WASH SERVICES FOR EVERYONE FOREVER

A proposal to apply the Life Cycle Cost Approach in Uganda



SEPTEMBER 2012

Understanding the full life-cycle costs of (rural) WASH services is a big step towards increasing the efficiency and effectiveness of investments in the Ugandan WASH sector, which have become scarcer over the past year. It is a major challenge to find a balance between the allocation of money for new infrastructure to increase coverage and the allocation for major repairs and rehabilitation of WASH infrastructure to maintain provision of a basic level of service.

Another important issue that needs to be addressed in Uganda is to know what service level can be offered for 24 hours/7 days a week and what it costs, including the costs for the community, the District Water Office and the Ministry with support agencies such as the Technical Support Units.

The methodology and approach that aims to bring the answers to these and other questions is called the Life Cycle Cost Approach (LCCA). The life-cycle cost approach can be used for monitoring and costing sustainable WASH services by assessing costs and comparing them against levels of service provided. This approach has been introduced and developed by IRC, the International Water and Sanitation Centre, and partners in the WASHCost project.

In Uganda, the organisation Fontes, has carried out a scan on how the rural WASH sector is financed as a first step to introduce the LCCA approach in Uganda. It shows how complex the financing of the WASH sector in Uganda is, but also that a number of tools to help improve planning and budgeting are in place, but not always used to their full capacity. LCCA has the potential to support policy makers and implementers of government and civil society to better plan, budget and finance WASH services that will be de facto sustained and, in the medium term, to provide the sector with better value for money for the WASH services provided.

An important next step will be that the sector stakeholders identify the life-cycle costs of rural WASH services in Uganda and start discussing the implications of this information and how it can be integrated in planning and budgeting both for investment costs and recurrent costs (operation and maintenance, rehabilitation and support) of rural WASH services. This paper proposes a number of steps to adapt and apply the life-cycle cost approach to the WASH sector in Uganda.

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IRC triple-s WATER SERVICES THAT LAST WASHCost fontes

Lower Local Governments to plan and manage the re-

The rural water challenge: stagnating coverage and functionality in Uganda

As in many developing countries, Uganda is facing a situation where the expansion of coverage of rural water services is stagnating, functionality levels are not increasing and overall sector financing remains at its best stable (figure 1). The stagnation of coverage can to a large extent be attributed to population growth, which in Uganda is 3.6% and fourth highest in the world, but also to a fragmentation of local authorities and the fact that the areas that are easy to provide with services have already been covered. On functionality, the Sector performance Report 2012 says: *"With regards to technology type, the functionality trends for point water sources depict a slight improvement contrary to the trend for piped water supplies in rural areas which is on a decline. This is mainly because the financial investments required for rehabilitation of rural piped water supplies are in most cases bigger than what is provided under DWSCG (District Water and Sanitation Development Conditional Grant). It is therefore important that deliberate strategies are put in place to focus on O&M of piped water supply schemes especially in rural areas and RGCs."* One of the solutions MWE (Ministry of Water and Environment) is proposing is to further decentralise the rehabilitation of water points, when it continues with *"Additionally, the challenge in optimising functionality of water supply facilities may be partially attributed to the management of the rehabilitation funds at the district water office, which involves significant proportions to cover overheads and other related expenses. MWE would now like to adopt an approach of using the habilitation funds under the supervision of the DWO. It is recommended that 11% of the DWSDCG earmarked for rehabilitation of water sources be sent to the Lower Local Governments for effectiveness and efficiency."*

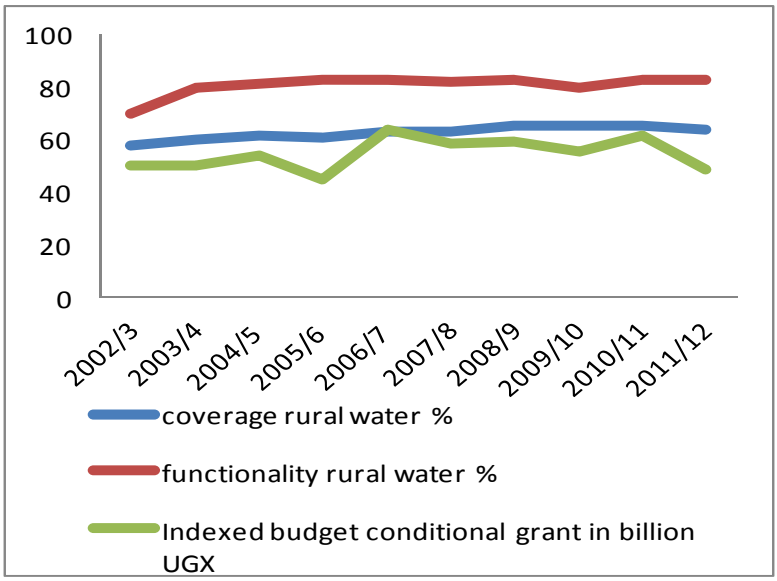


Figure 1: Stagnation in coverage, functionality and budget in rural water in Uganda

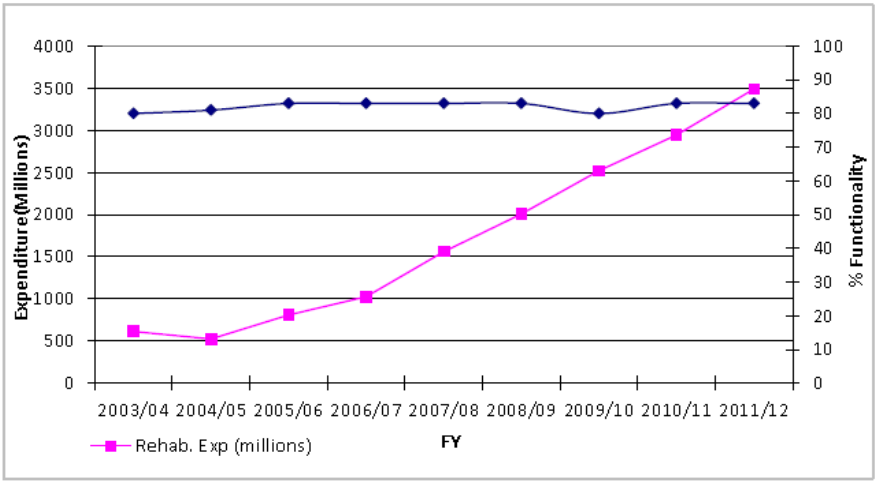


Figure 2: Functionality of rural water sources and rehabilitation fund expenditures since 2003/04 (MWE 2012)

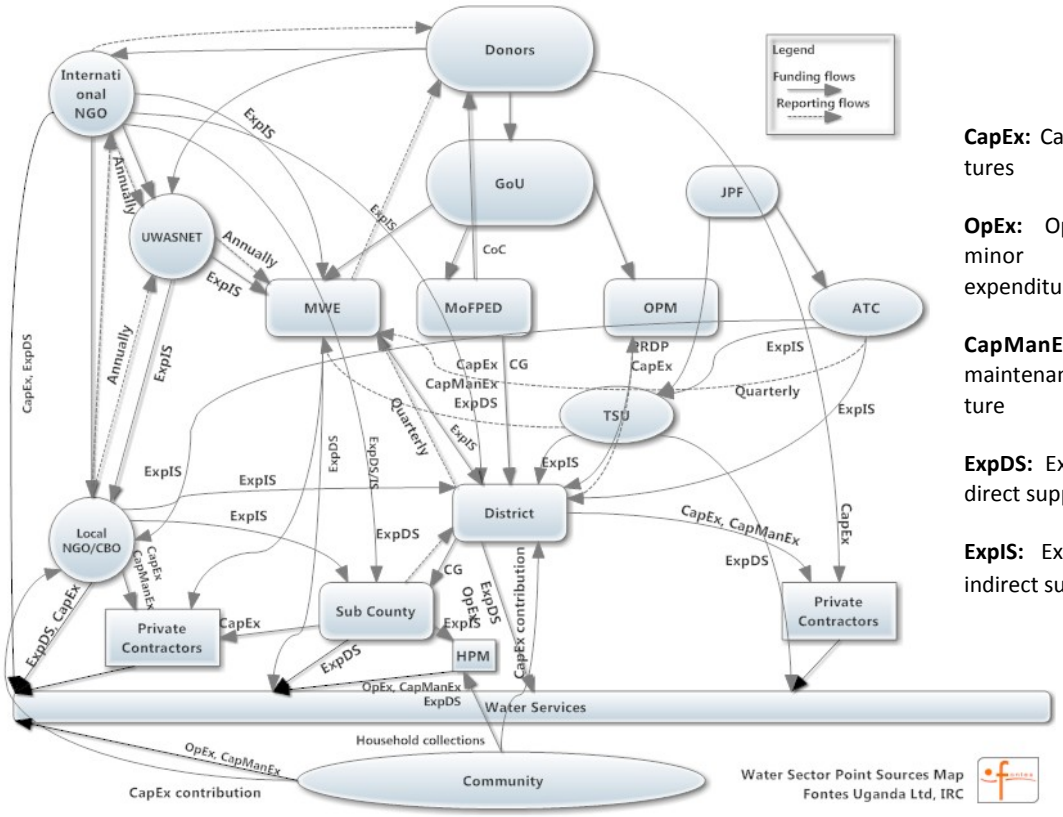
Figure 2 shows that Uganda has increasingly been focussing on rehabilitation over the past years to improve functionality, but the graphs of figure 1 show that, however commendable, it is unlikely that these measures alone with the given budget limitations will achieve access *for all* to rural water services *forever*. It is therefore more

important than ever for Uganda to optimise sector investments as a whole, in order to effectively maintain existing service levels and at the same time reach new populations. The main tool used at the moment to assess the efficiency of the sector, per capita investment cost, only provides a partial picture of reality. It only takes into account the investment cost of constructing new systems, mainly focusing on hardware. Costs for software activities (mobilisation, capacity building etc) and all the costs associated with the operation and maintenance of the systems once they are installed, are ignored. A life-cycle-cost analysis, which looks at the service being provided, identifies where efficiency gains can be made, and allows for decisions on for instance, the (financial) ability to move users from tap points to house connections; or a gradual change from handpumps to piped schemes. In addition, the use of the life-cycle-cost approach by the WASHCost team has produced an overview of the minimum benchmarks for costing sustainable basic services in developing countries and can support MWE in setting such benchmarks for the Uganda situation.

Overview: existing financing streams in the Uganda rural WASH sector

A study carried out by Fontes in Uganda (Fontes 2012), using the life cycle cost approach (see box below) to look at the expenditure flows of different technologies and the different life-cycle cost categories, shows that the Ugandan rural water and sanitation sector itself and its financing streams are very complex (see figure 3). The study focuses on the rural water and sanitation sector, including small piped schemes for rural growth centres (RGCs). It also includes household, communal and institutional latrines.

Figure 3 shows the different stakeholders contributing to the different life-cycle costs components in the case of point sources (mainly boreholes and shallow wells with handpumps). There are multiple government actors both at local, district, regional and national level, and funding from donors is



CapEx: Capital Expenditures

OpEx: Operating and minor maintenance expenditure

CapManEx: Capital maintenance expenditure

ExpDS: Expenditure on direct support

ExpIS: Expenditure on indirect support

Figure 3: Financial flows for point water sources in Uganda. See glossary at the end of detailed cost definitions

also channelled through different mechanisms such as the Joint Partnership Fund and the Uganda Sanitation Fund, in addition to contributions towards the general sector funding which are channelled to the districts as part of the District Water and Sanitation Conditional Grants.

A recent development has been the establishment of new agencies at regional level, mainly to deal with water and sanitation services for rural growth centres. For example, the water and sanitation development facilities (WSDF) serve as investment agencies for small piped schemes and the Umbrella Organisations as maintenance and follow up entities. This shows that different entities are involved at different stages of the life cycle of water and sanitation infrastructure, and hence associated with different life-cycle cost categories (see box 'What are life-cycle costs?').

In addition to government actors, the private sector plays an important role, as implementing agencies contracted by all levels, but also as private operators of small piped schemes, or as handpump mechanics paid by communities to fix handpumps. The government and the private sector are complemented by approximately 200 NGOs which are active in a large range of activities; from advocacy and promoting good governance to direct service provision.

The scan of the rural water and sanitation sector in Uganda found that there is high emphasis on capital expenditure, both in terms of funding and in terms of entities involved. For example, according to government guidelines, 70% of the conditional grants given to the districts should be used on new infrastructure development. As a comparison, only 8% is attributed to capital maintenance expenditure (CapManEx) and 11% on follow-up software activities (ExpDS). At the same time, reviews of the sector have the past few years highlighted the increased need for direct support (ExpDS) to the communities with the promotion of Hand Pump Mechanic Associations and provision of spare parts, but also by strengthening the indirect support (ExpIS) by providing back-up support of MWE via the Technical Support Units. Both these issues and the importance of sufficient allocation for rehabilitation (CapManEx) have been directly linked to challenges in increasing functionality (MWE 2011 and 2012). The existing budgeting and planning tools are also largely focusing on capital expenditures, such as the per capita investment cost. A sector investment model and tool exists, but the latter neglects software expenditures, and is poorly updated and not widely used.

Life Cycle Cost Approach in Uganda?

Without further analysis it cannot be determined if the present balance between capital expenditure and recurrent expenditure in Uganda is (still) optimal for increasing coverage and functionality of rural water services or it would be better to revise the strategy and start to direct more funds to recurrent expenditure on direct support and rehabilitation. Adopting a life-cycle cost approach (or parts of it) could have a number of benefits for the Ugandan rural water and sanitation sector. It would help to factor in the costs spent after a water system is put in place, such as operational expenditures (OpEx) and expenditures on major repairs (CapManEx) and direct support (ExpDS). These categories play an important part in ensuring sustainability of the structures. A cost tracking exercise, based on the tools and the framework given in the Fontes study, could provide valuable data on how much is spent on these categories, and where the gaps are. It could also provide government with strong arguments to focus more on recurrent costs, both internally and for NGOs and donors.

Applying the life-cycle cost approach is easy. A few phases are proposed below, and in the case of Uganda Phase 1 and 2 have already been accomplished.

Phase 1: Introduction of LCCA to the sector. The approach was first introduced in Uganda to the sector stakeholders in December 2011, before the Rural Water Supply Network forum where about 50 participants of government and civil society participated. In addition, a training in LCCA was provided during the last day of the forum, in which also a good number of Uganda sector professionals participated.

Phase 2: Mapping of stakeholders and financial flows according to LCC methodology. This study was carried out by Fontes in consultation with the Ministry of Water and Environment in Uganda and provides a good starting point for mapping how WASH services are financed and identifying possible gaps to achieve better sustainability.

Phase 3: Data collection and information gathering. During this phase data on actual costs and budgets for WASH services are collected in relation to the services provided. Most of the information will be collected from the field, but will also include information on costs at the ministries level. Most information is available, but needs to be extracted and compiled from different sources. Quality control of the information by cross checking and triangulation is important to achieve highest reliability of the data. This phase can take between four and six months.

Phase 4: Data analysis on the current costs related to level of services provided. During this phase the diagnosis of the sector will be carried out. The data will be organised and presented for a participatory analysis. The process will aim at coming to shared conclusions on how the financing of WASH services is organised and what will be the best strategies to start addressing the issues based on real costs and services delivered. This phase may take around six months including the consultative process.

Phase 5: Data analysis on the future costs and levels of services provided and embedding of LCCA in the sector. This phase will start already during the previous phase, but the emphasis of the analysis here is on integrating the knowledge and understanding gained in the existing planning and budgeting instruments in use in the (rural) WASH sector in Uganda. It will also include adaptation or upgrading of some of the existing instruments and discuss the development of new tools. The duration of this phase may be between three and six months and is largely dependent of the ambition of the sector partners.

After the above phases, the process will continue. Changes will not happen overnight and results might influence and add to existing policy and sector implementation instruments, from the Joint Sector Planning to the District Implementation Manual. One of the most important aspects is that this process requires capacity building of the professionals involved, but in principle these are all already part of the regular development process towards an improved and more sophisticated WASH sector in Uganda.

Other countries are taking steps towards the application of the life-cycle cost approach or elements of it, such as Mozambique and Ghana. Below, some examples from other countries are given, in addition to a detailed definition and glossary of LCCA. In addition to the work on costs and expenditures, the framework also encourages a debate on service levels, and what service level the country wishes to and is able to provide.

Conclusion

Uganda is facing challenges in maintaining and expanding its coverage and functionality in order to meet national and international targets. At the same time, funding for the rural water and sanitation sector is not increasing. This paper proposes that the life-cycle cost approach provides an excellent opportunity to strengthen the current efforts of the Ugandan rural water sector to improve cost-tracking, planning and budgeting for water services that last. This approach will provide guid-

ance on where investments need to be made and how to allocate the funds in the most effective and efficient way.

Examples of the value added of cost and service level information based on LCCA

The life-cycle cost approach has been developed and introduced by IRC since 2008, mainly through the WASHCost project in India (Andhra Pradesh), Burkina Faso, Ghana and Mozambique. Some highlights of WASHCost findings relevant for Uganda include:

Costs and Service per Technology in Rural Water Supply: How Efficient are Multi Village Schemes? This paper assesses the cost and service levels across different technologies that are operational in Andhra Pradesh, India. The main objective is to assess the cost effectiveness in terms of service delivery. The main focus is on individual technologies like hand pumps, mini piped water supply schemes, single village schemes and multi village schemes. An important conclusion of this study is that multi village schemes are not necessarily the best available option (more expensive and providing lower services than other options).

Monitoring WASH contracts in Mozambique triggers transparency in the WASH sector. The water, sanitation and hygiene (WASH) sector has limited collective memory of costs and commitments. To addressing this, with full support from the Government, the team collected published all the construction contract data which triggered a vigorous discussion in the sector on unit costs being used throughout the country. This data is now being updated every 6 months by the rural water department and used in budgeting and planning, contributing to more transparency on cost ranges for different technologies.

Applying the life-cycle cost approach to sanitation: 11 key messages from Burkina Faso, Ghana and Mozambique. From using the LCC methodology, in Ghana, Burkina Faso and Mozambique 11 key messages were communicated

A child fetches water from an unkempt spring well

to the Africasan meeting of 2011 in Rwanda. Amongst others, the research revealed that there is no difference in expenditure by households that received a subsidy for sanitation hardware and those who did not, which supported the decision for the national CLTS approach in Ghana. In Mozambique some households receive extra subsidies in the form of cement slabs and vent pipes. In Ghana, there were no differences in expenditure by those households which received these subsidies and those that did not. For both countries it was found that there is high annual household expenditure on soap and low expenditure on latrines.

References

MWE (2012). Water and Environment Sector Performance Report 2012, Ministry of Water and Environment, Government of Uganda

Fontes (2012). Information scan on WASH unit costs and financial planning and budgeting of the Water and Sanitation Sector in Uganda, IRC, Uganda *(forthcoming)*

MWE (2011). Water and Environment Sector Performance Report 2011, Ministry of Water and Environment, Government of Uganda

More information about the LCCA approach can be accessed at *http:www.washcost.info*

BOX 1: WHAT ARE LIFE CYCLE-COSTS?

Life-cycle costs represent the aggregate costs of ensuring delivery of adequate, equitable and sustainable WASH services to a population in a specified area. These costs include the construction and maintenance of systems in the short and longer term, taking into account the need for hardware and software, operation and maintenance, capital maintenance, any cost of capital, and the need for direct and indirect support, including source protection, training and capacity development, planning and institutional pro-poor support.

The delivery of sustainable services requires that financial systems are in place to ensure that infrastructure can be renewed and replaced at the end of its useful life, and to deliver timely breakdown repairs, along with the capacity to extend delivery systems and improve service delivery in response to changes in demand. This is the 'life-cycle' at the heart of this approach – what is needed to build, sustain, repair and renew a water (or sanitation) system through the whole of its cycle of use.

The term 'life-cycle' in this context does not refer to conventional 'cradle-to-grave' system analysis, but indicates that in a sustainable system, the costs follow a cycle, from initial capital investment, to operation and minor maintenance, to capital maintenance and replacement of infrastructure that has come to the end of its useful life (which may well be extended or renewed with additional capital expenditure). The life cycle refers both to the life of the individual system components and to the overall costs required to develop and run a service indefinitely.

The life-cycle costs approach (LCCA) goes beyond achieving the technical ability to quantify and make costs readily available. It is not (or only partly) about what it costs to have the infrastructure in place. The approach is much more about what service level is provided at what costs, independent from the technology that is used. It seeks to improve understanding about life-cycle costs and the ability to analyse them in relation to service delivery.

The life-cycle cost components are:

CapEx: Capital Expenditure is composed of both hardware (construction materials and engineering works) and software components. The software part includes the studies done prior to implementation (such as feasibility studies, assessments and willingness to pay surveys) and also the initial interaction with stakeholders and water users, as well as the establishment of management structures such as water user committees (WUC) or water supply and sanitation boards (WSSB). Community Led Total Sanitation (CLTS) approaches and other sanitation promotion campaigns that aim at expanding sanitation coverage also count to CapEx expenses. CapEx also includes new investments for extensions that can be added on further down the road.

OpEx: Operating and minor maintenance expenditure covers the costs of daily operation of the water system as well as minor repairs. For a handpump, this means the replacement of fast moving spares such as bolts and chains, and for small piped schemes and gravity flow schemes (GFS) it means replacement of taps and valves as well as expenses on fuel and chemicals. OpEx also includes the payment of allowances for the people involved in running the systems. In Uganda, this can mean paying sitting allowances for committees or boards, or paying pump caretakers or scheme plumbers. For sanitation structures, OpEx includes cleaning, provision of soap and water for hand washing and minor maintenance of the structures.

CapManEx: Capital maintenance expenditure includes asset renewal, replacement and rehabilitation costs. These are expenses on work that goes beyond the daily running of the systems, but that is required to keep them running. Examples in Uganda are borehole rehabilitation, major repair on a pump or storage tank in a piped scheme or the replacement of a faulty generator. In the sanitation sector it means pit-emptying or the relocation of the latrine once the pit is full, as well as major repair or rehabilitation of the superstructure.

ExpDS: Expenditure on direct support includes post-construction activities related to each individual scheme or community. Activities in Uganda include refresher trainings and follow up of WUCs and WSSBs, technical back-stopping and other activities such as helping WUCs to make operation and maintenance (O&M) plans or to establish a revolving fund with the household collections for the handpump. It also involves continuous hygiene and sanitation promotion, as well as monitoring and evaluation at community level.

ExpIDS: Expenditure on indirect support include macro-level support, planning and policy-making which is essential to an enabling environment but where it is not possible to break down costs for each specific water system or community. In Uganda, this also involves capacity building of government entities at different levels, research, knowledge management and developing guidelines, manuals and maintaining good sector coordination.

CoC: Cost of capital refers to the cost of financing the programme or project. In Uganda this mainly means the payment of interests by Government to multilateral lending agencies, as well as payment of interest for loans taken by other stakeholders such as households or WSSBs.

From: WASHCost 2011 and Fontes 2012