

# Sustainable Sanitation Practice



Issue 24, 10/2015



- Sustainable Sanitation Provision in Urban Slums – The Sanergy Way
- Why financial lending institutions are not willing to provide services to the private sector for rural sanitation and hygiene (Malawi)
- Sanitation system financing models and good practices at households and at institutional levels in Uganda

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# Impressum

## published by / Medieninhaber, Herausgeber und Verleger

EcoSan Club  
Schopenhauerstr. 15/8  
A-1180 Vienna  
Austria  
www.ecosan.at

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## ISSN

2308-5797

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**Sanergy franchises Fresh Life Toilets to community members, who run them as small businesses. © Sanergy**

## Editorial

How to finance sanitation systems was and still is a major challenge. Issue 24 of Sustainable Sanitation Practice (SSP) on „Financing sanitation“ shows three successful examples how sanitation can be financed. The papers presented in this issue are:

- David Auerbach describes the Sanergy Way for sanitation provision in urban slums in Nairobi, Kenya,
- Rochelle Holm et al. present a study on funding mechanisms for private sector participation and provision of rural household sanitation facilities in Malawi, and
- Charles Omona presents sanitation system financing models and examples of successful financing models for households and institutions in Uganda

Issue 25 (January 2016) presents „The NaWaTech Project“, a joint European-Indian research project that started mid of 2012 and ends in December 2015. The thematic topic of Issue 26 (April 2016) is „Composting“. If you are interested to submit a contribution please inform the SSP editorial office ([ssp@ecosan.at](mailto:ssp@ecosan.at)). Contributions for issue 26 are due to 15 February 2016, the guide for authors is available from the journal homepage ([www.ecosan.at/SSP](http://www.ecosan.at/SSP)). Please feel free to suggest further topics for issues of the journal to the SSP editorial office ([ssp@ecosan.at](mailto:ssp@ecosan.at)). Also, we would like to invite you to contact the editorial office if you volunteer to act as a reviewer.

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With best regards,  
Günter Langergraber, Markus Lechner, Elke Müllegger  
EcoSan Club Austria ([www.ecosan.at/SSP](http://www.ecosan.at/SSP))

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# Sustainable Sanitation Provision in Urban Slums – The Sanergy Way

*The paper describes Sanergy's approach to deal with sanitation in informal settlements.*

Author: David Auerbach

## Abstract

Sanergy, a Nairobi-based social enterprise, builds healthy prosperous communities by making hygienic sanitation accessible and affordable in urban informal settlements. We take an innovative, systems-based approach that addresses the entire sanitation value chain. We build high-quality, low-cost sanitation units, known as Fresh Life Toilets, which we franchise to community members, who run them as businesses. We collect the waste on a regular basis, removing it from the community. We then convert the waste into valuable by-products, including organic fertilizer and insect-based animal feed, which we sell to regional farmers. Through this model, we are making it profitable – and thus sustainable – to provide hygienic sanitation in urban slums.

## Introduction

More than four billion people in the developing world lack access to total hygienic sanitation. The consequences are staggering: 760,000 children die each year from diarrheal diseases due to poor sanitation. Globally, \$260 billion is lost in diminished productivity and healthcare costs.

Millennium Development Goal 7(c), which aims to halve the number of people without sustainable access to sanitation by the end of 2015, will not be reached. It represents one of the greatest failures of the MDGs. The Sustainable Development Goals, which the United Nations have recently approved, build on the MDGs to commit member countries to achieve further progress by 2030. The SDGs have revised the MDG commitment to “achieve access to adequate and equitable sanitation and hygiene for all and end open defecation” by 2030. In order to achieve this, there is still much work to do.

A lack of basic infrastructure makes the sanitation crisis particularly acute in urban slums, where populations will double to two billion in the next 15 years. In Kenya,

where my company Sanergy has worked since 2011, eight million slum residents still have to resort to unhygienic and undignified sanitation solutions, such as “flying toilets” (defecating into plastic bags that are then tossed onto the streets) and pay-per-use pit latrines that release untreated human waste into the environment.

In total, four million tons of human waste from Kenya's slums are dumped untreated into waterways each year – polluting the environment, spreading disease, and harming community health. At current rates, reaching complete sanitation coverage will take 150 years. The loss of productivity due to sanitation-related illness costs Kenya's GDP a million dollars a day.

In the case of Sanergy, solving the sanitation crisis requires more than just building toilets. Sanergy's innovation is to take a systems-based approach that engages the community at every step and, in doing so, guarantees that residents of slums gain access to the hygienic sanitation services they both need and want.

## Key messages:

- Sanergy takes a systems-based approach to addressing the sanitation crisis in urban slums.
- Through a franchise model, Sanergy empowers community residents to earn an income while providing a needed service to their neighbours.
- Sanergy removes the waste from the Fresh Life Toilets on a regular basis, converting it into valuable by-products, such as organic fertilizer.



**Figure 1: The Fresh Life Toilet has a unique urine-diverting squat plate and cartridge collection system.**

First, we build high-quality, low-cost “Fresh Life Toilets.” They are designed with qualities users desire: they are easy to keep clean and maintain; their small footprint (1 meter by 1.5 meters) allows them to be installed close to homes; and they include hand-washing stations to promote good hygiene practices. Underneath the toilet, easy-to-remove cartridges capture the waste, ensuring it does not pollute the soil and waterways.

Then, we franchise Fresh Life Toilets to local residents in Nairobi’s informal settlements through three models: commercial, residential, and in community institutions, such as schools. The owners – Fresh Life Operators –

invest to become franchise partners, putting skin in the game and creating accountability for both the operator and Sanergy.

We provide Fresh Life Operators with access to interest-free financing, help in securing land access, business training, aspirational marketing, ongoing operational support, and guaranteed waste collection service. The operator commits to cleaning the toilets, keeping them consistently open, and generating demand using his or her local credibility and influence. Through frequent field visits and spot inspections, we ensure that Fresh Life Toilets across the network are maintained to the



**Figure 2: Sanergy builds high-quality, low-cost sanitation centers, known as Fresh Life Toilets.**



**Figure 3: Sanergy collects the waste from Fresh Life Toilets on a regular basis, removing it from the community.**

same standards of cleanliness and hygiene. In this way, community members contribute to the health of their neighbors – a responsibility they take very seriously. At quarterly forums, Fresh Life Operators discuss successes and obstacles in providing their communities with hygienic sanitation. FLOs learn from one another, sharing best practices and advice for improved service delivery.

The Sanergy waste collection team then collects the waste from each toilet on a regular basis, replacing the full collection cartridges with clean, empty ones. Once the waste has been removed from the community, we convert the waste into a variety of saleable by-products, including organic fertilizer, called Evergrow, and insect-based animal feed. These by-products are then sold to Kenyan farmers, who see a 30% increase in their crop yields and restored soil health when they use Evergrow.

## **Making Sanitation Provision Profitable**

### **Incentivizing Fresh Life Operators**

In order to help ensure community buy-in for its model, Sanergy distributes the majority of Fresh Life Toilets (FLT) through a franchise model, in which local community members run and maintain the toilets, charging customers a nominal fee per use. The value proposition for potential Fresh Life Operators (FLOs) is two-fold: earn a steady income and improve the health of community residents.

For the last three years, we have had a partnership with Kiva, an online micro-lending platform, to help potential FLOs gain access to interest-free loans with which to purchase an FLT, which costs around 500 USD. Once approved for a loan, FLOs are able to choose between either a 12-month or a 24-month loan. After paying an initial down payment of about 20%, they use revenue generated from running the toilet to pay down the balance of the loan. Our credit team services the loans, ensuring timely payments and low default rates.

The costs of running a Fresh Life Toilet are fairly low; operators are responsible for buying toilet paper and sawdust and ensuring the handwashing station has water and soap for all customers. With an average of 50 users per day, a Fresh Life Operator can earn 80,000 Kenyan shillings per toilet per year – a solid income for residents of Nairobi’s informal settlements. Most Fresh Life Operators run at least two toilets, which increases their income even more.

Many Fresh Life Operators also run other businesses. Hannah Muthoni, for example, has two Fresh Life Toilets and two showers next to a small shop, where she offers a variety of goods for her neighbors. The income she earned from her first Fresh Life Toilet helped finance this expansion, which means she no longer has to travel a long distance to the local market to sell her goods, and she can now take care of her grandchildren while her daughters – who have more education and therefore



**Figure 4: Sanergy converts the waste into valuable by-products, including organic fertilizer.**



**Figure 5: Evergrow has been shown to improve soil health and increase crop yields by 30%.**

have higher earning potential than Hannah does – are at work.

### Incentivizing Sanergy

To make sanitation provision profitable, and thus sustainable, Sanergy has three main revenue streams. The first is selling toilets we manufacture with local materials and labor. Our customers include corporates, NGOs, and government entities looking for a hygienic sanitation solution. Our unique urine-diverting dry toilet is a waterless hygiene solution adaptable to many locations and circumstances and does not require investment in additional infrastructure, making it an appealing solution for customers, especially in areas where there is no sewerage coverage.

We have also built a robust and efficient waste-collection network, which currently removes 9-10 tons of waste per week that works in complement with our infrastructure distribution network. In addition to the cost of the toilet, Fresh Life Operators pay an annual renewal fee of about 90 USD for our waste collection services. This renewal fee is less expensive and more convenient than hiring a vacuum truck or other exhaustion service, as pit latrine owners have to do.

At a centralized facility, Sanergy converts the waste into by-products for which there is high demand in the region. Through a co-composting process, Sanergy’s processing team converts most of the waste into Evergrow, a nutrient-rich, pathogen-free organic fertilizer.

The Kenyan Ministry of Agriculture has identified soil degradation — due to a lack of crop rotation and the use of harsh chemical fertilizers — as the number one threat to food security in East Africa. To restore soil health, they have recommended Kenyan farmers use organic fertilizer on their crops. This recommendation is difficult for farmers to follow: there is currently little domestically produced organic fertilizer, and imports of fertilizer are

prohibitively expensive. Sanergy’s leadership saw a market opportunity for valuable by-products, specifically Evergrow.

Using waste as a fertilizer is a common practice throughout the developed world — including England (<http://www.theguardian.com/environment/2008/aug/29/waste.recycling>) and the United States (<http://www.radiolab.org/story/poop-train/>). In fact, about 60% of all treated sewage sludge in the U.S. is applied to fields, where the nitrogen and phosphorous in the sludge helps crops grow. Evergrow has been shown to restore soil health and increase crop yields by 30%.

In addition, Sanergy has been trialing the development of insect-based animal feed derived from Black Soldier Flies (BSF), the larvae of which feed on organic waste. Once the larvae stop feeding, they are boiled and dried, resulting in a high-protein animal feed, suitable for a variety of livestock. The East African animal feed market is growing steadily at about 7% per year, and livestock farmers are dissatisfied with the currently available options, both because of quality and inconsistent supply. Sanergy’s trials have gone well thus far, and the BSF operations are expanding rapidly.

In partnership with a variety of organizations, including the Bill & Melinda Gates Foundation and Reinvent The Toilet, Sanergy is also trialing several other by-products, including biogas, liquid fertilizer made through urine valorization, and biochar to be used as a soil amendment. This diversification of by-products enables Sanergy to cater to a wide customer base and address the wide array of needs East African farmers have. Sanergy’s R&D is primarily funded through grant capital, allowing for experimentation to ensure we can develop by-products that efficiently convert waste into something of value for our customers.

The production of Evergrow fertilizer and other by-products relies on the waste collected from Fresh Life Toilets each day. The more sanitation services we offer, the more by-products we can make. The more by-products we sell, the easier and more widespread it becomes to provide sanitation affordably. This is how, in working to address the sanitation challenge, we are also tackling East Africa's agricultural productivity crisis.

As a young company, Sanergy is not yet profitable; however, we are confident we have developed an economically viable model that will allow the sustainable provision of hygienic sanitation in urban informal settlements. We are working to scale the model to reach profitability, in addition to achieving maximum impact.

## Conclusion

The results of the Sanergy model so far are promising. In just four years, we have launched 750 Fresh Life Toilets in Nairobi's slums, run by 350 operators. The network of Fresh Life Toilets is used over 33,000 times per day. Sanergy ensures the removal of 60 tons of waste from the toilets per week, and the waste is converted into by-products that help Kenyan farmers increase their crop yields and keep their animals well-fed.

Looking forward, we are committed to achieving 100% coverage in the areas we serve. We have already learned many lessons from our recent expansion into the slum of Mathare, especially about the parts of our model that need to adapt to hyperlocal contexts. The Sanergy model relies on community buy-in, and residents need to understand why this is the best way to ensure the health and prosperity of their families and friends. We work closely with residents to tailor our offerings to the needs and desires of our customers, so that we can be confident that people are willing to pay for Sanergy's services.

Commercial operators running two Fresh Life Toilets generate about USD 2000 per year in profit from charging a minimal usage fee to customers. Schools have seen significant increases in attendance and enrolment after installing Fresh Life Toilets, and in residential compounds, plot owners have seen occupancy go up by 60 percent, and more timely rent payments. The message is clear: if we can provide the services they demand, residents of slums will invest in hygienic sanitation.

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# Why financial lending institutions are not willing to provide services to the private sector for rural sanitation and hygiene (Malawi)



*The paper identifies funding mechanisms for private sector participation and provision of rural household sanitation facilities, within Nkhata Bay District, Malawi.*

Authors: Rochelle Holm, Victor Kasulo, Elijah Wanda

## Abstract

This study examines the gap between financial lending institutions and sanitation and hygiene services within Nkhata Bay District, Malawi. The study reviewed literature and policies, and conducted interviews, field observations, focus group discussions, household and lending institutions surveys, and peer reviewed workshops. Results suggest the following recommendations: promoting informal financial services, improving access for “risky” customers, improving knowledge for financial service providers, and promoting loan diversity. Although it has been found in Malawi households are willing to pay, cash, for improved sanitation, build-up of private sector businesses is hampered by lending institutions not willing to provide financial services.

## Introduction

With almost three quarters of the 2.5 billion people who lack an improved sanitation facility worldwide residing in rural areas, rural sanitation and hygiene services provided by the private sector simultaneously remain a global challenge and present an excellent opportunity for improving public health. This is particularly true in Malawi, where nationwide statistics indicate 92% of the rural population has an unimproved sanitation facility (WHO/UNICEF, 2014). Although Community Led Total Sanitation (CLTS) campaigns are active in Malawi (Malawi Government, 2011a), CLTS is not often combined with private sector build up through sanitation marketing.

There are several recent developments in the wider sector for private sector water and sanitation service participation. Carter and Danert (2003) observe the diverse players when looking at this topic:

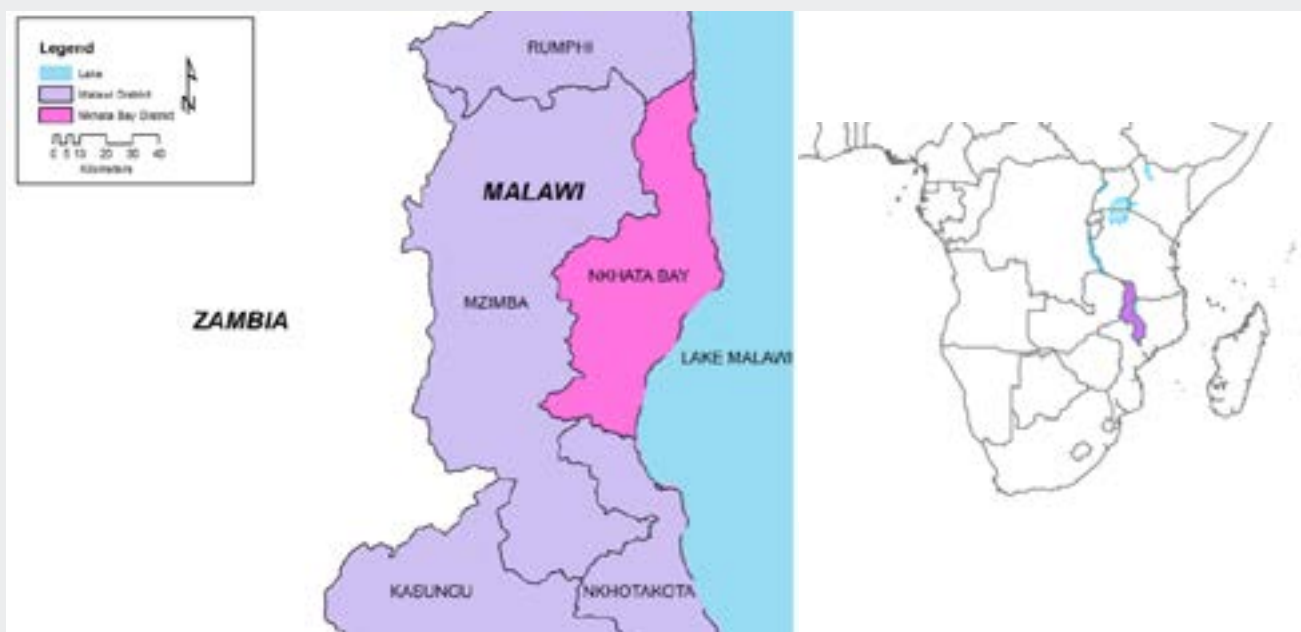
*One of the causes of conflict in the debate over private sector participation is the lack of mutual understanding and respect between diverse players, combined with an apparent unwillingness to be self reflective and, if necessary, self critical. A change in mindset is needed, which recognizes commonalities, values differences, and nurtures respect between diverse players.*

Schaub Jones (2011) supports the global interest in service opportunities for water and sanitation entrepreneurship, but also argues sanitation business models and service providers are unique, and different than most other business. Sanitation businesses provide “one off” services needed every few months or years rather than a daily supply as with water or food, demand in rural areas for mid-level sanitation services such as pit emptying services are limited, and technical support is more common than

## Key messages:

The following actions could help promote and build investment in sanitation in in Nkhata Bay District and other similar rural areas worldwide:

- In low income rural areas promote ongoing informal sources of finance and/or local micro finance institutions for private sector sanitation providers.
- Policy makers should support commercial financial institutions to provide loans to more „risky“ private sector sanitation providers serving rural areas.
- Sharing Government policies relating to sanitation and hygiene to financial institutions.
- Encouraging lending institutions to employ a non-monopolistic approach, e.g. allowing a small percentage of loans to be more sanitation diverse such as agribusiness loans for promotion of composting latrines



**Figure 1. Location of Nkhata Bay District, Malawi.**

business support for sanitation entrepreneurs. Trémolet (2012) similarly maintains sanitation economics can help to identify how market failures affect the ability to extend private sector sanitation services. In Malawi, Water for People (2013) has been at the forefront of promoting Sanitation as a Business, including offering an urban sanitation microfinance program. But, there is a gap in lessons learned for the private sector delivery of rural sanitation and hygiene.

This study examines the reasons why lending institutions are unwilling to provide financial services to small scale operators or prospective operators of sanitation and hygiene service delivery within the Nkhata Bay District, a low income rural district in northern Malawi (Fig. 1). The paper is divided into three main sections: Methodology, Results and Discussion, and Conclusion and Recommendations. The first section profiles water and sanitation conditions in Nkhata Bay, explains the study methodology, outlines the constraints facing financial institutions in reaching the private sector, and explores why leading institutions are unwilling to provide financial services to operators or prospective operators of sanitation and hygiene services. This second section explains why investment in sanitation should be promoted, and the paper concludes with a series of national and global level recommendations on how to better encourage lending institutions to provide sanitation related financial services.

## Method

The 2008 census shows Nkhata Bay District, located along the shore of Lake Malawi (Fig. 2), has a total population of 215,789, most of which is located within the rural areas (Malawi Government, 2009a). District wide, only 5% of households use an improved sanitation facility, defined as a flush toilet, ventilated improved pit latrine,

traditional pit latrine with a concrete slab, or composting toilet (Malawi Government, National Statistical Office and ICF Macro, 2011). Recent findings from Holm et al. (2014a) indicate there are opportunities, barriers, and threats in taking up rural sanitation as a business in the Nkhata Bay District and households – with both lower and higher levels of income – are, on average, willing to pay MK8,580 (£13) to move towards improved sanitation (Holm et al., 2014b).

Improvement of rural sanitation issues through the private sector is supported at the national level. Private sector participation in the delivery of sanitation and hygiene services in Malawi is directed by the National Water Policy (Malawi Government, 2005), National Sanitation Policy (Malawi Government, 2008), Microfinance Policy and Action Plan (Malawi Government, 2002), and the Public Private Partnership Framework (Malawi Government, 2011b), with the latter including sanitation as a specific business growth area.



**Figure 2: Nkhata Bay, Malawi (Authors)**

The ways and means by which this research was undertaken included: reviewing current literature and policy; capturing the current District situation through questionnaires with key informants, in depth interviews, field observations, focus group discussions (FGDs), 311 household and 6 lending institution surveys, and non-participant observation; peer review workshops; and data analysis. The study, and informed consent procedure, was approved by the National Commission for Science and Technology in Malawi.

## Results

This section summarizes our results concerning: why lending institutions may be unwilling to provide financial services, the level of willingness of microfinance institutions to operate in the sanitation sector, and reasons to encourage investment in sanitation in Malawi.

Nkhata Bay District has 6 banking and micro credit infrastructures based within the district, each of which has a head office in the town of Nkhata Bay (Table 1). None of the banking and micro credit infrastructures offers loans for sanitation projects or loans for businesses in the sanitation sector, respectively.

### What are the constraints around financial institutions financing the private sector?

Most financial institutions in this low income rural area are not yet offering sanitation related financial services; there are a number of reasons for this including: difficult conditions for accessing loans; lack of knowledge of loans

by institutions; lack of linkages between households and loan institutions; the fact that sanitation is new area of investment for many financial institutions; and the presence of a monopolistic approach in certain geographical locations.

The majority of rural sanitation entrepreneurs were found to be poor, with a very limited financial base or collateral for build-up of their business, and thus fail to access or qualify for loans from financial institutions. Rural sanitation entrepreneurs may not hold bank accounts at the time of business start-up, and yet most financial institutions will offer loans only to its customers whose accounts are good and have been in operation for at least six months. Furthermore, most financial institutions would only offer business loans to clients who have security in the form of fixed deposits or buildings with title deed, neither of which was found to be commonly held by rural sanitation entrepreneurs. There is also the geographic issue that the banking institutions in Nkhata Bay District are primarily located in market areas and may not, therefore, be geographically accessible to rural areas with regular frequency. Four of the six commercial banks operating in the district have no satellite branches outside the district centre. Yet, some rural areas are served through mobile banking which offers limited services on particular days. For these same reasons, households looking to purchase sanitation services from rural sanitation entrepreneurs with the assistance of a loan will also suffer geographical challenges.

**Table 1: Nkhata Bay District banking and microcredit infrastructures.**

Name of Banking / Micro Credit Infrastructures	Notes
Malawi Savings Bank	The bank attempted to offer micro credit to groups but realized that this service was best provided by such institutions as FINCA and Microloan Foundation. However, groups who benefit from such microcredits facilities bank their money with commercial banks such as MSB.
NBS Bank Limited	Commercial loans for big business with good track record.
Foundation for International Community Assistance (FINCA)	FINCA does provide general loans to individuals involved in business where household assets can be used as collateral. One individual involved in a sanitation project got a business loan – but not necessarily as a sanitation loan.
First Merchant Bank	FMB is currently not giving out any loans due to the unfavourable financial situation (high interest rates).
Microloan Foundation	Loans for sanitation projects are not offered to sanitation businesses but a special request may be made. Microloan Foundation targets rural women who access individual loans but in groups. The group acts as collateral. There is great emphasis on training. For Nkhata Bay District, the majority of the loans, 75%, are in fishing and the rest are for agricultural business.
Opportunity Bank Of Malawi	Loans for sanitation are not offered in Nkhata Bay District. But, loans for sanitation are offered in other Districts, including Blantyre through a loan guarantee fund program with Water for People.

It was found the private sector is often unaware of the type of loans provided by the financial institutions and of how they can be accessed. To someone who has never taken a loan, the prospect of starting the process may be uncomfortable, overwhelming and confusing, as different financial institutions offer different loan facilities. It was found there are only a few banks that heavily market and advertise their services and loan facilities. For Nkhata Bay District, it was observed some banks undertake financial service awareness campaigns but in FDG with financial service providers it was reported the campaigns had received poor response. This was further expanded because of a Malawian culture of financial secrecy whereby Nkhata Bay district residents often do not want to openly show they have money by publicly opening a bank account. It was also observed that even those people who open bank accounts still lack knowledge of banking processes. It is therefore recommended that information on banking procedures and practices should form part of entrepreneurship training, particularly for microcredit institutions that deal with small scale businesses. Financial service providers should also act to improve banking awareness.

Furthermore, results from a number of interviews with private sector sanitation service operators revealed that while sanitation loans were not formally offered in Nkhata Bay District, these small businesses often relied on the informal financial markets, i.e. loans from friends and family, for start-up capital. In fact, the results from this study found the primary financing for the private sector was on going informal sources of finance. This shows while financial institutions want to, and have to, limit their lending risks, there is some financing already happening and that the first step in scaling up sanitation loans may be with local microfinance institutions offering a 'personal' approach rather than large commercial banks.

Supporting Government policy exists, but there is a lack of clear linkage between households, Government, and financial institutions; most financial institutions, for example, were not aware of new developments and policies on sanitation and hygiene. It was observed in FDGs that representatives from financial institutions had low awareness on sanitation and hygiene issues and reported to rarely participate in Government sanitation meetings and programs. Instead, they mostly relied on findings from internal market research. However, relying only on internal market research may make it difficult for financial institutions to realize the potential benefits associated with supporting sanitation and hygiene promotion related businesses. At a small scale, the local Government should consider conducting open day sessions to showcase developments in the sanitation and hygiene sector with the six District financial service providers.

Although contained within the Nkhata Bay District Development Plan (Malawi Government, 2009b) sanitation is a new area of investment for many financial institutions in Malawi, especially for those located in rural areas. It was observed, knowledge of sanitation as a business opportunity was limited. This was especially evident in that, some financial institutions reported to have loan schemes for housing, but have not considered extending the same schemes to latrines and toilets. Most of the bank managers and heads of microfinance institutions interviewed could not see the link between sanitation and loans until it was explained to them that sanitation and hygiene could be a profitable business as part of this research. In several cases, it was reported corporate social responsibility initiatives by financial institutions place an emphasis on health, rather than sanitation facilities, although there is a strong link between sanitation and public health.

A number of financial institutions were found to focus their loan schemes on a narrow sector or geographical area of interest. It was noted the Microloan Foundation offers 75% of its loans to those involved in fish business and the remaining to agribusiness. Microloan Foundation did not diversify, for example agribusiness loans for promotion of composting latrines was not included. Other financial institutions focused on households in permanent employment for employer guaranteed loans, or on commercial loans for big business (outside the scope of rural sanitation service providers). In other cases, banks and financial institutions tended to avoid competition by focusing their services on particular geographical areas. Yet, there was a general feeling in the study household findings that banks should be legally mandated to offer services to the rural areas. However, FDGs further reviled the complexity of this issue in that banks are not willing to go into areas where there is little business, high cost, and limited security. During an FDG with the financial service providers, an example was provided of the nearby Likoma District, an Island district, which no commercial banks because of the challenges of security and transportation of money to and from the island. The administration cost of small loans in low income rural areas may overwhelm any potential profit margin by financial service providers. This is why most commercial banks are not interested in small loans and have deliberately left them to microfinance institutions, who in turn offer these loans at a higher interest rate to cover the high cost of administration. This situation leaves many rural areas without banking services, including loan facilities for the private sector or household. If supported by the Government, financial service providers could reach out to rural areas, in which case the services would be offered as a social responsibility activity, rather than as a profitable commercial venture.

## Why are institutions not willing to provide financial services?

There are a number of reasons why lending institutions are not willing to provide financial services to small entrepreneurs engaged in promoting sanitation and hygiene including: high level of risk; lack of proper collateral; no fast return on sanitation investment; lack of role models; and high administrative costs.

Lending institutions were found to tend to focus on reducing risk on their loans, and as such often do not offer loans to high risk customers for fear of running into losses. This limits the number and amount of loans accessible to small entrepreneurs, such as sanitation service providers. Unfortunately, there is no deliberate policy to finance the provision of this service as is the case in other sectors such as agriculture in the Microloan Foundation example provided above. Furthermore, FDGs indicated repayment rate for most loans in Malawi is low and leading to their high interest rates when loans are offered. During discussions with representatives from financial institutions, it was noted most business people are not trained in entrepreneurship, rendering them an even greater investment risk. Thus, there is a great need to train entrepreneurs in business management and in writing of sound proposals as it would reduce this perceived risk. Financial institutions are much more likely to fund well developed business proposals, regardless of the size, that are supported by evidence of business training; Microloan Foundation, for example, dominantly focuses on good business proposals and training when selecting which loans they grant rather than other selection criteria.

Results found no financial institution in the District would offer a loan without sufficient collateral as this might make it difficult for the institutions to recover the loans in the event of repayment default by the client. Unfortunately, the majority of potential rural beneficiaries, both private sector sanitation entrepreneurs and household customers, are poor and lack this required collateral. However, there were some financial institutions that used groups as collateral, a potential avenue for entrepreneurs to access loans. Group loans were reported to have lower default rate than individual loans, despite a lack of savings culture in Malawi. In addition, most banks indicated that savings could be used as collateral. Indeed, often people save with the purpose of accessing a loan rather than expanding their businesses. Another possibility for accessing loans is to have another institution or donor guarantee the loan, similar to urban Sanitation as a Business programs (Water for People, 2013). In such a case the guarantor would need to have an account with the bank which would become the loan guarantee fund. This is the approach that was used by the Opportunity Bank of Malawi which offered sanitation loans in Blantyre to households and entrepreneurs through a loan guarantee fund program with Water

for People. Receiving repayment was an issue for the Opportunity Bank of Malawi, particularly with regards to household loans, but the bank recovered the loans from the loan guarantee fund (Water for People, 2013).

Investment in sanitation does not confer fast returns as it takes a long time for projects of this nature to yield a return. As such, sanitation projects are not favoured by most lending institutions, particularly microfinance institutions. Preference for investment goes to services with fast returns such as fishing and public market vending. Thus, the challenge is to develop a sanitation and hygiene business model that would provide fast returns on invested money and encourage financial institutions to prioritize investing in this sector.

Sanitation in Malawi is a nascent sector and has not grown to a level attracting major financial investments. There are few successful entrepreneurs who can act as role models and attract the attention of lending institutions. For example, septic tank emptying in the District is a monopoly by one provider, Mr. Clean Malawi, who travels from outside the District. As such, most financial institutions do not see sanitation business as a promising venture with a pool of profitable role models.

## Why should investment in sanitation be promoted?

Promoting investment rural area sanitation further moves toward meeting the Millennium Development Goal (MDG) target for sanitation (United Nations, 2008). By providing financial services to the sanitation sector, lending institutions remove the need for hardware subsidies and may allow those at the base of the pyramid to take the first step towards attaining access to improved sanitation themselves. Furthermore, although financial institutions typically focus on healthcare to meet their perceived social responsibilities, improving sanitation can also confer positive impacts on the health of the population; currently poor sanitation and hygiene practices account for a high proportion of the burden of disease in Malawi especially for among children aged < 5 years (WHO, 2014). Furthermore, as private sector sanitation services expand, financial service providers will see the benefit of having an ongoing customer for both banking and loan services.

Investment in rural sanitation and promotion of the private sector by lending institutions is vital for promotion of:

- Meeting the MDGs
- Providing employment opportunities in rural areas
- Improving the health of rural communities
- Empowering rural communities to improve their own sanitation practices/facilities

## Recommendations

This paper serves to highlight and disseminate findings on why lending institutions are unwilling to provide financial services to small scale or prospective operators of sanitation and hygiene services; the level of willingness of microfinance institutions to operate in the sanitation sector; and reasons to promote investment in sanitation in Malawi.

Although there are six banking and microfinance institutions in the District, none are offering loans for household sanitation projects or sanitation business loans. Informal financial markets are currently serving as the primary provider for rural sanitation and hygiene financial services to the private sector, but this can only scale up so much.

The Government of Malawi Microfinance Policy and Action Plan (Malawi Government, 2002) outlines some problems for small and medium enterprises across sectors, which also apply to the delivery of sanitation and hygiene services in Malawi:

- Lack of collateral by clients
- Clients are assumed to be high risk and unable repay
- Cost of delivering credit and savings services is very high.

The plan also notes microfinance interest rates should not be subsidized, and includes the cost of account administration, loan losses, costs of funds including inflation and capitalization for growth (Malawi Government, 2002). This is also supported by the results of this study. For microfinance to work effectively, there needs to be a profit margin for both the lending institution, and also the private sector taking the loans.

The following actions could help promote and build investment in sanitation in in Nkhata Bay District and other similar rural areas worldwide:

- In low income rural areas promote ongoing informal sources of finance and/or local micro finance institutions for private sector sanitation providers.
- Policy makers should support commercial financial institutions to provide loans to more “risky” private sector sanitation providers serving rural areas.
- Sharing Government policies relating to sanitation and hygiene to financial institutions.
- Encouraging lending institutions to employ a non-monopolistic approach, e.g. allowing a small percentage of loans to be more sanitation diverse such as agribusiness loans for promotion of composting latrines

Although it has been found in Malawi households are willing to pay cash for improved sanitation facilities, the build-up of private sector businesses is hampered by lending institutions not willing to provide financial services. Recommendations and findings from this study can assist others working in Malawi and elsewhere, in both support of sanitation, hygiene and water private sector providers.

Why lending institutions are not willing to provide rural sanitation and hygiene financial services in a rural district of Malawi has been shown to be multifaceted, and requires the public health and financial sectors to overlap in a way never done before to fill this gap. The solution to sanitation problems in Malawi may be first to establish the commercially viable private sector which includes informal and formal financial sector backing.

## Acknowledgement

This report is part of the project Research in Private Sector Participation in the Delivery of Sanitation and Hygiene Services funded by the UK Department for International Development through the Sanitation and Hygiene Applied Research for Equity (SHARE) Research Consortium in a contract managed by the Government of the Republic of Malawi’s Ministry of Agriculture, Irrigation and Development (RESEARCH/SHARE/MALAWI/2013/1).

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# Sanitation system financing models and good practices at households and at institutional levels in Uganda

*This paper presents sanitation cost items and financing sources in life cycle planning as well as examples of successful financing models for households and institutions in Uganda.*

Author: Charles Omona

## Abstract

Planning for long lasting services require identifying and estimating the costs of sanitation service systems over their lifetime. It is crucial to understand and know what financial means are needed and when. Rather than focusing only on the user interface (i.e. the toilet), sustainable sanitation financing has to consider the entire sanitation systems and all the service costs within the sanitation service chain. The lifecycle costs incurred over the whole life of sanitation service provision includes (a) Initial Investment, (b) Day-to-Day Operations, (c) Intermittent Maintenance, and (d) Asset Renewal. To finance sanitation sustainably, a number of financing models for household and institutional sanitation have been tested successfully. These include sanitation soft loans, revolving funds, and Output Based Approach (OBA). The OBA is being implemented by planners and practitioners in water and sanitation development facilities of the Ministry of Water and Environment in Uganda and lessons learnt from practices will contribute to stimulating service demand for improved service delivery and attract further investment sector.

## Introduction

Sanitation financing planning has to consider the entire sanitation system and sanitation Services defined within the sanitation chain that needs to be financed throughout its life cycle. The envisaged sanitation system and/or sanitation service chain that needs to be financed throughout its life cycle consist of: initial investment towards sanitation infrastructures, collection and transport as well as treatment and ultimate reuse or disposal of the faecal waste matter (Figure 1).

### Sanitation Financing Requirements (Anticipated Lifecycle Costs)

Planning for sustainable sanitation services always require identifying and estimating the costs of sanitation service systems over their lifetime, in order to understand what finances are needed and when (ISF, 2014). According

to WASHCOST (2015) the main sanitation lifecycle cost items identified according to when they incur in the sanitation lifecycle and adaptable in practice, are:

- a. Initial investment – community engagement, project preparation, system design, site preparation and installation, commissioning etc. This also includes service extensions.
- b. Regular day-to-day operations – operation and maintenance of hardware, administration and management, regular community engagement etc.
- c. Intermittent maintenance – minor repairs and replacements (e.g. pumps), desludging, etc. required at relatively short time intervals.
- d. Major rehabilitation, replacement and asset renewal – major activities required at relatively long time intervals, such as repairs and replacements of aging infrastructure elements.

## Key messages:

- Sanitation financing planning has to consider the entire sanitation system and sanitation service chain and over the whole life of sanitation service provision (including initial investment, day-to-day operations, intermittent maintenance, and asset renewal)
- Cost recovery in sanitation systems can be by the 4Ts, i.e. Tariffs, Taxes, Transfers and Trade.
- No solution fits all – several sanitation financing models can be successful when adapted to the specific local conditions.





Figure 1: Sanitation System-Sanitation Service Chain.

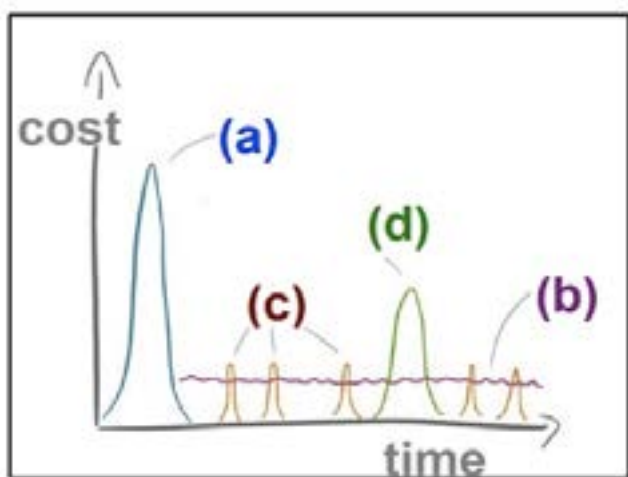


Figure 2: Life cycle costs in sanitation service provision.

e. In summary the lifecycle costs (Figure 2): Costs incurred over the whole life of sanitation service provision (a) Initial Investment, (b) Day-to-Day Operations, (c) Intermittent Maintenance, and (d) Asset Renewal.

## Planning Financing

### Revenues in a lifecycle planning

In seeking paths to financing the water and sanitation MDGs, the 2003 Camdessus Panel proposed the concept of ‘sustainable cost recovery’ where the full lifecycle costs of water services are recovered through a combination of **Tariffs, Taxes and Transfers**, known as the **3Ts** (Trémolet and Rama, 2012) and „**4thT**“ = **Trade** (revenues from the sale of products that capture the value of the sewage waste stream, such as fertilizer products, fuel products and aquaculture). This is illustrated in the figure which shows the requirements for sustainable full cost recovery over the lifecycle of the sanitation service; the **4Ts streams of revenues**

should match or exceed the financing requirement (Figure 3).

### Practical considerations

In practical terms, planning for sustainable (long term sanitation) services that can be delivered in the long term there is need to make sure the revenues from tariffs, government contributions, donor support and sewage reuse products (4Ts) can fully cover the anticipated costs over the lifecycle of the service, as shown in the figure above. It is further required to find the right mix of the 4Ts in order to leverage additional capital, which could be an **iterative process**.

Finding additional capital in form of **repayable finance** - made available ‘now’ but has to be re-paid sometime in the future - to ‘bridge’ the financing gap is needed. The Figure 4 shows that **planning finance is an iterative process** of reducing planned costs and identifying a right mix of revenue sources that in combination with schemes for accessing repayable finance, meet the requirement for sustainable costrecovery. If the gap cannot be closed, the sanitation infrastructure plan may need to be revised.

The present discussion on the financing gap and repayable finance is in reference to financing the lumpy financing needs only

### Financing models

Successful financing models for sanitation systems for households and public sanitation systems (sludge treatment facilities, sewerage system, waste management facilities, etc.) focus on the entire service chain, namely User-interface, collection, transport, treatment and disposal/reuse.

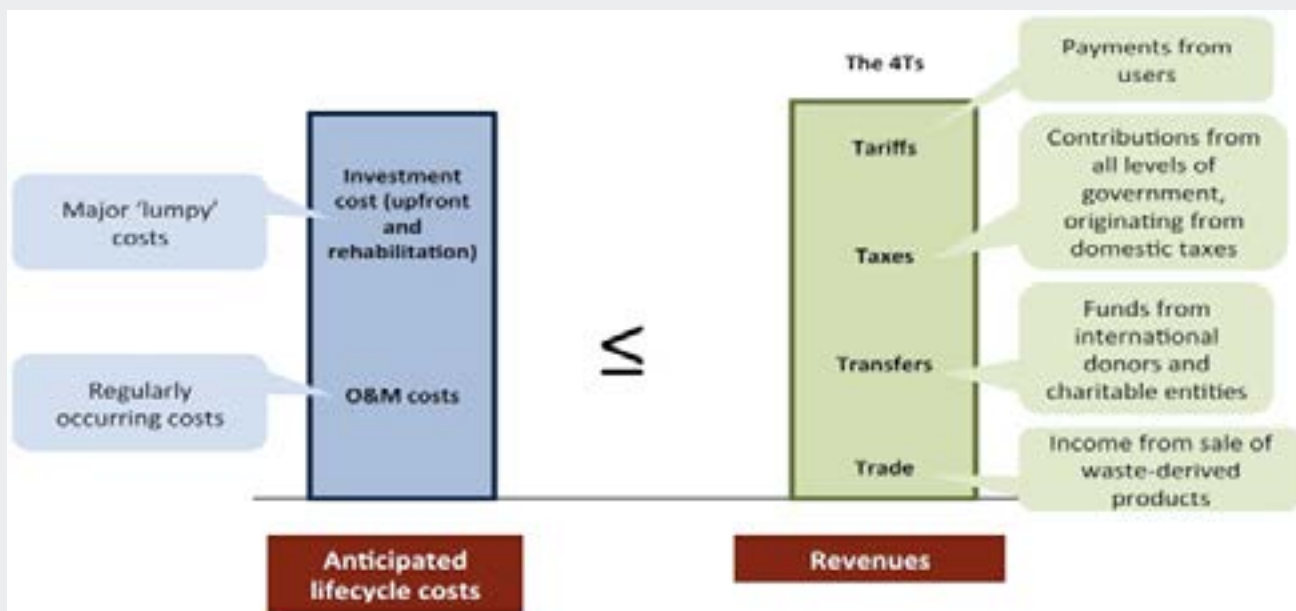


Figure 3: Requirements for sustainable full cost recovery over the lifecycle of the sanitation service (adapted from IRC & WSUP, 2012).

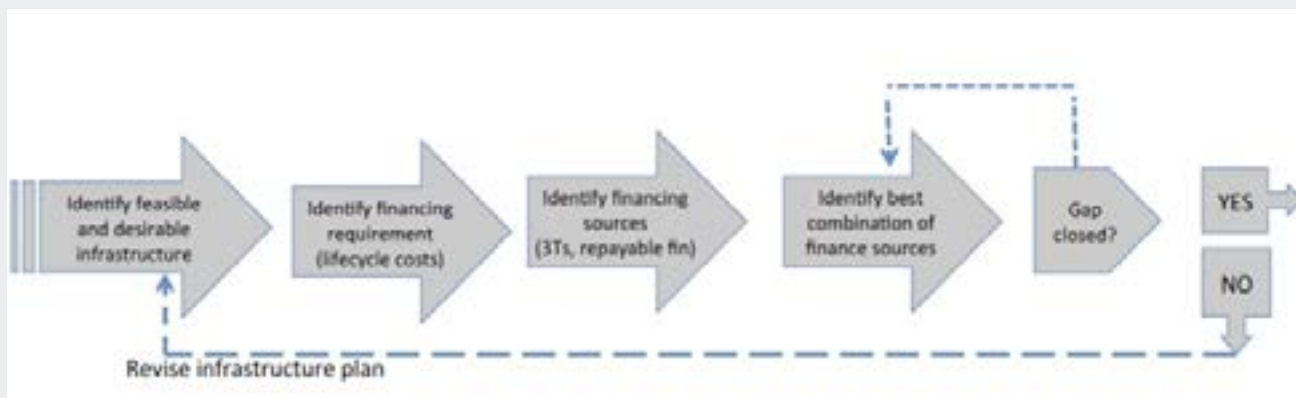


Figure 4: Planning Financing (ISF, 2014)

The following financing mechanism at household levels and institutions have been successful in Uganda:

- a. Revolving fund for HHS Sanitation and Improvements- Small Loans for Sanitation
- b. Micro-credit from social development banks and/or commercial banks.
- c. Various types of credit from enterprises (Money lenders) and payment-in-instalments (Payments made in at least 2 parts but not one single full payment at once. Example four instalments could have payment schedules of 30%, 20%, 25% & 25% in 4 instalments respectively).
- d. Savings and group loans by local (women) groups.
- e. MoU with the financial institutions for collateral-project based approach.

The following sections show examples of successful financing models.

**Current situation**

In practice and according to the 10-year Improved Sanitation and Hygiene (ISH) Strategy developed by the Ministry of Water and Environment in 2010 for implementation in the urban sanitation sub-sector, it is an agreed position that users bear the capital and running costs of sanitation systems. The role of the key players is hence differentiated below:

- The landlord (**owner of the property**) meets the investment and maintenance costs of sanitation facilities at the site (already by national law and by-laws) as precondition for occupancy (no owner of premises is allowed to live in or let or rent out properties or parts of properties (rooms) without access to sanitation facilities at the site. This also strictly applies to - institutions (schools, health care facilities, production facilities, businesses etc.) where many people are put at health risk

**Box1: Sanitation surcharge, Adjumani Town, Uganda**

Adjumani town (population 34'700) is a busy place, hosts a number of schools, 2 banks, Adjumani Hospital and an airstrip.

The town's latrine coverage improved from 64 % to 91 % as a result of the awareness raising campaigns, the condition of having a latrine before a water connection is provided and a subsidy scheme initiated by the Town Authorities financed through a sanitation surcharge on the water bill.

One of the unique innovations promoted by Adjumani town council is the **sanitation surcharge**. In 2009 it's probably the first of its kind in Uganda's small towns and provides lessons that could be replicated in other towns.

The approved water tariff by the Water Supply and Sewerage Board is USD 0.781 per m3 (or USD 0.744 without the sanitation surcharge). To improve sanitation in town, The board agreed to add a 5 % (previously 10 %) sanitation surcharge.

The board also plans to start charging a uniform fee of USD 3.125 per month for water from private boreholes fitted with hand pumps of which 5 % will go to the sanitation fund. The private water operator will be requested to collect the funds from private hand pump owners at a suggested fee of an additional 10 % of collections. The remaining 85 % of this fee will be used for capital expenditures into the piped water system.

**Revenue and expenditure management and projections:** The average annual collections were about USD 21'875 from water sales in the financial year 2011/12 and this gives a **surcharge of USD 1'093.75 per year**. This figure can subsidize Ecopans and pipes (approx. USD 24'063) for over 45 households.

and deprived of their dignity in case of improper sanitation facilities.

- Communiual or Public facilities- may require a range of financing arrangements including borrowing for capital costs and recovering costs through service charges. Communal sanitation facilities (sewerage systems and faecal sludge management facilities ) implemented by the regional Water Sanitation Development Facilities (WSDFs) interventions are financed from grants but O&M cost have always to be recovered from the users and therefore they must be affordable. Innovative initiatives and approaches are used e.g. in a town water users may pay a sanitation surcharge for every cubic metre of water used. The funds so collected should be used for sanitation improvement in the town (demonstrated in Adjumani examples, Box 1).
- Government- avails conditional grants to the Town

Councils for Improved Sanitation and Hygiene (ISH). The funds collected as used for Improved Sanitation and Hygiene (ISH) promotion activities e.g. demand creation as one of the key inputs in the sanitation marketing approach.

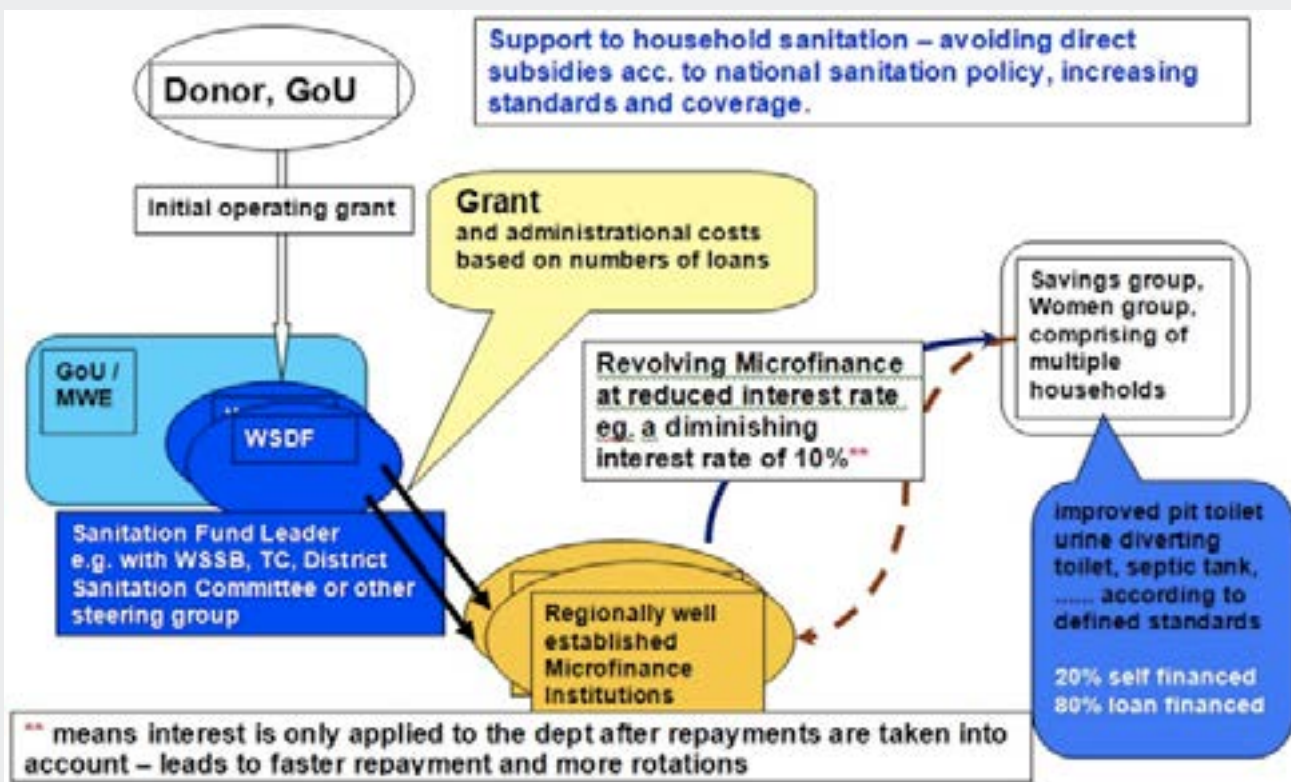
**Financing household sanitation**

- Property owners –meets the investment and maintenance costs for all sanitation facilities needed at site –as required by to the Public Health Act, Cap. 281.. Sanitation service charges (i.e. emptying, transport, treatment) may be included into the monthly rent and in such case born by the property owner or paid by the household directly.
- Through public private partnerships (PPP) -property owners are facilitated to finance improvement of their sanitation situations or by accessing a loan or revolving fund from a (micro-) finance institution.

**Box 2: Kitgum Sustainable Sanitation project, Uganda**

The project is co-financed by EcoSan Club and Austrian Development Agency (ADA) and provide a good practical example of bilateral operational Memorandum of Understanding between the project and the financial institutions. In this arrangement, the project serve as a guarantor and provides collateral to qualifying borrower” who are Service Providers approved by the Guarantor involved in the sanitation service chain in relation to the Project from’ collection, transport, treatment and disposal of faecal sludge and solid waste (garbage) as well as interested Institutions and Individuals households (stimulated by sanitation marketing campaign) approved by the guarantor who would like to access financing for the construction of sanitation infrastructures/ facilities such as septic tanks and improved toilets in their institutions or households.

In the case of individual households and institutional applying for sanitation loans for sanitation infrastructure development, the funding for construction materials is channelled to an establish and reputable hardware dealer in the area, while the funds for labour charges for construction is channelled to identified and competent service providers, through operational agreement with bank with support and guidance from the project. The collateral may revolve over time as long as demand for service exists and become sustainable.



**Figure 5: Revolving Fund for HH sanitation and improvements under experimentation by the Ministry of Water in Uganda**

An example is the Kitgum Sustainable Sanitation project is a practical example of a bilateral agreement with a financial institution (Box 2)

Both small scale providers and consumers need access to financing mechanisms but need in any case information to make an informed choice.

**Revolving Fund model for household sanitation and improvements**

As illustrated in the example above, sanitation funding is preferably channelled through local financial Institutions and be loaned out to the users as a revolving fund under agreed operational agreement.

This approach could trigger immediate investment and would bring private funds into sanitation improvement.

- Establish Sanitation Revolving Fund for HHs in form of a subsidised (low interest) or commercial loan that is available for financing basic and improved sanitation upfront. Institutionalised e.g. under the Water Supply Sanitation Board (WSSB) guidance and supervision.
- For HHs always being short of money, this model could enable them to improve their status in the community as well as their comfort and dignity.
- Engage with stakeholders and try to work out a system that works for all partners.
- Provide technical standards and support

(e.g. monitoring contractors and in case of non-satisfactory construction quality with arbitration)

- Massive advertisement (Sanitation Marketing) needed for the revolving fund – include as a strong message “Status”
- Don’t sell a toilet – sell the ideology that you are getting a nicer woman or a brighter child a successful husband if you have a nice toilet.
- Think creative – Look out what e.g. Red Bull is “selling”

**Enforcement and Output Based Subsidy to enable households to comply.**

Figure 6 shows the „Smart Subsidy Model“including enforcement and output based subsidy that was developed to improve sanitation coverage and to upscale sanitation service levels in a town.

To improve sanitation coverage and to upscale sanitation service levels, an agreement with all stakeholders on the principle and sign a MoU with the Local Government that includes but is not limited to:

- Adaptation and enforcement of the sanitation bye-law in its water supply area through the Local Authority.
- Support adaptation of the bye-law with knowledge and what else it needs to come forward.

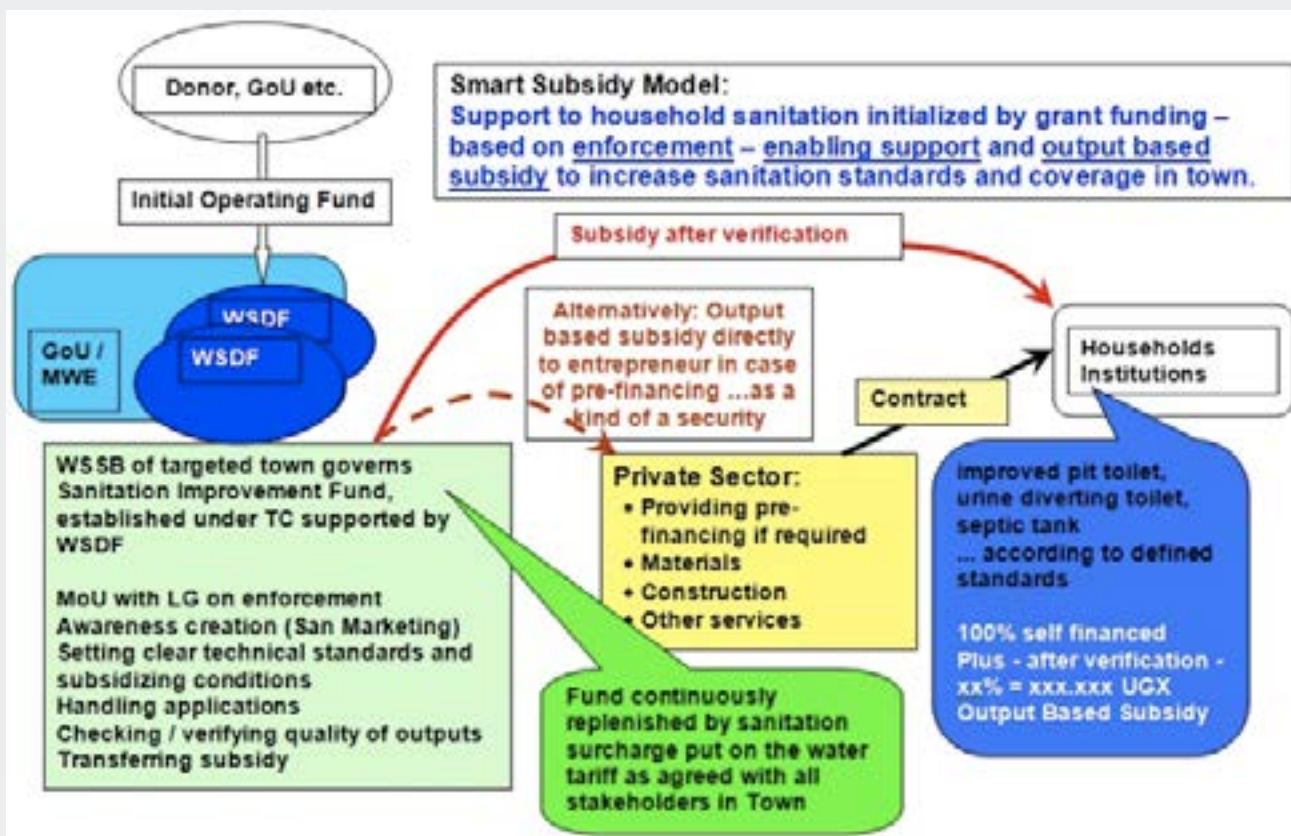


Figure 6: Enforcement and Output Based Subsidy (Smart Subsidy Model)

- Establish Sanitation Improvement Fund for enabling financial support to the households in form of a subsidy that is paid after completion as a kind of Output Based Aid.
  - Institutionalized under the Water Supply and Sanitation Board (WSSB) as described above in the Adjumani example (Box1), held by the Town Council and continuously replenished by a sanitation surcharge put on the water tariff. The Fund is meant to sustainable and continuously help to improve the sanitation service level in town.
  - Create an enabling environment by providing information and awareness creation of the population about the enforcement that will take place and its deadline e.g. one year or till completion date of the newly installed water supply scheme.
  - Inform the population at the same time about the subsidies available to assist them to comply with the regulations laid out in the bye-law and its conditions.
  - Use established working methods e.g. local radio, drama groups, road shows etc. but also printed leaflets to hand out and put up at key places.
  - The Central and regional Ministry practitioners to define the sanitation products and avail standard drawings of the technologies and its minimum standards required to the people and the contractors.
  - Lined pit latrine - standard drawing with standard size lined pit to contain sludge for at least ½ a year (assuming a family of 6 persons this results into approx. 1,7m3), maximum for 1 year. De-slugging works best when sludge is not too old and still contains enough liquid.
  - Estimate the costs carefully –and agree on a subsidy of e.g. 50% of the investment costs payable after completion and satisfactory inspection of the lined pit latrine. The construction needs to comply with the standards set out and the quality of work desired. (Strictly quality control and compliance to minimum standards to improve the quality delivery by the private sector / contractors)
  - Pay the Output Based Subsidy either directly to the contractor (who probably has pre-financed partly the pit toilet) or the household that has pre-financed everything on its own.
- Similar arrangements were made for UDDTs (standards were defined, e.g. UDDT attached to the house saves 25 % of costs as one wall exists already and UDDT reachable under a roof for more comfort). Only in this case the higher investment seems justifiable as this then will be a permanent solution. Toilets out in the field will always be just a temporary solution. We all want to reach a toilet safely and dry; even at night, when it is raining.

Subsidy level – again – standard drawings and proper cost estimates are needed – the subsidy could be 35 % of total cost. All other arrangements as described above. As a third technology that can receive Output Based Subsidies if constructed according to standards and qualities required – septic tanks with a volume of min. ½ year and max. 1 year (if sludge gets too old it gets hard and cannot be mechanically pumped out). Subsidy level – again standard drawings and proper cost estimates are needed – the subsidy could be 20 % of total cost. All other arrangements as described above.

As mentioned at the earlier – this is an example and creative thinking and arrangements to make it work under a local particular situation will be the driving force.

### Different models of OBA

Several different models of OBA exist, including those where some pre-financing is the case for part of the total cost. People would be familiar with OBA to stimulate latrine construction (i.e. for collection/access). However, OBA mechanisms can be used to finance a much broader range of activities, going from demand promotion (or generally software activities) all the way to re-use and safe disposal. OBA could be used to finance the provision of sanitation services at each step of the sanitation value chain, as follows:

- **OBA for demand creation**, e.g. incentives for service providers to generate greater demand for sanitation goods and services;

- **OBA for collection/access**, e.g. payments to sell/ install latrines or sewer connections and public/ community sanitation (such as community toilet blocks);
- **OBA for emptying of on-site sanitation and transport of wastes**, e.g. payments for safely transporting and discharging pit latrine content at designated points;
- **OBA for treatment and proper disposal of wastes**, e.g. payments for construction of sludge and wastewater treatment facilities and/or their operation;
- **OBA to encourage safe re-use of treated wastes**, e.g. encouraging farmers to purchase re-use products by giving them vouchers.

The design of individual OBA schemes will depend on the most appropriate way to package the provision of sustainable sanitation services, which means that each OBA scheme is likely to include a combination of several types of results-based subsidies. For indicative options for packaging OBA more details are given in Trémolet and Evans (2010).

### OBA combined with Microfinance to improve water supply and sanitation

ISF (2014) describe an example from Kenya, a project to enable small water providers to access repayable finance and capacity building was instigated by WSP, in partnership with K - Rep Bank, an MFI operating in Kenya since 1999. The Global Partnership on Output -

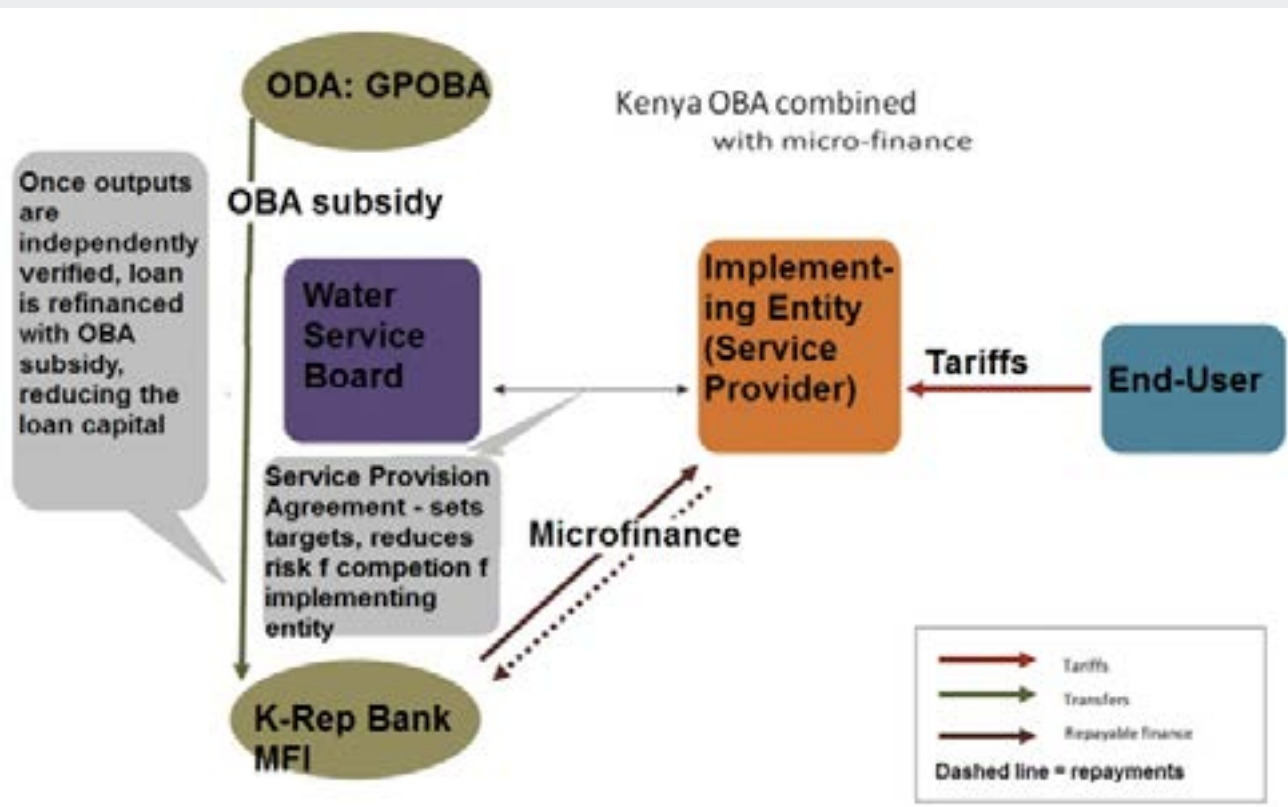


Figure 7: Kenya example of Output Based Aid (OBA) combined with Microfinance.

Based Aid (GPOBA) approved support for a pilot project 'MajiniMaisha' (Water for Life) in 2006 that brought together OBA and microfinance. The project has subsequently been expanded with additional funds from the European Union's Water Facility.

K-Rep Bank provides project finance on a fully commercial basis for up to 80 % of the total investment cost, with the borrower financing 20 %. Under the arrangement, prospective borrowers submit an 'expression of demand' including preliminary feasibility report for the community water supply project for initial assessment by the bank. If approved, the GPOBA provides a project development grant for preparation of a detailed feasibility study including technical assistance subsidies to secure the assistance of a registered Support Organisation. Successful applicants are provided a further technical assistance subsidy (up to USD 12'600) for assistance from the Support Organisation for project implementation. These steps improve capacity and feasibility for project success.

The verifiable project outputs are the number of new connections and average monthly revenue - measures of the impact on both new and existing customers. Upon verification of outputs by a Project Audit Consultant, GPOBA subsidy refinances the loan, dropping the debt by half (to 40% of total investment cost).

The pilot has generally described as a great success, having resulted in 35 capital infrastructure projects and provision of nearly 12'000 new water connections reaching 190'000 people - almost double the targeted number of people. The weaknesses may be inferred from a call for Expressions of Interest for the next phase of the project. These mainly relate to post - implementation project management including revenue collection, loan repayment, clarification of roles and other management and governance issues that affect the commercial viability of service providers, and ultimately the sustainability of the services. Weak capacity and shortage of Support Organisations for providing technical support was not anticipated in the design of this OBA project, and led to project delays.

Financial challenges in the case of sanitation People should not live in filthy and unhealthy environments. The poor and vulnerable should be helped to obtain sanitation services in ways that are people-centred, participatory and affordable and promote social equity. According to the African Development Bank, the financial challenges in the case of sanitation are:

- a. Inadequate resources for sanitation
- b. Low or non-existent tariffs for using sanitary facilities
- c. Lack of financial sustainability of existing sanitary solutions.

A fulfilled sewerage system in every African city would contribute to an even higher debt in foreign currency in many African countries, given the steel and cement to be imported. Different ways of financing sanitation for meeting sanitation and hygiene challenges are keys.

## Conclusion and recommendations

It is often noted that it is more difficult to recover the cost in the case of sanitation than in the case of drinking water. However, facilitating the supply of finance is important for users as well as the small scale providers of these sanitary facilities and the different forms of finance always require some kind of cost recovery. For that reason, it makes sense to pilot the current ways of financing and cost recovery for sanitation in two typical African slums and then suggest how to improve them in the future based on lessons learnt.

Sanitation financing planning has to consider the entire sanitation system and sanitation service chain that needs to be financed throughout its life cycle as well as the life cycle costs incurred over the whole life of sanitation service provision. These include (a) Initial Investment, (b) Day-to-Day Operations, (c) Intermittent Maintenance, and (d) Asset Renewal. The financing models presented in this report have to apply contextually for their suitability in addressing households and institutional sanitation financing needs.

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