

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.

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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.

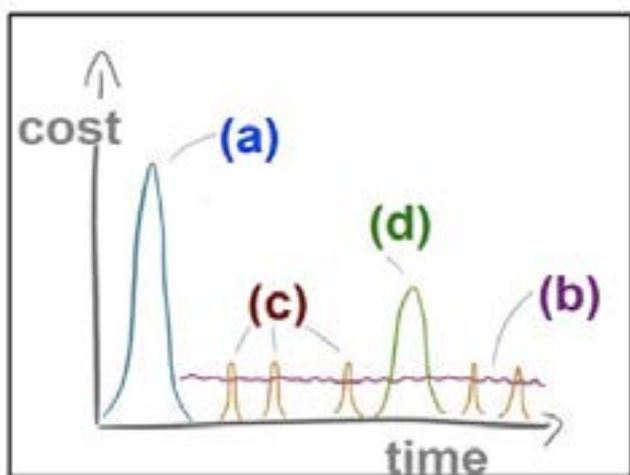


Figure 2: Life cycle costs in sanitation service provision.

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.

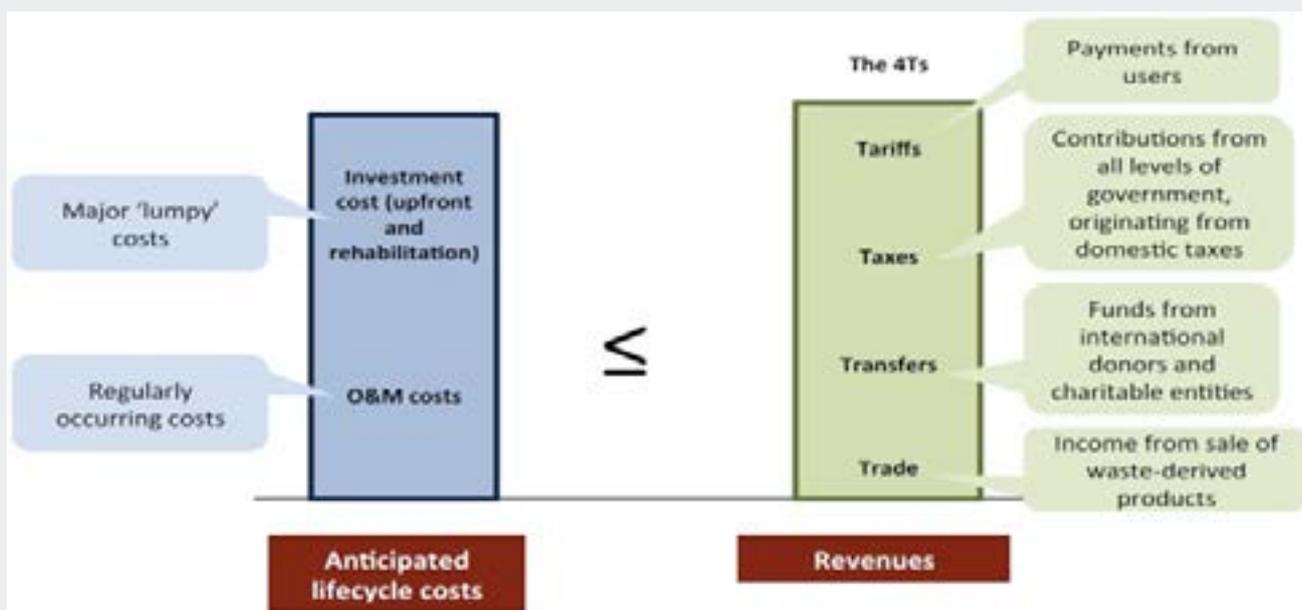


Figure 3: Requirements for sustainable full cost recovery over the lifecycle of the sanitation service (adapted from IRC & WSUP, 2012).

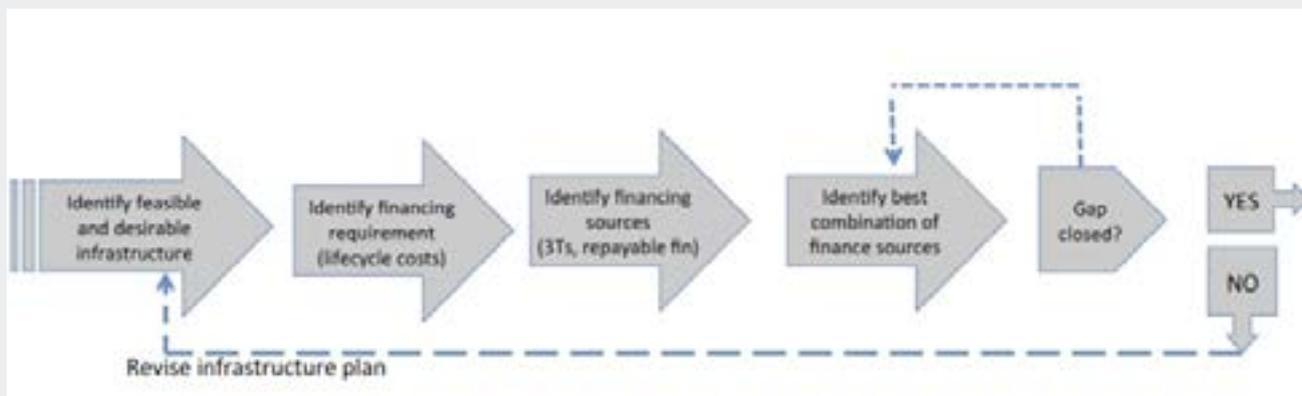


Figure 4: Planning Financing (ISF, 2014)

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.

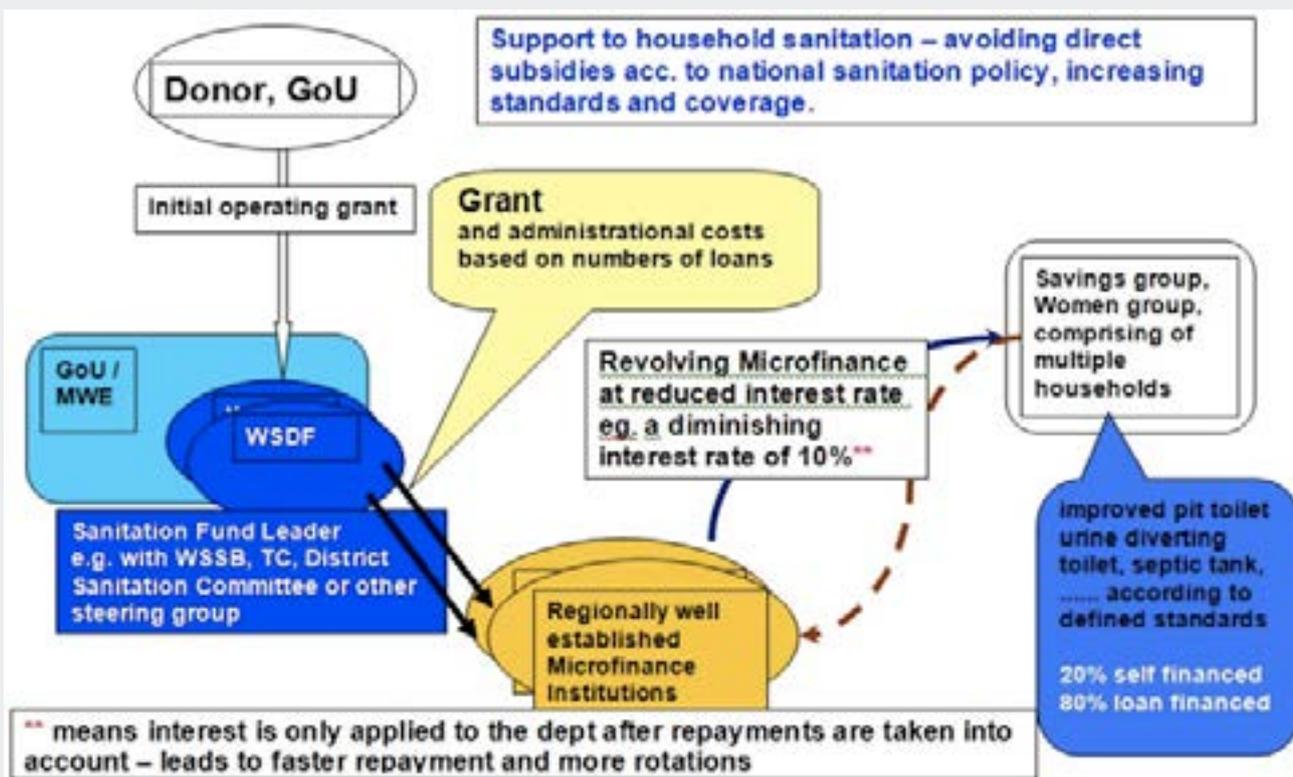


Figure 5: Revolving Fund for HH sanitation and improvements under experimentation by the Ministry of Water in Uganda

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.

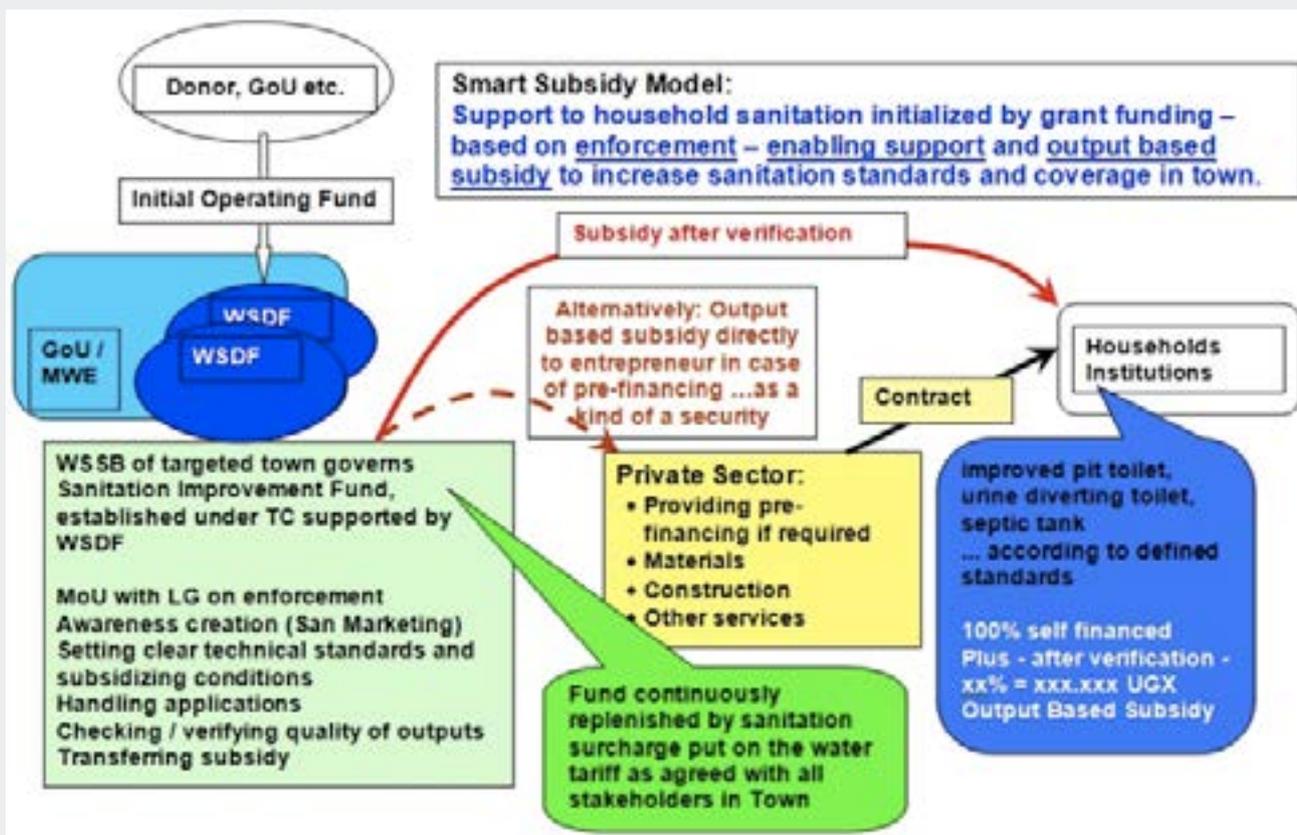


Figure 6: Enforcement and Output Based Subsidy (Smart Subsidy Model)

- 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 -

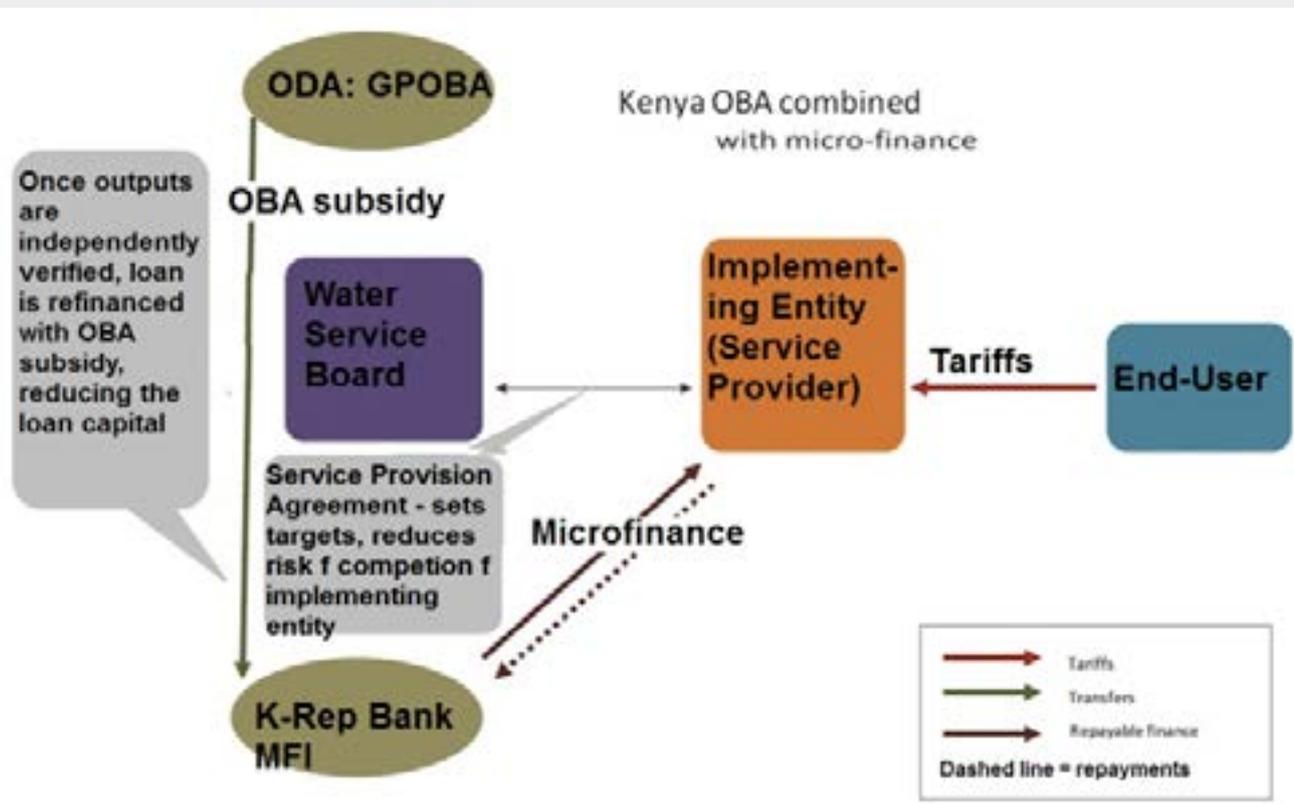


Figure 7: Kenya example of Output Based Aid (OBA) combined with Microfinance.

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.

Reference

- IRC & WSUP, 2012 Financing water and sanitation for the poor: six key solutions. Discussion paper, www.alnap.org/pool/files/dp003propoorfinance.pdf (accessed 05.10.2015)
- ISF (2014): Financing Sanitation for Cities and Towns. Learning Paper (prepared for SNV), Institute for Sustainable Futures, University of Technology Sydney, NSW, Australia.
- Trémole, S., Evans, B. (2010): Output-Based Aid for Sustainable Sanitation (with inputs from D. Schaub-Jones). OBA Working Paper Series Paper No.10, <https://www.gpoba.org/node/520> (accessed 05.10.2015)
- Trémole, S., Rama, M. (2012): Tracking national financial flows into sanitation, hygiene and drinking. WHO/HSE/WSH/12.0, http://apps.who.int/iris/bitstream/10665/75225/1/WHO_HSE_WSH_12.05_eng.pdf (accessed 05.10.2015)
- WASHCOST (2015): www.ircwash.org/washcost (accessed 05.10.2015)

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