



ENGENDERING POSITIVE CHANGE IN SLUMS

Role of Biocentres in the Supply of Affordable and Sustainable
Water & Sanitation Services in Informal Settlements



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Acknowledgments

Publisher

The Umande Trust is a rights-based organization with offices in Nairobi and Kisumu that has been dealing with water and sanitation issues, governance and advocacy for people's right to water and sanitation.

Report

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Haki Zetu Biocentre in
Kibagare area, Nairobi

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This report was written by John Mbaria, a private consultant, town planner and journalist with support from Umande Trust officials. Field work for the report was carried out in 2014 in a sample of biocentres located in informal settlements of Nairobi and Kisumu.

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The views and conclusions expressed in this publication are those of the Umande Trust alone and do not reflect opinions of the individuals and organizations that have facilitated the construction of the biocentres and other that have partnered in many other respects.

Acronyms

AIC	Africa Inland Church
BMC	Business Management Committee
CDF	Constituency Development Fund
ICT	Information Communication Technology
JKUAT	Jomo Kenyatta University of Agriculture and Technology
KWFT	Kenya Women Financial Trust
MEP	Mukuru Environment Project
MOU	Memorandum of Understanding
NACHU	National Cooperative Housing Union
NICOFELI	Nicholas Felicia
NWSC	Nairobi Water & Sanitation Company
NYS	National Youth Service
SANDEF	Sanitation Development Fund

Executive Summary

It is evident that before Umande Trust and its partners came into the picture, the provision of running water and basic sanitation was either virtually non-existent in vast parts of Kibera, Kibagare, Mukuru and Korogocho in Nairobi as well as in Omunga, Kibandani, Kibuye and Nyalenda 'B' in Kisumu or the supply was inherently erratic and unreachable to most residents

The Consultant was required to assess whether the operations and management of a sample of biocentres in Nairobi and Kisumu have been meeting the sanitation and water needs of the targeted beneficiaries. He was also required to assess whether the facilities are viable and bankable solution for the delivery of affordable and sustainable water & sanitation services in the informal settlements. Further, the terms of reference called for the assessment of the bio-centres in terms of whether they have brought about positive socio-economic change and environmental well-being in the relevant areas.

To accomplish the task, the Consultant reviewed a series of documents and records detailing the design, implementation, operations, financial management and impacts the bio-centres have brought to the relevant communities. This also involved conducting a series of visits to the sampled 6 bio-centres located in Mukuru Kaiyaba, Korogocho, Kibera and Kibagare slums. The tours enabled site reconnaissance surveys in the relevant areas, observation and to capture the relevant phenomena in photographs. Later, the consultant conducted interviews with Umande Trust officials, committee members of the organizations that manage the facilities as well as with a sample of the beneficiaries.

It is evident that before Umande Trust and its partners came into the picture, the provision of running water and basic sanitation was either virtually non-existent in vast parts of Kibera, Kibagare, Mukuru and Korogocho in Nairobi as well as in Obunga, Kibandani, Kibuye and Nyalenda 'B' in Kisumu or the supply was inherently erratic and unreachable to most residents. The people inhabiting the areas were forced to rely on water vendors who not only sold the water very expensively but were also quite unreliable. At the same time, most people had either to cope with the few pit latrines whose conditions were nothing but pathetic or to use every available space to relieve themselves. The relevant areas in Kisumu had the added challenge of sinking latrines because most are located in the floodplains of Lake Victoria where the water table is very shallow. In many of the areas, the few communal pay toilets that existed were unaffordable to a big number of the residents. All this had given rise to, and exacerbated the 'flying toilet' phenomenon and subsequent health risks that had become almost synonymous with life in the informal settlements.

In an attempt to solve these major problems, Umande Trust joined hands with local organised community groups, the Nairobi Water & Sanitation Company (NWSC), Equity Bank, Kenya Women Financial Trust (KWFT), donors and the local administrations. The partnership led to the financial sponsorship, design and implementation of innovative, lasting, workable, cost-effective and sustainable solutions in the form of biocentres. In most cases, the latter were designed as single-storey complexes housing different facilities and services. Those in Nairobi had a characteristic round design while those in Kisumu assumed a more rectangular design. But all of them were not only meant to provide sanitation and water solutions for residents within a vicinity of 60 metres, but also to act as business-cum-communal ventures. They were designed and implemented to uplift the economic fortunes of groups that manned them as well as contribute to water and sanitation provision besides promoting cohesion and social integration in the multi-ethnic settlements.

To ensure that the relevant community-based groups owned and managed the facilities effectively, Umande Trust set conditions for their implementation. Among this was that the groups had to secure sites where the facilities were to be constructed and contribute in kind during the actual construction. Umande also undertook a training scheme that targeted the groups' officials on the following:

- Leadership and governance;
- Design, operations and maintenance;
- Business operations, savings and credit systems;
- Drafting of constitutions,

Executive Summary

To a large extent, the bio-centres are meeting sanitation and water needs of the residents in the relevant informal settlements. Consequently, the facilities have largely met the sanitation objectives set by Umande Trust and partner

- How to market their facilities; and,
- Hygiene promotion within relevant neighbourhoods.

The organisation also acted as liaison between the groups and donors, financial institutions as well as other local and international bodies including education institutions and volunteers. To a large extent, this has gone a long way in ensuring that the beneficiaries own not just the facilities but also the entire process of implementing the bio-centres, managing and also maintaining them.

From the field excursion, it was evident that all the sampled biocentres have the following facilities:

- Water points;
- Bathrooms and toilet facilities ;
- Rooms that are either rented to businesspeople or to tenants;
- Community halls;
- Kitchens that utilise biogas generated from the bio-digesters.

All the sampled biocentres are run as business ventures. The users demonstrated that they clearly understood that they were required to pay for the services. Although there are evident price differentials, all the sampled bio-centers offered the services at rates that most clients said were affordable. The centres are open between 5.00 A.M. and 10.00 A.M. giving residents and travelers adequate time to use the facilities for their water and sanitation needs.

Further, the sampled bio-centres are strategically located either along main roads (i.e. Kibagare, St Christine and Kochoto) or within the densely settled sections of the relevant slum areas. This has given both residents and travelers easy access to the services on offer and has contributed to encouraging positive behavioural change in most of the residents and travelers who now prefer using the facilities instead of relying on 'flying toilets' or open defecation. From the field visits, it was apparent that in each of the sampled biocentre, toilets are the most utilized while water points, bathrooms and kitchen follow in that order.

To a large extent, the bio-centres are meeting sanitation and water needs of the residents in the relevant informal settlements. Consequently, the facilities have largely met the sanitation objectives set by Umande Trust and partners. In as much as they have reduced the 'flying toilet' phenomenon, they have therefore contributed to a notable level, the environmental well-being in the relevant areas.

However, it was evident from the visits that the presence of the biocentres has not created widespread impact as far as environmental well-being is concerned. Nevertheless, this needs to be looked at against the background of overcrowding in the informal settlements, lack of proper slum-wide drainage and sewerage systems, inadequate or absence of solid waste management systems and total neglect by public health department and most other authorities and institutions. But other initiatives, and especially the rolling out of the government-initiated sanitation measures in Kibera –that is currently been implemented by servicemen and women from the National Youth Service in conjunction with local youths, promises to positively alter the long-running sanitation challenges in the informal settlement particularly if it can inspire similar initiatives in Kisumu and other towns.

At the same time, although the bio-centres have been designed to create a positive impact on the planning of the area within a 60-metres vicinity, to a big extent, this is yet to be realized. In many of the areas, the business-as-usual practice is apparent. However, there is a need to

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As far as financial management is concerned, most of the sampled biocentres have a discernible system of keeping financial records. All operated a bank account and had rules stipulating how and when the cash generated from the sale of services was to be used or deposited in the groups' account

appreciate the fact that positive results of planning are usually realized-and become visually apparent- in longer time periods than the span of time the bio-centres have been in existence in the informal settlements of Nairobi and Kisumu.

On the management of the bio-centres as business ventures, it was clear that most of the groups that man them had put in place a discernible management structure that include executive committees -which are the main management and decision-making committees-, business management committees (BMCs) that are in-charge of day-today running of businesses in the facilities and other sub-committees in-charge of different operations in the facilities. Ordinary members are also involved in decision making while caretakers are employed to run the centre on a day-to-day basis.

In most of the groups managing the facilities, the committee members were elected into the office through a fair process supervised by Umande Trust officials and -in some cases- overseen by representative of the Social Department of government and in adherence to relevant groups' constitutions. However, in the case of the Korogocho-based bio-centre run by the Kochoto Youth Group, the term of office for the officials has not been spelt out neither were those interviewed aware of whether the group had a written constitution. In addition, the officials had not been transparent or accountable in the way they managed the cash generated from the sale of services in the biocentre leading to anger and disillusionment on the part of members. Nevertheless, Umande-which monitors the operations in the facilities-, has since intervened to ensure that accountability systems were put in place to correct the situation.

As far as financial management is concerned, most of the sampled biocentres have a discernible system of keeping financial records. All operated a bank account and had rules stipulating how and when the cash generated from the sale of services was to be used or deposited in the groups' accounts. Kibagare Haki Yetu bio-centre had the most impressive record keeping system. At the same time, Umande Trust has been monitoring the management of finances realized from the facilities.

Further, the use of the beba pay system has, in principle, made the management of cash more convenient, risk-free as well as more transparent in the Nairobi biocentres. The Kisumu biocentres operate the Kopokopo cash handling system which involves the loading of daily collection into a till number owned by Umande Trust and then dispatched to the relevant biocentres at the end of the month once relevant deductions related to SANDEF have been made.

However, the operation of the two system in the biocentres need to be studied more closely to establish the level of usage, the impact on transparency and accountability as well the challenges that could be hampering its widespread adoption by clients.

A closer look at the financial records in nearly all the biocentres the Consultant visited revealed that they are bankable and viable business ventures whose concept can be emulated elsewhere in Kenya and especially by institutional and private investors. Nearly all of them have been acquiring some profits with the exception of the biocentre run by the Kochoto Group in Korogocho, Nairobi where a lot of the cash was allegedly siphoned by officials. In illustration of how profitable the biocentres can be, the records kept at the Kibagare Haki Zetu Biocentre showed that the facility realised a profit of Ksh80, 480 in the period running between December 22, 2013 and January 26, 2014.

Many of the officials interviewed exuded confidence when proclaiming that the facilities were making profits. However, the level of profitability of some of the sampled biocentres is affected by mishandling of finances by the officials and lack of a reliable and fool-proof system of verifying the costs incurred and how many clients used facilities in the biocentres each day. There were

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Even though such areas are crowded with thousands of residents, they are usually overlooked whenever authorities plan for or fund water and electricity reticulation, sewer lines, roads and other facilities. At the same time, there has not been any meaningful attempt to give the residents the security of tenure to the lands they occupy meaning that the poor cannot use the land to access financial support from banks and other financial institutions.

also complaints from some of the members that officials (especially those who have been manning the Kochoto Biocentre) have not been transparent and accountable in the handling of the project's finances. Further to this, some of the biocentres in Kisumu such as Nyalenda 'B' and Omunga have not been supplying water and biogas to clients owing to a number of challenges related to the design of their biodigesters as well as integrity issues particularly among the caretakers employed there.

The role of the biocentres in bringing about personal and communal progress was apparent in the sense that they have enhanced a desire among the relevant groups to plan for, and embark on saving for the future. For instance, the fact that the management of biocentres in Kisumu have been coming up with monthly budgets could be seen as having a positive impact on the ability of the groups to plan their operations. Indeed, all the groups have been saving either entire amounts or part of the cash generated from the facilities in banks and boosting it with members' savings. The groups have also been extending credit to members at some interest. Further, many three of the sampled groups in Kisumu and Nairobi have gone ahead to make future expansion plans some of which are based on income projections as well as loans they have either secured or plan to borrow from the SANDEV –that is run by Umande Trust- and partnering banks.

As far as the Kisumu Biocentres are concerned, the Consultant visited Kibuye, Kibandani, Omunga and Nyalenda 'B' where he interviewed the Umande staff at the Kisumu office, the management of the biocentres as well as the users.

Unlike some of biocentres in Nairobi, all the Kisumu facilities are run by networks that bring together several community-based organizations. The networks have set up structured systems of management with the Executive Committee at the apex and being constituted by representatives from member organisations. The Executive Committees are charged with overseeing the overall management of the facilities and with arriving at major decisions. At a lower level are the Business Management Committees (BMCs) which are responsible for the day-to-day running of the facilities and for whom the responsibility of ensuring that collections are handled effectively, efficiently and in a transparent and accountable manner falls upon. Besides the two is the SANDEF Committee which operates at regional level and is ideally charged with the responsibility of scrutinizing loan applications and making recommendation to Umande. Some of the Kisumu facilities have had an audit committee; but they have either been inactive or were disbanded and their roles handed over to BMCs.

Like their counterparts in Nairobi, all the sampled biocentres in Kisumu operate as business ventures in the sense that they have water and sanitation services for sale to clients. At the same time, the management committees were able to provide detailed accounts of their monthly budgets and expenditures while the caretakers have been keeping records of services' sales on a daily basis.

The Kisumu facilities have adopted the kopokopo cash handling mechanism in which they use Safaricom's Mpesa mechanism to load daily cash collections into their phones and later transfer the cash to a till number operated by Umande Trust. At the end of the month, Umande Trust remits the cash to the relevant groups' bank accounts after making monthly SANDEF loan deductions and any other standing charges. During the interviews, the Committee members and caretakers demonstrated good understanding of how the system operates and were alive to its shortcomings.

Among the challenges identified in the Kisumu Biocentres include the fact that some have not been collecting as much revenue as would have been anticipated given the fact that they are located in areas of great concentration of human settlement. For instance, although Kibuye is situated in a market at the outskirts of Kisumu City that has a big number of traders and buyers, the records show that monthly turnover have been relatively low. Members of the committee explained that this was because of a number of factors including where the biocentre were located vis-a-vis the areas of greatest human concentration; competition the biocentres have been getting from other toilet facilities in the relevant areas and the fact that many did not offer the full range of services on demand by the users.

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Although the biocentres are profitable business ventures, for the concept to be picked up and rolled out widely in the country, either by other non-profit organizations or by commercial and institutional entities, there is a need for feasibility studies to ascertain whether investing in the proposed areas would make business sense

It was also evident that some members of the committees managing the Kisumu Biocentres showed a misunderstanding of the essence of Kopokopo payment system. Although the community networks have fully embraced the kopokopo cash handling system, some of committee members complained of weaknesses in the system which they thought needed to be rectified. For one, they termed it an unnecessarily long process of handling cash that can be shortened were they to be given their own till numbers.

Some of the officials manning the sampled biocentres in Kisumu complained of long delays in getting feedback from Umande after applying for SANDEF loans. For instance, members of the management Committee at the Kibandani Biocentre said that they had applied for a SANDEF loan in February only to get a feedback in July when they were told to fill a form. But that even after doing so, the application did not go through. But as explained by Umande officials in Kisumu, the fact that some biocentres have not been getting loans was due to the fact that the cash held by SANDEF has been inadequate and could therefore not meet all the loan demands from the groups.

The Consultant observed several instances of faulty biocentre designs and poor workmanship in some of the Kisumu facilities. Among these was the design of rental rooms in Kibandani biocentre which have open spaces close to the roof making the rooms insecure. At the same time, the rooms on the ground floor of the same biocentre do not have windows making them uncomfortable to clients. Further, Kibuye's piping system has been faulty leading to a big drainage challenge that was being rectified when the Consultant toured the facility. In addition, Nyalenda 'B's biodigester has not been producing gas as it appears to have been designed without an appreciation of the number of people who were likely to be using it. The large size of the bio-digester does not allow for the production of adequate biogas in the facility.

It is safe to conclude that by and large, the biocentres make good business sense and are indeed profitable. There is also evident that they have influenced positive individual and communal behaviour and, in as much as they have reduced the 'flying toilet' phenomenon in relevant areas of Nairobi and Kisumu, they have therefore contributed to the environmental well-being in the neighbourhoods where they are situated.

However, for the purpose of enhancing the impacts of the facilities, there is a need for integrating the biocentre approach in terms of water and sanitation provision as well as environmental well-being to the comprehensive city-wide plans made by the Nairobi and Kisumu county governments. In this respect, it is important for Umande Trust and partners to liaise with the two county governments so that the approach can be embraced during the implementation of the new Master Plan for Nairobi city and particularly its slum upgrading component as well as the planning initiatives embraced by the Kisumu County government.

Although the biocentres are profitable business ventures, for the concept to be picked up and rolled out widely in the country, either by other non-profit organizations or by commercial and institutional entities, there is a need for feasibility studies to ascertain whether investing in the proposed areas would make business sense. Such studies should also come in handy in that they would inform how the facilities are designed. At the same time, relevant organisations, institutions and communal groups would need to set up foolproof management system that would embrace total accountability and transparency particularly in the handling of proceeds from the facilities.

The Kopokopo system and the SANDEF approach need to be fully explained to the management of the biocentres and particularly those managing the Kisumu facilities. This would help to get widespread buy-ins which would avoid suspicions and mistrust. At the same time, there is a need to raise SANDEF's loan portfolio so that it can cater for a bigger number of loan demands from Umande community partners.

1: Introduction

The total sum of the neglect has been a horrific sanitation, security, social, economic and environmental situation as epitomized by the 'flying toilet' phenomenon, proliferation of crime, pervasive poverty and all its ramifications.

One of the most pervasive challenges facing urban management in Africa is the exclusion of millions of poor people from accessing land, municipal services and the benefits of urban planning, growth and development. The poor have been excluded from formal allocation of land and do not have access to water, electricity, sanitation and most other basic infrastructure. This has led to the proliferation of unplanned settlements as evidenced by slums and other informal neighbourhoods that domicile hundreds of thousands of people in countries such as Kenya. Indeed, it is estimated that 60% of Nairobi residents live in such settlements.

The exclusion of the poor is seen as an offshoot of the adoption and pursuance of an unfettered market approach to development in a scenario within a scenario in which national and urban development policies have failed to cater for the financially weaker members of the society. To go around this systematic and official neglect, the poor have innovatively devised survival methods which include settling on any available urban space. More often than not, this gets them into conflict with authorities and private land owners who accuse them of illegally squatting on land that does not belong to them and who consequently use different methods –including violence- to evict them.

Even though such areas are crowded with thousands of residents, they are usually overlooked whenever authorities plan for or fund water and electricity reticulation, sewer lines, roads and other facilities. At the same time, there has not been any meaningful attempt to give the residents the security of tenure to the lands they occupy meaning that the poor cannot use the available land to access financial support from banks and other financial institutions.

The total sum of the neglect has been a horrific sanitation, security, social, economic and environmental situation as epitomized by the 'flying toilet' phenomenon, proliferation of crime, pervasive poverty and all its ramifications. Nevertheless, such neglect by authorities has created a niche for other groups, and particularly community and civil society bodies, which have come up with innovative ways of filling the void.

Umande Trust falls into this category. As a rights-based organization with offices in Nairobi and Kisumu, Umande has been dealing with water and sanitation issues, governance and advocacy for people's right to water and sanitation. The pursuance of such rights is anchored on the fact that they are enshrined in the Bill of Rights of the Kenya 2010 Constitution. The Trust's work is also anchored on the belief that when modest resources are strategically invested to support community-led plans and actions, this can significantly improve access to water and sanitation services to communities in Kenya's urban centres.

In an attempt to accentuate its mission, the organization has partnered with a number of organizations including the former Nairobi City Council, Athi Water Services Board, Nairobi City Water & Sewerage Company, donors, Equity Bank, Kenya Women Financial Trust and self-help groups. These partnerships have culminated in the design, financing and implementation of bio-sanitation centres (or bio-centres) which are innovative projects that now give slum residents access to reliable, affordable and sustainable water and sanitation services.

More than 60 biocentres have been implemented in Kibera, Mukuru and Korogocho areas of Nairobi and Kisumu which are now co-managed with community-based organizations. The overriding concern for Umande Trust has been that the projects are implemented in an equitable and sustainable manner and that they end up catering for economic needs of the communities while enabling environmental wellbeing of the relevant neighbourhoods.

This report seeks to show how much Umande Trust and partners have succeeded in making the projects financially viable, environmentally sustainable and how they have contributed to ushering positive social changes in informal settlements of Nairobi and Kisumu. The scope of the report does not allow for a rigorous scientific analysis but a narrative generated from the field visits, observations and interviews the Consultant conducted in Mukuru, Korogocho, Kibagare, Kibera informal settlements of Nairobi and Kibuye Market, Nyalenda, Kibandani and Obunga areas of Kisumu city. The interviews were conducted with Umande Trust's projects managers, officials of the community organizations managing the projects as well as with users and beneficiaries. Photographs of different facilities were also taken and a bunch of official documents reviewed.

2.0: Biocentres in the Informal Settlements of Nairobi

2:1 Introduction

The Consultant toured 10 biocentres in the informal settlements of Nairobi. These were the following:

1. Kuum Biocentre in Mukuru-Kaiyaba area;
2. TOP II Biocentre in Kwa-Reuben Area, Mukuru;
3. Mukuru Environment Project;
4. Kochoto Youth Group Biocentre;
5. NICOFEI Youth/Kids Club Biocentre in Kibera;
6. Kibagare HakiZetu Bio-centre;
7. St Christine School-based biocentre;
8. Tosha Biocentre in Kibera;
9. Soweto Biocentre; and,
10. Tosha 2 Biocentre.

The report provides informative details of each of the biocentres including background information on the groups that manage them, the successes registered and the challenges they have been facing. A general conclusion is later made and recommendations provided.

2:2 KUUM Biocentre Project in Mukuru-Kaiyaba Area



Officials of the Kuum Biocentre Project during the interview

During the visit, the consultant met and interviewed members of the committee of the group that co-manages

the project with Umande Trust. The group was registered in 2005 and with an initial membership of 300. But upon drafting a constitution -that spelt out the rules on member contributions, meeting

attendance etc- many members opted out. Those who soldered on agreed that the group would enhance unity among the different ethnic groups residing in Mukuru-Kaiyaba area, address poverty



KUUM Biocentre

through starting income generating activities and enhance cleanliness in the local environment.

One of the most critical sanitation problems in the area was the 'flying toilet' phenomenon. In an attempt to address this, Umande Trust had pinned posters in the village which described how groups interested in partnering with it could develop proposals. This was in 2007 when the Trust was looking for organized groups dealing with water and sanitation issues. Umande sought groups that had a transparent system of operation and a membership of 15-35 people and that the groups were able to acquire a site for putting up the biocentres.

The KUUM group had met all the requirements and wrote a proposal following which Umande Trust invited its officials for an interview and later took them through training on the following areas:

- Leadership skills;
- Proposal writing;
- The project's technology and its

benefits to the community;

- How to operate transparently and in an accountable manner; and,
- On business management skills.

According to the committee members, the training enabled the project leadership on how to budget and manage the project as well as how to prepare financial reports. The initial training was followed by other short term training on hygiene promotion which led the trainees to launch a subcommittee that has been reaching out to other residents for the purpose of sensitizing them on hygiene.

Once this was accomplished, Umande Trust then entered into an M.O.U with the group that spelt out what each of the partners was to contribute. KUUM agreed to contribute the site on which the biocentre is built and to transport building materials there; and to provide labour needed for the excavation of the site and during





Officials at the Embassy of Finland Commissioned the KUUM Biocentre

the actual construction of the facility. The group was also responsible for proving security for the materials.

How the Project is Managed

Today, the project is managed by a committee that was elected through secret ballot in 2006. The election was presided over by an official from the Social Services Department. Gender equity was also adhered to.

Initially all members were given an opportunity to run the project themselves in a merry-go-round scheme. This gave each member an opportunity to familiarize themselves with the projects operations before employing a caretaker. The group hires local people in case there are damages or blockages and to collect garbage. This creates good will and a sense of ownership for the project within the community.

As a measure for effective financial management, the group operates a bank

account and keeps records whenever deposits are made by the caretaker. The treasurer is tasked with ascertaining that this takes place. To a big extent, this has contributed to transparency because the treasurer is also required to produce bank deposit slips for recording while revenue collection is recorded and the books inspected by members during meetings.

Each of the group's expenditure must be agreed upon by members. Usually the group spends its cash on toiletry (soap, tissue paper), purchase of moppers and candles, garbage collection, unblocking the toilets, bills (water and electricity), caretaker's pay and on refreshments during members meetings. To seal loopholes in the collection of revenues, the group has adopted the cashless Beba pay system that was initially used in the transport business. The biocentre clients are required to use Mpesa to load cash in special cards. Each time the client visits the toilet or uses other services on offer in the Bio-centres, the card is swapped in a smart phone

which enables the cost of the services to be deducted from the cash loaded into the card and instantly deposited in the group's account. A message then pops up in the client's phone stating that the cash has been deducted. However, the group is yet to fully implement the payment system; the clients still use cash to pay for the services on offer.

The KUUM Bio-centre has bathrooms, toilets, halls, office space, water point and commercial kitchen that utilize the biogas that is generated from the bio-digester. According to the officials, the facility generates between, Ksh43, 000 to Ksh50, 000 each month. But the revenue flow is lower in the month of December and during the rainy seasons when it becomes difficult for the local people to access the centre. Much of the cash comes from people using the toilets and bathrooms which, in essence, means that the facility is meeting Umande core objective of offering sanitation services to the local people.

The group's expenditure ranges from Ksh16, 000 to Ksh20, 000/=. The group spends the cash to foot the costs of inputs (toilet papers, soap etc.), caretakers pay water and electricity bills. This means that the biocentre has been getting monthly profits that range from Ksh27, 000 to Ksh30, 000. However, the officials complained that frequent blockages have been eating into the group's income. But by-and-large, the project is sustainable in the sense that it is able to generate a profit as well as operate on its own finances.

More importantly, the committee members expressed confidence that the group can operate the projects on its own income. They were also confident that they can now manage the project effectively following the training given to them by the Umande Trust. However, they were also conscious of challenges related to the fact that the Beba Pay System has not been fully taken up by the clients. "We have known how to manage ourselves and to operate in a transparent manner."

The group has also been servicing a loan it secured from Equity Bank following the full repayment of an earlier loan of Ksh150, 000. Further the group has networked with other local community based organization a non-governmental organization, Mashinani Health for Development. At the same time, the project has contributed to raising the economic fortunes of the members. The group has been guaranteeing individual members wishing to secure loans from Equity Bank for private income-generating projects and other financial needs. In addition, members have been getting some dividends which has enticed them to continue with the membership. They have also plans to expand the project by buying land for a second biocentre and to expand the community hall to enable it cater for a large group.

The project has evidently improved sanitation in the neighbourhood. The residents have been using the bio center for their toilet and bathroom needs. In addition, some of the group members who were given training in hygiene have been working as community health workers in the local area. But its impact on the environmental well-being is hampered by the crowding in the entire area, lack of effective drainage systems and other



Beba pay cards used to access services at the Biocentre

BOX 1 : BENEFICIARIES' NARRATIVES

Eveline Kathere,

MsKathere is 31. The mother of two runs the Little Angels Pre-Unit School located a few metres away from the KUUM Biocentre. She says that before the Biocentre was put up, flying toilets used to land outside the classrooms. This greatly affected the running of the school. Most parents would not enroll their children in the school. "But when the Biocentre was constructed, the 'flying toilets' were no more," she says. The biocentre has also provided toilet facilities for the children in her school and therefore encouraged more parents to enroll their children there. She says that since the biocentre was constructed, the school's population rose from 50 to 102. The school pays a flat fee of Kshs500 a month so that the pupils can use the toilets.

Gilbert Kinyua,

'Flying toilets' was a messy phenomenon that Gilbert Kinyua talks about with utter disgust. The 28 year old resident is nevertheless happy that this has greatly reduced and is now able to boil water for bathing using gas generated from the bio-digester. "I am only required to pay Kshs10 to warm bathwater." He says that this is far much cheaper than using charcoal or kerosene stove. "Earlier, I would buy water for Kshs5 and use paraffin worth Kshs20 to heat it".

Francisca Mutua,

For Ms Mutua, 25, the biocentre has enabled her to be conveniently cooking food for her family. This has also been cost efficient because she now pays Ksh20 while earlier she was forced to cough up to Ksh50 to buy a two-kilo tin of charcoal which in any case was not adequate for preparing githeri (mixture of maize and beans)

Jeremiah Anchinga,

On his part, the 27 year-old Anchinga considers the cessation of the 'flying toilets' as the most important change brought about by the construction of the biocentre. "People would throw the faeces all over and I used to step on the mess as I walked to work." He says before the biocenter was put up, he would go to a toilet located near the river. However, he could only do so during the day. "At night, I could not risk doing it because of insecurity." Anchinga now uses not just the facility's toilets but also boils bathing water there. He decries the occasional water shortage and asks the KUUM committee to purchase a bigger storage tank. He also calls on it to look for a way of giving residents access to the biocentre at night and particularly to residents suffering from destabilized bowels.

2.3: TOP II Biocentre in Kwa-Reuben Area, Mukuru

The group partnered with Umande Trust in the 2010-2011 period through an M.O.U. which stated how the two partners were to operate

Located in Kwa-Reuben area of Mukuru, the biocentre is managed by the Reuben Vision Community Based Organization. The latter group was started in 2009 as a merry-go-round by 28 members. But membership reduced to 21 a year later. The group has 7 elected officials and a caretaker who manages the centre on a day-to-day basis. During the field excursion, the consultant interviewed several officials, the caretaker and a group member.

The group was initially set up to cater for orphaned children and had operated an orphanage for 14 children before it partnered with Umande Trust. However, the children did not have a home neither did they have access to a toilet and would cross a busy road to access a toilet, endangering their lives in the process. The group would cater for their school fees and sanitation needs paying Ksh3, 000 for the 36 children at the Reuben Vision Primary School. This was exerting a big toll on the group.

The group partnered with Umande Trust in the 2010-2011 period through an M.O.U. which stated how the two partners were to operate. This led to the construction of the biocentre once the group had met its part of the bargain.

The facilities at the center include the following:

1. Four rental rooms for which the group gets Ksh12,000 a month;
2. Gas cooker for which the group charges Ksh20 to anyone who cooks there;
3. A running water tap that generates Ksh3 per 20-litre jerrican;



Biocentre meets community water needs.

4. Four Bathrooms for which bathers are charged Ksh5 per visit;
5. 8 toilets (4 for women and 4 for men) for which adults pay Ksh3 per visit while children pay Ksh2 per visit.

The charges are affordable to most residents. Indeed, a Price Sensitivity and Analysis Survey done by Umande Trust indicated that the number of customers using the facilities there daily had increased following a price change in the facility.

The financial data shows that the group generates between Ksh24,000 and Ksh36,000 each month. Usually, the incomes are low in the months of April when pupils in local schools go for holidays. When the schools are in session the revenue is higher. In addition, the flow of revenue is affected by weather changes in that whenever it rains, revenue is usually lower than during

the drier periods. This is largely because the residents do not have a way of accessing the facility and use flying toilets instead. At the same time, many residents rely on the rain water rather than the supply from the biocentre.

The cash generated partially used to meet the following monthly expenses:

1. Water and electricity bills;
2. Purchase of toilet paper rolls;
3. Purchase of soap;
4. Caretakers' monthly pay

As part of its input, Umande Trust also helped to train the officials on leadership skills, financial management and on how to operate accountably and in a transparent manner. The Trust also aided in the construction of a dormitory for the orphans and has been monitoring monthly performance of the centre.

Project's Sustainability.

The group has secured a lease from the former Nairobi City Council for the site on which the Centre is built. Together with the fact that the centre is constructed of permanent material, this means that the centre is a lasting facility.

The group leadership and especially the chairperson and the secretary, was also trained by Umande Trust on leadership skills and management of finances which equipped them with the ability to manage the facility.

It is also clear that the group had adopted notable transparency by adopting the beba pay system which has been embraced by some of the facility users. The officials informed the Consultant that 46 residents have acquired the beba pay cards which they use whenever seeking the services at the biocentre. The officials considered the pay system advantageous in the sense that it is easy to operate and to keep track of the cash flow into the group's bank account.

From observation, it was also clear that the clients (most of whom are residents of Mukuru-Kaiyaba area) have accepted to pay for the services in the biocentre. In addition, those with the cards and the caretaker had each a clear understanding of how to operate the pay system and could easily explain the process. For instance, the users understood that they were required to load the card with cash and that whenever they visited the facility in search of its services, they would give the card to the caretaker who would swap it against a smart phone which would therefore mean that the amount charged for the use of various services would be immediately deducted from the card and a near-instant message would immediately be relayed to the user's phone saying that the cash had been deducted from his card. The system also makes it easier for Umande Trust to monitor the cash flow and operations at the biocentre.

From observations and from interviews with the officials, residents and other beneficiaries, it was evident that the flying toilet phenomenon had reduced



Unsightly mounds of garbage damage the sanitation gains made by the biocentre approach

tremendously meaning that one of the key objectives of the entire programme of creating access to sanitation for the resident had been largely met. Over 100 people use the facility on a day-to-day basis, most of whom visit the centre to use its lavatories.

The provision of sanitation facilities has also reduced the recurrent expenditure of the school which, according to officials, would expend Ksh1, 200 on pay toilets each month before the centre was constructed. This is no more.

It was evident from the interviews that the officials were confident that the centre can run on its own finance while the record of returns shows that the centre is financially viable and can operate on its own finances.

The positive returns have encouraged the group to make plans that have necessitated ploughing back the income into other projects. Besides the ongoing renovation of the building, the group plans to add one more floor in the biocentre which will definitely raise the level of its returns. It has also planned to build permanent classrooms in the school.

Challenges

Operations at the centre suffered a major setback when it partially burned down on March 4, 2014 following a fire outbreak in the neighbourhood. The fire destroyed the orphan's dormitory and three other rooms. Nevertheless, the group is in the process of

reconstructing and expanding the dormitory for the orphaned girls while renting a place for the boys' accommodation. So far, the group has used in excess of KSh370, 000 to rebuild the facility. Part of the money (i.e. Ksh100, 000) was acquired through a loan from SANDEV.

Other challenges include competition from two other bio-centres in the neighbourhood. By implication, this means that although it is important to bring the sanitation services as close to the residents as possible, Umande Trust might be required to work with local groups to place additional biocentres in such a way that they would have bigger catchment areas. However, this might also need to be a balancing act in the sense that other considerations such as security of the users as well as ease of access will also need to be factored in.

It was also evident that although the facility has raised the level of sanitation in the area –and hence environmental well-being, its operations are normally affected by frequent blockages that put additional strain on the group's finances. By implication, this means that the design of the facility needs to be reviewed for the purpose of installing a wider outlet pipe or elevating part of the facility to allow for effluent flow by gravity. At the same time, the group needs to sensitize users on measures that would prevent breakages and on the dangers of throwing material that end up blocking the pipes.



Biocentres suffer from Occasional Blockages

2.4: Mukuru Environment Project

According to the group's officials, it was only after local people were sensitized on the need to join hands to cater for the environment that they felt the need to form the group and contribute cash needed for its registration

The biocentre is managed by the Mukuru Environment Project. During the visit, the Consultant interviewed the group's secretary, business manager and treasurer. Several beneficiaries were also interviewed. We also made neighbourhood and site reconnaissance visits for the purpose of making observations on different phenomena there.

The group was started in 2005 by local residents who lacked toilet facilities. Most had no option than to relieve themselves in every available space. Some would result to 'flying toilets' which were creating tensions in the neighbourhood -particularly when the mess fell on other people's houses. At the same time, raw sewage would overflow from local sewer lines into the neighbourhood, creating unsightly and smelly mess in the process. The combination of the two had brought

about a public health nightmare for the entire neighbourhood as exemplified by frequent outbreaks of typhoid and other diseases.

According to the group's officials, it was only after local people were sensitized on the need to join hands to cater for the environment that they felt the need to form the group and contribute cash needed for its registration. Initially, the group had in excess of 100 members, most of whom left the group once it was decided that each member had to contribute Ksh200. As a result, the group membership declined to 30 people who agreed amongst themselves to contribute Ksh1, 500 to put up a toilet. This decision further reduced membership to 21 people who used the cash they raised to purchase the plot on which the biocentre is built, to buy building stones and cement and to have water installed in the site.

In 2009, Mukuru Environment Project

came into partnership with Umande Trust and Oxfam. This was after Umande officials interviewed the group's leadership and decided to support the construction of the biocentre. The group was asked to dig a hole for the construction of the bio-digester. Oxfam donated the building material while Umande supervised the construction of the facility. On its part, the group also contributed labour for and the transportation of materials to the site. Construction of the biocentre ended in 2011 and was later officially inaugurated by a former Makandara MP, Reuben Ndolo.

Operations at the Biocentre

Among the facilities installed and services on offer in the biocentre include the following:

1. Biogas that clients use for cooking. However, the fact that it is placed inside the toilet block makes it unpopular among some of the

clients. But the group is in the process of construction an external kitchen;

2. A block with 6 toilets that have condom dispenser and dustbins. Clients pay Ksh3 to use the toilet;
3. 6 bathrooms for which clients pay Ksh5 to use;
4. 4 rental rooms which generate a monthly income of Ksh10,000; and,
5. A barber shop that is leased for Ksh500 each month,

As far as expenses are concerned, the group incurs the following expenditure each month:

1. Caretaker's monthly pay of KSh6,000;
2. Maintenance costs;
3. Tissue paper costs of Ksh1,500 each month;
4. Monthly water bill of Ksh5,500 (i.e. this includes the pay for the person hired to pump water from a water point to the tanks in the facility);
5. Electricity charges of Ksh800;
6. Pay for security man of Ksh2,000; and,
7. Purchase of equipment –chairs, wheelbarrow, pipes etc.

According to the official, the facility generates a net income of Ksh30,000 each month. Therefore, the facility has been breaking even and generating a surplus. By implication, this means that it has not only been running on its own revenues but has also been generating a surplus for the group. Other factors holding constant, the biocentre can be considered a viable business enterprise that is also meeting sanitation and water needs of the residents at affordable rates.

Transparency and accountability in the management of the finances has been enhanced by the adoption of the Beba pay system. According to the officials and the caretaker, the use of the system has reduced the need to physically bank the cash collected from the facility and reduced the risks of attracting robbers. It is also a convenient cash management system. However, the interviewees admitted that it is only used by a small fraction of the clients meaning that the system is not as beneficial as it should be.



Water storage tank at the Mukuru Environmental Project Biocentre

The system is also affected by occasional network problems resulting in it being suspended for the time when the Safaricom network is out of reach in the area. When this happens, it results in a loss for group as the caretaker is forced to offer card owners free service. Usually, this is inevitable because, as the Consultant found out, the normal practice at the biocentre is for the caretaker to give card holders tissue paper immediately they give out their card to her. If by the time they come from the toilet or bathroom the Safaricom network is out of reach, the caretaker has no recourse but to give back the card to its owner without flipping it to the smart phone.

It seems that the positive financial returns have encouraged the group to come up with an expansion plan in which includes an intention to construct an additional floor, expansion of the hall, increase in the number of offices, construction of an external kitchen, computer training program for local youth and an Equity Bank agent. But as the officials told the Consultant, they are aware that achieving the plans will require much more than the income they get from different facilities in the biocentre. So the members have agreed to supplement this through their own contributions and through applying for a loan from a financier.

Lastly, the officials exuded a clear managerial focus and had a well-

structured system of assigning roles. To a large extent, this can be attributed to the fact that the group's was constituted before Umande Trust came into the picture and that its objectives closely resembled the core mandate of the Trust. In essence, this means that Umande Trust's sanitation outreach programme stands to achieve more by partnering with community groups with a shared vision and mutually-agreed, but understandable differing approaches to provision of water and sanitation in the informal settlements.

It was also clear from the site reconnaissance the 'flying toilet' phenomenon has reduced tremendously since residents now have a sanitation option in the biocentre. The consultant learnt that even those unable to pay for the

According to the official, the facility generates a net income of Ksh30,000 each month and has been breaking even besides running on own revenues

Mukuru Environment Project



Cooking Facilities on offer at the Mukuru biocentre

use of the toilets are loaned the services. The caretaker had also maintained cleanliness in the facility which made it popular with the residents and travelers alike.

Challenges

The group has been maintaining a sewer line from a local steel manufacturing firm that overflows into the neighbourhood resulting in a foul smell and health problems for the residents. This has required frequent hiring people to unblock the sewer line which creates and added strain on the group's finances. It is quite evident that the resident would need to lodge a complaint with the public health department of the Nairobi county government for remedies.

More importantly, this underscores the need for a more holistic and all-inclusive approach to the planning and implementation of the biocentres. For instance, there is a need for a prior appreciation of the kind of infrastructure

facilities installed in different neighbourhoods prior to putting up the facilities. And more importantly, this requires bringing different stakeholders on the table for consultative meetings on planning and implementation of the bio-sanitation facilities. Such an approach would have enabled the selection of a site that does not have facilities that might end up defeating the very goals for which the centres are started in the first place.

The site on which the biocentre is constructed is poorly drained which contributes to the frequent blockages as the water and effluent cannot flow effectively downstream. This has not only been contributing to the high maintenance expenses but also has been making the facility temporarily unavailable for clients. To correct this, there is a need to explore the following options:

1. Whether it is possible for the group to re-work the entire drainage system which would mean partnering with

relevant authorities for the purpose of reconnecting the biocentre's sewer outlet to the main sewer line at an inclined position; and,

2. If this proves impossible, there is a need for the group to construct a septic tank to provide an alternative disposal system whenever blockages occur;
3. There is also a need for group members to separate the effluent and waste water system from the storm water drains so that the biocentre does not flood whenever it rains; and,
4. The group also faces the challenge of paying extra cash to access water needed in the biocentre. This is by way of paying for the services of a person who pumps water every night from a main pipe 40 metres away to the storage tanks in the facility. This cost can be reduced significantly if the group can seek and pay for its own extension from the Nairobi Water Company.

2.5: Kochoto Youth Group Biocentre

The facility was constructed as an answer to sanitation difficulties facing Korogocho market. Before it was put up, the hundreds of the traders in the market and their clients relied on some two toilets which were inadequate for their needs



Kochoto Biocentre in Korogocho market, Nairobi

The Consultant conducted a reconnaissance visit to the centre and had interviews with some of the original members and committee members.

The biocentre is located in Korogocho market on a site donated by the former Kasarani Constituency Development Fund (the constituency was split and renamed Ruaraka Constituency). It is put up next to the upcoming

Kasarani Youth Polytechnic and provides sanitation and water needs for hundreds of clothes and vegetable traders in the market as well as to their clients and passersby.

The facility was constructed as an answer to sanitation difficulties facing the market. Before it was put up, the hundreds of the traders in the market and their clients relied on some two toilets which were inadequate for their needs. Many would therefore result to relieving themselves

in a field next to the market or behind their sheds which created a big sanitation problem in the area.

It was initially managed by the Kasarani Youth Group but when the group disintegrated, it was handed over to the Kochoto Youth Group. The latter is basically composed of a group of market people who at some point, were displaced when the biocentre was constructed. However, two members of the Kasarani

Kochoto Youth Group

Youth Group are in the management committee.

Initially, the Kochoto Group had 30 members who reduced to 18 when the others fell out because they felt that their expectations could not be met instantly.

Facilities in the Biocentre include the following:

- A hall that is rented out to the Christ Chapel Ministry;
- 9 toilets which, on average, are used by about 150 people;
- 4 bathrooms that are not really used by the traders as only 4-5 people use them each day;
- 2 shops;
- A water point;
- 2 external toilet; and,
- An upcoming fish pond.

Management of the Biocentre

The biocentre was supposed to benefit students of the yet-to-be-launched Kasarani Youth Polytechnic as well as the market traders. Initially, it was designed with this in mind and has two entrances, -one facing the polytechnic and the other facing the main market street. In addition, it previously had a wall separating the toilets and bathrooms that were to be used by the students and those for the traders. But at some point, it appears that this plan was shelved when the wall was brought down when the entire facility was handed over to the Kochoto Group.

The running of the facility has not been progressing well. For one, the biogas is no longer in use while financial management has been in shambles. This is blamed on a management crisis that has plagued it for up to two years. Those interviewed blamed bad leadership of a committee that was in-charge until July 2014 when elections were held and two officials (i.e. chairman and secretary) replaced.

According to some of the group's members, the earlier committee was in office since 2010 when the project was started. They said that this was partly because the group had not spelt out the

duration for which officials would be in office. It was also clear from the interviews that the official have not been transparent or accountable in the way they have been managing the finances accruing to the biocentre. This had led to disagreement and suspicion that culminated in the members opting for a merry-go-round management system in which each would take charge of the facility for a week for the sole purpose of collecting and keeping the cash for their own use. The cash collections were never deposited in the group's bank account and so the group ended up being unable to pay electricity and water bills. It had also affected the construction of the fish pond. At the same time, the biocentre is poorly maintained with the floor of the hall having cracks while the wall painting has been peeling off.

According to one of the pioneer members, this situation led to disillusionment among the members whose interest in the project waned as they stopped keeping track of what was happening. While illustrating how much the earlier committee was steeped into financial mismanagement, the pioneer member complained that the construction of a wall on one end of the plot in July 2014 had consumed a whopping Ksh90,000 from the group's finances even though Umande Trust had donated the building materials. The wall was constructed to prevent sewage that occasionally overflows from adjacent plot from flowing into the facility.

When Umande Trust intervened, the officials were also to be replaced as signatories to the group's bank account. But for some reason, the chairman initially refused to do so forcing the group to devise a method of replacing him. At the same time, the group members have agreed to review the rules of engagement governing officials' and members' conduct and elected a trustee to be monitoring how the committee handled money on behalf of the members. The group has also planned to have a meeting with the CDF committee to come up with a better way of managing the facility.

It seems that lack of good governance has to do with the way the project was handed over to the Kochoto Youth Group. For one, the group never existed before the project came into being. It was only established after the members had their sheds removed to create room for the biocentre. At the same time, the group's objectives were totally different and had nothing to do with water or sanitation provision. Further, although they are now the beneficiaries, they cannot be said to have really owned the project. This is because the project was initially in the hands of the Kasarani Youth Group before it was passed on to the Kochoto Youth Group.

HIGHLIGHTS

The biocentre is located in Korogocho market on a site donated by the former Kasarani Constituency Development Fund

Kochoto Group had 30 members who reduced to 18 when the others fell out because they felt that their expectations could not be met instantly

The biocentre was supposed to benefit students of the yet-to-be-launched Kasarani Youth Polytechnic as well as the market traders

According to some of the group's members, the earlier committee was in office since 2010 when the project was started. They said that this was partly because the group had not spelt out the duration for which officials would be in office

2.6: NICOFELI Youth/Kids Club Biocentre in Kibera

This is one of the 21 bio-centres in Kibera that is managed by the NICOFELI Youth/Kids Club. Based in Kianda area of the slum, the group is named after two children, Nicholas and Felicia, who were affected by the 2007-2008 post-elections violence and who were given assistance by the members of the group

Kibera is by far the biggest informal settlement in Kenya where tens of thousands of people live without access to basic sanitation and clean water. For decades, the slum has been the epitome of the 'flying toilets' phenomenon which had created a big sanitation crisis. At the same time, even after coming together to deal with the solid waste management and water supply, local residents could not get connections from the Nairobi Water & Sanitation Company (NWSC). When Umande Trust came into the picture, it sought to guide them on how to approach the NWSC which led to connections. Soon, groups started selling water they had stored in storage tanks. As far as provision of sanitation facilities is concerned, Umande Trust came up with different approaches for the area:

1. On-plot toilets that were connected to the big biodigesters;
2. Construction of bio-centres that have been serving entire neighbourhoods and others that serves schools; and,
3. Jitegemee buckets which are used at night at the household levels because of insecurity. The buckets are also used by the elderly and sick people and are emptied into the biocentres during the day at a nominal fee of between Ksh10 and Ksh20.

Among the 21 bio-centres in Kibera is the one managed by the NICOFELI Youth/Kids Club. Based in Kianda area, the group is named after two children, Nicholas and Felicia, who were affected by the 2007-2008 post-elections violence and who were given



NICOFELI Biocentre in Kibera

assistance by the members of the group.

Some of the group's objectives include the following:

- Bringing together children from diverse ethnic groups in the slum and training them on how to co-exist peacefully;
- Starting a feeding program for orphaned children; and,
- Teaching children life skills including how to clean themselves and be of assistance to others.

According to its officials, the group was initially composed of 13 members and had started off with catering for over 100 children. It operated a reading program

that gave birth to the library now located in the bio-centre. The group's operations were then based at the Orthodox Church before being housed by the AIC Church in Olympics area. Later, the group moved its operations yet again after the Church introduced a monthly rent which the group could not afford.

As far as sanitation is concerned, the Kianda area had a severe sanitation crisis. According to Hussein Rama, the Secretary of the Bio-centre Management Committee, all the 10 toilets in the area had filled up while the site on which the biocentre is built was a dumpsite from which came a powerful stench that made living in the vicinity very uncomfortable and a risk to health of the

residents. Most of the residents preferred flying toilets than the unsafe and unsightly toilets.

NICOFELI partnered with Umande Trust after its officials asked the Trust to help with storing its books. This created a relationship between the two organizations that led to NICOFELI writing a proposal for the biocentre which Umande responded positively after giving conditions. According to the group's chairman, securing a site for the facility was a tall order that took the group quite some time to accomplish. Later, the two partners embarked on the construction of the biocentre that was financed by the Japanese Embassy.

Today, the centre has the following facilities:

1. Toilets that residents pay Ksh5 to use;
2. Bathrooms –charged Ksh10 for a single bath;
3. Water point for which Ksh3 is charged for each 20-litre Jerrican of water;
4. Biogas used for cooking by residents who pay Ksh20 irrespective of how long it they use it;
5. Two rental rooms;
6. Hall; and,
7. Library.

As many as 250 people use the facility each day. Most of them use its toilets and bathrooms while between 5 and 10 people use the cooking facilities on offer. The group also uses the centre to train children on ICT and to operate a books' club for both adults and the youth. It is also in the facility that NICOFELI conducts a health awareness campaign targeting the local community besides providing sanitary towels to girls.

How the Facility is Managed

The group has adopted a management structure in which the chairman, secretary and treasurer form the upper committee. Below it is the Business Management Committee that manage different aspects of the facility. The structure also includes member representatives who are elected to represent members' interests in the different committees. The officials are elected for a one-year term that can be renewed if elected again.

As far as financial management is concerned, the cash generated from all the



Hussein Rama, official of NICOFELI Biocentre in the facility's Library

facilities is banked once the recurrent costs are deducted from the periodic collections. According to Mr. Rama, the group is able to meet its recurrent expenditure and gives members a dividend after every six months. None of the cash given out by donors is used to run the facility. Rather, the group uses it to finance a feeding program that benefits between 50 and 60 children.

Like other groups, NICOFELI operates a beba pay cashless system and encourages clients to adopt the system. To an extent, this has aided in controlling its finances as the cash goes directly to its bank account.

The group's recurrent expenses include payment of electricity bills which range from ksh400 to Ksh500 each month. Currently, the group does not have its own water connection from the NWSC and relies on the water it draws from a neighbour. However, the group has made plans to have its own connection which would reduce expenditure on water. The members have also planned to install a bigger bio-digester to reduce the frequency with which it is required to exhaust the facility. It also plans to embark on the production of liquid fertilizer which it hopes to use in its urban agriculture project. Over a longer time period, the group has planned to expand the facility by two more storeys which would lead to an expansion in the number and size of the services on offer.

Challenges

1. Occasional interruption in water supply leads to losses as the group has to close the facility;
2. Vandalism and misuse of the facility

forces the group to keep replacing bulbs, sockets and switches. This eats into the group's turnover;

3. Some of the residents have been requesting the caretaker to offer them free service. The officials say that some of those who put forward this request are genuinely unable to pay forcing the group to offer them free service which leads to lower returns; and,
4. The group's fortunes are affected by the fact that it has to seek exhaustion services twice a month at a cost of between Ksh8, 000 and Ksh10, 000.

According to its officials, the group was initially composed of 13 members and had started off with catering for over 100 children. It operated a reading program that gave birth to the library now located in the bio-centre. The groups operations were then based at the Orthodox Church before been housed by the AIC Church in Olympics area



Kibagare Haki Zetu Biocentre

2.7: Kibagare Haki Zetu Bio-centre

When Umande Trust came in, it helped the group the runs the facility to draft a proposal for the biocentre, offered leadership training and looked for a donor

Launched in 2008, the Kibagare Haki Zetu Savings Settlement group is a community-based savings scheme formed by different groups in Kibagare informal settlement in Westlands area of Nairobi for the purpose of raising funds for re-settlement. Initially, the group had 200 members most of whom did not continue with their membership when the group decided on an individual savings scheme in which members could save as much as they could afford. The group's membership reduced to 58 and later 49. Umande Trust was initially drawn to the area to campaign against the planned eviction of the residents.

Like their counterparts in many other informal settlements, Kibagare residents

lacked access to sanitation facilities and water supply. Residents informed the Consultant that the entire place was smelly, messy and filthy since most of the residents had no option than to use every available space for their toilet needs. Each time the residents constructed a toilet, it would end up being destroyed by authorities who were determined to evict the residents while the site would later be sold off by those who headed the village.

When Umande Trust came in, it helped the group to draft a proposal for the biocentre, offered leadership training and looked for a donor. On its part, the group excavated the site where the bio-centre is built.

The facilities and services on offer at the biocentre include the following:

1. Four rental rooms rented to Child and Family Wellness Clinics at Ksh4,000 each per month, This indicates that the group has been collecting Ksh16,000 every month from the rooms;
2. A water point with two water storage tanks. Clients pay Ksh3 per a 20-litre container;
3. Seven toilets (4 for men and 3 for women). To use the toilets, clients pay Ksh5 and on average the group collects Ksh1,300 which means that as many as 260 clients use the facility's toilets each day. In addition, the group has a different facility in Kibagare with toilets and 2



Roise Kariuki, the Treasurer of Kibagare Haki Zetu Group.

rental rooms from which the group collects Ksh4,000 a month;

4. Five bathrooms (3 for women and 2 for men) for which clients pay Ksh10 for hot bath and Ksh5 for a cold bath. According to the caretaker, the daily usage of the bathrooms has declined to less than 20 clients following the construction of a new facility in the informal settlement;
5. Solar power that is not only used in the biocentre but is also reticulated to 4 households with each paying Ksh400 a month meaning that the group collects Ksh1,600 each month. Besides generating cash for the group, the solar power saves on electricity costs;
6. Water heating system that utilises biogas generated from the biodigester; and,
7. A meeting hall made of semi-permanent building materials.

The biocentre is opened at 5.20 A.M. and closed at 10.00 P.M. It was evident from the field visit that during much of the day, women are the most frequent users of the services there while men tend to be more frequent in late afternoon and evenings.

According to the Treasurer's records, the group has been making a profit. For instance, in the period between December 22, 2013 and January 26, 2014, the collections amounted to Ksh119, 550 while the group's expenses amounted to Ksh39, 120. The balance, Ksh80, 480 is recorded as the profit that was deposited in the group's account.

However, the group does not have a proper system of establishing exactly how many people use different facilities in the biocentre each day. Indeed, the treasurer admitted that she did not have a way of knowing the daily tally of the clients using the sanitation and water facilities. Nevertheless, the group is in the process of installing a counter system designed by a former student at the Jomo Kenyatta University of Agriculture and Technology (JKUAT).

Biocentre Has Brought Positive Changes

The treasurer, Roise Muthoni Kariuki, was optimistic that the biocentre has brought positive changes in the informal settlement.

"Before it was constructed, the entire village was served by just one water tap and the residents would queue for long hours to draw water. But now, the tap in the biocentre has made it very convenient for everyone. There has also been some improvement in sanitation in the area."

Management of the Project

At the apex of the project's management is the executive committee comprising of the chairman, Secretary, treasurer and vice secretary. This is the team that is involved in decision making and overall management of the facility. Below it is the construction committee that is temporary.

While on a visit to the centre, the Consultant had an in-depth interview with the Treasurer and the caretaker, Irene Lucenzia, who detailed how the group collects and manages the project's finances. Besides having two accounts with Equity and Cooperative banks, the group operates a beba pay cashless payment management system which saves on costs, is more reliable and a risk-free cash management system.

DATE	DATE	Total	BANKED	EXPENSES	Total
22/12/2013	28/12/2013	9800	6600	3200	9800
29/12/2013	4/1/2014	9700	6700	3000	6700
5/1/2014	11/1/2014	10900	7550	3350	10900
18/1/2014	18/1/2014	10400	7500	2900	10400
19/1/2014	25/1/2014	9560	6650		
19/1/2014	25/1/2014	9850	6650	3200	9850
26/1/2014	1/2/2014	9560	6200	3360	3360
		119,550	80,480	39,120	
2/2/2014	8/2/2014	9470	6200	3270	9470

Financial recording at Kibagare Haki Zetu biocentre

But although many users have registered, very few people use it on a daily basis. The caretaker revealed that only 2 to 3 people use their beba pay cards each day. This is surprising because the cost of using the toilets through the beba pay card is lower by one shilling which would have otherwise motivated clients to be using the cards.

The treasurer took the Consultant through the system of cash recording put in place by the group. She showed two books on which the daily, weekly and monthly cash collections have been entered. It was evident that unlike many of the other groups, the Kibagare Haki Zetu Savings Settlement group has adopted a proper cash recording system. It was also evident that, as a business person, the treasurer really understood her role and could easily explain it. She was in-charge of the meticulous recording of the biocentre's cash flow in books.

The group also operates a members' savings scheme that is recorded on members' own booklets and later transferred into a big black book. The savings scheme is aimed at purchasing their own plot for

eventual construction and relocation from the informal settlement. On this scheme, the group has partnered with NACHU. Members have also resolved to forego dividends until they have accumulated enough cash to purchase residential plots for each member. The group plans to do so in December 2014.

Challenges

1. Disagreements between members and particularly when it comes to making decisions on future plans have hindered the realization of the group's objectives. To tackle this, the group has established a system of recording into minutes whatever resolutions are arrived at. The minutes are in turn read and endorsed by each of the members during subsequent meetings;
2. Suspicions among members which is partly related to the fact that the initial savings made by members were siphoned by former officials;
3. According to the treasurer, the group's achievements have led to animosity and hostility from other groups in the informal settlement.

HIGHLIGHTS

The biocentre is opened at 5.20 A.M. and closed at 10.00 P.M. It was evident from the field visit that during much of the day, women are the most frequent users of the services there while men tend to be more frequent in late afternoon and evenings

Between December 22, 2013 and January 26, 2014, the collections amounted to Ksh119, 550 while the group's expenses amounted to Ksh39, 120. The balance, Ksh80, 480 is recorded as the profit that was deposited in the group's account.

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Bandani Bio Centre

3: Biocentres in Kisumu City

All the sampled biocentres in Kisumu are located in places where they are accessible to the users. They are also operational and have been fulfilling their main function of water and sanitation provision for the local people

3.1: Introduction

The consultant toured a sample of four biocentres which are mainly located in the peri-urban areas of Kisumu. The Biocentres visited were Obunga, Kibandani, Kibuye and Nyalenda 'B'. Amongst the most noticeable features in the facilities is that unlike the biocentres in Nairobi which have round designs, biocentres in Kisumu are rectangular.

3.2: Summarised Report of the Kisumu Biocentres

From interviews with the Umande Trust staff, committee members who manage the biocentres, caretakers as well as with the users, the Consultant was able to establish the following:

All the sampled biocentres are located in places where they are accessible to the users. They are also operational and have been fulfilling their main function of water and

sanitation provision for the local people;

The interviewed users expressed satisfaction with the fact that the facilities had created a viable and more sanitized alternative to open defecation and flying toilets. It was evident that been close to Lake Victoria and having been situated in the wetlands, the water table in many of the settlements visited is very shallow to allow for the construction of pit latrines. Indeed, many of those put up there have either partially sunk or have crumbling walls. The construction of the biocentres in these areas has overcome this physical constraint.

Unlike most biocentres in Nairobi, the sampled Kisumu facilities are run by networks that bring together many community-based organizations. The networks have set up structured systems of management with the Executive Committee at the apex which oversees the overall management and makes major decisions. At

a lower level are the Business Management Committees (BMCs) which are responsible for the day-to-day running of the facilities and for whom the responsibility of ensuring that collections are handled effectively, efficiently and in a transparent and accountable manner falls upon. Besides the two is the SANDEF Committee which operates at regional level and is ideally charged with the responsibility of scrutinizing loan applications and making recommendation to Umande. Some of the facilities have had an audit committee which however has either been inactive or was disbanded and its roles handed over to BMCs.

The sampled biocentres in Kisumu operate as business ventures in the sense that they offer services for sale and the committees were able to give detailed accounts of how they budget for the revenues collected at the beginning of each month. The caretakers have also been keeping records of sales on a daily basis.

Biocentres in Kisumu City



Kibuye Biocentre in the outskirts of Kisumu City

All the facilities are managed by committees that have adopted the kopokopo cash handling mechanism in which they use Safaricom's Mpesa mechanism to load daily collections into their phones and transfer the cash to a till number operated by Umande Trust. At the end of the month, Umande Trust remits the cash to the bank accounts of the groups after making monthly SANDEF loan deductions and any other standing charges. During the interviews, the Committee members and caretakers demonstrated good understanding of how the system operates and were alive to its shortcomings.

Although biocentres such Kibuye which is situated in a market- are located in places of great concentration of the people, the records show that monthly collections have been relatively low. The committee members explained that this was because of a number of factors including where the biocentres were located vis-a-vis other similar facilities; competition the biocentres were getting from such other toilet facilities in the relevant areas and the fact that many did not offer the full range of services on demand by the users.

The committees were appreciative of the facilitative role played by the staff at the Kisumu Umande office both during the inception and construction of the facilities as well as in the operational stage. Some were of the opinion that this regional office need to be strengthened so that it can start handling major decisions pertaining to loan applications as well as the handling of the collections from the facilities under the Kopokopo cash handling system.

3.3: Challenges

Although the community networks have fully embraced the kopokopo cash handling system, some committee members complained that the system has inherent weaknesses which they thought needed to be rectified. For one, they termed it an unnecessarily long process that can be shortened were they to be given their own till numbers. Some did not understand why Umande Trust had to keep the money for a whole month only to remit it back to them at the beginning of each month –indeed they raised suspicions on the motive for this. At the same time, some of the committee members

complained that Umande did not remit the money at the end of the month which made it impossible for them to promptly procure tissue paper, soap, detergents and other supplies required by their clients.

However, others did not consider this to be a hiccup as they were able to time their budgeting to coincide with when they received the money from Umande. Some said they found no cause for complaint because they could always strike a rapport with suppliers to be supplying them with the materials and wait to be paid once the money is remitted.

Lastly, the committee members raised issue with what they said was the deductions made through the kopokopo system explaining that they had been experiencing a difference between the amount of money they collected over the month and what was later remitted to them by Umande. Some said the difference ranged between Ksh300 to close to Ksh1,000 and did not seem to understand why the deductions were made in the first place. But Umande staff explained that the deductions made were charges levied on the biocentre collection by the company

that developed the kopokopo system.

Kibandani officials complained about long delays in getting feedback once they applied for a SANDEF loan. They said that they had applied for it in February but only got a feedback in July when they were told to fill a form but that even after doing so, the application did not go through. Kibandani officials said they needed the loan to construct a fence around the biocentre's compound in order to secure it. They fear that once a market and a road that are planned to be put up in the area under the Kenya Slum Upgrading Program is complete, there might be a scramble for land in the entire areas and they might end up losing the land to grabbers if it is not fenced. But as explained by Umande officials, this was due to the fact that the cash held by SANDEF was inadequate and could not meet all the loan demands from the groups. At the same time, several committee members from different biocentres said that they did not see the role of the Regional SANDEF committee as it did not approve loans as had been envisaged when it was formed.

Some of the biocentres have not been offering the full range of services to their clients. For instance, although Obunga has a water supply system installed, it has not been offering water supply to its clients because of what the committee members termed dishonesty on the part of two caretakers whose services they had to terminate. However, the Consultant found out that one of the committee members is involved in a private water supply business in the same area and it is important for Umande trust to establish whether he could have frustrated the resumption of the service to avoid competition.

Although Kibandani has been producing biogas, this has not been of use to the clients because the outlet is placed right next to the toilets which make it impossible people to cook there. However, the committee has made plans to install pipe extensions that would take the gas to a more convenient place outside the facility.

The Consultant observed several examples that demonstrated faulty designs. These include the designs of rental rooms in Kibandani biocentre which have open spaces



Nyalenda Biocentre in Kisumu

close to the roof making the rooms insecure. At the same time, the rooms on the ground floor of the same biocentre do not have windows which has made them uncomfortable to use. Further, one of the rooms in the upper floor of the Kibuye biocentre opens into the community hall which has had to be closed off following a demand by the client who has rented the hall. Lastly, the bio-digester installed in the Nyalenda 'B' biocentre has not been in use because its large size does not allow for production of adequate gas that can be used by clients.

There were also signs of poor workmanship in some of the biocentres as depicted by cracked walls particularly near the doors and on the floor and stairs. At the same time the piping at Kibuye Biocentre was not initially done properly leading to the waste water and effluent flowing back into one of the toilets and creating difficulties for users. However, such poor workmanship was acknowledged by the respondents while the Consultant witnessed several ongoing and planned efforts to repair the specific sections. For instance, the management at Kibuye had already contracted a plumber who was in site and making a complete overhaul of the piping system.

Competition with other sanitation facility is also a challenge facing the Kisumu biocentres such as the Kibuye Biocentre in Kibuye Market. Although the Kibuye Biocentre is located in a market with several thousand traders, it does not get much in the way of daily collections largely because it faces competition from similar facilities set

up in the market. In addition, the biocentre is not centrally located as it is constructed at the extreme western edge of the market. This has tended to make it unattractive for many of the market traders and their clients. However, the management of the biocentre is in the process of sprucing up the facility which will make it more attractive.

HIGHLIGHTS

All the Biocentres in Kisumu are managed by committees that have adopted the kopokopo cash handling mechanism in which they use Safaricom's Mpesa mechanism to load daily collections into their phones and transfer the cash to a till number operated by Umande Trust

The users expressed satisfaction with the fact that the facilities had created a viable and more sanitized alternative to open defecation and flying toilets

4: Conclusions and Recommendations

From the field excursion, it was evident that all the sampled bio-centres have facilities for water and sanitation provision, rooms that are either rented out to businesspeople or to tenants, community halls, water points and kitchens that utilise the gas generated from the bio-digesters.

All the sampled bio-centres are run as business ventures and the users demonstrated that they clearly understood that they were required to pay for the services. Although there are evident price differentials, all the sampled bio-centers offered the services at rates that were affordable to most users. It was also evident the centres were open between 5.00 A.M. and 10.00 A.M. giving residents and travelers adequate time to use the facilities for their water and sanitation needs.

Further, most of the sampled bio-centres are strategically located either along the main roads (i.e. Kibagare and Kochoto) or within the densely settled sections of the relevant slum areas. This has given both residents and travelers easy access to the services on offer and has contributed to encouraging positive behavioural change in most of the residents who now prefer using the facilities instead of resulting to 'flying toilets'.

From the visits, it became apparent that toilets are the most utilized facilities in the biocentres while water points, bathrooms and kitchen follow in that order. To a large extent, the bio-centres are therefore meeting sanitation and water needs of the residents in the relevant informal settlements. Consequently, the facilities have largely met the sanitations objectives set by Umande Trust and partners.

The facilities have evidently reduced the 'flying toilet' phenomenon in relevant areas and are, to some extent, contributing to the environmental well-being. However, it was evident from the visits that the presence of the biocentres has not created a significant positive impact environment. This is because the mounds of garbage are still evidently present in nearly all the sampled areas while raw sewage and open drains with filthy, unsightly water were observed. But this problem needs to be looked at against the background of overcrowding in the relevant informal settlements, lack of proper slum-wide drainage and sewerage systems, inadequate or absence of solid waste management systems and total neglect by public health department and most other governance authorities and institutions.

At the same time, although the bio-centres have been designed to create a positive impact on the planning particularly in the area within a 60-metres vicinity, this is largely yet to be realized. In many of the areas, the business-as-usual practice is apparent. However, this needs to be looked at from the perspective that the results of planning are usually realized, or become visually apparent, in longer time periods than the time the bio-centres have been in existence in the informal settlements.

On the management of the bio-centres as business ventures, it was clear that most of the organizations that manned them demonstrated a discernible management structure that included decision-making committees, sub-committees in-charge of different operations in the facilities, ordinary membership as well as caretakers who were employed to run the centre on a day-to-day basis. In most of the groups managing the facilities, the committee members were elected into the office through a fair process supervised by Umande Trust officials and –in some cases- representative of the Social Department of government and in adherence to relevant groups' constitutions. However, in the case of the Korogocho-based bio-centre run by the Kochoto Youth Group, the term of office for the officials has not been spelt out neither were those interviewed aware of whether the group had a written constitution. In addition, the outgoing officials were not transparent or accountable in the way they managed the cash generated from the biocentre. This had led to anger and disillusionment on the part of members. Nevertheless, Umande has since intervened to put in place proper accountability systems.

As far as financial management is concerned, most of the sampled biocentres have a discernible system of financial record keeping. All operated a bank account and had rules stipulating how and when the cash generated from the sale of services needed to be used or deposited in the groups' accounts. Kibagare Haki Yetu bio-centre had the most impressive record keeping system. At the same time, Umande Trust has been monitoring the management of finances realized from the facilities.

Further, the use of the beba pay system had, in principle, made the management of cash more convenient, risk-free as well as more transparent. However, it was evident that most of the users have not adopted the cashless payment system meaning that the advantages of the system have not been adequately realized.

This is surprising because the cost of using the toilets with a beba pay card is lower by one shilling which would have otherwise motivated clients to be using the system. The other challenge in the use of the cashless system is posed by network interruptions. Through rare, this has tended to interfere with the rolling out of the system in some of the bio-centres.

This notwithstanding, beba pay is evidently an innovative cashless system that ought to be widely adopted. There is therefore a need for a study to establish what would be the possible effects on the operations and competitiveness of the bio-centres should the cashless system be made compulsory for clients and groups that manage the facilities.

A closer look at the financial records in most of the biocentres the Consultant visited revealed that they are bankable and viable business ventures whose concept can be emulated elsewhere and even by institutional and private investors. Most depicted a profitable business with the exception of the one run by the

Kochoto Group where a lot of the cash was allegedly siphoned by officials. Many of the officials interviewed exuded confidence when proclaiming that the facilities were making profits.

However, the profitability of some of the sampled biocentres is affected by mishandling of finances by the officials and lack of a reliable and fool-proof system of verifying how many visitors seeking different services visited the centres each day. There were also complaints from some of the members that officials (especially those manning the Kochoto Biocentre) have not been transparent and accountable in the handling of the project's finances.

As tools of personal and communal progress, it was apparent that the biocentres are influencing a desire among the relevant groups to plan for, and embark on saving for the future. Indeed, all the groups contacted by the Consultant have been saving part of the cash generated from the centres in banks and boosting it with members' savings. The groups have also been extending credit to members at some interest. Further, three of the sampled groups have gone ahead to make future expansion plans some of which are based on income projections as well as loans likely to be secured from the SANDEF –that is run by Umande Trust- and Equity Bank.

The Consultant concludes that the biocentres make business sense and are indeed profitable. There is also evident that they have influenced positive individual and communal behaviour and, -in as much as they have reduced the 'flying toilet' phenomenon in relevant places- they have therefore contributed to the environmental well-being.

Umande Trust needs to intensify the sensitization of the management of the biocentres and particularly those that manage the Kisumu facilities on the benefits of the Kopokopo cash handling system as well as the SANDEF approach. This would not only help to achieve widespread buy-ins but also avoid misunderstandings, suspicion and mistrust. At the same time, there is a need to raise SANDEF's loan portfolio so that it can cater for a bigger number of loan demands from Umande Trust's community partners.

There is a need for integrating the biocentre approach to water and sanitation provision as well as environmental well-being to the comprehensive city-wide plans made by the Nairobi County Government and the slum-cleaning initiative developed by the national government and implemented by NYS. In this respect, it is important for Umande Trust and partners to partner with the Develution Ministry and the Nairobi County government so that the approach can be embraced as a long-term and sustainable sanitation measure and during the implementation of the new Master Plan for the city and particularly its slum upgrading component.

In and of themselves, the biocentres are profitable business ventures. But before the concept is picked up and rolled out by different commercial entities, there is a need for feasibility studies to ascertain whether investing in the proposed areas would make business sense. In addition, the institutional and communal groups interested in it will need to set up foolproof management system that would embrace total accountability and transparency particularly in handling of proceeds from the facilities.

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ENGENDERING POSITIVE CHANGE IN SLUMS



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& Sanitation Services in Informal Settlements**