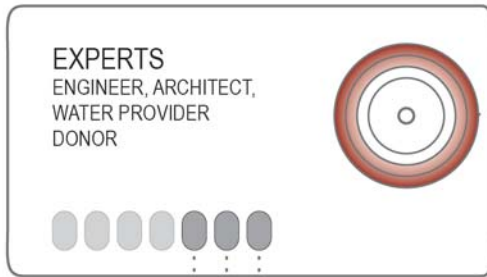
DONOR

Beneath most actors within informal settlements lies the donor community who mainly provide financial and material resources. A number of donors have funded government programmes on infrastructure development and services provision.

The donors have deliberately opted not to engage in prevailing institutional politics of informal settlements. Their comments and critiques are limited to the city and central level consultations. This has limited the success of their programmes, with most programmes not being replicable.

SOURCE: UN-HABITAT & Government of Kenya; Nairobi Situation Analysis

CASE STUDY - GATWEKERA TOSHA_ACTORS_ACTOR PROFILES



 Sida



foreign aid

Sida is a Swedish governmental agency that answers to the Swedish Ministry for Foreign Affairs. With an annual budget of two billion US-Dollars, Sida is responsible for the bulk (60 %) of Sweden's aid to third world countries. In collaboration with 120 countries all over the world, Sida cooperate with 1400 different organizations and is funding about 5500 project annually. Beside Halcrow Sida donated the Biocentre.

 GTZ



engineer



foreign aid

GTZ (Deutsche Gesellschaft für Technische Zusammenarbeit) mainly works on behalf of German Federal Ministry for Economic Cooperation and Development. Further clients are other departments of the government, international donors like the European Union, World Bank or UN, partner countries and finally the private sector. The GTZ provides services in different areas of sustainable development. Having offices in 67 countries, the enterprise employes about 10.000 members of Staff, therefrom about 9.000 locals. The budget 2006 was 1.5 billion US-Dollars. Within the community centre the GTZ was assisting in questions concerning the environment and the technology.

 Halcrow Foundation



architect



engineer



foreign aid

The British firm Halcrow specialises in the provision of professional planning, design and management services for infrastructure, development and the built environment worldwide. They employ over 6500 people and have established network of more than 70 offices around the world. Halcrow donates half a per cent of its annual profits to the halcrow foundation. The Halcrow Foundation provided more then half of funding for the Biocentre.

« NO ONE HAS A CLUE HOW TO DEAL WITH THIS TECHNOLOGY »

picture and quotation: Christian Rieck, GTZ



STUB
MR HTAG



CURRENT SITUATION

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NEW TECHNOLOGY

LABOURERS

NEIGHBORHOOD

CONCEPT

FIRST APPROACH

PLANS / PICTURES

COMPARISON

TECHNOLOGY

CONSTRUCTION

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LIVING IN KIBERA

A majority of inhabitants of Kibera report that they live there not by their own choice. The main reason that forced them to live in Kibera is cheap rent.



« A shack is per definition a small crude shelter used as a dwelling. »

The Biocentre is situated on a hill, well accessible next to the street. On the other side of the street there is a school and in the neighbourhood, three more two storey houses are located. The buildings belonging to schools or church missionaries are mostly constructed different than the dwelling houses. The dwelling houses are called shacks.

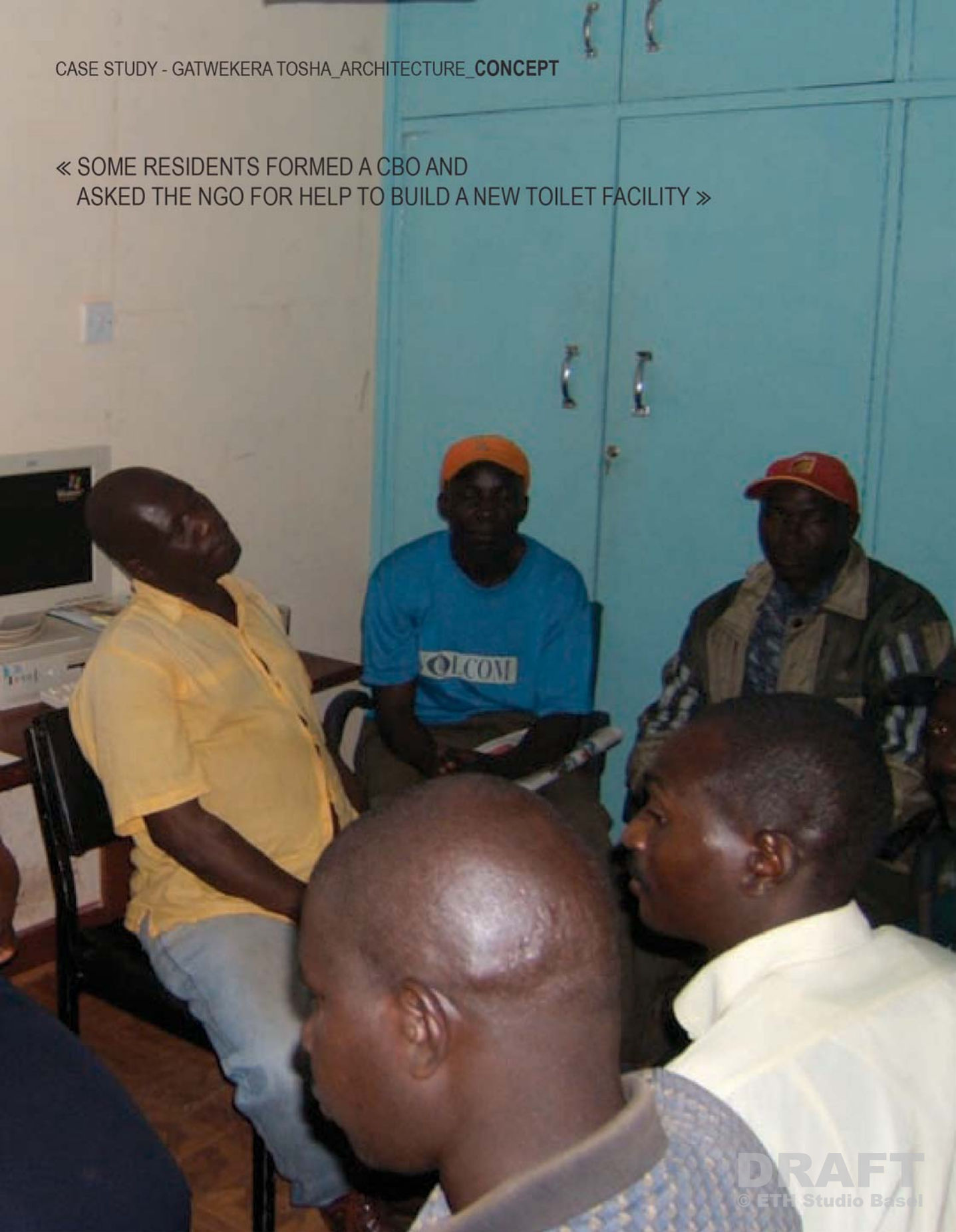


CASE STUDY - GATWEKERA TOSHA_ARCHITECTURE_NEIGHBORHOOD





« SOME RESIDENTS FORMED A CBO AND
ASKED THE NGO FOR HELP TO BUILD A NEW TOILET FACILITY »





OTHER SANITATION PROJECTS

There have been other sanitation projects to provide clean, safe water within reasonable distance and proper sanitation with a view to reducing waterborne diseases. KWAHO, a local NGO, has helped the community to install water points and to construct 2 VIP latrines of 4 doors managed commercially by two CBOs.

SOURCE: www.kwho.org

CASE STUDY - GATWEKERA TOSHA_ARCHITECTURE_FIRST APPROACH

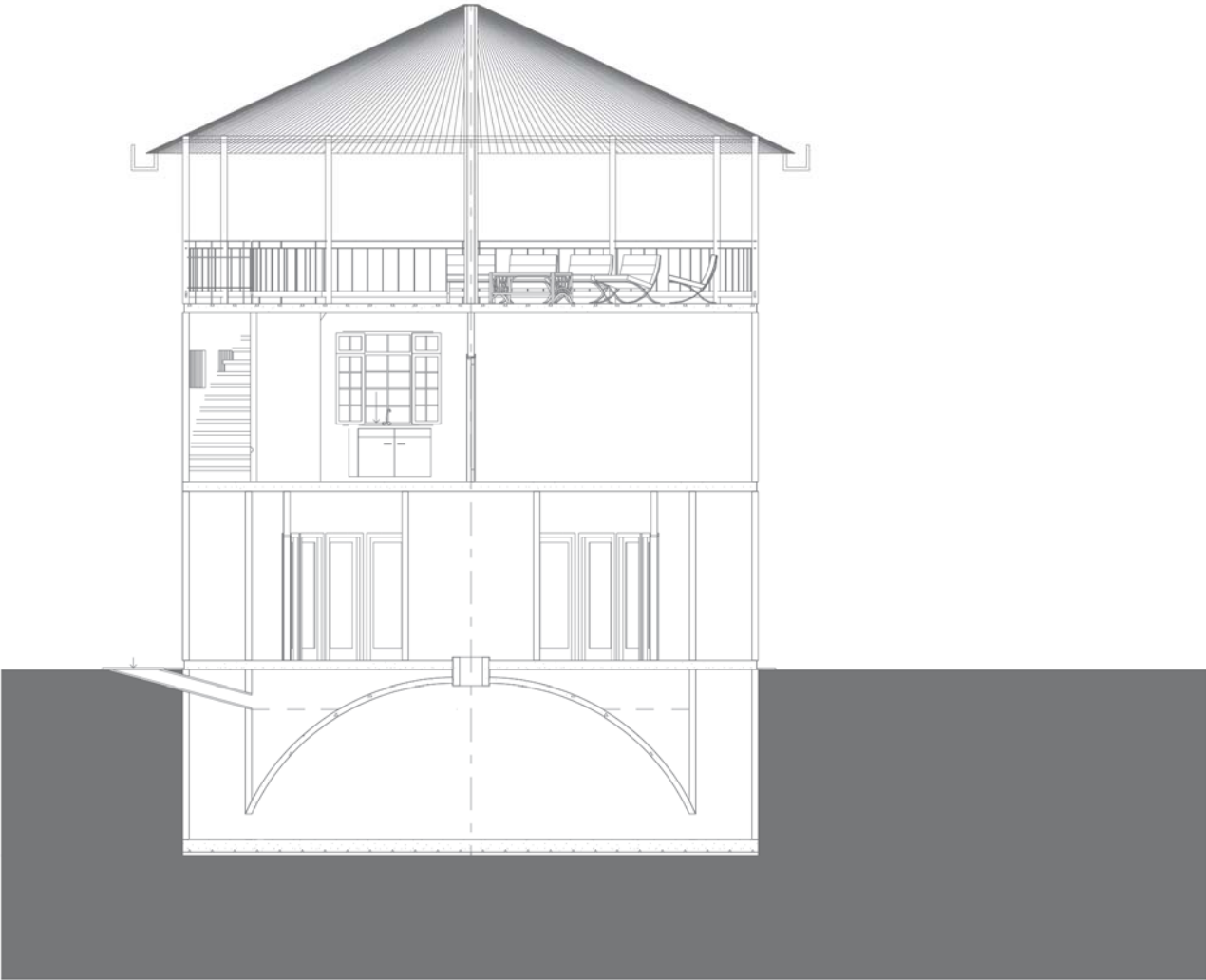
The first approach of the community was this model. The idea to place the offices on the second floor and the toilets on the ground floor is remaining in the new facility.



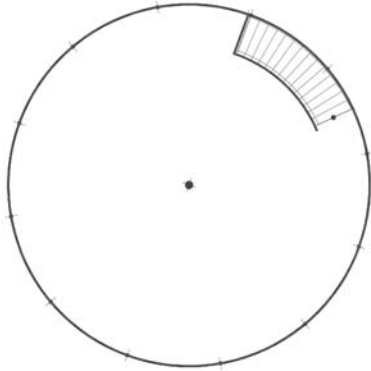
« THE FIRST MODEL WAS
MADE BY THE COMMUNITY »



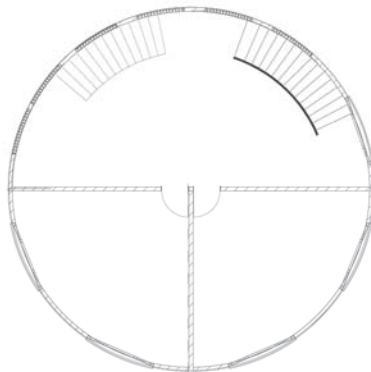
« AFTERWARDS DRAWINGS WERE MADE BY THE PLANNING TEAM »



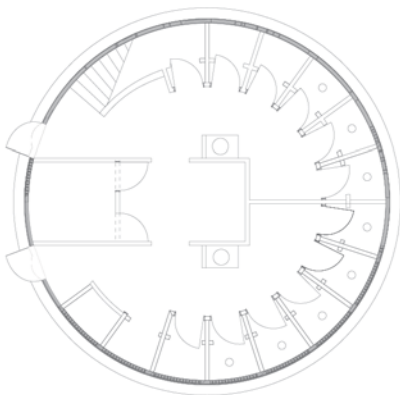
CASE STUDY - GATWEKERA TOSHA_ARCHITECTURE_PLANS AND PICTURES



Second floor, Community roof



First floor, Offices



Ground floor, toilets and showers





« INSTRUCTIONS TO WASH HANDS »





BIO-CENTRE

KAL

PARTNER AGENCIES

DRAFT

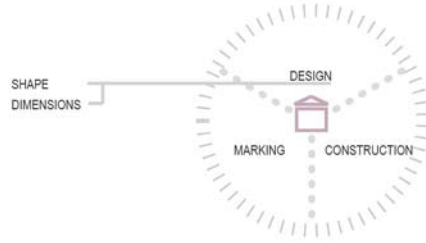
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CASE STUDY - GATWEKERA TOSHA_ARCHITECTURE_COMPARISON BETWEEN
A LOCAL STRUCTURE AND THE BIOCENTRE

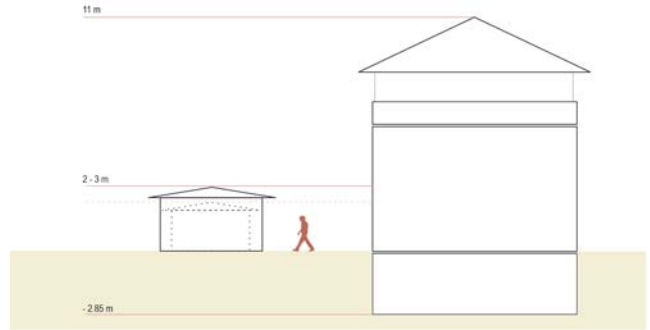
« THE BIOCENTRE IS VERY DIFFERENT
FROM THE OTHER STRUCTURES »



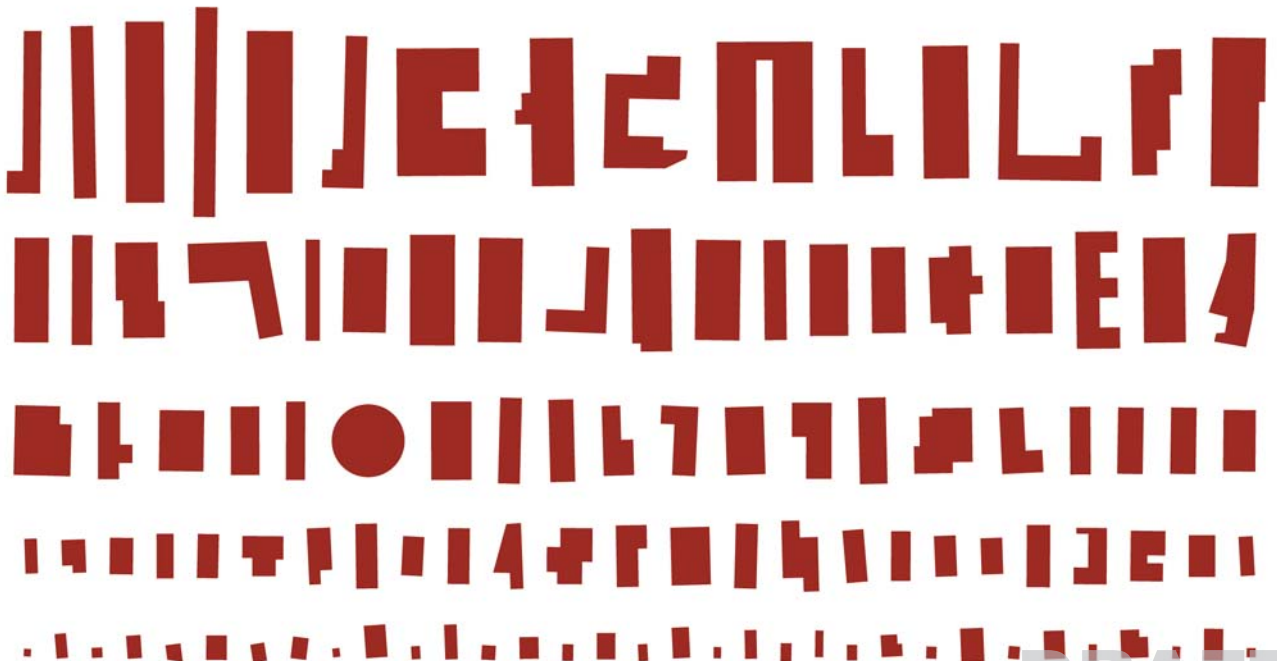
CASE STUDY - GATWEKERA TOSHA_ARCHITECTURE_ **COMPARISON BETWEEN
A LOCAL STRUCTURE AND THE BIOCENTRE**



The Biocentre is much taller and has an underground basement consisting of the biogas plant. No other structure has a round floor plan, as shown on the bottom of the page. These shapes are the tidies up structures in the neighbourhood of the Biocentre.

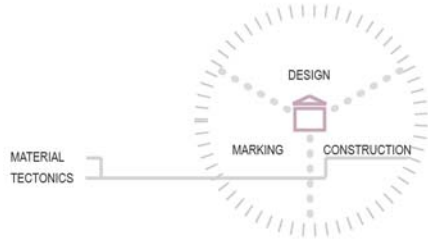


« THE BIOCENTRE IS THE ONLY ROUND BUILDING IN THIS AREA »



CASE STUDY - GATWEKERA TOSHA_ARCHITECTURE_ **COMPARISON BETWEEN
A LOCAL STRUCTURE AND THE BIOCENTRE**

« THERE ARE NO OTHER
BUILDINGS WITH GLASS WINDOWS»



KATWEKERA TOSHA BIO-CENTRE

PARTNER AGENCIES

JAKWI GORFANI
JAMA DINDA
JAPRANSANO
JASHO LETU
JSHI YETU



UMANDE TRUST
P.O. BOX 48472 TEL: 6751282
email: info@Umande.org

gtz Sida



THE KATWEKERA TOSHA
BIO-CENTRE
WAS OFFICIALLY OPENED BY
H.E MR. ADAM WOOD
BRITISH HIGH COMMISSIONER
ON 5TH JUNE 2007.

KATWEKERA BIO - LATRINE
WAS OFFICIALLY OPENED BY
COUNCILLOR OPETE OPETE
OF SARANG'OMBE WARD
ON 1ST FEBRUARY 2007.

THE KATWEKERA TOSHA BIO-CENTRE

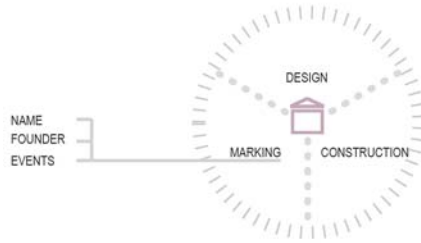
WAS OFFICIALLY OPENED BY
H.E MR. ADAM WOOD
BRITISH HIGH COMMISSIONER
ON 5TH JUNE 2007.

KATWEKERA BIO - LATRINE

THIS FOUNDATION STONE
WAS LAID BY
COUNCILLOR OPETE OPETE
OF SARANG'OMBE WARD
ON 1ST FEBRUARY 2007.

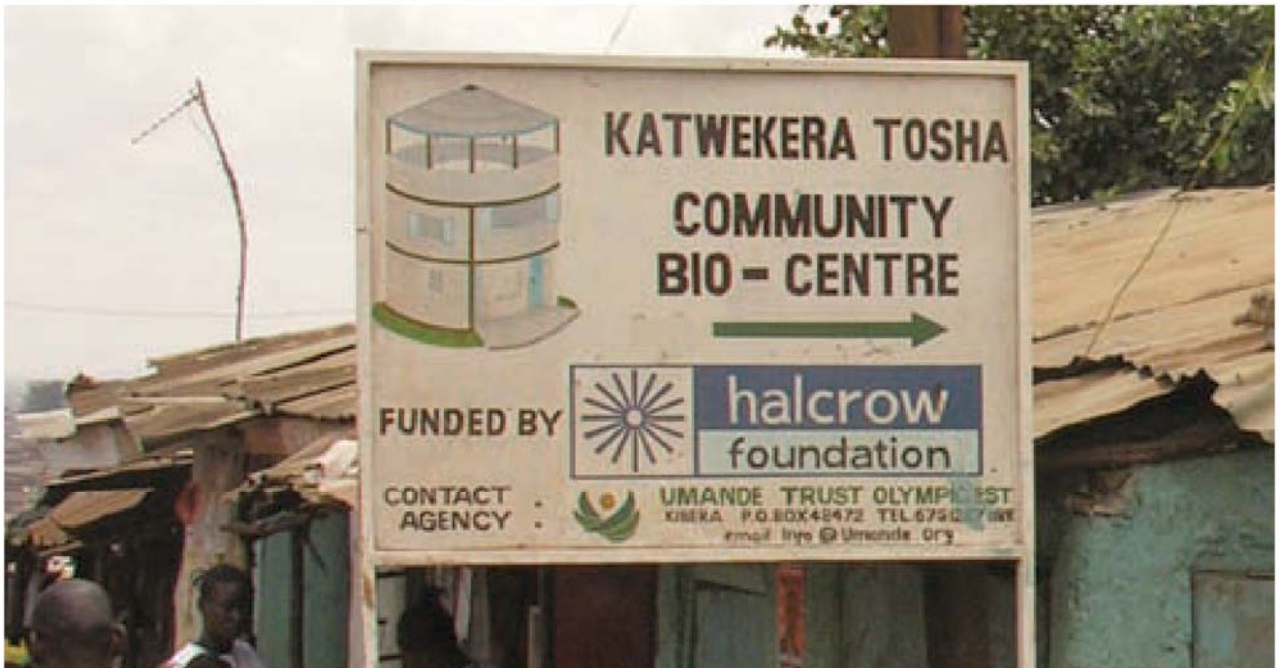
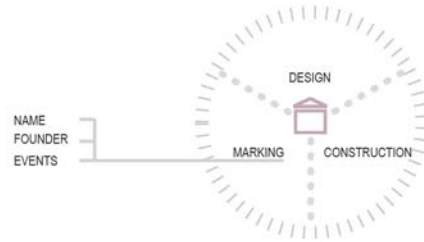
CASE STUDY - GATWEKERA TOSHA_ARCHITECTURE_ **COMPARISON BETWEEN
A LOCAL STRUCTURE AND THE BIOCENTRE**

« INSCRIPTIONS ON THE
BUILDINGS TELL STORIES »

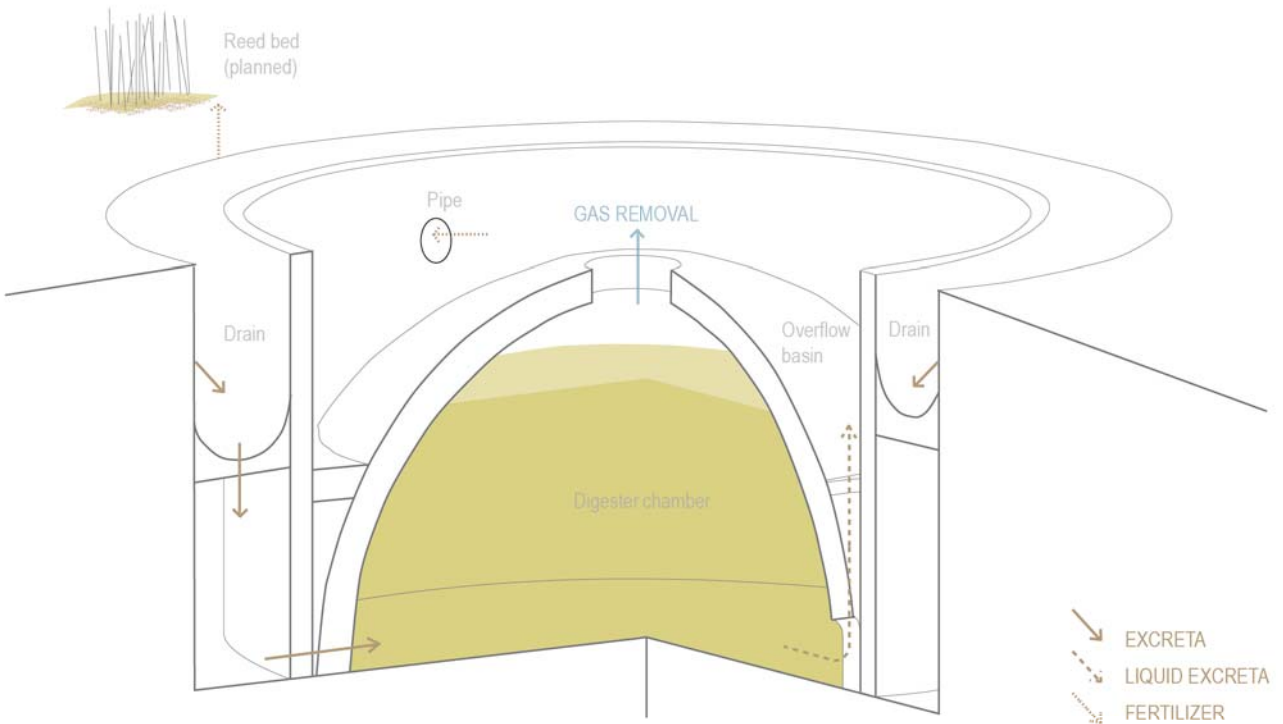


CASE STUDY - GATWEKERA TOSHA_ARCHITECTURE_COMPARISON BETWEEN
A LOCAL STRUCTURE AND THE BIOCENTRE

« ADVERTISED
TOILET FACILITY »



CASE STUDY - GATWEKERA TOSHA_ARCHITECTURE_TECHNOLOGY



« THE BIOGAS TECHNOLOGY IS SUPPOSED TO PRODUCE GAS AND DUNG »

BIOGAS TECHNOLOGY

Biogas is a proven anaerobic digestion technology which transforms human waste into biogas and liquid fertilizer. The Biocentre prototypes are circular towers comprising a ground floor with toilets and showers. The excreta and waste water flows through the drain into the digester chamber, where gas is produced. Because of the pressure of the gas, the liquid fertilizer flows into the overflow basin and further out of the building. It takes about two years until the digester chamber is full and fertilizer is produced. They have planned to construct a reed bed around the building to clarify the liquid fertilizer.

REASONS FOR THE BIOGAS SYSTEM

"Dry" toilet system need no sewerage system, which would anyway not be available. Hence there is no danger of waste leaching into the ground water and polluting water supplies, causing disease. In comparison to the usual pit latrine, which fill up quite quickly, the digester chamber regenerates himself and in addition fertilizer and gas is produced. The gas is planned to be used for cooking and the fertilizer is useful for agriculture. After the extraction of the dung particles through clarification, the water can be reused.





« HELPING TO BUILD UP THE STRUCTURES
IMPLICATES A FEELING OF OWNERSHIP»

Bricks are produced by the labourers on the site.
Cement is being produced in Thika.
Iron and timber is bought at the local market in Nairobi.







CURRENT SITUATION

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MULTIPLY

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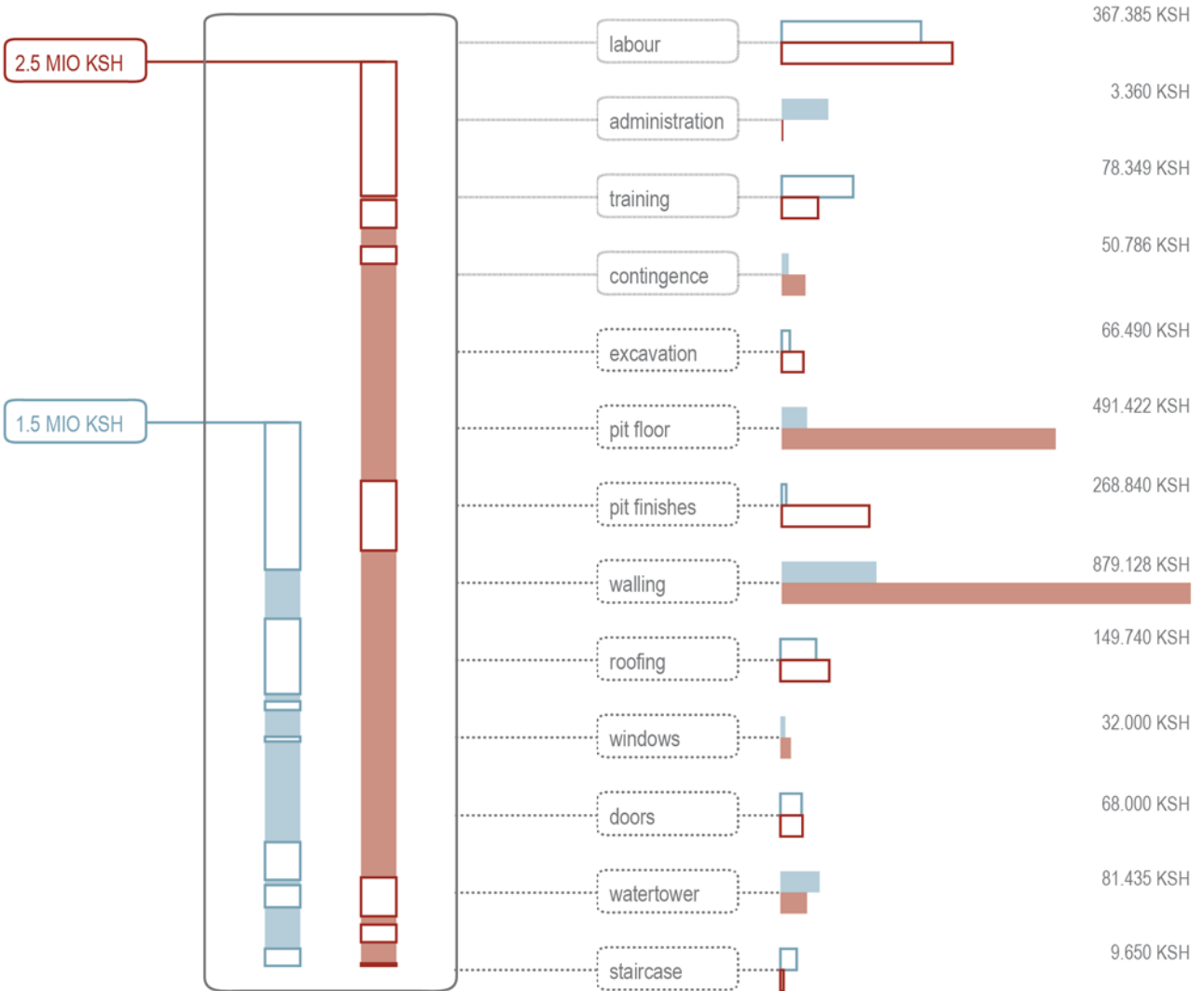
MONEY AFFAIRS

More than 40% of Kibera Inhabitants borrow money to close the gap of financial and asset needs. The most cited sources of borrowing were friends, relatives and business owners. Only 1% is borrowing from banks. Low formal sector borrowing most likely resulted from tight conditions like need for collateral, which most slum dweller lack.

SOURCE: UN-HABITAT, Household Survey Report

CASE STUDY - GATWEKERA TOSHA_ECONOMY_EXPENSES

The budget of 1.5 million KSH could not be kept. The expense increased to more than 2.5 million KSH. The budget was calculated apparently only with one floor, as told by Umande Trust. Administration and Training costs were less than budgeted.



manpower ————
 structure
 budget [blue box]
 cost [red box]

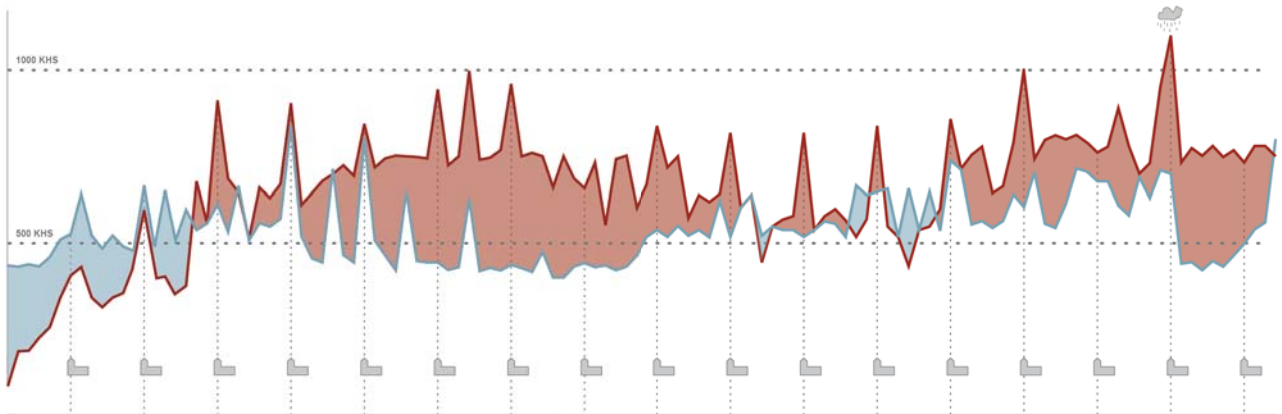
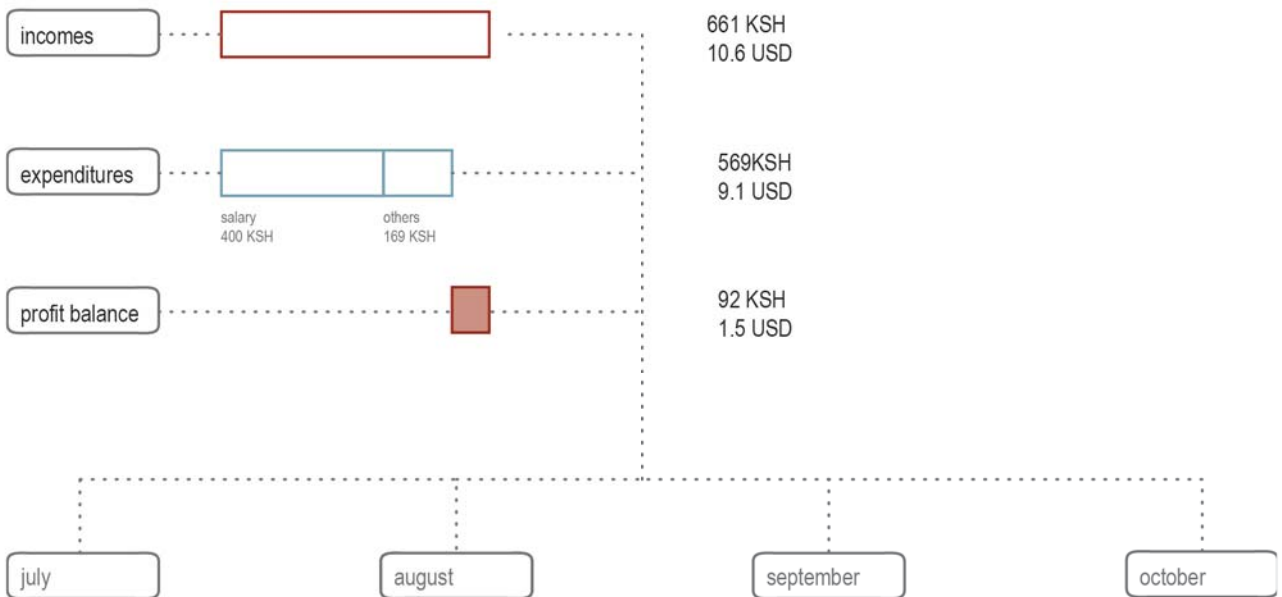


CASE STUDY - GATWEKERA TOSHA_ECONOMY_BALANCE

use the toilets. The average daily income of the centre as far as the offices are not rented is limited on this revenues.

On the expenses side there is the wage for the caretakers and expenditures for operating and maintaing, like toiletpaper or cleaning agent.

The daily income balance is 92 KSH.



A photograph of a makeshift structure, likely a toilet, made of wooden poles and corrugated metal. A white wooden sign with black hand-painted text reads "TOILET OPEN 3A". The structure is cluttered with various items, including a white plastic bag and some debris. The background shows a corrugated metal roof and wooden beams.

TOILET OPEN 3A

INCOME

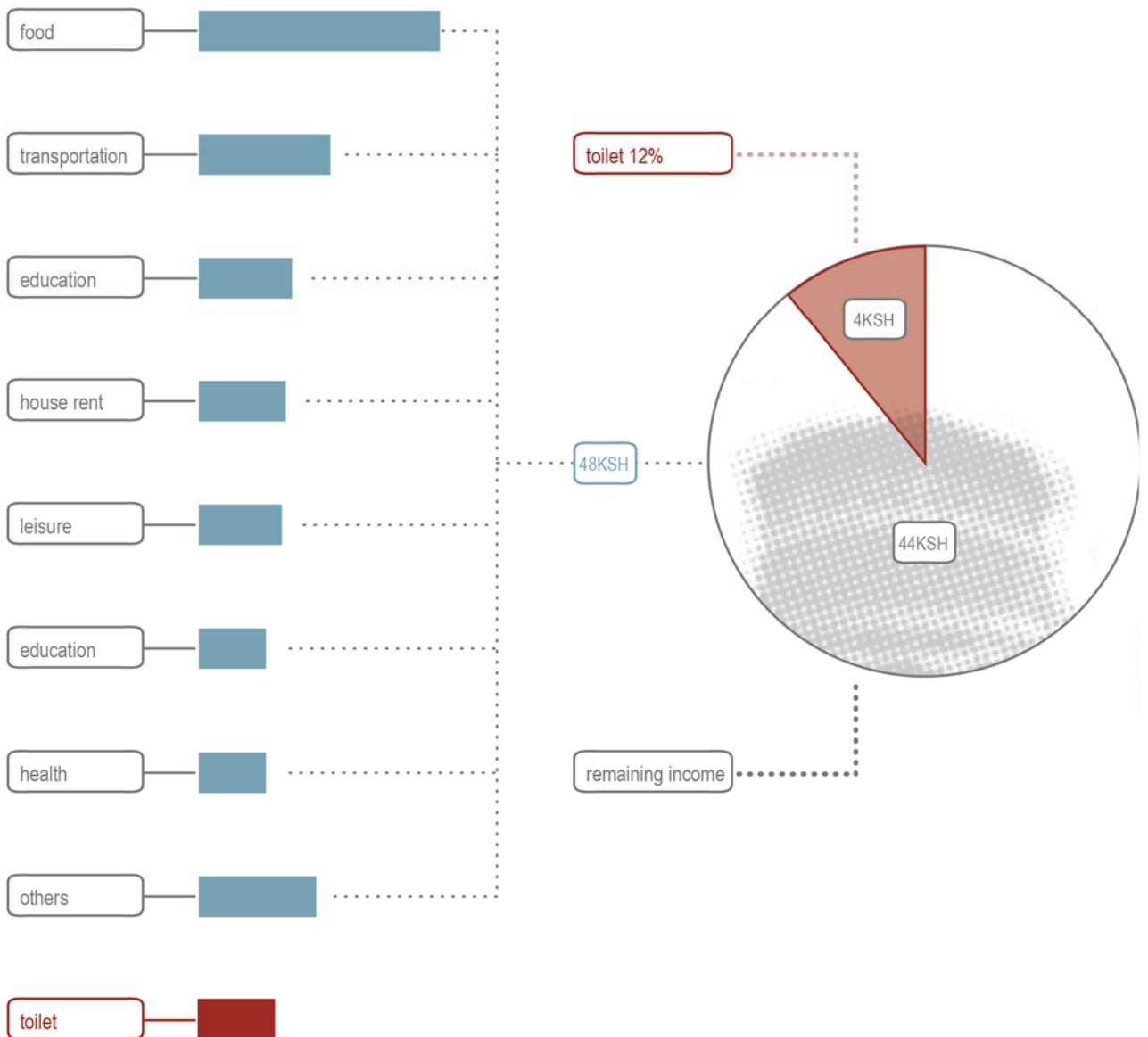
The income of Kibera inhabitants is mainly from wage employment (72 %) and small business (26%) engagement. A small part (2%) earns money with renting structures. Nearly 80% of households has less than 10 000 Khs. The average monthly income per household is 8500 Ksh.

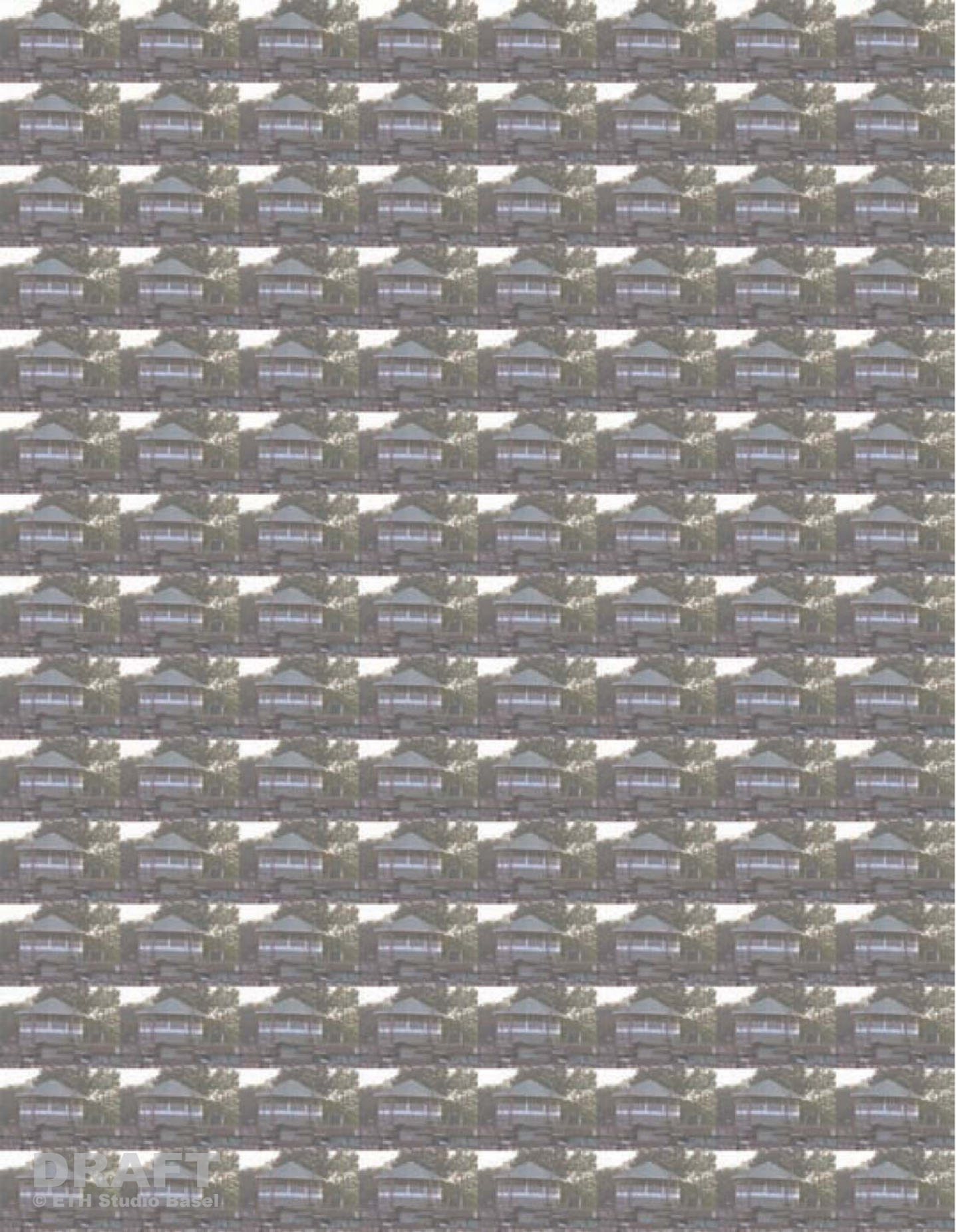
An average of 6 people is depending on a household income. With a daily income per household of 280 Khs only 48 Khs (0.75 USD) remains per capita per day. This underlies the extreme poverty line of 1USD Dollar (Definition by Worldbank).

CASE STUDY - GATWEKERA TOSHA_ECONOMY_MONEY PROPORTIONS

The average expenditure of a household in Kibera is spreaded as shown below.

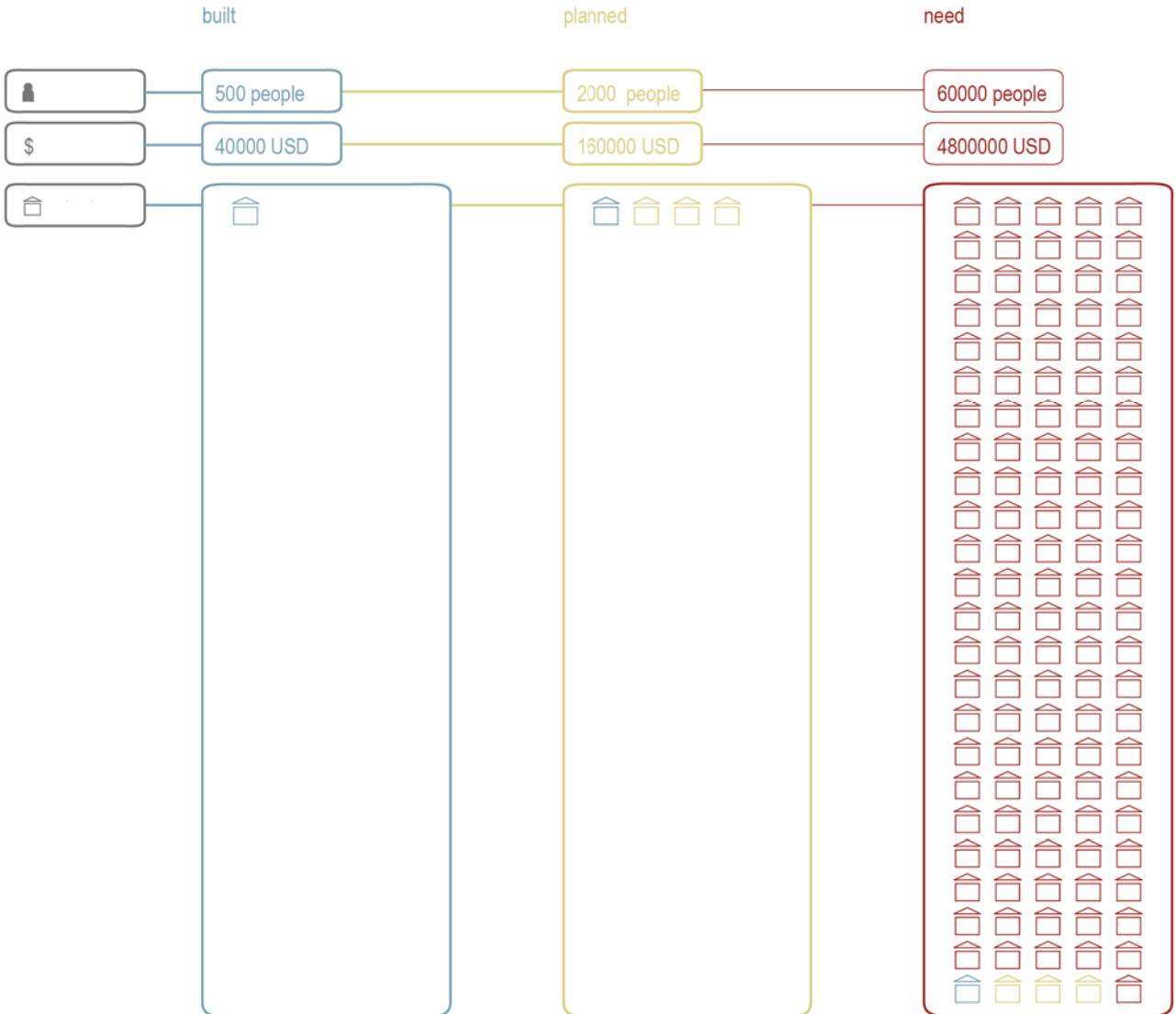
With a twice daily employment of the Biolatrine, they spent 12% of the average daily income (48 Ksh) of a kibera inhabitant.





CASE STUDY - GATWEKERA TOSHA_ECONOMY_MULTIPLY

There are three more projects planned within the village. If the project would be scale up to the whole village to reach all people of Gatwekera, there should be built 120 biolatrines.



people benefited from the projects

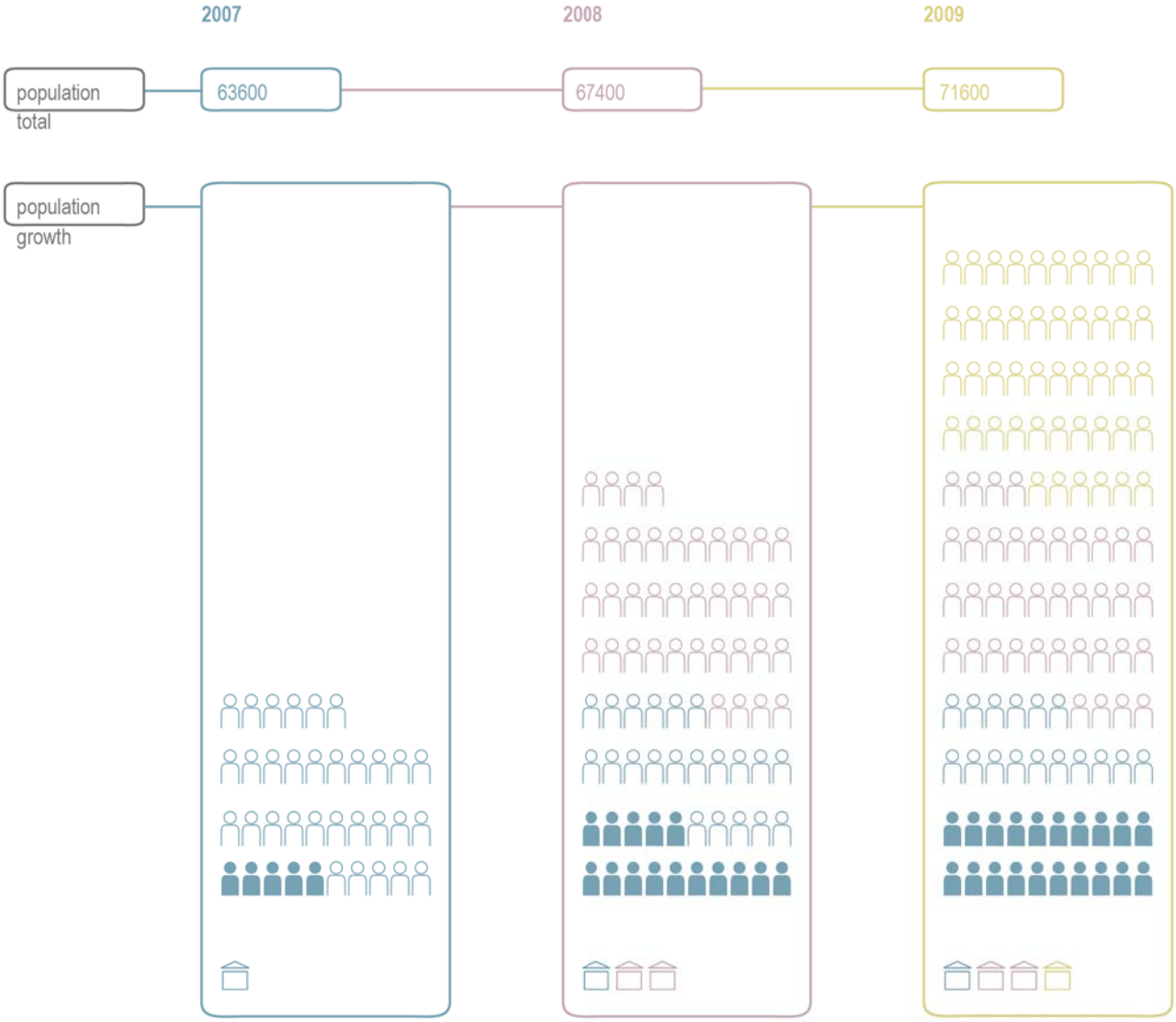
Money need for the particular projects

projects



CASE STUDY - GATWEKERA TOSHA_ECONOMY_GROWTH CALCULATION

Until all 4 projects will have been built in 2 years, the population of the village will grow so fast (6% per year) that not even the new population part will can be served by the facilities.



100 people of the annual population growth within the village
 proportion can be served of the new population





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TOILET AVAILABILITY

ONE HOUR

USERGROUPS

FUNCTIONS

DISCUSSION



Typically up to 75 people use one pit latrine. The better maintained latrines are used at a fee hence not accessible to every resident.

SOURCE: UN-HABITAT, Executive Summary Report

« ONLY 20 FAMILIES POSSESS A MONTHLY CARD »

With the user card every family member is allowed to go to the toilet.
One card costs 80 Ksh.



Community member:

“My friends in the surrounding are impressed by the utility, they want to have some more because one is not enough!”



Toilet user:

“ this toilet improved the situation very much. There are not so many flying toilets any more.”



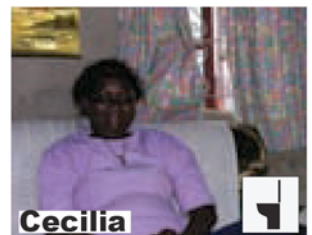


CASE STUDY - GATWEKERA TOSHA_ECONOMY_TOILET AVAILABILITY

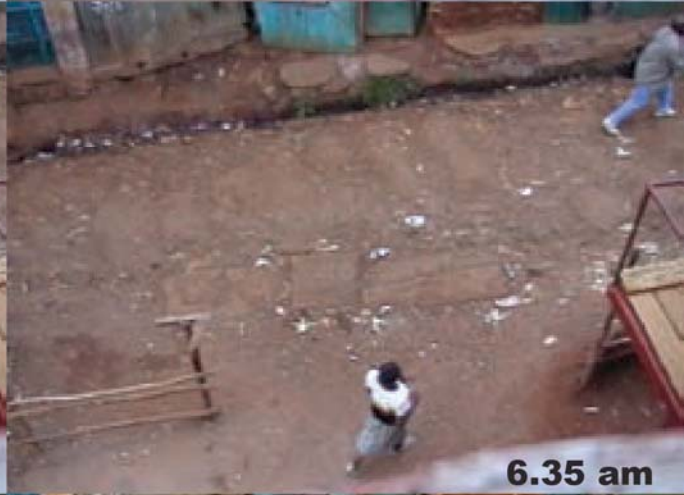


Interviews with people living in the surrounding, asking whether they have a toilet near their shacks or not.

Some of them use the biolatrines and some don't. The main reason for not using the toilet is the distance between their shacks and the Biocentre. People who have own toilets prefer their own pit-latrines because they don't want to pay.



« 93 PEOPLE USED THE TOILETS DURING 70 MINUTES »



CASE STUDY - GATWEKERA TOSHA_ECONOMY_ONE HOUR

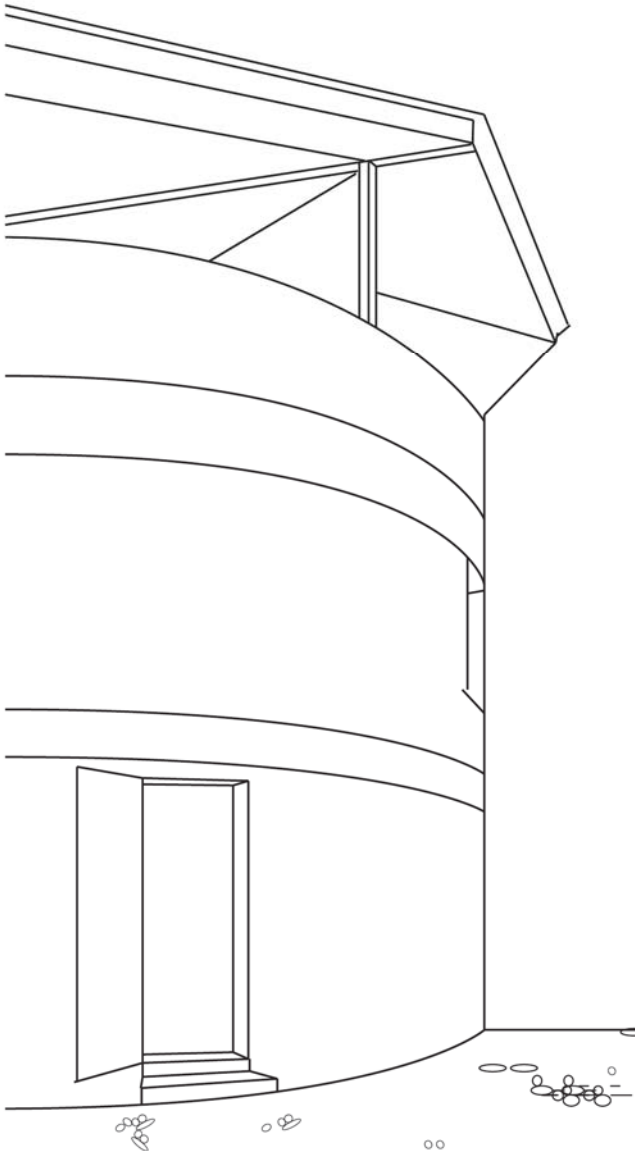




CASE STUDY - GATWEKERA TOSHA_ECONOMY_USERGROUPS AND FUNCTION

There are two different user groups at the Biocentre:

- KIBERA RESIDENTS
- INTERESTED FOREIGNERS (TOURISTS)



ROOF TERRACE

Anyone of the COMMUNITY has been on the terrace. Many TOURISTS come to see the view over Kibera. Sometimes there are meetings, or information arrangements for foreign companies or technicians which are interested of the technology of the Biocentre.

OFFICE

Fee per month: 6000 Ksh

At the time of the studies in Nairobi, NO ONE rented the offices. The COMMUNITY administration work is done at other places, for example at their home, because the rent of the offices is too high. These three rooms are meant to generate money for the community.

SHOWER

Fee per usage: 2 Ksh

Until the beginning of November 2007 the showers were not in use because the pressure in the pipe was not high enough to use the showers.

The water tank was then removed on a platform some meters above the floor level.

During the installation of the tank the Nairobi Water and Sewerage Company stopped the water supply in Gatwekera because of illegal connections at the pipeline of the government.

TOILETS

Fee per usage: 2 Ksh

The toilets are the main and only function in use at the moment of the studies in Nairobi.



CURRENT SITUATION

A CASE STUDY - GATWEKERA TOSHA

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DEVELOPER

ARCHITECT

LOCAL
CHIEF

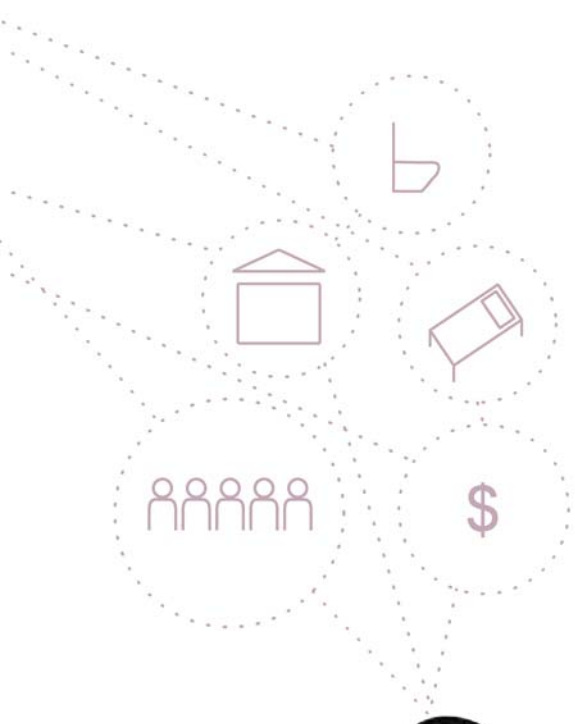
DONOR

POLICE

GOVERNMENT

STRUCTURE
OWNER

NGO



RESIDENT



DISCUSSION

The research about the Biocentre was an exceptional experience, even though we both have been to other slums in the world. People face similar problems but we never came across such conditions. Researching a pilot project in this area, Kibera, was very telling for our live experience. Despite the insight into the lives within this informal settlement, many asked questions are still not answered and new questions arouse.

We are still wondering what the aim of such researches is. Within two weeks time, no one is able to catch the whole complexity of this huge informal settlement and all the actors involved. What does this project tell us in terms of planning slum upgrading projects?

PROBLEM OF COMMODIFICATION

Kibera is an outcome of diverse factors that include segregation policies in the colonial era, a post-independence policy of slum clearance, a sluggish growth in the economy of Nairobi, lack of land policies to enhance equitable distribution of land as well as unsuitable urban development policies. Decades of poorly functioning local government in Kenya has led to commodification of water, shelter, refuse collection and sanitation. The process of commodification have resulted in a complex structure of economic stakeholders, who have acquired a degree of social legitimacy to extract profit out of the trade of inadequate basic necessities to the poor.

The motivation of the private sector to provide the settlement with services is profit. Which leads to the absurd fact that people living in slums have to pay many times higher prices for water and that they even have to pay for the access to adequate toilets.

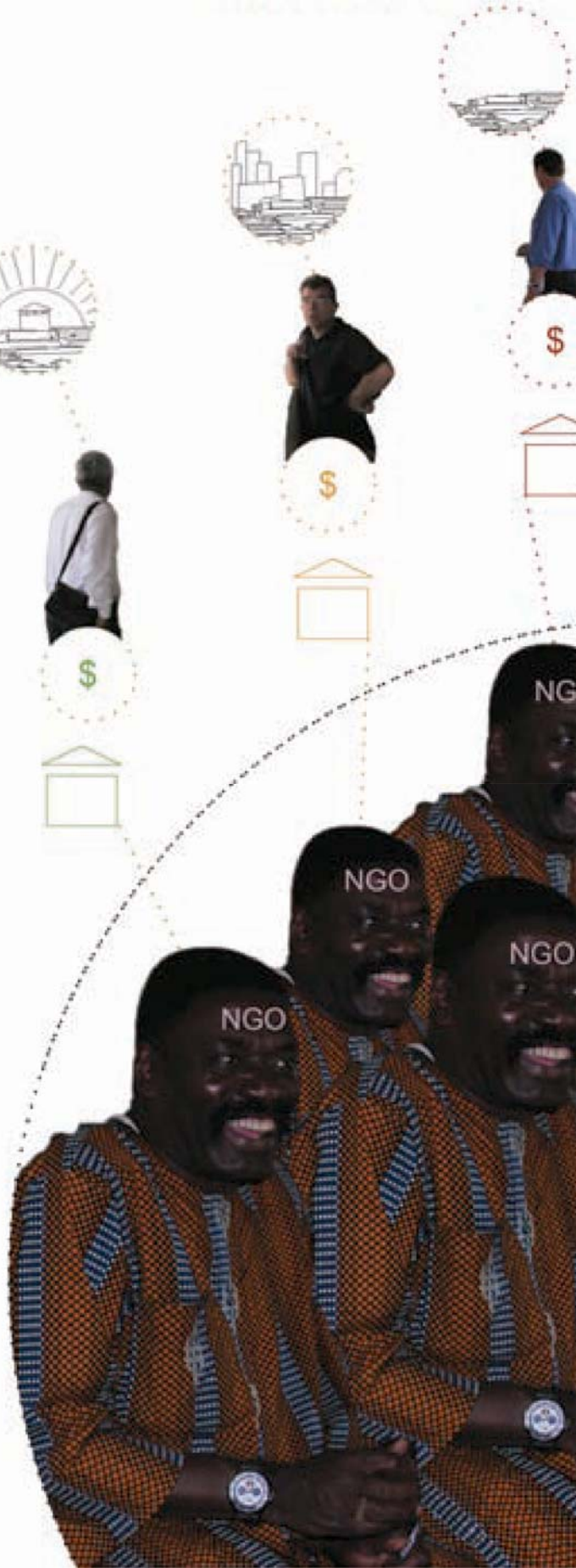
PROBLEM OF AFFORDABILITY

In 1990 the Kibera High Rise project of the National Housing Corporation (NHC) in which all units, originally intended for Kibera's slum dwellers, were allocated and/ or traded to the middle class. The targeting problem in this project was due to high-level corruption beyond the control of the NHC. However what enabled this corruption was the fact that the housing units were planned to middle class standards from the outset. In the past such large-scale projects have also failed to understand the needs of the many different ethnic groups within the different villages that comprise Kibera.

One can assume that also in the ongoing KENSUP upgrading project (see page 14) one fatal mistake is being made. The rent of the multi storey houses will be up to three times higher than the existing rents. Slum dwellers will be forced to form new slums because the new rooms won't be affordable for most of them. Richer people from other parts of the city will be attracted by moderate housing prices.



GOVERNMENT



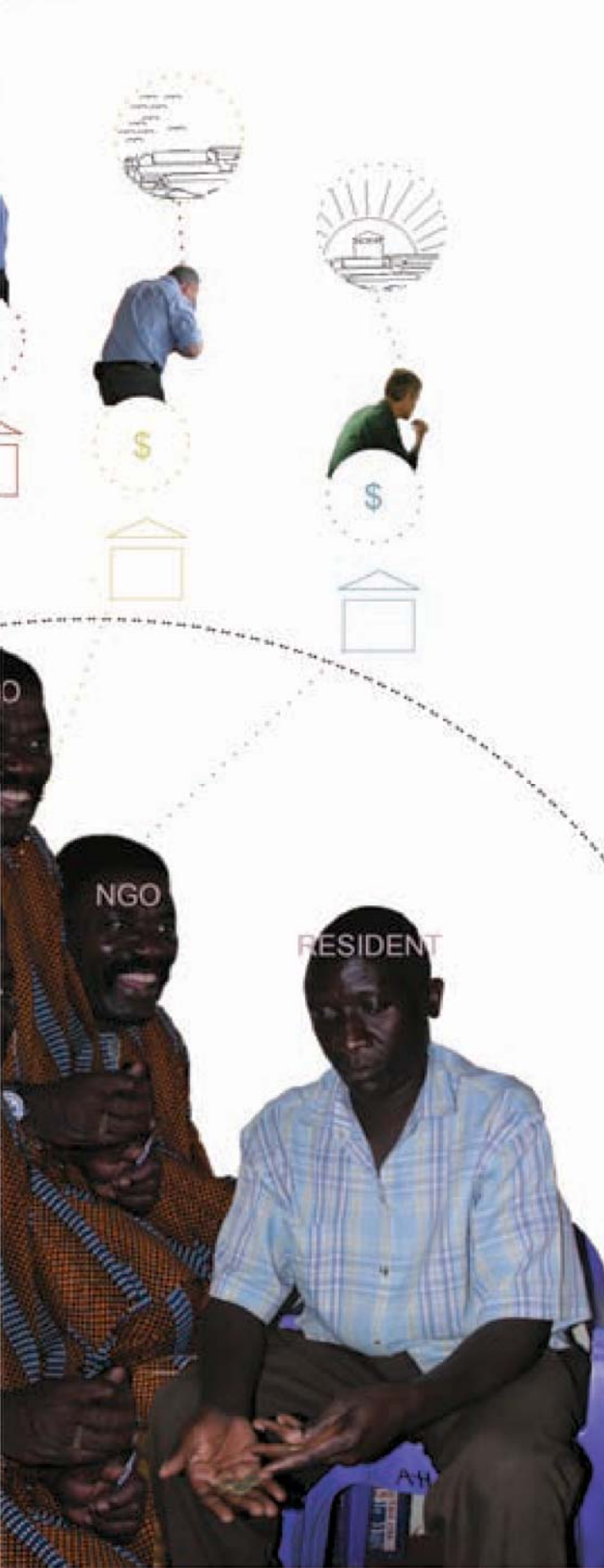
NGO

NGO

NGO

NGO

DRAFT
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PROBLEM OF THE INTERVENTIONS OF THE NGO'S

NGO's and private investors try to intervene with small-scale project. In cooperation with the CBO's they help founding projects in different fields.

Most of the NGOs working in Kibera continue to be involved in service provision, mostly single projects, rather than engaging with more fundamental socio-economic rights of the individuals living in the slums. Among other things the reason for not doing bigger-scale interventions is the lack of capacity and competence. This represents one fundamental challenge of the NGOs.

With their commitment they are also part of the problematic commodified system and support indirect the withdrawal of the state or the local government.

PROBLEM OF COORDINATION

Furthermore the NGOs , in fact not having real income sources, are constantly on the run for funds, leaving inadequate time for proper planning and setting of strategies.

This results in loss of synergy and valuable experiences and lessons, ending in duplication of efforts and poor utilisation of scarce resources.

The lack of coordination includes also donors. The international donor priorities unfortunately do not always fit together with real needs. Some of the agencies implement programmes and projects without adequate information on the setting.

PROBLEM OF TIME AND SPACE

Thinking about the actual population distribution and the population growth within the settlement the whole situation seemed to be anymore desperate. If the population growth of 6% per year will stay on this high level the number of residents will be doubled in 15 years.





APPROACH

There are many more problems, which could be listed. It is apparent that the reduction of commodification seems to be the main condition precedent to upgrade successfully. Encouraging social landlords and moderating the tenement market through large-scale public housing could be regarded as necessary steps in correcting the distorted urban housing market in Kenya, but it will take several years if not decades before they have a noticeable effect for the current slum population. In the interim, water, sanitation and shelter needs in Nairobi's slums are urgent and therefore call for immediate intervention. These interferences have to be adequate in time and money management and be sustainable.

Reproducing interventions is much more difficult as it seem to be. As we have seen at the researched pilot project a series of fundamental problems are not solved.

The amount of money invested for such a project affecting only 500 people per unit is proportionally very high, also regarding that a big amount was spent for space which is neither a real need nor just not affordable.

At the same time of researching in Kibera two more Biolatrines were in construction stage. They started building even though it is not sure if the pilot project itself is sustainable. It also shows the challenge of lacking land within the slum while the two available sites are smaller than planned. Accordingly there will not be any space for the reed bed.

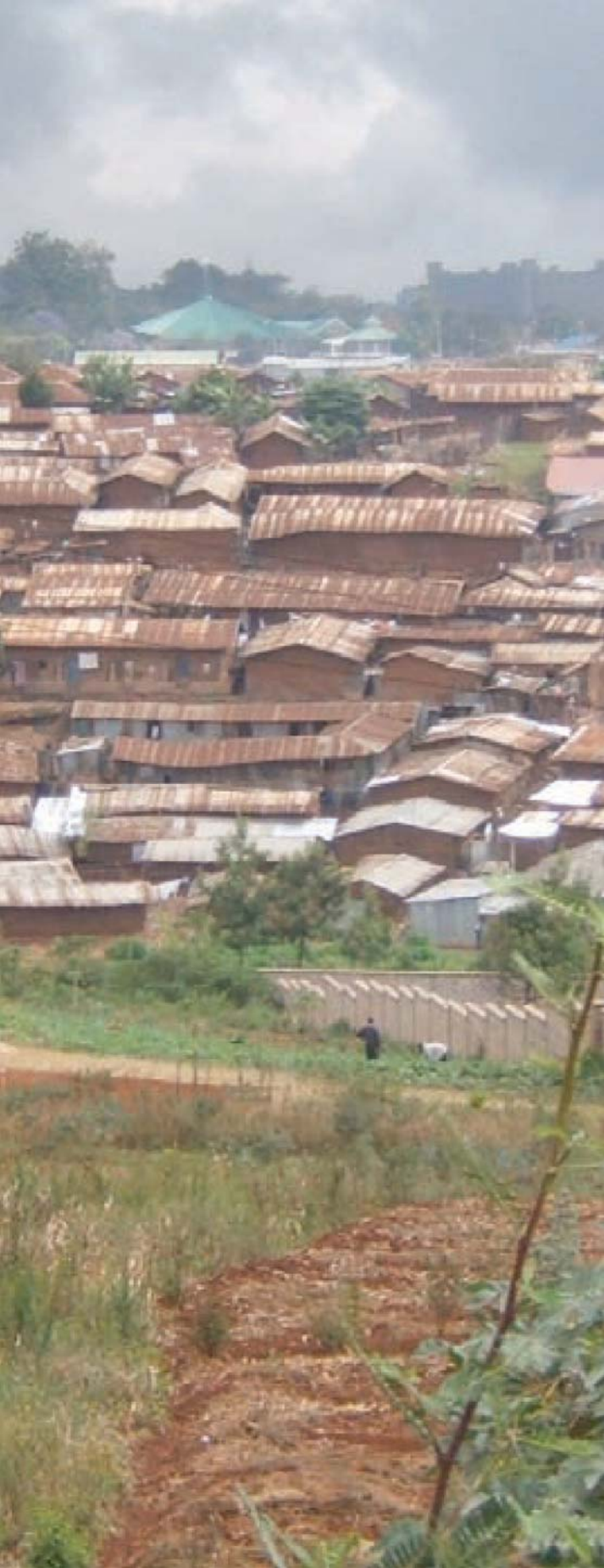
Regarding the given circumstances the question arises if such projects should be done in the future. The community involved in those upgrading projects have many vantages. Jobs are being created during the construction and after at the maintaining status. Another positive aspect is the improved situation for people who can afford these toilets.

Summed up these projects help a small number of people to have an improved surrounding. But in the wider context it is only a drop in the bucket and the situation is still miserable.

Having now the awareness of the intricacy and huge problems of the whole system, we are still not able to really get the point.

To act within such a different social surrounding it is apparent to reflect about the role of an architect? How should an actor from outside react? How can skilled staff intervene with a proportional higher positive result? Should foreign experts just assist with professional advice and let the Locals plan their own villages? Should we adopt such a challenge by having doubts about the whole System?





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(c) ETH Studio Basel
Spitalstrasse 8
4056 Basel Switzerland
+41 61 2731685
studio-basel@nsl.ethz.ch
<http://www.nsl.ethz.ch/basel/>

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