Information scan on WASH unit costs and financial planning and budgeting of the Water and Sanitation Sector in Uganda

IRC International Water and Sanitation Centre

Uganda

Final Report

13.01.2013

Fontes Uganda Ltd

Lucrezia Biteete

Patrick Jangeyanga

Table of contents

List of Acronyms

AFDB – African Development Bank
ATC – Appropriate Technology Centre
CapEx – Capital Expenditure
CapManEx – Capital Maintenance Expenditure
CBO – Community Based Organisation
CDO – Community Development Officer
CG – Conditional Grant
CLTS – Community Led Total Sanitation
CoC – Cost of Capital
DANIDA – Danish International Development Agency
DEO – District Education Office
DHO – District Health Office
DHSCG – District Hygiene and Sanitation Conditional Grant
DHSCG – District Hygiene and Sanitation Conditional Grant
DIM – District Implementation Manual
DLG – District Local Government
DWD – Directorate of Water Development
DWO – District Water Office
DWSCG – District Water and Sanitation Conditional Grant
EU – European Union
ExpDS – Expenditure on Direct Support
ExpIS – Expenditure on Indirect Support
FY – Financial Year
GFS – Gravity Flow Scheme
GoU – Government of Uganda
HH - household
HMP – Handpump Mechanic
HW – Hardware
IDP – Internally Displaced Person
JPF - Joint Partnership Fund
KFW – Kreditanstalt für Wideraufbau (German Development Bank)
LCC – Life Cycle Costs
LCCA – Life Cycle Costs Approach
MDG – Millennium Development Goals
MoES – Ministry of Education and Sports
MoFPED – Ministry of Finance, Planning and Economic Development
MoH – Ministry of Health
MoU – Memorandum of Understanding
MTEF – Medium Term Expenditure Framework
MWE – Ministry of Water and Environment
NGO – Non Governmental Organisation
O&M – operation and maintenance
OpEx – Operations Expenditure
OPM – Office of the Prime Minister
PAF – Poverty Action Fund
PHAST – Participatory Hygiene and Sanitation Transformation
PO – Private Operator
PRDP – Peace Recovery and Development Plan
PS – Private Sector

RGC – Rural Growth Centre
RWSS – Rural Water and Sanitation Sector
SO – Scheme Operator
SW – Software
Triple-S – Sustainable Services at Scale
TSU – Technical Support Unit
Umbrella – Umbrella Organisation for Water and Sanitation
USF – Uganda Sanitation Fund
UWASNET – Uganda Water and Sanitation NGO Network
WASH – Water Sanitation and Hygiene
WSDF – Water and Sanitation Development Facility
WSSB – Water Supply and Sanitation Board
WSSCC – Water Supply and Sanitation Coordination Committee
WUC – Water User Committee
WWSCC – World Water and Sanitation Collaborative Council

Executive Summary

In order to address sustainability challenges in the rural water and sanitation sector, there is increased focus on understanding the costs involved in post-construction activities such as operation and maintenance, large repairs and activities of support mechanisms. This study aims to get an overview over the income and expenditure flows in the Ugandan rural water and sanitation sector, with a special focus on sustainability. Through a better understanding of income and expenditure flows, reporting flows, funding instruments, budgeting and planning tools and the areas of intervention of the different entities, gaps can be identified. The study will use the Life Cycle Costs Approach (LCCA) promoted by WASHCost to specifically focus on post-construction costs, and also discuss potential benefits of adopting the approach in Uganda.

The study was carried out by Fontes Uganda Ltd for IRC Uganda, in close cooperation with the Department for Rural Water in the Directorate of Water Development (DWD) at the Ministry of Water and Environment (MWE).

Data was mainly collected through 23 stakeholder interviews, and from sector documents. The data is presented in two tools: cost matrices and maps. The cost matrices are arranged by cost category, and show the different stakeholders involved with each cost category. The maps are generated for each sector (water and sanitation), each technology (point sources, piped schemes, public latrines, household sanitation, school sanitation) and for each cost category. The matrices are presented in the appendix and the specific maps are presented in the report. “Master maps” are also to be found in the appendix.

The Life Cycle Costs Approach (LCCA) is a tool to show what is needed to sustain, repair and replace a water or sanitation system through the whole of its cycle of wear, repair and renewal. Life Cycle Costs (LCC), therefore, “represent the aggregate cost of ensuring delivery of adequate, equitable and sustainable water, sanitation and hygiene (WASH) services to a population in a specified area” (Fonseca et al 2010). Based on this, the LCCA “seeks to raise awareness of the importance of LCC in achieving adequate, equitable and sustainable WASH services, to make reliable cost information readily available and to mainstream the use of LCC in WASH governance processes at every level” (Fonseca et al 2010).

The main cost categories are:

CapEx: Capital expenditure includes expenses on hardware and software related to the initial investment in water and sanitation infrastructure. It includes pre-studies, software approaches to promote household sanitation and engineering works.

OpEx: Expenditure on operation and maintenance includes operation expenditure as well as minor repairs such as replacements of taps or valves.

CapManEx: Capital maintenance expenditures include costs of rehabilitation and replacement. These are large repairs that are not part of the daily running of the systems.

ExpDS: Expenditure on direct support include activities focused on the individual community or scheme that take place after the handover of the systems such as capacity building, follow up, monitoring and evaluation.

ExpIS: Expenditure on indirect support refers to support on macro-level for policy development and sector coordination, including capacity building and monitoring and evaluation costs that cannot be broken down for each scheme or community.

CoC: Cost of capital are mainly interests paid on loans.

Chapter four explains the maps, which show the funding and reporting flows in the Ugandan rural water and sanitation sector. The main funding agencies are Government of Uganda (GoU) and donor funds, through various funds such as the Joint Partnership Fund (JPF), Peace Recovery and Development Plan (PRDP) and Uganda Sanitation Fund.

Main stakeholders at national level are the Ministry of Water and Environment (MWE), which is the lead agency in the sector. Ministry of Finance, Planning and Economic Development (MoFPED) is responsible for disbursement of funds and preparing national budgets. Ministry of Health (MoH) is responsible for household sanitation and Ministry of Education and Sports (MoES) for sanitation in schools. Office of the Prime Minister (OPM) manages the PRDP, and Uganda Water and Sanitation NGO Network represents (UWASNET) civil society and collects information on the activities and expenses of the NGOs active in the sector. In addition, there are international NGOs and the Appropriate Technology Centre (ATC), which carries out research on water and sanitation technologies.

At regional level, the government recently created Water and Sanitation Development Facilities (WSDF) for the entire country, which identify rural growth centres (RGC) and small towns for development of small piped water schemes and public toilets. The post-construction follow up of these structures is carried out by regional Umbrella Organisations. Technical Support Units (TSU) provide technical support to districts.

At local level, the main entity responsible for implementation of rural water and sanitation structures is the District Water Office (DWO), based on the District Water and Sanitation Conditional Grant (DWSCG) and the District Hygiene and Sanitation Conditional Grant (DHSCG). Sub-Counties carry out small-scale activities and mobilisation and software activities. Town Councils are considered part of the rural sector when their water schemes are not large enough to be formally contracted out to the private sector. In addition, individual health centres and schools are responsible for their sanitation facilities. A number of local NGOs support the sector with a wide range of activities from implementation of structures to advocacy, capacity building and monitoring.

At community level the main role is played by the water and sanitation services users, and in Uganda they are also the ones responsible for operation and maintenance of the structures. Management is organised through water user committees (WUC) or water supply and sanitation boards (WSSB), and technical work is done by scheme operators (SO) or private operators (PO) for pipes schemes, or handpump mechanics (HPM) for boreholes.

In chapter five, maps show which entities are involved in the different cost categories outlined above.

Chapter six summarises the main budgeting and planning tools in the sector. The main financing instrument of government is the DWSCG, and its guidelines provide 70% for new water (and sanitation) structures (CapEx), 11% for software (CapEx and ExpDS), 8% for rehabilitation

(CapManEx), 6% for construction of public latrines (CapEx) and 5% for supervision and monitoring (ExpDS). This shows that government is still largely focusing on CapEx in order to achieve the Millennium Development Goals (MDG) and its own targets. In the financial year 2010-11, 52.1 billion Uganda shillings (20 million USD) was released to local governments through the DWSCG (MWE 2011b).

Per capita investment costs are calculated each year as a measurement of effectiveness and efficiency of the sector investment. However, the indicator is easily biased by different technologies that have very different per capita investment costs. Unit costs are average costs of construction of different technologies. Most stakeholders surveyed by this study base their budgeting on bills of quantities of previous projects. However, the government has developed two tools for the calculation of unit costs. The borehole drilling unit cost tool is used by central government to estimate unit costs for boreholes. The sector investment model also provides unit costs for other technologies as well as sanitation technologies, and even includes yearly operation and maintenance costs. However, it has not been updated and is rarely used.

Adopting the Life Cycle Costs 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 OpEx, CapManEx and ExpDS. These categories play an important part in ensuring sustainability of the structures. A cost analysis exercise, based on the tools and the framework given in this report, 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 post-construction costs, both internally and for NGOs and donors.

At the same time, cost tracking and LCCA thinking could face a number of constraints. A number of cost categories are currently lumped under general budget lines, and it would take some effort and some estimation to disaggregate these costs. Not all entities will be willing to give away cost information, and cost information might not be reliable due to corruption and poor reporting and verification routines. In addition, focus on post-construction costs would take focus away from expanding coverage and could slow down progress towards achieving targets in the short term, even if it would be better off in the long term.

Adopting the LCCA in full would probably mean a change in the budgeting, planning and policy framework, something that will take time. However, in the short term it could be beneficial to carry out a cost analysis exercise, in order to get a better overview of the real costs in the sector. Data from this exercise could be used to make Extended Unit Costs Tables, where costs are calculated according to technology and settlement pattern for each cost category. This provides the possibility to calculate yearly costs of keeping different systems in different settings running over time, as well as per capita costs for the entire life cycle of a system.

1 Introduction

One of the critical topics in the Rural Water and Sanitation (RWSS) sector is sustainability of the structures, and hence also the financing of operations and maintenance. IRC International Water and Sanitation Centre (IRC) is focusing on this aspect through a number of initiatives, amongst them the WASHCost[1] project and the Sustainable Services at Scale (Triple-S) project. This study aims to get an overview over the income and expenditure flows in the Ugandan rural water and sanitation sector, with a special focus on sustainability. Through a better understanding of the income and expenditure flows, reporting flows, funding instruments, budgeting and planning tools and the areas of intervention of the different entities, gaps can be identified. The study will use the Life Cycle Costs Approach (LCCA) developed by IRC and its partner organisations under the WASHCost project to specifically focus on post-construction costs, and also discuss potential benefits of adopting the approach in Uganda.

The study was carried out by Fontes Uganda Ltd for IRC Uganda, in close cooperation with the Department for Rural Water in the Directorate of Water Development (DWD) at the Ministry of Water and Environment (MWE).

The report is written for an audience already familiar with the basic characteristics of the Ugandan rural water and sanitation sector, and will therefore not discuss the policy and legal framework in detail. The topic covered by this study is extremely vast and detailed, and therefore some generalisations had to be made. Please see the main assumptions for the matrix and the maps in the methodology chapter. In addition, the study only had limited time and resources to verify the information given by the informants, therefore omissions or errors are not to be excluded.

1.1 The Ugandan Rural Water and Sanitation Sector

The Ugandan rural water and sanitation sector is anchored in the Rural Water Department in the Directorate of Water Development, Ministry of Water and Environment. The Department is responsible for providing the rural population with improved water sources, such as deep boreholes, hand dug shallow wells, protected springs, gravity flow schemes and to some extent promotion of rainwater harvesting. The Department was also responsible for the construction of small piped water schemes for Rural Growth Centres (RGCs), however this responsibility is increasingly taken over by the Water and Sanitation Development Facilities (WSDF), which are regional funding mechanisms currently rolled out to cover the entire country. In addition, the rural water department is also responsible for sanitation in RGCs and in public spaces, as well as hygiene promotion around the water sources. The implementation is normally done at decentralised level, mostly through the District Water Offices (DWO). In addition to the governmental structures, about 200 NGOs are active in the water and sanitation sector, with activities ranging from good governance and advocacy to provision of structures.

The sector is going through a number of changes, with the most important being decentralisation, increased focus on solar systems and small piped schemes, and post-construction follow up carried out by regional Umbrella Organisations and Handpump Mechanic Associations. This study covers both point sources and small piped schemes, including those for rural small towns where the system

[1] See www.washcost.org

is not big enough to formally contract the management out to the private sector. It covers both household sanitation, public latrines and sanitation in institutions such as schools and health centres.

Please refer to the Sector Performance Report of 2011 (MWE 2011b) for a detailed description of the policy and legal framework. For a detailed description of the activities of the District Water Offices, who are the key players both in implementation of rural water supplies, the District Implementation Manual (DIM) gives a good overview (MWE 2007), although it is currently undergoing revision. The Operations and Maintenance Framework (2004, revised in 2011) spells out the responsibilities for covering costs for both minor and major repairs (MWE 2004, 2011a).

1.2 The Information Scan

This study aims to map expenditure channels, planning and budgeting tools in the Ugandan rural water and sanitation sector and create an overview over what cost information is used for decision making. The study will inform sector stakeholders in Uganda on the potential of using the Life Cycle Costs Approach (LCCA) for financing and planning water services that last. The LCCA aims to support water, sanitation and hygiene (WASH) governance by identifying the real and disaggregated costs of water, sanitation and hygiene services, and the range of physical, social, economic and political factors that influence those costs.

The findings of this study are divided into four main sections. After explaining the methodology and how to understand the annexes of this report, as well as a brief introduction into the LCCA, chapter four will focus on the main funding and reporting flows in the sector, outlining the different agencies and sector players through the use of maps. Chapter five then goes more into detail and looks at what types of costs the different entities cover, and is summarised in the cost matrices and cost maps. Chapter six looks at the current planning and budgeting tools such as unit costs and the Sector Investment Model, and discusses the opportunities and constraints with the current practices, as well as the potential benefits of adopting LCCA. Chapter seven looks beyond this study and gives an example on how the tools explained in chapter four and five (maps and matrix) can be extended to give a more accurate picture of the cost of providing sustainable rural water services.

2 Methodology

The study was carried out using the following methodologies:

1. Desk study of documents
2. Interviews with key informants
3. Travel to one sample District and interview with key informants to gather information about the tools used at District, Sub-County and Community level
4. Analysis of data

2.1 Data collection

The main source of information was key informants, who were asked questions through semi-structured interviews. Where necessary, documents were asked for to provide more information on for example planning tools or budget lines. Please see a complete list of people interviewed in appendix 3.

Stakeholders consulted were (number of people interviewed):

1. DWD, Rural Water Departmern (3)
2. DWD, Urban Water Department (1)
3. DWD, Sanitation (1)
4. DWD, General (2)
5. DWD, Planning Unit (2)
6. Ministry of Health, Environmental Health Division (1)
7. District Water Office (Jinja and Kanungu Districts) (2)
8. Sub County (Lake Katwe, Kasese) (1)
9. Water and Sanitation Development Facility, Central (1)
10. Appropriate Technology Centre (2)
11. Office of the Prime Minister (1)
12. Private Contractors (1)
13. NGOs (3)
14. UWASNET (1)
15. UNICEF (1)

In total 23 people from 13 different agencies/departments were interviewed.

2.2 Data Analysis and Representation

The data was structured in two main tools for analysis and graphic representation; maps and matrices.

2.2.1 Stakeholder Maps

The first is through stakeholder maps, indicating the flow of funds and the reporting streams. In order to simplify a very complex picture, maps have been created in three categories:

1. Different sectors: water and sanitation
2. Different technologies: point sources, small piped water schemes, household sanitation, public latrines, latrines in schools
3. Different cost categories: CapEx, OpEx, CapManEx, ExpDS and ExpIS

The maps have been developed based on the data in the matrix. Regular arrows are funding flows and dotted arrows are reporting streams. Text on the arrows either refer to the type of cost (CapEx, CapManEx etc, see next chapter), or the frequency of reporting (annually, quarterly, monthly). Black arrows show the actual service provision and not necessarily a funding flow, although some costs might be involved. For example, the private sector actually carries out most of the construction works, or in the case of the Town Council, it is the Private Operator (PO) who does the actual service provision and not the Town Council. The black arrow therefore indicates the entity directly in contact with the users.

Some entities have been merged for simplicity. For example, UNICEF is presented as a separate entity in the matrix, but does not figure in the map. This is because in Uganda, its activities are largely the same as the category called "international NGO" and it was therefore not necessary to make a separate figure. Higher Education Institutions are so diverse in funding and type of activity that they were not included in the map. These institutions mostly come in only for research projects. It was difficult to find examples of Cost of Capital for households or Scheme Operators and these are therefore not presented in the map and only as theoretical possibilities in the matrix. Some minor details such as locally generated revenue for districts and sub-counties (mostly insignificant amounts) have been left out for simplicity purposes.

The "master maps" are presented in appendices 1 and 2.

More maps can be extrapolated from the same data set on request.

2.2.2 Cost Matrix

Secondly, the agencies as well as their main immediate source of funds were grouped according to the cost categories (see chapter 3 below). There are two matrices, one for water and one for sanitation. The matrices are organised by cost category, and give information on which entity is involved, where the funds come from and some comments on what type of activities the entity is involved in. Please refer to the list of acronyms for better understanding of the matrices.

The main assumptions in making the matrices were:

1. Only the immediate source of funds is listed. For example, if the Sub-County receives money from MoFPED through the District, it is only the District that is listed. Please refer to the maps to identify the original source of funding.
2. Activities related to Integrated Water Resource Management are not specific for the rural water sector and are therefore not included, although they can be relevant for the sector, such as groundwater mapping
3. It was not possible to find any examples on projects for sewerage or drainage in the rural sector (even for RGCs and small town councils) so there is no data on this in the matrix
4. Activities related to environmental management are not specific for the rural sanitation sector and are therefore not included

These two tools can be used to easily respond to questions. For example, if you want to know how the Water and Sanitation Development Facilities (WSDF) are funded, you can just look at the map and see it is funded by the Joint Partnership Fund (JPF) and the Ministry of Water and Environment (MWE). If you want to study costs of Capital Maintenance Expenditure, you can refer to the matrix

where you find a list of the entities involved. You can thereafter refer to the CapManEx map to find out how funds are channelled to the entities involved and how reporting is done. Or, for example, if you want to know who is involved in funding the construction and operations and maintenance of public latrines, you can easily see this from the public latrine map.

2.3 Challenges with data collection

Wherever possible, information from informants was confirmed by looking at policy documents and guidelines. However, sometimes the information was conflicting. This is because things might not be done in practice how they are prescribed in the policy documents. Where these conflicts were found, it was prioritised to show what is done in practice, but the theory is also added in form of a comment or in the text in the report.

3 The Life Cycle Costs Approach

The Life Cycle Costs Approach (LCCA) is a flexible approach to show what is needed to sustain, repair and replace a water or sanitation system through the whole of its cycle of wear, repair and renewal. Life Cycle Costs (LCC), therefore, "represent the aggregate cost of ensuring delivery of adequate, equitable and sustainable water, sanitation and hygiene (WASH) services to a population in a specified area" (Fonseca et al 2010). Based on this, the LCCA "seeks to raise awareness of the importance of LCC in achieving adequate, equitable and sustainable WASH services, to make reliable cost information readily available and to mainstream the use of LCC in WASH governance processes at every level" (Fonseca et al 2010). LCC should always be compared and analysed only when related to particular service levels, and WASHCost has also developed guidelines to assess service levels in Moriarty et al 2010. The Ugandan water and sanitation sector has its own service level indicators, see Koestler and Jangeyanga 2012 for more information.

LCCA is actively being promoted by the WASHCost[2] project under IRC Water and Sanitation Centre in the Netherlands, and is gaining pace as an accepted framework to analyse cost data and service level criteria in the rural water and sanitation sector. One of the main strengths of the approach is that it looks beyond the initial investments and includes post-construction maintenance costs and the software aspects related to follow up, capacity building and support to the sector as a whole. An analysis done by the NGO Fontes Foundation in Uganda in 2010 using this framework, found for example that it costs an average between 5000 and 15,000 USD per year[3] to keep a small piped scheme running (including operation costs, maintenance costs and direct support costs) (Koestler et al 2010). If you multiply 5000 USD with 19 years (assuming a life cycle of 20 years) it becomes 95,000 USD, which is more than the initial investment of 80,000 USD. In reality, however, costs arising after the end of construction are rarely budgeted for. It is hoped that by raising awareness of the costs related to keeping water systems running over time, sustainability and functionality could be massively improved.

3.1 Cost Categories

The WASHCost project has outlined a set of cost categories especially adapted for the rural water and sanitation sector. One of the objectives of this study is to look at the possibility for the Ugandan water and sanitation sector to adopt LCCA or parts of it, and it was therefore natural to also structure the data collection in the same categories. Since they will be referred to frequently in this report, they are presented below. The information for the next paragraphs is mainly taken from Fonseca et al 2011.

3.1.1 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

[2] See www.washcost.org for more information

[3] The Fontes Foundation projects have a relatively expensive support mechanism because it is based on international staff and only serves 4 projects. It is likely that the cost could be substantially reduced by using a locally based support mechanism and Fontes Foundation is researching on local options.

water user committees (WUC)[4] or water supply and sanitation boards (WSSB)[5]. 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.

3.1.2 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[6]. For sanitation structures, OpEx includes cleaning, provision of soap and water for hand washing and minor maintenance of the structures.

3.1.3 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.

3.1.4 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.

3.1.5 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.

[4] In Uganda, WUCs are established for point water sources. See O&M Framework for further details (MWE 2011)

[5] In Uganda, WSSBs are established for some piped water schemes in rural growth centres (RGCs) and small towns, especially under the development facilities. See Koestler and Jangeyanga 2012 for a detailed description of this management model

[6] WUC members normally work on a voluntary basis, but sitting allowances (paying people to attend meetings) are becoming increasingly necessary to keep people motivated

3.1.6 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.

4 Funding and Reporting Flows

This chapter will describe the main stakeholders in the Ugandan water and sanitation sector, in order to better understand the funding and reporting flows. Maps are inserted randomly throughout this chapter for a graphic representation of the funding and reporting flows. Please also refer to the master maps in appendices 4 and 5.

4.1 Main Funding Agencies

4.1.1 Government of Uganda

The overall water and sanitation (rural and urban) sector budget for the financial year 2010-11 was 369.3 billion UGX (142 million USD)[7]. The main funding agencies are donors and Government of Uganda (GoU) (MWE 2011b). Approximately 1/4 of GoU funds is funded by development partners, the rest is from locally raised revenues[8]. On-budget funds (funds part of the Government's sector medium term expenditure framework) were 69.4% of the budget in FY 2010-11, and off-budget funds (resources outside the framework such as donor funds independently accessed by civil society organisations) were 30.6%. Compared to 2009-10, the total budget increased by 16.1%, but on-budget funds dropped by 5.5%. The water and sanitation sector made out 3.1% of the overall budget for Uganda in 2010-11. Estimates for 2011-12 show a reduction in the share to 2.4% (MWE 2011b). An important problem for the sector is that the budget has remained stagnant for many years, whereas inflation and population growth make it hard to expand coverage quick enough reach targets.

In 1998 GoU crated the Poverty Action Fund (PAF) which is a ring-fenced fund for key development sectors such as water, education, health and rural infrastructure. It is part of the Government's Medium Term Expenditure Framework (MTEF), and the conditional grants (CG) that are sent to the districts are taken from this fund within GoU (MWE 2011b).

4.1.2 Joint Partnership Fund

In addition to funds channelled through GoU, a number of donors fund individual projects or funds. The Joint Partnership Fund (JPF) is a special basket fund for the water and sanitation sector that funds specific projects but falls under on-budget modalities (MWE 2011b). A number of donors participate in the Sector Wide Approach (SWAP), where donors provide funding in this basket fund and planning and budgeting is done jointly under the leadership of Government through the Sector Working Group. For example, the JPF funds the Technical Support Units (TSU) and partly funds the Water and Sanitation Development Facilities (WSDF), Umbrella Organisations, Appropriate Technology Centre (ATC) and the development of urban water supplies for small towns.

4.1.3 Donor Funds

In addition, specific donors fund specific programmes, such as the EU funding certain activities of the Umbrella Organisations. UWASNET is also funded by a number of different donors comprising both development partners such as DANIDA and international NGOs such as Water Aid and Dutch WASH Alliance.

[7] Exchange rates are of June 2012 and amounts are rounded to the nearest 10.

[8] In the New Vision of the 16th of June 2012, the budget for 2012-13 was presented and the share of development partners set to 25% (p. 11)

4.2 UNICEF

UNICEF plays an important role in the sector as it has a large programme mainly focusing on provision of boreholes. In 2010-11, UNICEF drilled more than 70 boreholes in 11 districts (MWE 2011b). In addition, UNICEF supports the government in policy development and and capacity building. UNICEF also provides latrines for institutions such as schools, and promotion of household sanitation and hygiene. UNICEF contracts out activities to the private sector or local NGOs, and districts and MWE report to UNICEF on a quarterly basis.

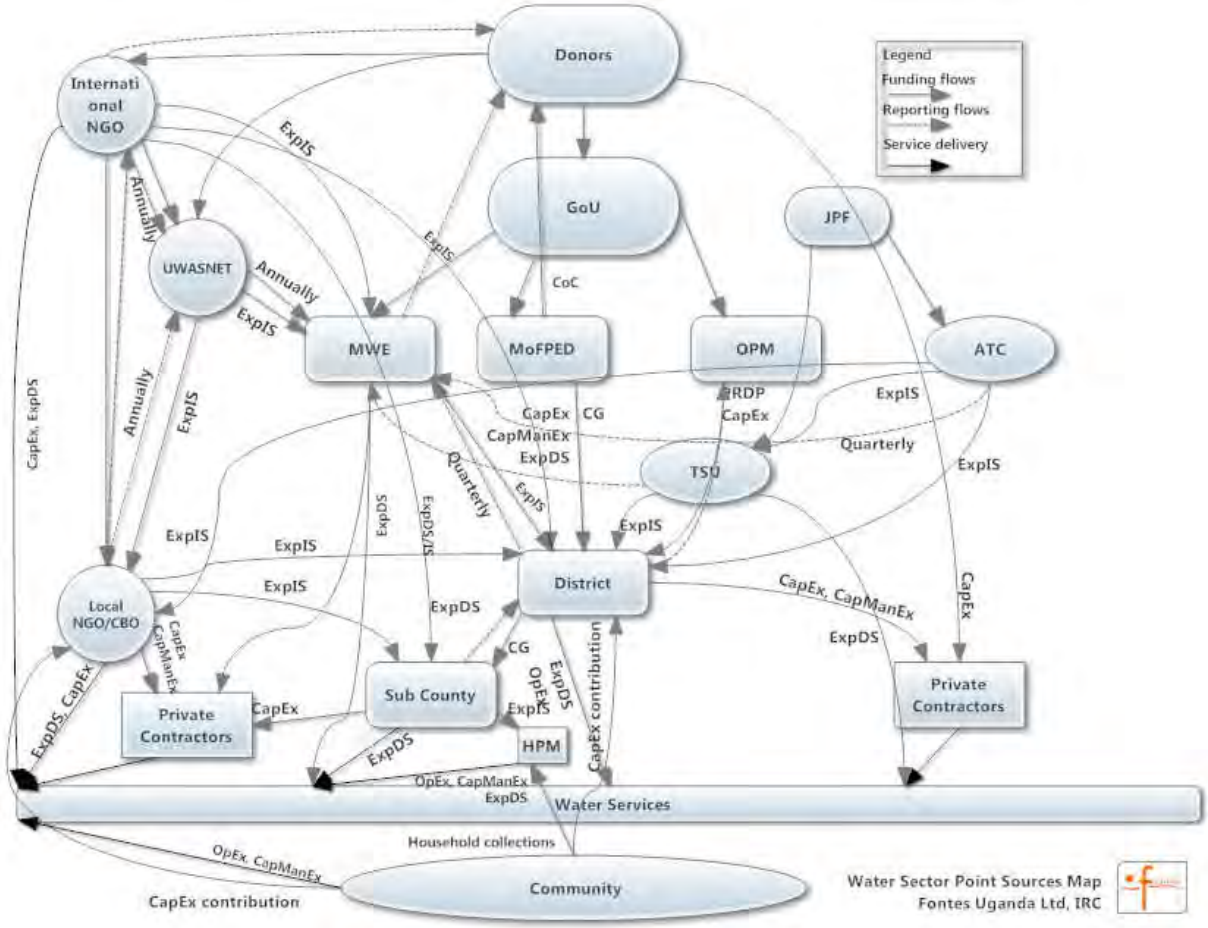


Fig. 1: Stakeholder map for point water sources. Most stakeholders except WSDF and Umbrellas do both point sources and small piped schemes. Town Councils mostly have piped schemes so they are also left out. Implementation is mainly done through private companies (drilling companies) and O&M is ensured by the community and with assistance from Handpump Mechanics (HPM).

4.2.1 Peace Recovery and Development Plan

Another fund is the Peace Recovery and Development Plan (PRDP), a "Marshall plan" fund provided by the GoU for the reconstruction of Northern Uganda, which was affected by insurgencies. The main components of the fund are water, education, health and roads. The fund is managed by the Office of the Prime Minister (OPM) and disbursed to District Local Governments (DLG). The fund exists since 2009.

4.2.2 Uganda Sanitation Fund

This is a fund of 1 million USD provided by the World Water and Sanitation Collaborative Council (WWSCC) going to 16 pilot districts in Eastern Uganda to improve rural sanitation.

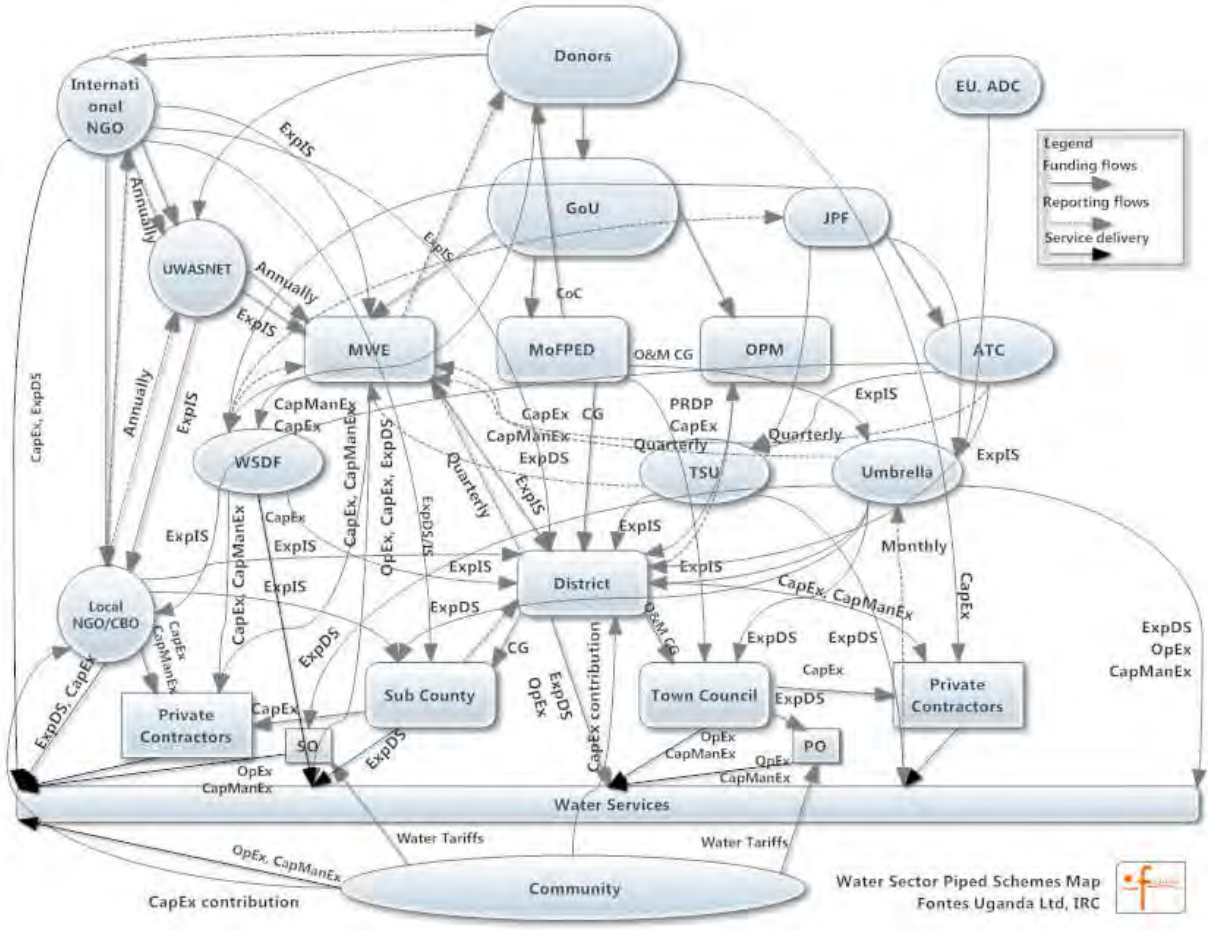


Fig. 2: Stakeholder map for piped schemes. Main developers of piped schemes are WSDF (for RGCs and small towns) with Umbrellas responsible for post-construction. However, Districts also still build piped schemes, as well as MWE (large schemes) and NGOs. Post construction follow up is also carried out to some extent by Districts, Sub-Counties and Town Councils, as well as NGOs.

4.3 Main Government Players at National Level

4.3.1 Ministry of Water and Environment

In the rural water and sanitation sector, the main government agency is the Ministry of Water and Environment (MWE). The ministry's Rural Water Department is responsible for overseeing the provision of rural water supplies handled by decentralised structures. Following a MoU between line ministries in 2001, MWE is also responsible for sanitation in RGCs and public spaces (MWE 2010). The Urban Water Department is in charge of Umbrella Organisations which also largely follow up RGCs and small town councils, and therefore also covers the rural water and sanitation sector through the work of the Umbrellas. MWE is no longer an implementing agency but rather focuses on technical

support, supervision and policy development, however, MWE can get involved in direct implementation in certain cases such as in emergencies, to follow up political pledges and in case schemes are too big for the districts to handle.

The Urban Water Department can also fund extensions and large repairs of water systems in RGCs and town councils, and the management of the contracts is now increasingly handled by the WSDFs.

The Ministry also leads the Joint Annual Sector Review process, where donors, civil society organisations and government players evaluate the performance of the sector using 11 Golden Indicators (MWE 2011b). The review produces the Sector Performance Report each year. The sector also carries out a Joint Technical Review yearly.

4.3.2 Ministry of Finance, Planning and Economic Development

The Ministry of Finance receives budgets and workplans from MWE and disburses funds. It sends the different conditional grants (DWSCG, DHSCG and Urban O&M Conditional Grant) to the Districts (and in the case of the O&M CG for the RGCs, to the Umbrella).

4.3.3 Ministry of Health

Through the Environmental Health Division, Ministry of Health is responsible for household sanitation. The division has an annual budget of approximately 100 million UGX (38,500 USD) to cover 112 districts. However, MWE still has the lead on sanitation activities and therefore much of the implementation is done by MWE. Districts reports to MWE are copied to MoH on a quarterly basis, but it is not always clear where funds for the different activities come from. MoH does capacity building, policy formulation and provides technical support to decentralised levels. Current priority areas are awareness raising (advocacy), sanitation marketing and environmental aspects.

4.3.4 Ministry of Education and Sports

Ministry of Education and Sports is responsible for sanitation in schools, whereas water supply for government primary schools is still theoretically the responsibility of MWE. Water and sanitation in secondary schools is the responsibility of each school (MWE 2010). The ministry provides guidance to government schools on how to practice good hygiene and sanitation, and how to include hygiene and sanitation education to some extent in the curriculum. Through decentralised structures, the MoES also enforces guidelines on sanitation in private schools.

4.3.5 Office of the Prime Minister

The Office of the Prime Minister (OPM) manages the Peace Recovery and Development Plan (PRDP). Funds are channelled directly to the benefiting districts outside the Conditional Grant based on workplans submitted by the districts. Funds are allocated based on criteria such as population and performance the previous year, and only districts affected by the insurgency in Northern Uganda can benefit. Districts report quarterly using a standard format, and OPM monitors projects in the districts twice a year. In case of large projects, such as valley dams in Karamoja, OPM signs a MoU with MWE for technical assistance.

4.4 UWASNET

Uganda Water and Sanitation NGO Network (UWASNET) currently has 220 members out of which most are national NGOs and Community Based Organisations (CBO). Every year, members are asked to report on activities including spending on different technologies, software and hardware activities

as well as post-construction support. UWASNET produces an annual report, and figures are integrated in the Joint Annual Sector Review and presented in the Sector Performance Report. However, there are still a number of NGOs that are not members, or do not report on expenditures.

UWASNET provides different services to its members, such as capacity building, knowledge management, support to liaise with districts and financial audits. It also does research and has a resource centre with documents relevant to the sector. In addition, UWASNET participates on a number of committees and working groups for policy formulation as a representative of civil society.

UWASNET is funded by Water Aid, Dutch WASH Alliance, DANIDA, McKnight Foundation, AFDB and some corporate organisations and commercial banks. 75% of the budget goes to advocacy.

4.5 International NGOs

21% of UWASNET members were international NGOs in 2011 (MWE 2011b). These include large organisations such as Water Aid, Plan International, World Vision, CARE International, GOAL etc. Some are active in the emergency sector. Development programmes are normally carried out through local partner organisations, with technical support, supervision and capacity building provided by the international NGO. International NGOs are also strong in advocacy, knowledge management, research and monitoring and evaluation at national level. A number of international NGOs base their budgets on previous bills of quantities and add overheads of about 20% of the budget. The members of UWASNET report annually to the network.

4.6 Appropriate Technology Centre

The Appropriate Technology Centre (ATC) was launched in 2011 and its mandate is to carry out research and development of appropriate technology options in the rural water and sanitation sector. The project is currently funded by the Joint Partnership Fund (JPF) and managed by the NGO NETWAS. ATC has established a model village in Mukono and develops manuals and guidelines for different technology options. They also carry out training of TSUs, NGOs and Districts as well as artisans/masons on the different technology options. ATC reports to MWE on a quarterly basis.

4.7 Main Government Players at Regional Level

4.7.1 Water and Sanitation Development Facilities

Four regional WSDFs were established after the successful work of the South Western Towns Water and Sanitation Project. The WSDF identifies RGCs and small towns for the development of water and sanitation services, and manages the funds provided by MWE, KFW and AFDB (through JPF) (unknown 2011). KFW provided 40 million Euro (49 million USD) for 2 years, AFDB 30 million USD for 4 years and GoU provides 1 million USD per facility per year. The WSDF has technical staff that support and oversee the planning, implementation and handover process. For larger projects, design and planning is contracted out to consultants, however for smaller projects this is done by WSDF staff. Technically the works are tendered out through the districts, however the contracts are paid and managed by WSDF. WSDF closely interlinks with the districts, and also provide technical support and capacity building (unknown 2011). WSDF projects are typically small piped schemes managed by a Water Supply and Sanitation Board (WSSB), which contracts operations either to a Scheme

Operator or a Private Operator (for gazetted towns)[9]. The projects also include a sanitation component, with hygiene and sanitation promotion as well as the construction of public latrines (unknown 2011). After completion, the system is handed over to the Umbrella organisation, who continues to support the WSSB and SO/PO in operation and maintenance (see below). O&M for the water structures is paid for using revenues from water sales, and WSSBs are also responsible for O&M of the public latrines. This has shown to be a challenge, and there is a plan to integrate sanitation in the management contracts with the SO/PO. WSDFs are anchored in the urban water department in DWD and report on a quarterly basis. However, since many of the projects take place in Rural Growth Centres (RGCs) and rural small towns, they are included in this study.

WDSF can also handle major breakdowns and extensions, however for these cases an application needs to be made to MWE's Urban Department. If the application is granted WSDF manages the funds and the contracts as a re-investment. However, this process is quite slow since it has to follow national budgeting and disbursement calendars.

4.7.2 Umbrella Organisations

Umbrella organisations were created based on the successful experience of the South Western Umbrella for Water and Sanitation. This organisation was created in 2002 in order to support WSSBs, Sub-Counties, Town Councils, scheme operators (SO) and private operators (PO) with operation and maintenance challenges, both technical, financial and managerial (Koestler and Jangeyanga 2012). Today there are three operating Umbrellas in Uganda, with two more being set up. Their mandate is limited to small piped schemes and they are attached to the Urban Water Department, but since a large part of their members are RGCs and rural small towns, they are included in this study. Umbrellas get detailed reports on a monthly basis from each member, and report on a quarterly basis to the Urban Water Department.

Umbrellas were initially created as membership organisations which would run based on membership fees. However, 95% of their budgets is still funded from outside. Approximately 240 million UGX (92,000 USD) per year is provided by the Joint Partnership Fund (JPF) and 150 million (58,000 USD) is part of the Urban O&M Conditional Grant that is now sent directly to the Umbrellas. The rest is provided by MWE and donors such as the Austrian Development Cooperation and the EU providing specific support such as vehicles or capacity building.

4.7.3 Technical Support Units

TSUs are regional entities created to represent the Ministry at local level and to oversee rural water and sanitation provision at District and Sub-County level. TSUs support the DWOs on request with capacity building, technical advice and monitoring and evaluation, and report to the Rural Water Department. They also help enforce reporting and monitoring routines. They are funded by the Joint Partnership Fund (JPF), and today there are 8 TSUs in Uganda (MWE 2011b).

[9] In Uganda, in order for a town to formally contract out the management of its water supply, it needs to be constituted as a "Water Authority" by the Minster of Water and Environment (gazetted). A WSSB is created to manage the contract on behalf of the Water Authority. A performance contract is signed between the Water Authority and MWE, and a management contract is signed between the Water Authority and the private operator. Gazetted towns fall under urban water supply.

4.8 Main Government Players at Local Level

4.8.1 District Local Governments

There are currently 112 districts in Uganda, up from about 56 only a few years ago. The District is the key entity at local level in charge or rural water and sanitation service provision. However, due to the rapid creation of new districts, large amounts of the conditional grants have gone to setting up and equipping offices, and districts are struggling to find adequate staff.

Rural water and sanitation activities mainly take place from the District Water Office (DWO), which receives its main funding through the District Water and Sanitation Conditional Grant (DWSCG). This grant is sent from the MoFPED on a quarterly basis, based on district workplans and budgets. In total, 52.1 billion Uganda Shillings (20 million USD) was disbursed in CG in 2010-11 to DWOs (MWE 2011b). DWOs must use the grant based on guidelines from MWE (see chapter 6.2.1). Part of it can be passed on to Sub-County after approved project plans. In addition, districts in Northern Uganda can access the PRDP fund for water infrastructure development (see section 4.2.1). From FY 2011-12, the DWO also receives the District Hygiene and Sanitation Conditional Grant (DHSCG), which is currently only about 20 million (7690 USD) per district but it is hoped it will increase with time. 16 districts in Eastern Uganda can also access the Uganda Sanitation Fund (see section 4.2.2). In addition, household sanitation promotion is carried out from District Health Office (DHO) budgets, as well as sanitation in health centres. The District Education Offices (DEO) also supports the rural water and sanitation sector by enforcing sanitation and hygiene guidelines in both government and private schools.

The DWO carries out supervision, community mobilisation, monitoring and evaluation and sanitation promotion with own staff resources, however all design and construction works are contracted out to the private sector. The district reports to MoFPED on a quarterly basis, with copy to MWE (and MoH for household sanitation). Some annexes, such as information on new water sources, are sent directly to MWE. See the District Implementation Manual for detailed reporting schedules (MWE 2007).

4.8.2 Sub-Counties

Sub-Counties are currently the lowest decentralised government structures that receive funds from central government. They can access funding from the DWSCG by submitting plans for specific activities to the DWO. Although the sector guidelines specify that 65% of the CG should go to the Sub-Counties (MWE 2010), only limited activities are carried out by the Sub-Counties due to lack of capacity. The Sub-County can also pay for small rural water and sanitation structures such latrines at health centres or in public places from other funds received from the district outside the DWSCG. In addition, software activities such as hygiene and sanitation promotion and water committee training and follow up are carried out by Sub-County staff such as the Health Assistant and the Community Development Officer (CDO). In rare cases the Sub-County can help with operation and maintenance costs of water supplies, however all major repairs are referred to the district.

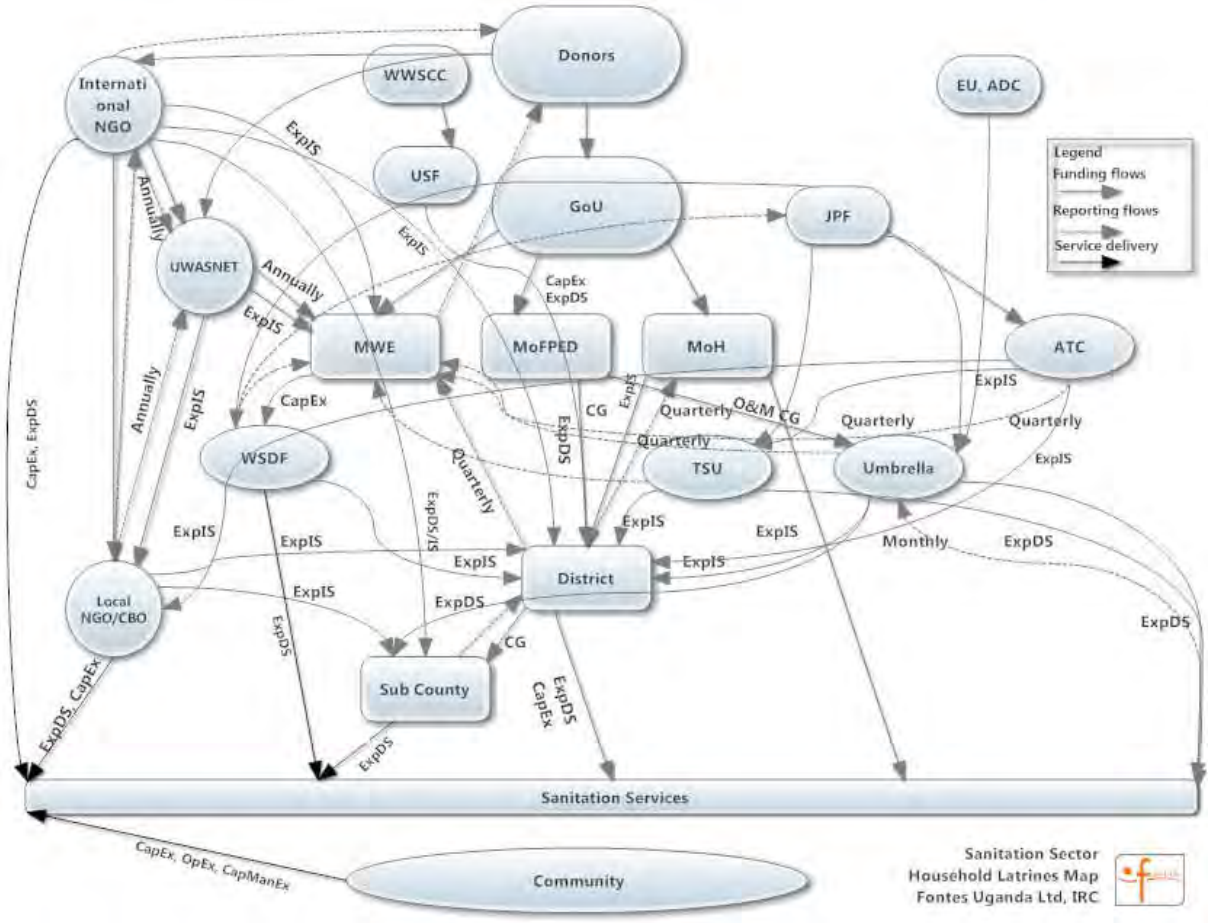


Fig. 3: Stakeholder map for household sanitation. MoH through the DHO is responsible for household sanitation. Activities are carried out from Sub-County and District level. Other main actors are NGOs. ATC, TSU and UWASNET provide indirect support on promotion of technologies and capacity building on different approaches. Umbrellas and WSDF only do household sanitation as a minor component, same as MWE.

4.8.3 Town Councils

Town Councils are small towns with a more than 5000 people and theoretically fall under urban water and sanitation. However, for political or other reasons, even smaller localities can be lifted to town council status. Some of these small town councils still use water and sanitation systems that are largely rural, such as gravity flow schemes and simple piped schemes with public taps and public latrines. For the purpose of this study, town councils that use scheme operators and not private operators are considered rural. This is because towns with private operators normally have water systems with a larger number of private connections that make them more financially viable and hence interesting for the private sector to run. Schemes with large numbers of private connections have more complicated distribution networks and are therefore considered as part of urban water supply.

Town councils receive an Urban Operation and Maintenance Conditional Grant (the O&M CG for RGCs is channelled through the Umbrellas). This grant was initially set up to bridge the gap between

water sales revenues and operating costs, but can also be used for large repairs and extensions (MWE 2010). Staffing levels at town council level vary, but larger town councils have town engineers that can give technical support to the SO or PO. Town council officials are also part of the WSSB which oversees the SO/PO. However, the town councils cannot contract out activities, and procurement therefore has to be done by the district.

4.8.4 Health Centres

Health centres at the different local levels are responsible for their own water and sanitation supplies, which is funded through the health budget. However, they can call upon the DWO for technical support. Operations costs of both water and sanitation facilities are to be covered by the running budgets of the individual health centres, however operations and maintenance is a challenge. A number of NGOs also support water and sanitation facilities in health centres. Health centres report to the DHO.

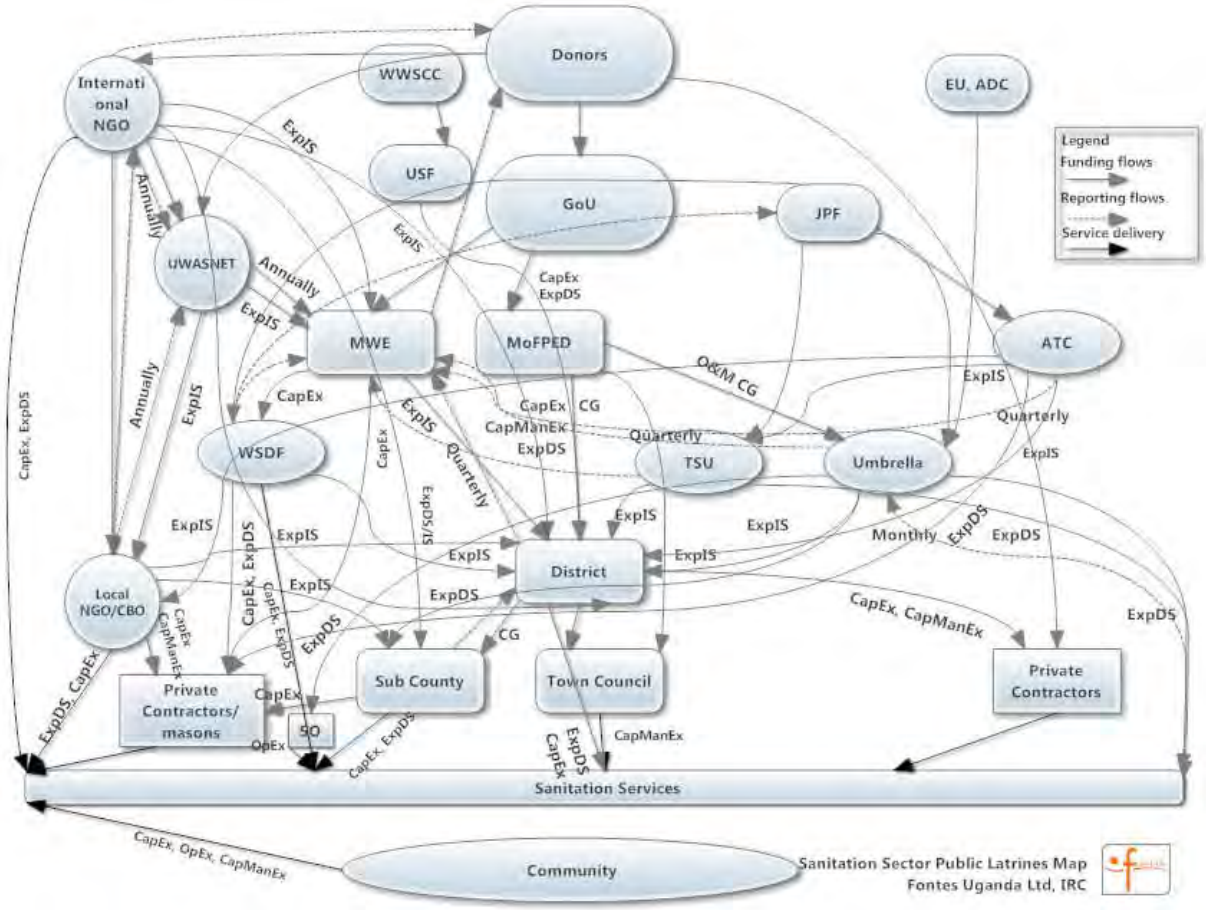


Fig. 4: Stakeholder map for public sanitation. MWE through the DWO is responsible for latrines in public places. Sub-Counties and Town Councils are indirectly responsible for their management by supervising and monitoring the users. NGOs and donors also build public latrines. Part of the WSDF programme is to provide public eco-san latrines in each place where they build a water scheme, and the Umbrella follows up their management through support to the WSSB. UWASNET, TSU and ATC as well as NGOs provide direct and indirect support through capacity building, advocacy and technical guidance.

4.8.5 Schools

Water and sanitation in government primary schools can be constructed using the DWSCG, or under the education budget. The responsibility for new sanitation structures is not entirely clear, with both the DWO and DEO and sometimes the Sub-County contributing in practice. Secondary schools and private schools are responsible for their own water and sanitation facilities. A large number of NGOs also support water and sanitation in schools. Operation and maintenance of water and sanitation facilities must be covered by each school's running budget, however the district can come in for large repairs or pit emptying. Sometimes NGOs also help schools empty pits or rehabilitate structures. Schools report to the DEO.

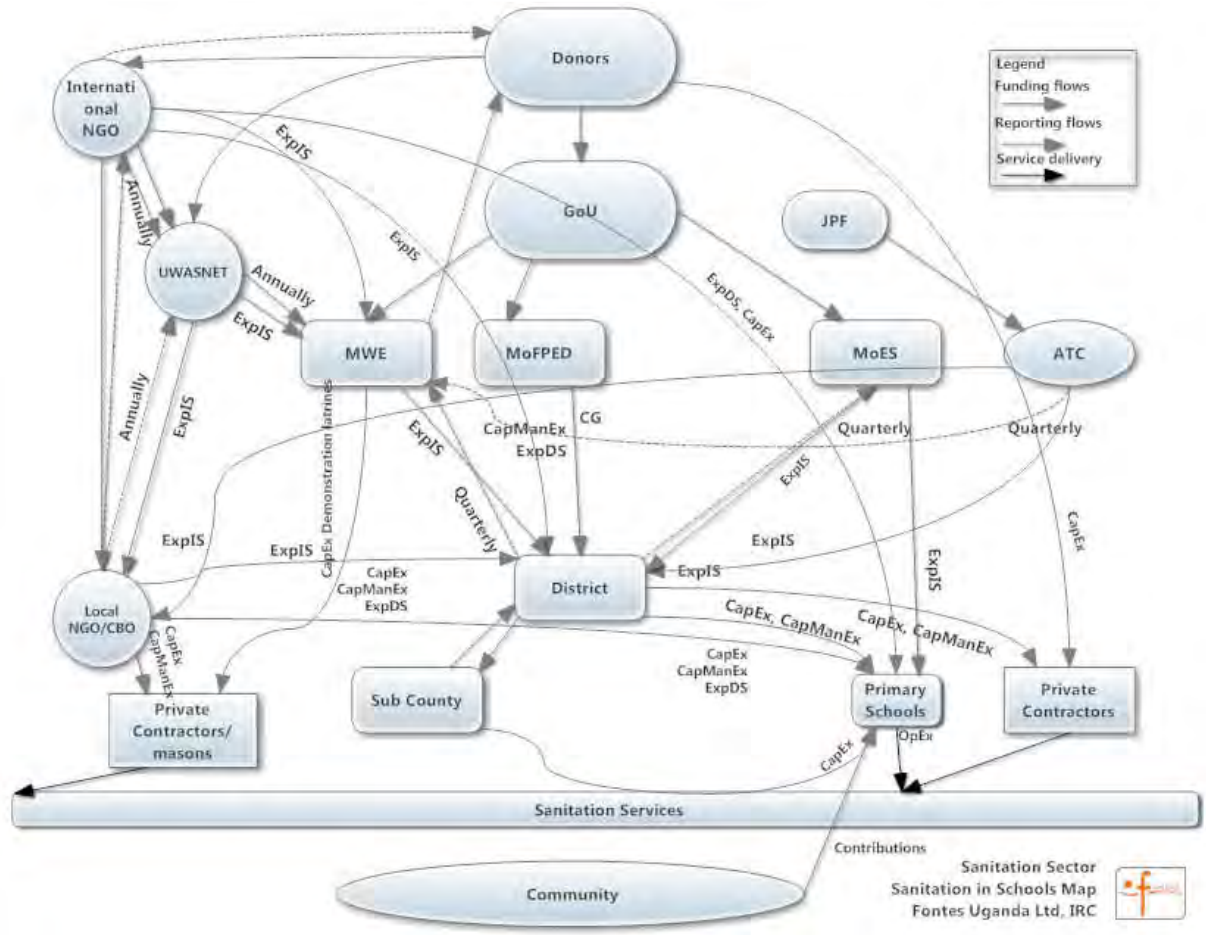


Fig. 5: Stakeholder map for sanitation in schools. Construction of latrines in schools can be done by the DWO, DEO, Sub-County, NGOs or the school itself. Guidance on maintenance, technical support and management support is provided by MoES, NGOs, DEO and MWE. ATC and UWASNET provide indirect support through advocacy and technology research and development. MWE is also involved in trying out new approaches and for example builds demonstration units.

4.9 Local NGOs

50% of UWASNET members in 2011 were local NGOs. These receive funs mostly from international NGOs or directly from donors. Local NGOs work closely with local government structures and communities, and often have a more long-term approach than international NGOs. However, they often struggle to maintain funding over time. They report to their respective donors and to UWASNET on an annual basis.

4.10 Private Sector

The private sector is key in the Ugandan rural water and sanitation sector because most capital investments are contracted out to companies, both by central government, local government, NGOs and donors. A large number of drilling companies, construction companies and consultancy firms of all sizes operate in Uganda doing most of the actual implementation work. Some drilling companies also do community mobilisation and formation of water committees. A number of consultancy firms carry out feasibility studies, borehole siting, research, development of manuals and guidelines and evaluation and review. UNICEF is to try out a new concept where they make drilling companies responsible for functionality (and hence operation and maintenance) of the water source for up to 5 years after construction. Capacity in the private sector is slowly increasing, but still requires supervision for quality assurance purposes. On the other hand, private contractors struggle with delayed payments for government contracts, and with retaining qualified staff between contract periods.

4.11 Entities at community level

4.11.1 Water User Committee/Water Supply and Sanitation Board

For point water sources, WUCs are established to look after the facilities (MWE 2011a). WUCs are responsible for operation and maintenance through the payment from households. For piped water schemes, either WUCs or WSSBs are elected or appointed by the Sub-County or Town Council. The WSSBs normally employ technical staff to carry out the actual operation and day to day management of small piped schemes, which are normally more complex to operate than a handpump. They collect revenues either through water sales or household contributions. WUC/WSSBs that are members of an Umbrella organisation report to them on a monthly basis, others report to Sub-Counties or NGOs.

4.11.2 Scheme operators/private operators

Scheme operators or private operators are contracted by the WSSB to run piped schemes in RGCs and small towns. Scheme operators (SO) are local individuals who have received training in running the scheme, but normally do not have any formal training. For larger schemes, the WSSB contracts a private operator (PO), which is a formally registered company with a much higher level of technical and financial capacity than scheme operators. Both entities receive payment based on water sales revenues, either as a percentage of the collected amount or as a flat fee (Koestler and Jangeyanga 2012). They report to the WSSB on a monthly basis.

4.11.3 Handpump Mechanics and Handpump Mechanic Associations

For each Sub-County, there should be at least one handpump mechanic (HPM). This is a local individual trained to carry out minor repairs and replacement of fast-running spares on handpumps. They are called by the WUC when a problem arises, and paid by the WUC for the job they do. Sub-Counties facilitate the work of the HPM by providing tools and sometimes modes of transport. In

some districts, HPMs have been encouraged to form HMP Associations. These support their members with refresher trainings and follow up. HPM Associations are also able to do preventive maintenance and monitoring to a larger extent than individual HPMs. They are supported by NGOs and districts, and some have reached high level of expertise and are contracted by NGOs and District to carry out certain large repairs as well (Brecht and Nekesa 2010).

4.11.4 Communities

Communities are the water users and mainly responsible for operation and maintenance of rural water and sanitation services in Uganda (MWE 2011a). They contribute towards operation and maintenance of water schemes through water tariffs or through monthly household contributions. They also play a part in managing public sanitation facilities through village health teams and clubs. As required by the sector schedules, they also contribute fixed cash amounts towards new water facilities and rehabilitation of boreholes (see matrix) (MWE 2010).

5 Costs Categories

The different entities above carry out different types of activities and therefore contribute to the different cost categories in the Ugandan water and sanitation sector. This section will look at more in detail who does what, and what costs are covered by whom. The main guiding tool for this section is the matrices, which can be found in appendix 4 and 5.

5.1 Capital Expenditures

This category is challenging because it encompasses a large number of activities; from baseline studies, community mobilisation and promotion of self supply[10] (software) to the construction of the actual structures. In the sanitation sector it includes both the software activities trying to mobilise people to build latrines and the actual cost of building the latrine. Software (SW) and hardware (HW) activities are indicated on the map. CapEx also involves extensions of piped schemes, both the software and hardware part. According to MWE, 71% of the DWSCG was spent on capital expenditures in 2010-11 meaning 36.99 billion Uganda Shillings (14.2 million USD). This was mainly spent on point water sources.

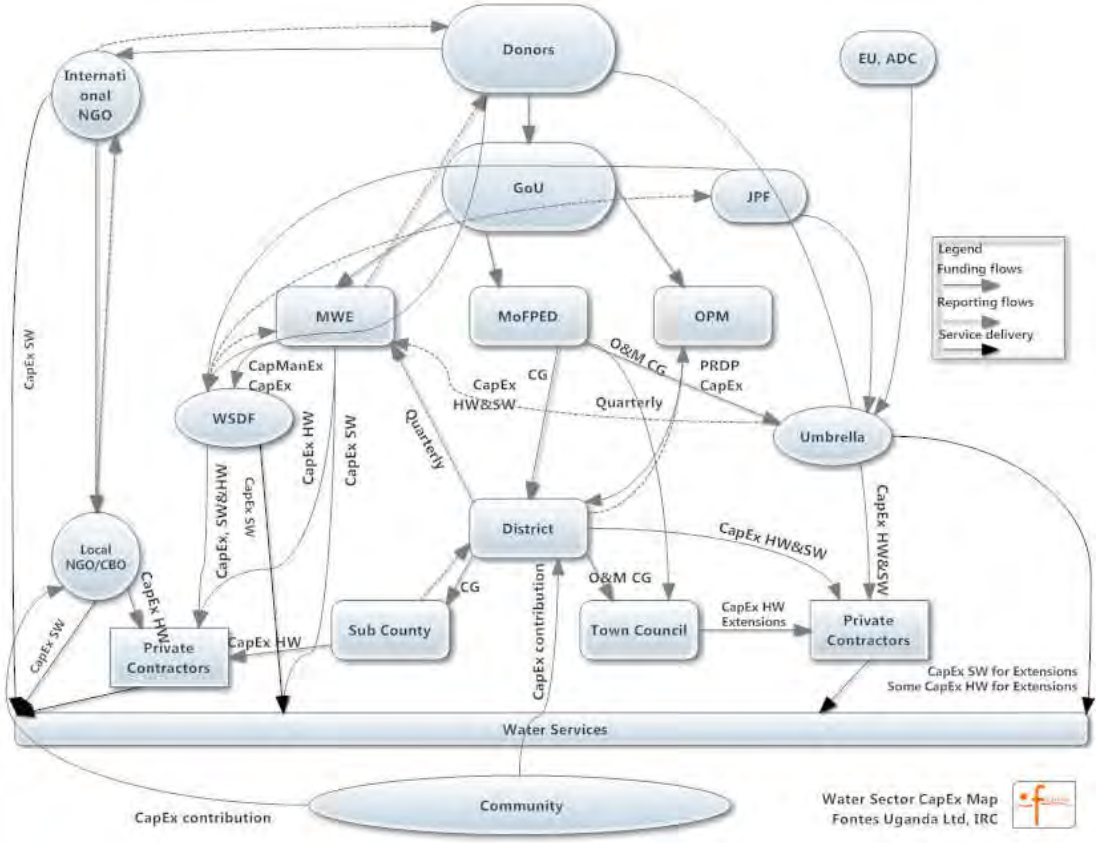


Fig. 6: Stakeholder map for capital expenditures in water. The main players are the Districts, WSDF and NGOs, and MWE in certain cases. Sub-Counties can contribute to a smaller extent, and Umbrellas are only involved for extensions. Pre-studies and hardware construction is normally carried out by the private sector. Communities contribute small cash amounts (see matrix) for each technology.

[10] Self Supply is an approach that has been piloted by MWE in 6 pilot districts. The approach encourages household investment in the improvement of low-cost technologies such as hand dug wells and rainwater harvesting tanks (MWE 2011b).

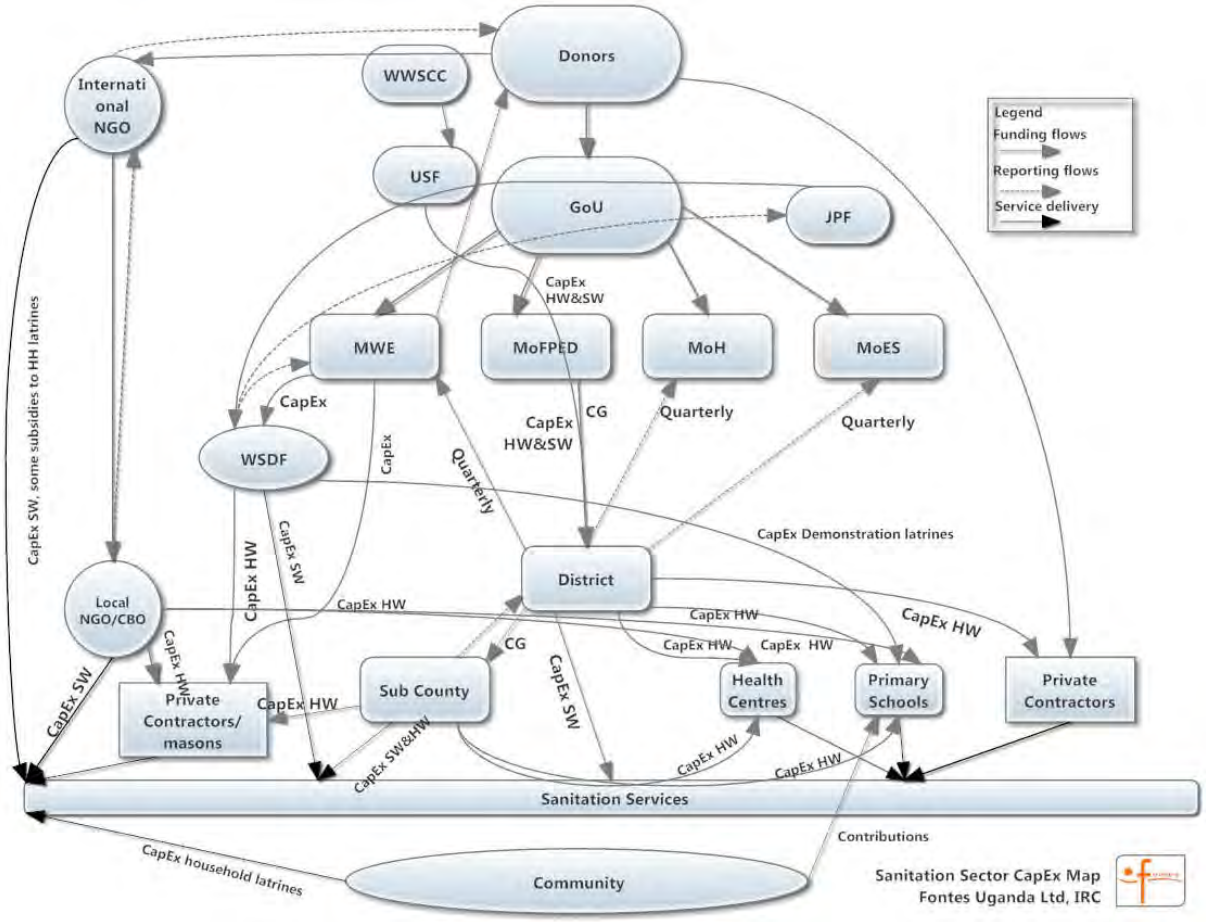


Fig. 7: Stakeholder map for capital expenditures in sanitation. For household sanitation, the bulk of the hardware expenditure lies with the households, since few programmes provide subsidies. However, NGOs, WSDF, Districts and Sub-Counties are all conducting software activities to promote latrine construction on household level. Public latrines are mainly constructed by WSDF and the District, whereas latrines at schools and health centres are either constructed with district funds or with help from NGOs. Most construction works are contracted out to private contractors or masons.

5.2 Operation Expenditures

Operations expenditures involves small repairs as well as expenses on running costs such as fuel, chemicals and wages for water systems and soap, water and cleaning for sanitation structures. The picture is quite different from the one above, since the main responsibility of OpEx in both the water and sanitation sector lies with the users. This is a challenge, due to the low income levels of households in rural areas. There are also still challenges with changing attitudes towards paying for services, especially since other government services such as primary education and health care are free (MWE 2011a). In addition, there is lack of capacity at community level in financial management, safe storage of money and committee work, especially if communities are left in charge after only an introductory training session. Challenges in OpEx are expressed by stagnant functionality of rural water supplies (it has been fairly stable around 80%) and large numbers of dysfunctional water points and public latrines (MWE 2011b).

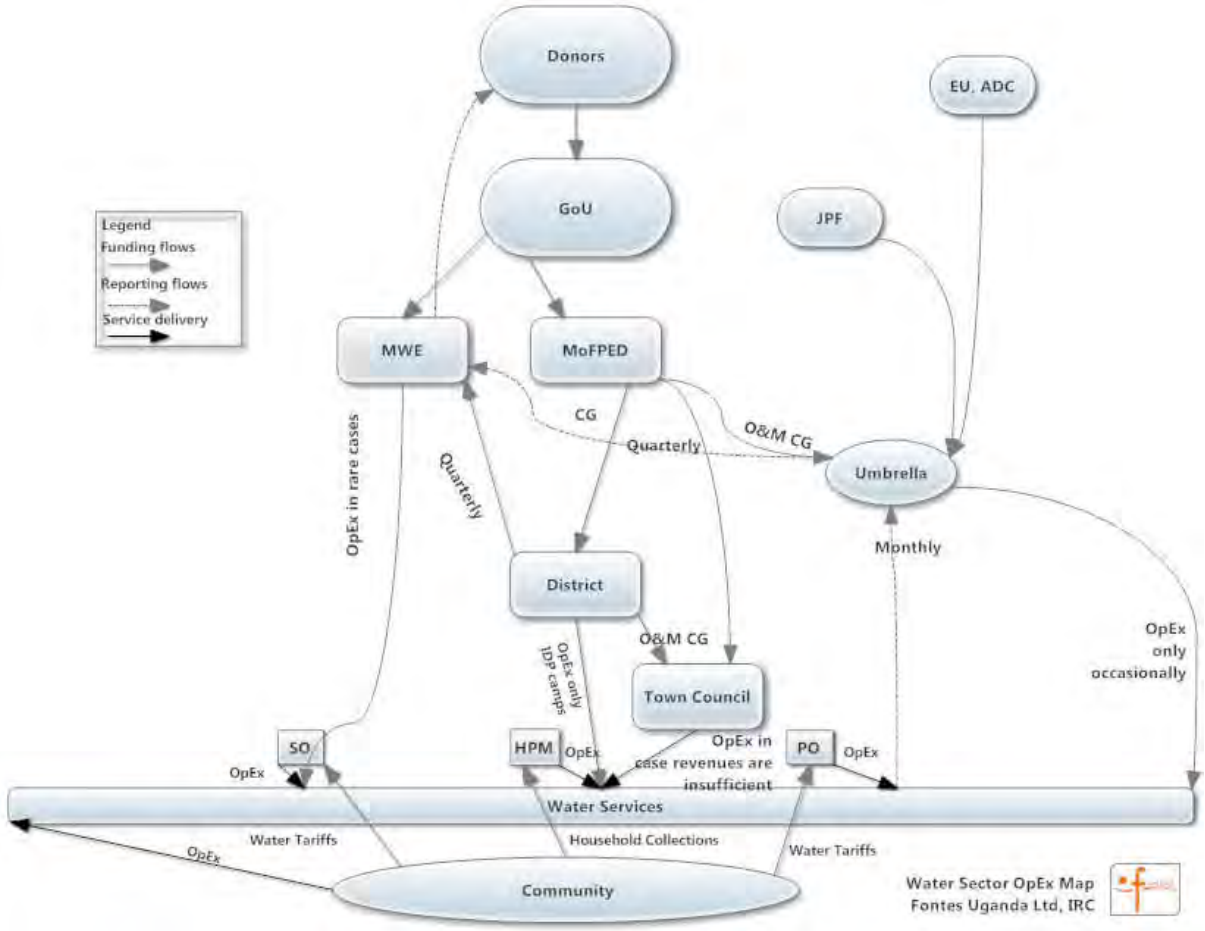


Fig. 8: Stakeholder map for operation expenditures in water. Users are the the key players. MWE and the Umbrella only cover OpEx in case of emergencies or to pay for arrears or help out for limited time. Scheme Operators and Private Operators are key players for piped schemes, and are responsible for paying OpEx costs. The Urban O&M CG gives the Town Council the possibility to subsidise the PO in case revenues from water sales are not enough. The only case in which the DWO pays for OpEx is in IDP camps.

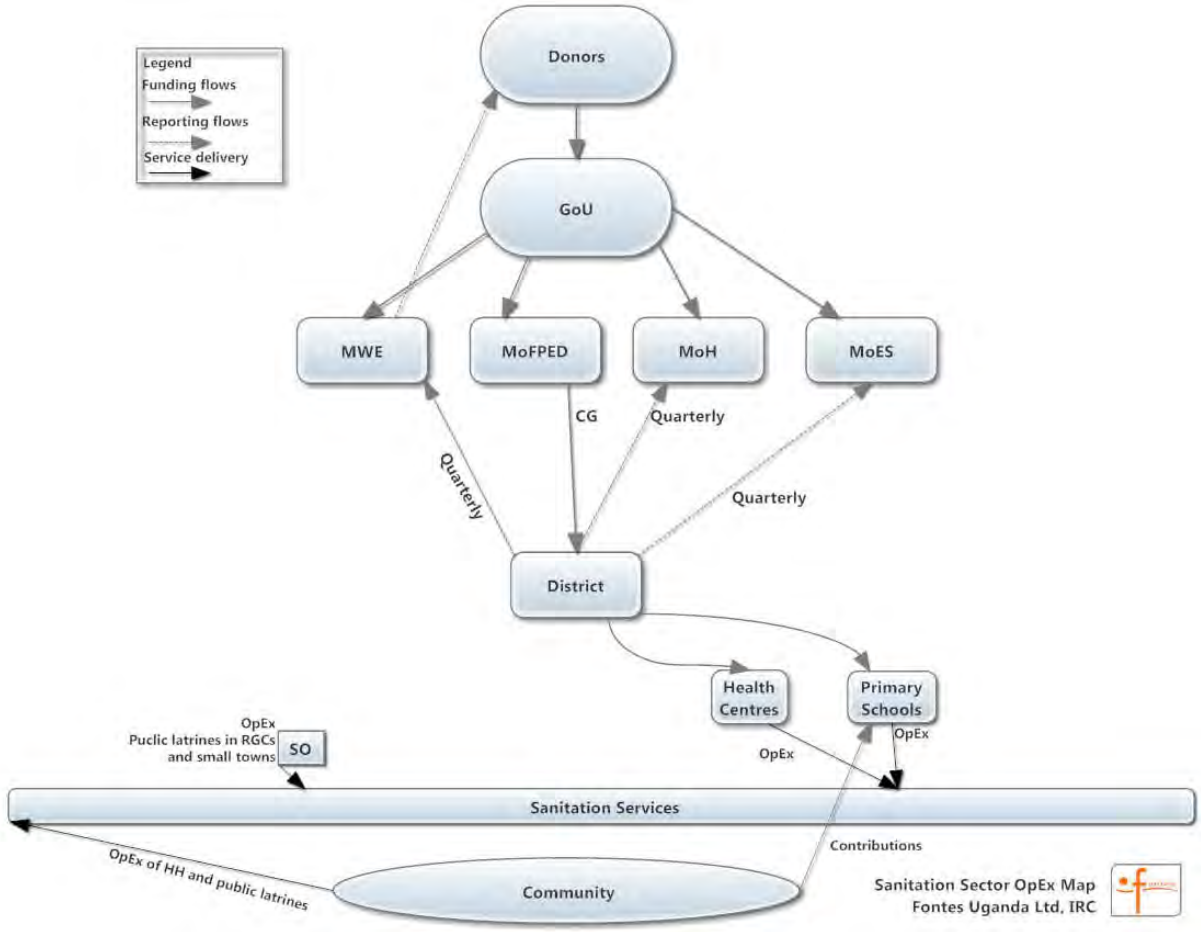


Fig. 9: Stakeholder map for operation expenditures in sanitation. For household latrines, households are of course the main responsible for OpEx. In addition, communities are responsible for OpEx of public latrines either through payment on use or through voluntary work on health teams. In RGCs and small towns, Scheme Operators manage public latrines along with the water system. There is a plan to integrate the management of public latrines in the contracts of the Private Operators too, however currently it is not the case. OpEx at schools and health centres is covered by the running budgets of the respective institution. In all cases, OpEx is a challenge.

5.3 Capital Maintenance Expenditures

CapManEx is one of the critical categories for sustainability. It includes large repairs, rehabilitation and replacement; activities that are often too costly to cover by the users who are mainly tasked with operation and maintenance in Uganda. The CapManEx maps can be a bit misleading because they show a number of stakeholders involved, however in both the water and sanitation sector funds are very scarce for CapManEx and difficult to obtain. However, the map still gives a good picture of which entities are involved and where efforts can be concentrated. Details are provided in the matrix.

If the DWSCG guidelines are used as a basis, districts spent 4.16 billion (USD 1.6 million) mainly on borehole rehabilitation in 2010-11. Divided by 112 districts, this is only 14,300 USD per district, enough to rehabilitate one or two boreholes.

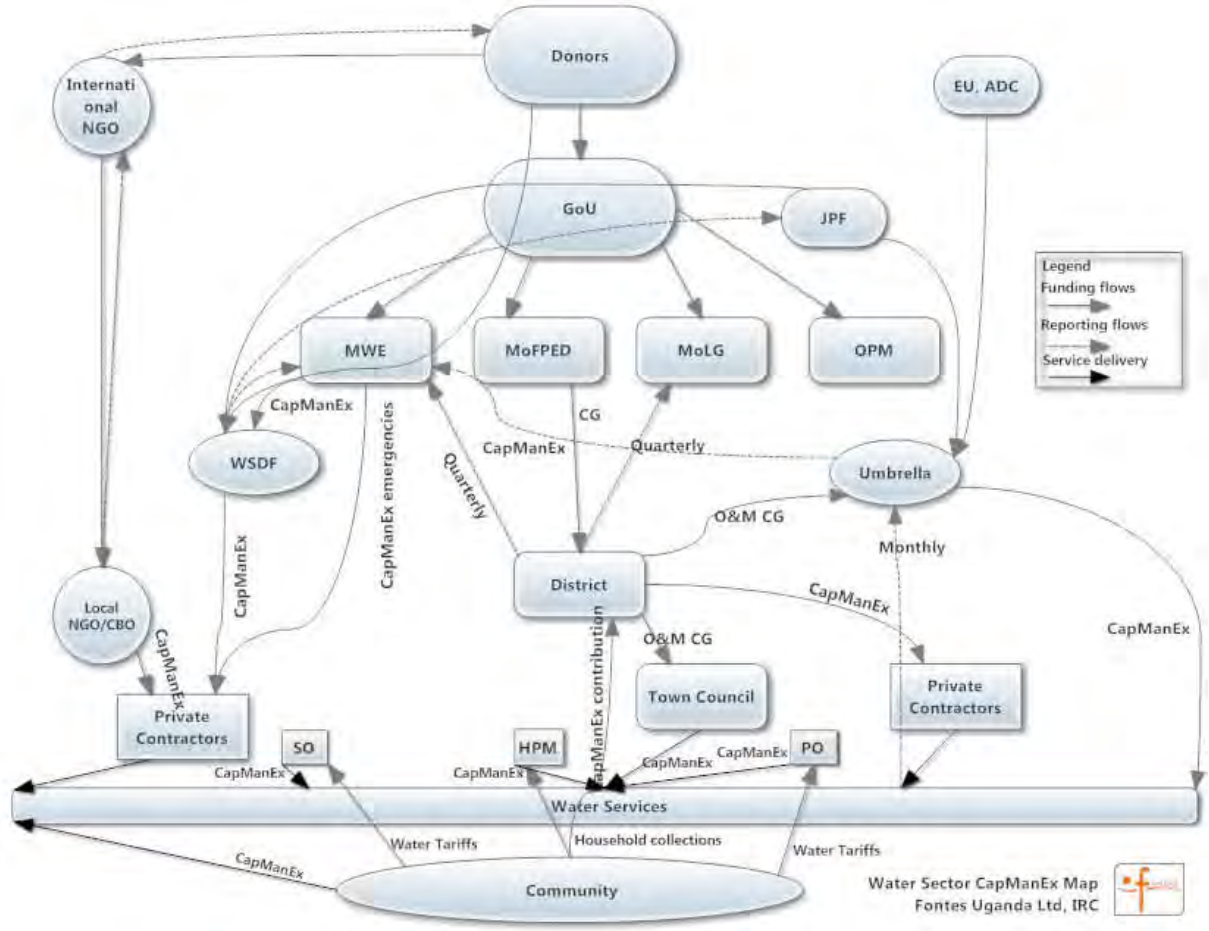


Fig. 10: Stakeholder map for capital maintenance expenditures in water. Ideally, SOs, POs and communities should save money for CapManEx. However, this is rarely the case in practice. For point sources the main source is the 8% for rehabilitation given in the DWSCG. However, this is rarely enough for all rehabilitations and large repairs in a district. For piped schemes, the RGC or town council can apply to MWE through the WSDF, however this process is long and the funds are limited. The Umbrella can provide funds for large repairs, either as grants or as soft loans to the WSSBs. Otherwise, town councils can use the Urban O&M CG for repairs. CapManEx is a challenge because as the number of water infrastructure increases, the 8% of the CG stretches even less far. In addition, many piped schemes and boreholes build in the 1990s and early 2000s have reached the end of their life cycles and are due for major rehabilitation or replacement. NGOs sometimes help but struggle raising funds for repairing systems that are already in place, as opposed to constructing new schemes.

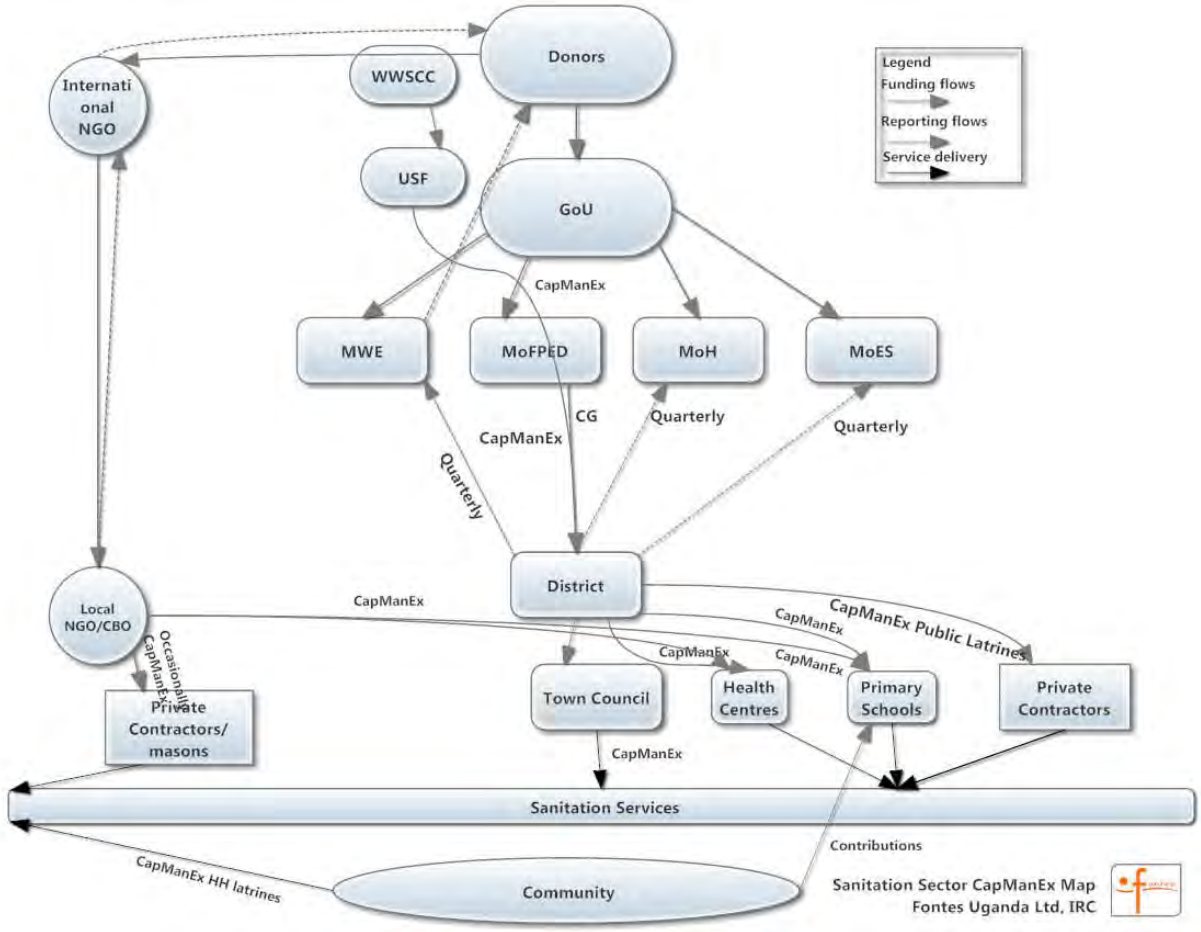


Fig. 11: Stakeholder map for capital maintenance expenditures in sanitation. Pit emptying and major repair of structures of household latrines is obviously covered by households. For public latrines, the DWO is theoretically responsible but it is rarely carried out in practice. Some NGOs can come in and help. Pit emptying for latrines at schools and health centres is the responsibility of each institution, however since the costs involved are high they may apply to local government for help. Major repair of structures is the responsibility of the District. Pit emptying can be a challenge especially in schools, where latrines have many users and pits fill up quickly. Instead of emptying pits, structures are often relocated in rural areas but this also involves a high cost. NGOs frequently help schools improve sanitation by supporting CapManEx. Public latrines are often not constructed with provisions for pit emptying either, and only few eco-san public latrines are emptied for re-use.

5.4 Direct Support Expenditures

This category is poorly understood and documented, since it is extremely broad and involves everything from monitoring and evaluation to overheads and administration costs of NGOs and Districts that are directly supporting communities in the post-construction phase. An attempt has been made to break down the category to some main sub-categories, but there are probably still many activities missing. ExpDS has shown to be increasingly important for sustainability, especially in order to maintain follow up, capacity building and mobilisation of WSSB/WUC and communities after water and sanitation structures have been put in place. It is based on this recognition that the

Umbrella model is now rolled out across the country, based on successful experiences in South Western Uganda, where functionality has been significantly higher amongst members than in other areas of the country (MWE 2008). Post construction follow up of point water sources is theoretically the responsibility of Sub-Counties and Districts (under the 11% of the CG for software activities), however, NGOs are often reinforcing this effort. Although NGOs struggle to obtain funding for long-term follow up, they often cross-finance follow up of previously constructed water points with the construction of new ones in the same area.

If the guidelines for the DWSCG are taken as a basis, both the 11% for software and the 5% for monitoring and evaluation could be considered under direct support. This would mean that 8.3 billion Uganda Shillings (USD 3.2 million) was spent by districts on rural water supply direct support in 2010-11. This is only 28,600 USD per district, and considering a new pickup costs between 30 and 40,000 USD in Uganda it is quickly finished especially by new districts. This figure means that the spending on direct support costs in Uganda is approximately 0.1 USD/capita/year. Much lower than the required benchmark range of 1-3 USD for point sources with handpumps found by the WASHCost study (WashCost 2012). Direct support is an activity that needs a lot of movement to visit communities and carry out refresher trainings and mobilization, so transport and salaries are the highest expenditure categories at district level. Due to the activities of the Umbrella which mainly consists of direct support activities, the entire Umbrella budget could be added to this figure which would make it USD 3.35 million at a country basis for point and piped sources through government channels.

For sanitation, the 6% of the DWSCG for household sanitation could be considered part of direct support, which would be 3.1 billion Uganda Shillings (1.2 million USD), equalling 10,700 USD per district. This can be added to the 1 million USD in the Uganda Sanitation Fund at a country level, which is also mainly spent on direct support.

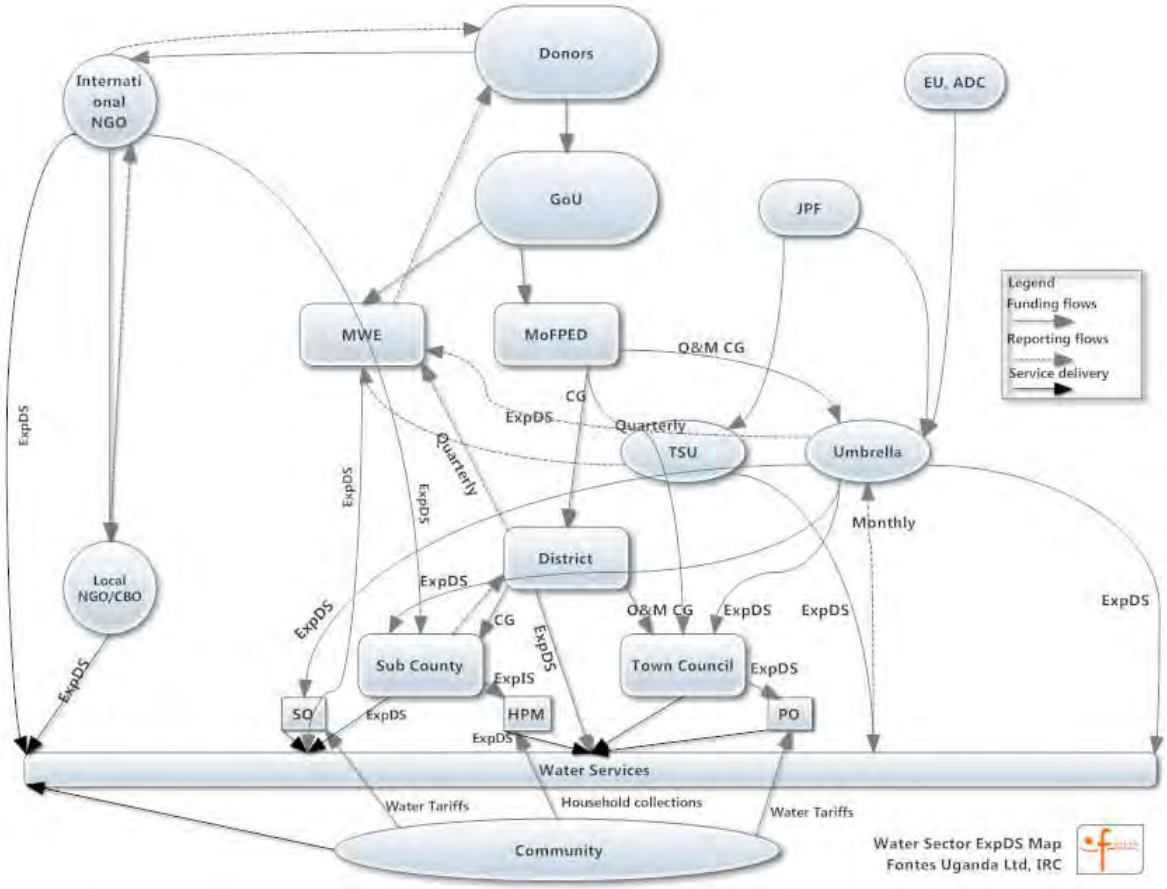


Fig. 12: Stakeholder map for expenditures on direct support in water. The main players are NGOs, Sub-Counties, Districts and the Umbrella. Town Councils provide some limited support to the WSSB and PO. TSUs mainly provide support to the DWO, but can also interact directly with individual schemes and communities. MWE also carries out some limited direct monitoring. Although the main responsibility lies with the government structures (Sub-Counties and Districts), the most comprehensive programmes are provided by the NGOs for point sources and by the Umbrellas for piped schemes. This direct support to communities, WUC/WSSB include capacity building, help with financial management, technical support and monitoring. Some support in how to play an active role in managing individual schemes is also provided to Sub-Counties and Town Councils.

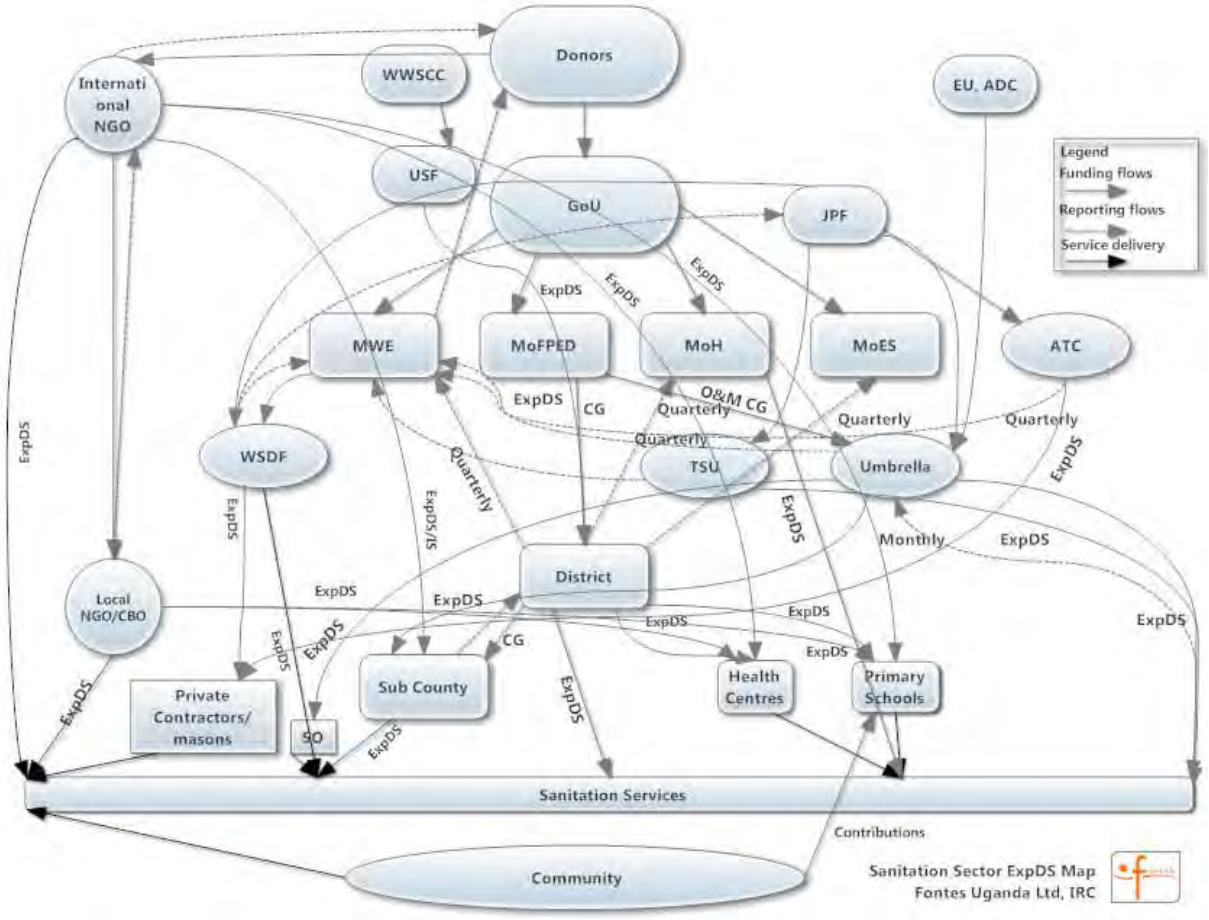


Fig. 13: Stakeholder map for expenditures on direct support in sanitation. Direct support activities in sanitation include technical support, monitoring, continuous mobilisation and hygiene promotion activities and training of masons in construction of latrine technologies. The main actors are the District, Sub-County and NGOs. WSDF does limited household sanitation promotion and post-construction baseline survey. The Umbrella only indirectly follows up through guiding the WSSBs in how to manage their public latrines. TSUs also only have limited activities. NGOs and the District provide technical support to health centres and schools in how to properly manage their structures. In addition, ATC carries out training of TSU, Districts, NGOs and masons in construction of different technologies.

5.5 Indirect Support Expenditures

This category is even more vast than ExpDS, because it involves basically the entire portfolio of MWE, as well as activities in line ministries and international NGOs that are difficult to disaggregate. These costs cannot be broken down to individual schemes or communities, but are still important in providing an enabling environment in which construction and follow up of rural water and sanitation systems can take place. A suggestion of sub-categories is provided in the matrix, but also here there are probably a number of activities that could be added. ExpIS includes basically everything that has to do with the rural water and sanitation sector but that cannot be allocated to a specific community or scheme.

According to the Sector Performance Report (MWE 2011b), 104.2 billion Uganda Shillings (40 million USD) was budgeted for activities at a central level in 2010-11. Although this would mainly consist of indirect support expenditures, it has to be noted that MWE also directly carries out some large infrastructure programmes. This is for both the water and sanitation sector, and both rural and urban sectors.

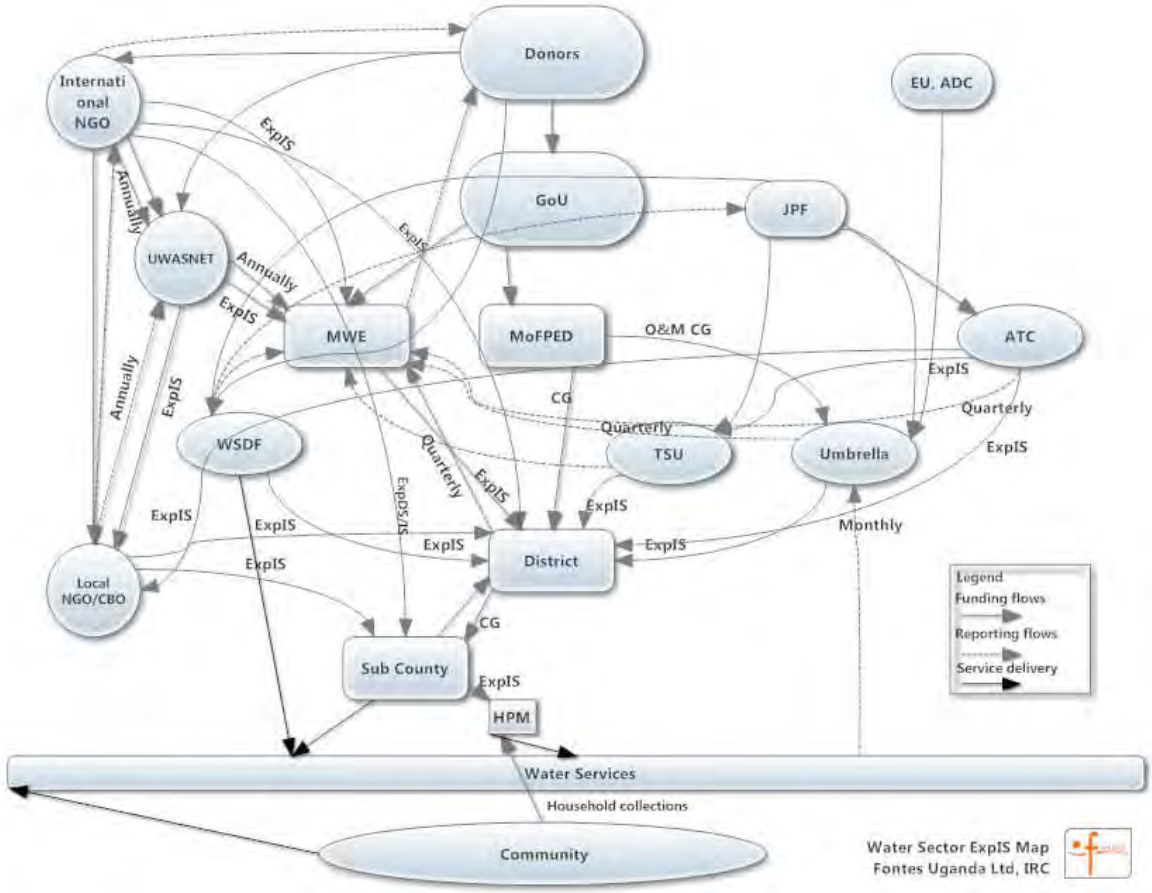


Fig. 14: Stakeholder map for expenditures on indirect support in water. The main actor is MWE, who carries out most of policy making, sector coordination, provision of guidelines and also technical support and capacity building to lower government entities. Entities like TSU and UWASNET also mainly do ExpIS activities, as well as ATC. WSDF carries out some capacity building of Districts only, same as the Umbrella. Local NGOs often support Sub-Counties and Districts on a general basis with training, monitoring and technical support, and some international NGOs have a large advocacy component and support government in preparing manuals and guidelines, carrying out monitoring and evaluation and research.

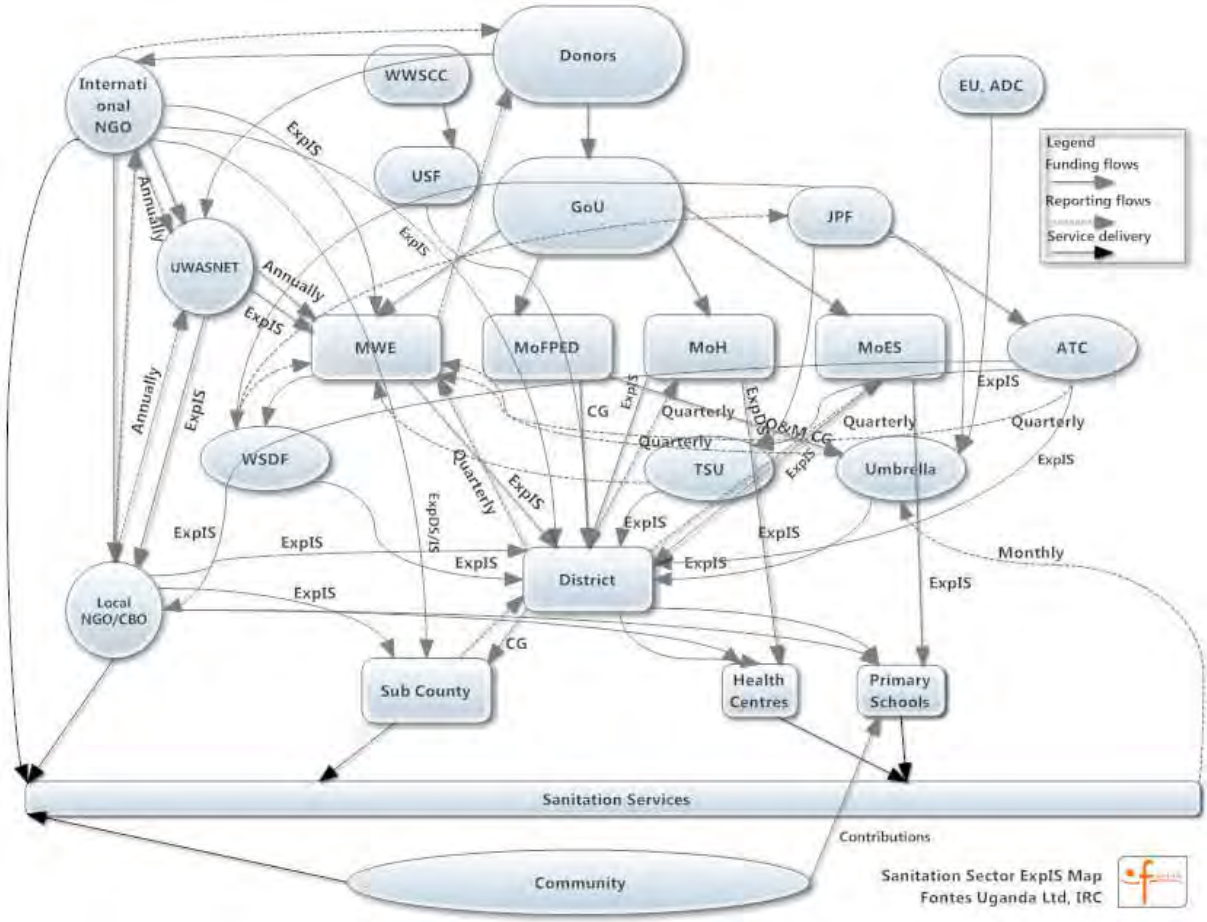


Fig. 15: Stakeholder map for expenditures on indirect support in sanitation. The actors and their roles are largely the same as for the water sector. Except some indirect support is given to schools and health centres from MoH and MoES such as guidelines and curriculum development.

5.6 Cost of Capital

Only limited actors are involved in CoC expenditures, therefore this category is not illustrated with maps. The largest part of CoC is paid by MoFPED to funding agencies such as the World Bank and AFDB to service loans. Interests on these loans are significantly lower than commercial interest rates but re-payments also go over longer periods, often longer than the duration of the infrastructure the loans fund. Other loan servicing costs might be incurred by WSSB or SO for repayment of loans taken for large repairs or extensions, although most get loans from the Umbrella which are interest free. Households may take personal loans with microfinance institutions or banks to build household latrines, and incur interest costs to service these loans.

6 Budgeting and Planning Tools

In order to find out how costs are monitored in the sector, budget and planning tools were investigated. Only budgeting and planning tools that involve cost data were considered during this study. The aim of this chapter is not to provide in-depth description and analysis of the tools, but rather an overview to map what is used in the sector.

6.1 Output Budgeting Tool

The output budgeting tool is a MsAccess (Microsoft Data Base Access) tool used by all government departments to prepare budgets based on workplans, and then forwarded to Ministry of Finance, Planning and Economic Development. Each sector sends their priorities to MoFPED using the tool, which then prepares the national budget and budget framework paper. Departments use unit costs for different rural water and sanitation technologies based on previous bills of quantities for different water and sanitation infrastructure to prepare the budgets, but budgets also involve other costs such as salaries and running costs.

6.2 District Budgeting

Districts receive Indicative Planning Figures or District Resource Envelopes which are guidelines of approximately how much the District will receive the next financial year. The District then prepares a workplan which is submitted to MWE for approval. MWE guides the districts on priority areas, both geographical and in terms of technology. After the work plan has been approved, it is sent to MoFPED for allocation of the funds. Funds are released to the districts on a quarterly basis, but districts complain about delayed release of funds and less funds received than in the approved workplans (only 91% of funds were released in FY 2010-11, MWE 2011b). Unused funds at the end of the financial year must be returned to MoFPED (MWE 2010). In 2010-11, the absorption capacity in the entire water and sanitation sub-sector was 96.3%, out of which 63.2% was for projects managed by central government and 35.3% managed by local governments (MWE 2011b). This shows that the decentralisation process still has to be implemented to a larger extent in practice, given that districts are supposed to be the main players in rural water and sanitation provision according to sector documents such as the District Implementation Manual (MWE 2007).

Districts prepare workplans and budgets based on historic cost information from previous bills of quantities. This is mainly because the cost of technologies varies by region, and costs change year by year with inflation. An exception is boreholes, where a unit cost tool exists for capital expenditures (see section 6.4.1).

Please see the District Implementation Manual (MWE 2007) for a detailed description of the planning and budgeting cycle of the DLG.

6.2.1 Conditional Grant

The main funding for the rural water and sanitation sector comes through the District Water and Sanitation Conditional Grant (DWSCG). The grant is released from MoFPED based on district workplans and budgets, approved by MWE. The amount released per district depends on coverage and performance the previous year. This means that in practice, districts with low coverage should receive more than districts which already have high coverage. There are strict guidelines of how the district should use the CG, which are reviewed every year.

For the year of 2009-10, the guidelines were as follows (MWE 2010):

- Not less than 70% of the CG is for rural water and sanitation hardware. This includes pre-studies such as design and sometimes construction of public latrines (the practice is not entirely clear) as well as water quality monitoring. DWOs focus on point sources but the CG is also used for construction of GFS and small piped schemes. This responsibility is to be taken over by the WSDF. MWE handles large schemes that are beyond the capacity of the DWO to handle, and funds are not taken from the CG. However, DWO is normally supposed to use the CG for software activities and post-construction follow up of these large schemes. This is mainly CapEx hardware, but also some CapEx software.
- Up to 11% is for software activities for rural water and sanitation. This includes CapEx software such as initial training of water committees, but also post-construction follow up of both water and sanitation facilities. It mainly falls under ExpDS, but monitoring has its own allocation.
- Up to 8% is for borehole rehabilitation (CapManEx). This can also be used for large repairs and replacement of small piped schemes, although this responsibility is increasingly handed over to the Umbrellas. According to the O&M framework, DWSCG is only to be used for large repairs in the short term, whereas in the long term communities should be able to pay for it themselves (MWE 2011a). However, this will take time and is generally considered not to be enough to cover the increasing needs for large repairs and borehole rehabilitation.
- Up to 6% can be used for construction of public sanitation facilities (CapEx). It is now complimented by the DHSCG. Districts are supposed to follow up facilities up to 3 months after construction.
- 5% can be used for supervision, monitoring and district operational costs. This includes supervision of works (CapEx) and monitoring (ExpDS)
- = total 100%

In addition to this, the guidelines specify that not more than 4% of the total grant (not to be confused with the 5% for supervision and monitoring) can be used for general DWO activities such as reporting, accounting, running costs for vehicles etc (MWE 2010). The guidelines also give budget headings to help districts with planning and budgeting.

The large amount allocated to new water (and sanitation) structures reflect the government's focus on achieving the Millennium Development Goals (MDG) (Uganda is on track for water) and its own targets which are 77% access for the rural population and 100% access for the urban population by 2015. However, due to challenges in functionality, a large number of people that have gained access are in risk of "slipping". In addition to challenges on OpEx level, the 8% allocated for large repairs and rehabilitation is not enough to maintain sources when districts get more and more sources every year. For example, Jinja district was allocated 579 million UGX (220,000 USD) in 2011-12 meaning only 42.32 million (16,000 USD) is for CapManEx for the entire district.

Another problem is that since the total water budget has remained stagnant, the proliferation of districts means each district gets less every year. For example, Jinja saw a reduction from 800 million UGX (305,000 USD) to 579 million UGX (220,000 USD) from FY 10-11 to FY 11-12. Another challenge is that many districts have already exhausted the areas where low cost technologies such as shallow wells and springs are possible, and now have to move to more expensive types of water supplies such as deep boreholes and pipes schemes to supply the remaining communities. This means higher investment costs per capita and therefore the possibility to serve less people.

6.3 Per Capita Investment Cost

One of the golden indicators is the per capita investment cost of water and sanitation schemes (although it is only calculated for water). The indicator is calculated by taking the total MWE and DLG expenditure on new systems divided by the number of people served (CapEx , both hardware and software). The per capita cost in the rural sector was 47 USD, up from 41 the previous year, and the per capita cost in the urban sector was 40 USD[11], down from 46 the previous year (MWE 2011b). The indicator is also calculated specifically for the DWSCG, and for hardware only as well (see Sector Performance Report, MWE 2011b).

This indicator is mainly used by the government to report to donors on the effectiveness of their funds. However, there are several challenges attached to this indicator. For example, costs keep increasing due to inflation. In addition, per capita investment costs vary significantly from technology to technology. For example, a gravity flow scheme (GFS) can serve a large number of people at a relatively low cost. Therefore, if many GFS were constructed in one year, the per capita investment cost will appear low. If a large number of solar systems are constructed the next year, the cost will jump back up. The trends over the last years in the rural per capita investment costs could confirm this statement: after steadily increasing from 31 USD in 04/05 to 44 USD in 07/08, the cost dropped again to 41 USD in 09/10, before in jumped up to 47 USD in 10/11 (MWE 2011b). The need to construct more expensive systems to reach the still un-served communities is likely to bring the cost up again over the next years.

6.4 Unit Costs

Unit costs should not be confused with the Per Capita Investment Costs mentioned in the previous paragraph. Unit costs refer to the average costs of specific technologies, and are used for budgeting purposes. Unit costs can vary greatly due to a number of factors such as geography (distance from Kampala), geology, pipe distance, topography and settlement pattern. Most respondents said they mainly base budgets on previous costs of similar technologies, however the government has developed two tools to calculate unit costs.

6.4.1 Borehole Drilling Unit Cost Tool

This Excel based tool is used by the engineers in the Rural Water Department to assist districts in calculating the costs of borehole drilling. Examples of input variables are depth, type of casing and diameter. The tool is mainly used by officials at the MWE at a central level, when asked for assistance by the districts.

6.4.2 Sector Investment Model

In connection with the development of the Sector Investment Plan, an Excel based tool was developed in 2005. It includes the rural and urban water sector, as well as water for production. Its formulas are based on a number of variables such as location (district), hydro-geology, topography, distance from capital and proportion of tarmac roads etc. It calculates costs per capita for a number of rural technologies such as springs, boreholes, gravity flow schemes, piped schemes and rainwater tanks. Figures for the urban sector are given in cost per m3. It also includes estimates for household latrines, public latrines and latrines for schools. Yearly operation and maintenance costs are also

[11] It is not clear from the SPR if inflation is controlled for, however it is to be assumed otherwise a sharp increase would be noticed from year to year with an annual inflation rate at 15% for the year ending in June 2011 (MWE 2011b)

calculated for the different technologies. The tool is currently used by the WSDFs, however it has not been updated for a while and is not commonly used by the districts or MWE.

6.5 Tools of Other Actors

NGOs mainly reported that they base budgets on previous projects and their bills of quantities; some revise and update with market prices. Some have standard shares for hardware and software costs, for example WaterAid budgets 50% for hardware, 20% for overheads and 30% for software, monitoring and evaluation.

6.6 Opportunities and Constraints

It was generally difficult to find standardised tools for budgeting and planning, most entities including districts seem to base budgets on previous costs. This could be, according to MWE and district officials interviewed, because costs vary largely based on regional differences, and previous costs therefore give better estimate than generalised tools. Consequently, it is the private sector that does the main work in preparing bills of quantities and budgets when they bid on projects, based on their own experience and expertise. The developed tools such as the Sector Investment Model, is only very rarely used and most respondents did not even know it existed.

A common characteristic of all the methods and tools is that they mostly focus on hardware. The Sector Investment Model calculates a cost for yearly operation and maintenance (but not ExpDS) of the different structures, and some NGOs include software shares in their budgets. However, focus in the sector is still largely on hardware. This has a direct effect on the budgeting and hence the financing available for OpEx, CapManEx and ExpDS, something has proven to be crucial for sustainability.

In addition, budgeting tools are only effective if the input variables are updated frequently. For example, it is important to keep updating the cost of materials with market prices, otherwise there will be a large discrepancy between the budgets and the actual costs.

6.6.1 Benefits of Life Cycle Costs Approach

Applying the LCCA (or elements of it) in Uganda would put more emphasis on other costs than CapEx, giving a complete picture of how much it will cost not only to extend a certain service level to the entire population, but also how much it will cost to maintain these services and renew or upgrade the required infrastructure once their life time has expired. Some benefits of the LCCA are (based on Fonseca et al 2011):

- The LCCA is a commonly used tool for utility management and any business that aims to stay viable in the foreseeable future. There are no compelling reasons why this approach should not also be applied to the rural water and sanitation sector
- Technology choice will be done based on the full LCC of an infrastructure and not only based on its CapEx or OpEx. This means that CapMaEx and ExpDS will also be considered. For example, some low cost technologies require high and frequent CapManEx, and more complicate systems will require higher ExpDS
- LCCA raises awareness amongst government, NGOs and donors about the importance of ensuring OpEx, CapManEx and ExpDS is catered for before embarking on a project

- It is possible to calculate the cost of NOT allocating sufficient funds for OpEx and ExpDS; analysis would show that without the relatively low OpEx and ExpDS costs, much larger expenses have to be incurred in form of CapManEx (or CapEx if the system is beyond repair).
- It would entail an assessment of the life cycles of different technologies. This could help local government plan their CapManEx expenditure and budget for it, similar to what WUC and WSSB are asked to do in their O&M plans
- For piped schemes, calculation of water tariffs would include CapManEx and ExpDS costs and not only OpEx. If tariffs show to be prohibitively high at least the gap between willingness to pay and real cost is identified and alternative sources of funds can be sought. This would avoid situations where the private sector is given systems to run that are not really financially viable. The Umbrella reports that WSSBs are only barely able to cover their operating costs (MWE 2008), and the LCCA could help identify the magnitude of this gap and look for ways to close it in a more systematic way than on a case to case basis.
- LCCA cost analysis would give government a better understanding of costs in the sector, something that would improve budgeting, planning and also provide good basis for fund raising. In addition, it would be possible to identify in which areas the different entities could become more efficient.
- LCCA cost analysis data could provide the background for Government to make a strong case for the need for better financing of OpEx, CapManEx and ExpDS in order to ensure sustainability
- LCCA cost analysis would provide a better accountability for donors and improve good governance in the sector
- LCCA cost analysis together with service level data could provide a good benchmarking tool for local government structures (and NGOs)
- It would be possible to investigate the value for money of investments in the sector, for different service levels
- Understanding the LCC in the rural water and sanitation sector could have a positive impact on long term sustainability because it would point out the weaknesses in financing, the entities involved and hence where emphasis has to be put in order to address the weaknesses. By understanding and disseminating LCC the government could influence donors, partners and NGOs to take a long-term approach to water and sanitation development and steer implementation towards interventions that take into consideration the real LCC of rural water and sanitation systems.

6.6.2 Constraints for LCCA in Uganda

A full adoption of LCCA may require the re-structuring of the budgeting, planning and policy framework of the country. However, the LCCA can be adopted partly or in phases, and by opening up for the LCCA thinking, government would already have taken a big step in the right direction. One of the first exercises to be done could be to carry out a cost analysis exercise, linking service levels to costs in the different cost categories. This report already provides part of the tools and the framework to do this. Secondly, the data from such a cost analysis can be used to estimate life cycle costs for different service delivery models in Uganda, and this can slowly be built into the policy framework as well as the review processes. However, there are still a number of challenges to overcome:

- The Ugandan water sector does not have an asset registry (apart from the DWD database, which can provide some guidance). It is therefore difficult to calculate life cycles of the different components in place
- A number of cost categories are lumped up under current budget lines. It would take an effort to for example disaggregate all the costs of MWE into rural/urban and then to the different cost categories
- CapEx is a difficult category since it lumps up both software and hardware costs. If water service provision is looked at as a continuous activity over time, it becomes difficult to separate software costs for a new extension from ExpDS (you could argue that all the ExpDS is in fact a preparation for the next extension). Uganda should therefore consider breaking down this category or adapting it more to the local context.
- It would be difficult to estimate the expenses of entities such as donors and NGOs that operate outside of the government framework and do not report to MWE or UWASNET, unless they can be motivated to take part of the learning alliance
- It would be challenging to estimate the costs incurred by the communities in running the facilities because most do not report to anyone. However, communities followed up by Umbrellas are encouraged to keep monthly records and even some rural communities keep records
- It would take an effort to survey the NGOs, since their activities and budgets are very diverse and practices vary from organisation to organisation. However, they are often more flexible and willing to take part in such an exercise than the private sector, donors or the government
- Data from the districts is not always reliable. Districts are supposed to submit detailed reports and accountability, but Ministries complain that they are not always truthful in their reporting. It is very expensive to verify data on the ground.
- The DWSCG does not follow the cost categories and some categories therefore need to be disaggregated.
- Some entities might not be willing to share cost data
- Inclusion or partial adoption of LCCA may mean a major restructuring of key financing instruments such as the conditional grant. Such processes take time and are driven by many other factors such as pressure from donors, development considerations for the country as a whole and political issues. However, this is not necessary for the cost analysis stage.
- A drastic change in approach with focus on LCC can take focus away from expanding coverage and could mean that the progress towards achieving targets could slow down in the short term. However, in the long term the country will be better off and having a clear overview over costs will make it easier to find a good balance between capital investments and operations and maintenance. In addition, if monitored correctly, by efficiently maintaining infrastructure you can actually increase coverage and avoid “slippage” where populations lose access every year due to poor maintenance.
- There is still a significant level of corruption in the sector (MWE 2009a). This can skew costs in various directions and cost data from the different entities might not be correct as kickbacks and bribes are factored in.

7 Conclusion and Way Forward: Extended Unit Cost Table

This report provides the basis for a potential cost analysis of LCC in the Ugandan water and sanitation sector, linking different types of costs to certain service levels. Using the matrices and the maps, the entities involved in each cost category can be easily identified and approached for cost data.

Once collected, the data can be used in a number of ways. However, with focus on sustainability, one of the ways of presenting the data is given below as an example. The Extended Unit Cost Table would give a deep insight into the cost of establishing and maintaining different types of rural water and sanitation services over 20 years, in different environments. This information would be valuable for planning and budgeting purposes, but also for leverage towards development partners and NGOs in order to ensure their programmes support the same long-term approach as government. It would also provide hard facts to identify where there are financing gaps.

7.1 Main Variables

The Extended Unit Cost Table would be based on the existing unit cost calculation tools for budgeting of hardware costs. However, in addition to calculating the cost of providing a new water source, it could be extended to the other cost categories in order to get an impression of how much it costs to maintain the structure over time. From there, a yearly average can be calculated to keep the systems running, and this could be a powerful tool for government to re-structure the institutional setup and financing streams in a way that have higher impact on sustainability. In addition, by looking at the different categories, the government would also be in position to plan what capacities are needed in the sector in the next 20 years in order to provide the necessary services. In addition to costs per unit of infrastructure, tables could calculate costs per capita.

Tables could be produced for each technology choice (deep borehole, shallow well, gravity flow scheme, small piped scheme, small piped solar scheme etc.), or even disaggregated to regional levels. They should also take into account the settlement patterns of the population, which has a direct impact on per capita costs. At least six categories (semi-nomadic, rural farming, rural community, rural growth centre, urban fringes and central urban areas) should be considered.

7.2 Factors to Consider

It is necessary to carefully a number of factors when preparing the Extended Unit Cost Tables. Reaching conclusions on each of them is beyond the scope of this study, but some have been listed below for consideration in future studies:

- It has to be decided whether to use reported population (based on government standard estimates per technology), actual population or design population figures to calculate per capita costs
- The definitions of the different categories of settlement patterns have to be clearly spelled out
- A careful choice has to be made of which technologies to consider, both in the water and sanitation sector to get a list of the most prominent technologies used in the different service models
- It is generally acknowledged that the financing of OpEx, CapManEx and ExpDS is not adequate in the rural water and sanitation sector (MWE 2011b). Using data based on historic data therefore only gives the current situation, and not how it should be to improve

sustainability. The data is therefore only of limited use for planning purposes as it is. For these categories it is therefore necessary to estimate "ideal" situations. This can be done using successful schemes as models, or by making careful estimates. The difference between the two costs would illustrate the current funding gap.

- The age of the water and sanitation structures surveyed must be taken into account
- Manufacturer lifetime has to be compared to actual life time (in most cases, the actual lifetime is shorter than the manufacturer lifetime, Ratna Reddy 2010)
- The potential for extensions has to be factored in, for example with an "extension factor". In theory, all systems should be extended at one point in time.
- It should be considered to break down the CapEx category to better see the different components of it. Software should maybe run as a continuous activity instead of being part of CapEx until handover, and then part of ExpDS.

7.3 Example

The example is done for a borehole. Costs are not real and just put there for purposes of showing how the table will work.

Table 1: Extended Unit Cost Table for Borehole in Rural Farming Area

in USD	CapEx (Hardware and Software)	OpEx (including wages)	CapManEx (assuming OpEx is continuously paid)	ExpDS (assuming economies of scale)	Total
Borehole (in lifetime)	15,000	1500	2000	15,000	33,500
Borehole (per year) assuming 20 years lifespan	750	75	100	750	1675
Borehole (per capita per year) assuming 200 people	3.75	0.375	0.5	3.75	8.375

The table shows that it will cost society 1675 USD yearly to put in place a borehole and keep the system running for 20 years (925 USD per year for post-construction costs if the initial investment is removed), and that the entire "project" (providing a person with a water system and keeping it running for 20 years) will cost 8.375 USD per capita per year.

In developing countries, unit costs and per capita costs vary immensely between regions in the country. However, through tax systems, clever payment schemes and government subsidies, people in areas with low per capita costs cross-finance access to water and sanitation for people in areas with high per capita costs, for example in rural areas. The average yearly figure (average of all technologies and settlement patterns) represents the cost of everyone having access to water and sanitation on a continuous basis. Since right to water and basic sanitation is a human right, the average per capita LCC would tell us how much it would cost for everyone in the country to have access. These figures could also inform the way government implements projects; for example, due to economies of scale and cross-financing it could be economically more efficient to provide 100% coverage to an entire district before moving to the next.

Since the water and sanitation sector budgets in most developing countries are constraint both by local revenues and by the availability of donor funds, the Extended Unit Cost Table would be an important tool to allocate the available funds in a way that ensure continuous operations (and hence continuous access for the population) of all water and sanitation systems already improved. Continuous access could be expressed in new indicators such as Water-Person-Years, in order to indicate that the country is making an effort to prevent slippage and to maintain the access gained. If more systems were functional, money put into rehabilitation and new systems to replace dysfunctional ones could be put towards increasing coverage, and this could be enough for the country still to reach its targets. By what margin is only possible to know once the cost tracking exercise has been carried out in a detailed and consistent way.

8 References

Brecht and Nekesa (2010) 'Connected Hand Pump Mechanics for Improved Service Delivery – A Case Study of District Based Associations of Hand Pump Mechanics in Uganda as a Supporting Mechanism, *Pumps, Pipes and Promises,* IRC 2010 Symposium, the Hague

Fonseca et al (2010) *Life-Cycle Costs Approach- Glossary and cost components,* Briefing Note 1, WASHCost, IRC International Water and Sanitation Centre, the Netherlands

Fonseca et al (2011) *Briefing Note 1a, Life Cycle Costs Approach – Costing Sustainable Services,* WASHCost, IRC International Water and Sanitation Centre, the Netherlands

Koestler and Jangeyanga (2012), *Development of Service Delivery Indicators for the Water Supply and Sanitation Boards (WSSB) Service Delivery Model,* Triple-S Uganda, Uganda

Koestler et al (2010) 'The cost of keeping a rural water system running – Cost tracking of three rural water supplies in Uganda', *Pumps, Pipes and Promises,* IRC 2010 Symposium, the Hague

Moriarty et al (2010) *Ladders for assessing and costing water service delivery,* Working Paper 2, WASHCost, IRC International Water and Sanitation Centre, the Netherlands

MWE (2004) *A national framework for operation and maintenance of rural water supplies,* Directorate of Water Development, Ministry of Water and Environment, Uganda

MWE (2007) *Water and Sanitation Sector District Implementation Manual,* Ministry of Water and Environment, Government of Uganda, Uganda

MWE (2008) *Feasibility Review of the Umbrella Organisations Model of Operation and Maintenance of Small Towns and Rural Growth Centres Water Supply and Sanitation Systems,* Directorate of Water Development, Ministry of Water and Environment, Uganda

MWE (2009a) *Baseline Survey on Integrity in the Uganda Water Supply and Sanitation Sector (WSS),* Executive Summary, Ministry of Water and Environment, Uganda

MWE (2009b) *Operations Manual for the Water and Sanitation Development Facility,* Directorate of Water Development, Ministry of Water and Environment, Uganda

MWE (2010) *Water and Sanitation Sector Sectoralspecific Schedules/Guidelines 2009/10,* Ministry of Water and Environment, Government of Uganda, Uganda

MWE (2011a) *National Framework for Operation and Maintenance of Rural Water Supplies in Uganda,* Directorate of Water Development, Ministry of Water and Environment, Uganda

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

Ratna Reddy et al (2010) 'Life-Cycle Costs Approach (LCCA) for Sustainable WASH Service Delivery: A Study in Rural Andhra Pradesh, India', *Pumps, Pipes and Promises,* IRC 2010 Symposium, the Hague

Unknown (2011) *Institutional Needs Gap Assessment and Detailed Design of the proposed Water and Sanitation Development Facility (WSDF) Uganda,* ??

WashCost (2012) *Funding recurrent costs for improved rural water services*, WASHCost Infosheet 3, December 2012, IRC, The Netherlands

9 Appendices

List of appendices:

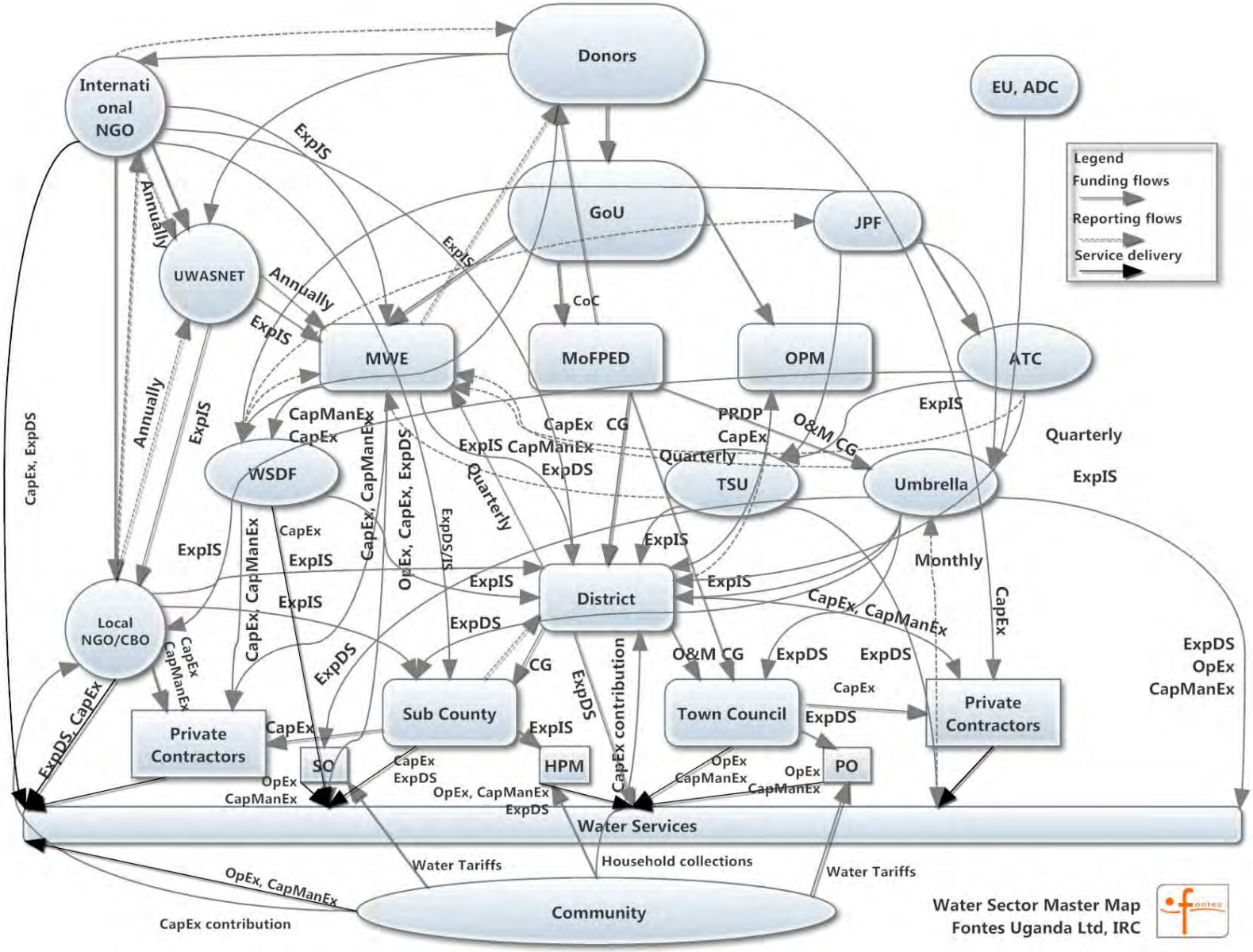
1. Water Master Map

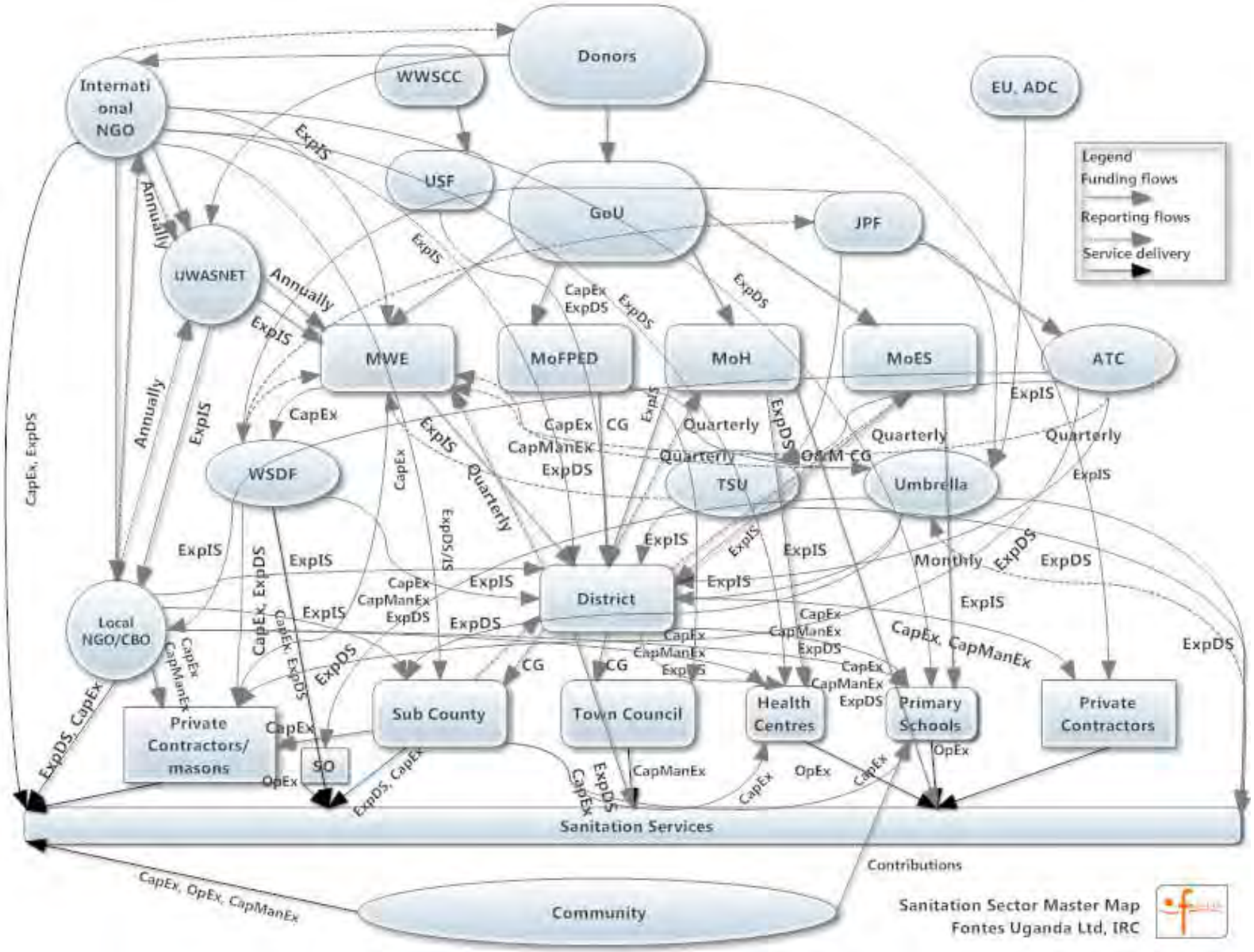
2. Sanitation Master Map

3. List of people interviewed

4. Cost Matrix Water

5. Cost Matrix Sanitation


Donors
Internati onal NGO
EU, ADC
GoU
JPF
UWASNET
MWE
MoFPED
OPM
ATC
WSDF
TSU
Umbrella
District
Local NGO/CBO
Sub County
Town Council
Private Contractors
Private Contractors
SO
HPM
PO
Water Services
Community
Legend
Funding flows
Reporting flows
Service delivery
ExpIS
Annually
CoC
CapManEx
CapEx
CG
PRDP
O&M CG
Quarterly
ExpDS
Monthly
OpEx
CapManEx
Water Tariffs
Household collections
CapEx contribution
Water Sector Master Map
Fontes Uganda Ltd, IRC


Donors
WWSCC
EU, ADC
International NGO
USF
GoU
JPF
UWASNET
MWE
MoFPED
MoH
MoES
ATC
WSDF
TSU
Umbrella
District
Local NGO/CBO
Sub County
Town Council
Health Centres
Primary Schools
Private Contractors
Private Contractors/ masons
SO
Sanitation Services
Community
Legend
Funding flows
Reporting flows
Service delivery
Annually
ExpIS
CapEx
ExpDS
CG
Quarterly
CapManEx
O&M CG
Monthly
OpEx
Contributions
CapEx, OpEx, CapManEx
Sanitation Sector Master Map
Fontes Uganda Ltd, IRC

List of People Interviewed

Institution	Sn	Name	Title	Telephone Contact	E-mail Information
Water Aid	1	Geoffrey Kidega	Snr Programme Coordinator	256392947412	geoffreykidega@wateraid.org
Water Aid	2	Milly Akwi	Snr Programme Coordinator	256782611708	MillyAkwi@wateraid.org
Ministry of Water and Environment	3	Ivan Biiza Peter	Economist	256782848455 256704933982	ivan.biiza@mwe.go.ug
Ministry of Water and Environment	4	Mogens Mechta	Senior Sector Advisor DWD	256775494491 256414505943	mogens.mechta@mwe.go.ug
Ministry of Water and Environment	5	Helmut Jung	O & M Technical Advisor	256783143831 25641	helmut.jung@mwe.go.ug
PLAN International	6	Dan Barigye	EC-WASH Project Manager	256776891864	dan.barigye@plan-international.org
Office of the Prime Minister (OPM)	7	Benon	Snr Ass. Secretary NUR		
Ministry of Health	8	Julian M. Kyomuhangi	Ass. Commissioner Env.l Health Div.	256772429336	jkyomuhangi@health.go.ug
Appropriate Technology Center (ATC)	9	Paul Kimera	Snr research and Training Officer	256772685053	kampkim2001@yahoo.co.uk
Appropriate Technology Center (ATC)	10	Ashabrick Nantege Bamutaze	Training and Development Officer	256702723475 256414690806	ashabrn@yahoo.co.uk
UWASNET	11	Josephine Mugala	Prog Officer Research & Development	256782449167 256782723475	jmugala@uwasnet.org
WE-Consult	12	Ron Sloots	Director	256772222049	ron@we-consult.info
Ministry of Water and Environment	13	David Mukama	Sanitation Coordinator	256772435634	mukamadm@yahoo.co.ug
WSDF-Central	14	FelixTwinomucunguzi	Branch Manager	256772588651	felix.twinomucunguzi@mwe.go.ug
Ministry of Water and Environment	15	Ronald Nyakana	Monitoring Officer	256772439115	ronald.nyakana@mwe.go.ug
Ministry of Water and Environment	16	Erisa Kyeyune	Snr. Water Officer	256782618154	erisa.kyeyune@mwe.go.ug
Ministry of Water and Environment	17	Richard Kirya	Economist	256752956215	richard.kirya@mwe.go.ug
Ministry of Water and Environment	18	James Sseguya	Engineer Rural Water Dept	256772883022	james.sseguya@mwe.go.ug
Ministry of Water and Environment	19	Paul Nyeko Ogiramoi	Principal Engineer Planning &	256712813380	nyeko_ogiramoi@yahoo.co.uk
UNICEF	20	Prakash Lamsal	Wate, Sanitation & Hygiene Specialist	256717173450	prlamsal@unicef.org
District Local Government - Jinja	21	David Mwase	Ass. District Water Officer	256772524058 256701524058 256754524058	
Kanungu nDistrict Local Government	22	Ambrose Byaruhanga	Ass. District Water Officer	256782292216 256702292216 256752292216	ambroseb@hotmail.com
Kasese District Local Government	23	Robenson Masereka Kalende	Healt Assistant Lake Katwe Sub County	256776545021 256704382505	

WASHCost Matrix: Water

Cost Category	Cost Sub-Category	Organization/Agency paying	Sources of Funds	Comments
(CapEx Capital Expenditure)	Software: Pre-studies: (feasibility studies, baseline surveys, etc)	NGOs	International NGOs, Donor Funds	Consultants are used for more technical studies like borehole siting, participatory assessments etc. are often done by the NGOs
		MWE	GoU	Only for large schemes, emergency, political pledges. Usually hires consultants but sometimes engages own technical personnel
		DWO	MoFPED	Designs for piped schemes must always be approved by MWE
		Multilateral agencies/UNICEF	Multilateral agencies/UNICEF	Through consultants, paid directly by UNICEF but done together with DWO
		Donors	Donors	Normally contracting consultants
		Private contractors	NGOs, MWE, DWO, UNICEF, WSDF, Donors	Hired to carry out the actual studies
		WSDF	MWE, JPF, Donor Funds	For RGCs and Small Towns. Hires consultants for large schemes, do it themselves for small ones
	Software (mobilization, training, consultations, formation of committees etc)	NGOs	International NGOs, Donor Funds	Normally carried out by local partner NGOs
		MWE	GoU	For larger projects
		WSDF	MWE, JPF, Donor Funds	For RGCs and Small Towns. In cooperation with Umbrella
		Multilateral agencies/UNICEF	Multilateral agencies/UNICEF	
		Donors	Donors	This is quite rare because most donors provide funding through sector support or JPF. However, some, like USAID still do direct implementation
		DWO	MoFPED	up to 11% of CG can be spent on software, both pre and post construction
	Software: Supervision, monitoring and evaluation of construction works	NGOs	International NGOs, Donor Funds	
		Private contractors	DWO, NGOs, Donor Funds	Technically competent person on contracture team is to supervise works at the site throughout construction
		DWO	MoFPED	MWE can assist DWO in supervision of contracts for small piped schemes
		WSDF	MWE, JPF, Donor Funds	The procuremnt is done by the Districts but the contracts are managed and supervised by WSDF
		Multilateral agencies/UNICEF	Multilateral agencies/UNICEF	Together with DWO
		Donors	Donors	This is quite rare because most donors provide funding through sector support or JPF. However, some, like USAID still do direct implementation
	Software: Promotion of self supply (direct interaction with communities)	NGOs	International NGOs, Donor Funds	
		DWO	MoFPED	In six pilot districts
	Hardware (Capital investments, engineering works etc)	NGOs	International NGOs, Donor Funds	construction works are usually contracted out to private companies, communities often contribute with labour or in kind
		Sub County	DLG	small works such as rainwater harvesting tanks for public buildings. Part of DWSCG or other grants.
		Private contractors	DWO, NGOs, MWE, DWO, WSDF, UNICEF	Carry out the actual construction works
		Community	Labour, household collections, in kind, individual households pay for their own sources (self supply)	A GoU requirement to encourage community ownership of the system. Small & Medium spring 45,000, Ex-large spring 100,000, deep borehole 200,000, shallow well 100,000, GFS 45,000 per tap, buy/offer land for piped schemes and 50,000 per kiosk. 50,000 in connection fee for private connections
		MWE	GoU	Only for large schemes, emergency, political pledges. Mostly contracted out to private companies
		DHO	MoFPED	Water at health centres. With technical support from DWO
		DWO	MoFPED, OPM	No less than 70% of CG should be used for construction of new infrastructure. OPM funds only to districts affected by the insurgency. Usually contracted out to private companies. This includes water for Primary Schools (rarely done in practice because of O&M challenges)
		Multilateral agencies/UNICEF	Multilateral agencies/UNICEF	Contracted to PS, paid directly by UNICEF but done together with DWO
		Donors	Donors	This is quite rare because most donors provide funding through sector support or JPF. However, some, like USAID still do direct implementation, contracted to PS
		WSDF	MWE, JPF, Donor Funds	construction works are usually contracted out to private companies
	Extensions of piped schemes (Hardware)	MWE	GoU	Based on application by RGC or town council
		DWO	MoFPED, OPM	Can be co-financed by sub-counties
		Town Council	MoFPED, DLG	O&M Conditional Grant was initially meant for operations but should also be used for extensions to increase coverage
		WSDF	MWE, JPF, Donor Funds	Major activities applied for by the LG to MWE and WSDF implement as re-investment mandate

		Umbrellas	JPF, MoFPED, Donor Funds	Financing of some extensions as part of O&M conditional grant for RGCs. MWE acknowledges low capacity of the Umbrella to implement expansion and extension, thus MWE focuses on extension and new connections. Give soft loans to WSSB for extensions
		Multilateral agencies/UNICEF	Multilateral agencies/UNICEF	
	Extensions of piped schemes (Software)	DWO	MoFPED	Mobilise WSSB/WUC
		Umbrellas	JPF, MoFPED, Donor Funds	Help WSSBs apply for extensions, help Sub-Counties and Town Councils manage and supervise contracts for extensions
OpEx (Operational Expenses)	Minor repairs/preventive maintenance	Community	Household collections for handpumps, water sales revenue for small piped schemes	Funds are normally managed by a water user committee, water board/scheme operator or tap committees.
		Handpump Mechanics	Community, Sub-County, NGOs	Hanpump Mechanics are paid by the community through the WUC to carry out minor repairs. Sub-County supports HPMs with tools etc. Some NGOs also support HPMs with modes of transport etc.
		Private contractors	Multilateral agencies/UNICEF	New system where drilling companies sign 5 year guarantee contracts. Still in planning/testing phase
	Fuel/power	Scheme Operator	Household collections or water sales revenue	Small piped schemes in RGCs and small towns
		Community	Household collections or water sales revenue	Through WUC, WSSB/SO
		Town Council	DLG	Urban O&M conditional grant can be used to cover gaps in operations expenses
		MWE	GoU	Rarely happens, just in case of crisis or emergency, or to pay arrears before new management takes over
		DWO	MoFPED	Districts can use conditional grant funds for operations in IDP camps because of effect of displacement on people's livelihoods
		Umbrella	JPF, MoFPED, Donor Funds	Just to cover arrears or in specific cases when emergency interventions are necessary
	Salaries and wages, sitting allowances	Scheme Operator	Household collections or water sales revenue	In case people are employed by the SO. If not, allowances are paid directly by the WUC/WSSB
		Community,	Household collections or water sales revenue	Through WUC, WSSB
	Bank charges, loan repayments	Community	Household collections or water sales revenue	Through WUC, WSSB. Loans can be accessed from for example Umbrella. Bank charges in Uganda are high and can represent a substantial cost for WUC/WSSB
		Scheme Operator	Household collections or water sales revenue	Paid as part of SO operational expenditures
	Chemicals, cleaning materials, etc	Scheme Operator	Household colections or water sales revenue	This can be bought either by the SO or by the WUC/WSSB directly
		DWO	MoFPED	Districts can use conditional grant funds for operations in IDP camps because of effect of displacement on people's livelihoods
		Town Council	DLG	Urban O&M conditional grant can be used to cover gaps in operations expenses
		Community	Household collections or water sales revenue	Through WUC, WSSB
CapManEx (Capital Maintenance Expenditures)	Major repairs	MWE	GoU	One-off activity which takes place in event where district fails. RGCs and TC can apply for major/emergency repair through WSDF or directly to urban water department
		DWO	MoFPED	up to 8% of Conditional Grant is for rehabilitation an can be used for major repairs where community fails
		Town Council	DLG	Urban O&M conditional grant can be used for large repairs
		WSDF	MWE, JPF, Donor Funds	For RGCs and small towns. District applies to MWE for funds and WSDF contracts out major repair as re-investment. Slow procedure because budgeting cycle has to be followed
		Private contractors	MWE, DWO, WSDF, Umbrella, NGOs	Carry out the actual construction works
		Community	Household collections, saved revenue from water sales	The community rarely has sufficient saved funds for major repairs. Some try to mobilise extra funds with house to house campaigns. GoU requires 90,000 cash contributions for borhole rehabilitation
		Umbrella	JPF, MoFPED, Donor Funds	Can pay for large repairs directly or give soft loans to WSSB. Helps organise spares and replacements
		HPM Associations	DWO, NGOs	In some cases, where the HPM Association is capable, it can be contracted by the DWO or NGOs to carry out large repairs such as fishing dropped rods etc.
		NGOs	International NGOs, Donor Funds	Normally not in policy but done on case by case basis
	Borehole rehabilitation	DWO	MoFPED, OPM	8% of CG is for rehabilitation, normally contracted out to private companies
		MWE	GoU	In emergencies, political pledges
		HPM Associations	DWO, NGOs	Where the HPM Association is capable, they can do parts of borehole rehabilitation, however not the part that requires expensive machinery
		Private contractors	MWE, DWO, NGOs	Carry out the actual works
		NGOs	International NGOs, Donor Funds	As part of specific project/programme

	Replacement	MWE	GoU	Limited to emergencies such as disaster occurance, presidential pledge
		Umbrella	JPF, MoFPED, Donor Funds	WSSB can apply for soft loan or support from Umbrella for replacements, especially emergency failures
		WSDF	MWE, JPF, Donor Funds	For RGCs and small towns. WSDF applies to MWE and for funds and contracts out replacement as part of re-investment activity
		NGOs	International NGOs, Donor Funds	Normally not in policy but done on case by case basis
		DWO	MoFPED	DWO usually has limited capacity due to insufficient funds under th CG. 8% for rehabilitation can be used for replacements
	Support to Water Committees (refresher training, follow up)	NGOs	International NGOs, Donor Funds, Multilateral agencies/UNICEF	Some NGOs can follow up over time, and sometimes pay for follow up after end of project period through cross-financing from new projects in the same area. Can be integrated in sanitation/hygiene/education programme
		Umbrella	JPF, MoFPED, Donor Funds	Only to WSSBs of piped schemes. Quarterly visits to all members, support financial management,
		Sub County	DLG	Through community development officer (CDO)
		DWO	MoFPED	up to 11 % of CG is for software (both for pre and post construction). This is the main role of DWO but often limtied in practice due to lack of resources for transport
	Technical backstopping and support (directly to individual schemes/communities)	TSU	JPF	Mainly supports DWO but also goes directly to the communities
		NGOs	International NGOs, Donor Funds, Multilateral agencies/UNICEF	
		Town Council	MoFPED	Through town engineers
		DWO	MoFPED	Part of 11% of CG software budget for existing water points
		HPM Associations	Community, Sub-County, NGOs	Training of pump caretakers, technical advice
		Umbrella	JPF, DLG	Only to WSSBs of piped schemes mostly on request. Has qualified staff to support SO or WSSB on technical problems
	Mobilisation for sustainability: preparation of O&M/business plans, funding requests, savings and income generating schemes	DWO	MoFDEP	This is sometimes part of the software activity. O&M plans for point sources and business plans for piped schemes are a requirement from GoU
		Umbrella	JPF, MoFPED, Donor Funds	For RGCs and Small Towns. Encourages WSSBs to have O&M/business plans and helps them make requests for extensions etc.
		NGOs	International NGOs, Donor Funds	Special focus in the last years has been on how to create revolving funds from handpump household collections
	Water Quality Testing	Umbrella	JPF, MoFPED, Donor Funds	For RGCs and small towns. Should be done on a quarterly basis
		DWO	MoFDEP	For point water sources. Not carried out very regularly. Part of CG hardware budget
	Financial Services, Audits	Umbrella	JPF, MoFPED, Donor Funds	For RGCs and small towns, audits once a year
		NGOs	International NGOs, Donor Funds	Mostly for larger GFS or small piped schemes
	Legal services	Umbrella	JPF, MoFPED, Donor Funds	For RGCs and small towns, on request
	Monitoring and Evaluation (data from individual communities)	DWO	MoFPED	5% of the CG is for M&E, Districts reports quarterly to MWE on fixed indicators based on reports from Sub-Counties
		Sub County	DLG	Reports to District, can be asked to carry out surveys on specific indicators by District
		Umbrella	JPF, MoFPED, Donor Funds	Monthly reports from schemes to Umbrella, report on a quraterly basis to Urban Water Dep. In MWE
		TSU	JPF	Carries out some monitoring in cooperation with DWO
		MWE	GoU	Mostly through districts but some direct monitoring is done
		NGOs	Interntional NGOs, Donor Funds	Mostly on own projects, some not all report to UWASNET annually. Some report to DWO where they work
		MWE	GoU	This is one of the main roles of MWE
		DWO	MoFPED	Through quarterly reporting and annual work plans sent to MWE
		MoFPED	GoU	Allocates money based on budgets and available funds

ExpIS (Expenditure on Indirect Support)	Macro-level planning and policy making	UWASNET	JPF, MoFPED, Donor Funds	Represents civil society in steering committees and working groups
		NGOs	International NGOs, Donor Funds	Support for policy review, making guidelines etc.
		Multilateral agencies/UNICEF	Multilateral agencies/UNICEF	Support to government for policy review and creating enabling environment
	Sector Coordination	MWE	GoU	This is one of the main roles of MWE
		Donors	Donors	Through Sector Working Group
	Training of handpump mechanics, support to HPM associations	MWE	GoU	
		Sub County	DLG	Each sub-county should have a HPM. Sub-county keeps tools and provides supervision and support
		DWO	MoFPED	District is supposed to oganise refresher trainings and keep records of HPMs. Some districts are supported by NGOs to suppot and facilitate the HPM Associations
		NGOs	Donor Funds	This includes both technical training and support to organisation building etc.
	Planning at sub-county and District level (WSSCC)	NGOs	International NGOs, Donor Funds	NGOs support coordination meetings at sub-county and District level
		DWO	MoFPED	District is supposed to organise quarterly coordination meetings, but often not done due to lack of funds
	Capacity building of local and central government structures	NGOs	International NGOs, Donor Funds	Build capacity in a wide range of topics from technical topics to good governance, water as a human right or specific approaches such as self supply
		MWE	GoU	Some trainings are done direclty, others through TSU
		WSDF	MWE, JPF, Donor Funds	Builds capacity on district/sub-county level in project and contract management and technical issues
		Umbrella	JPF, MoFPED, Donor Funds	Builds capacity mainly on sub-county and town council level
		Multilateral agencies/UNICEF	Multilateral agencies/UNICEF	For example training of district staff in water quality monitoring
		ATC	JPF	Capacity building of NGOs, TSUs and DWOs on appropriate technology options
		TSU	JPF	Capacity building and technical support to DWO
	Monitoring and Evaluation (data compilation, analysis and collection from goverment entities and NGOs)	Umbrella	JPF, MoFPED, Donor Funds	Quarterly reports to MWE and JPF
		DWO	MoFPED	Districts report quarterly to MoFPED and MoLG, MWE is copied and certain annexes sent directly to MWE
		WSDF	MWE, JPF, Donor Funds	Quarterly reports to MWE
		TSU	JPF	Reports to MWE
		MWE	GoU	Through reports from local government entities and Umbrellas/UWASNET, Annual Joint Sector Review, Sector Performance Report, Joint Technical Review, reports to donors
		UWASNET	Donor Funds, International NGOs	Mainly of members, reports to MWE annually
	Research	UWASNET	Donor Funds, International NGOs	Document good practices amongst members
		MWE	GoU	For example through ATC
		NGOs	Donor Funds, International NGOs	Some, like Triple-S and NETWAS have a very strong research component
		Private sector	Donor Funds, Higher Education Institutions, NGOs, MWE	Private sector companies (like consultancy firms) can also do research on belahf of donors, government or Higher Education Institutions, or at own initiative
		Higher Education Institutions	GoU, Donor Funds	For example Makerere Univresity
		ATC	JPF	Research on different technology options
	Technical support to local governments (not scheme specific)	MWE	GoU	
		NGOs	International NGOs, Donor Funds	For example, putting in place better accountability routines at DWO
		TSU	JPF	Carry out training of DWO on request
	Promotion of self supply (at sector level)	ATC	JPF	Research on different technology options
		MWE	GoU	
		UWASNET	Donor Funds, International NGOs	Promotion among members
		NGOs	Donor Funds, International NGOs	
	Writing guidelines, manuals etc.	UWASNET	Donor Funds, International NGOs	Review of manuals, guidelines
		Private consultants	Donor Funds, MWE, NGOs	Often the actual work is done by consultants
		NGOs	International NGOs, Donor Funds	Pay for review of manuals and guidelines, hire consultants
		ATC	JPF	Manuals for technology options
	Knowledge Management	NGOs	International NGOs, Donor Funds	Some like Water Aid and NETWAS have resource centres
		Higher Education Institutions	GoU, Donor Funds	
		MWE	GoU	Dissemination
		UWASNET	Donor Funds, International NGOs	Has a resource centre
	Financial Services, Audits	UWASNET	Donor Funds, International NGOs	for members
	Advocacy/Good governance	UWASNET	Donor Funds, International NGOs	
		NGOs	International NGOs, Donor Funds	
CoC (Cost of Capital)	Interest on loans taken by government	MoFPED	Multi-lateral financial institutions such as World Bank, African Development Bank	Paid directly by MoFPED
	Interest on loan taken by communities	Scheme Operator	Household collections or water sales revenue	If not paid by WUC/WSSB, it is paid by the SO as part of financial management
		Community	Household collections or water sales revenue	Through WUC/WSSB

Assumptions:

WASHCost Matrix: Sanitation

Cost Category	Cost Sub-Category	Organization/Agency involved	Sources of Funds	Comments
CapEx Capital Expenditure	Pre-studies: (feasibility studies, baseline surveys, etc) for all types of latrines	NGOs	International NGOs, Donor Funds	
		WSDF	MWE, JPF, Donor Funds	Public latrines in RGCs and small towns, sanitation baseline survey at pre construction stage
	Software for household sanitation, CLTS and other approaches, setting up management structures for public facilities	NGOs	International NGOs, Donor Funds	Many NGOs use approaches such as CLTS
		DWO	MoFPED, USF	11% of conditional grant is for software for sanitation (and water). From 2012, District Hygiene and Sanitation Conditional Grant. USF only for 16 pilot districts in Eastern Uganda
		MWE	GoU	For demonstration public latrines
		Multilateral agencies/UNICEF	Multilateral agencies/UNICEF	For household sanitation, no subsidy
		Sub County	DLG	promotionof household sanitation, training of village health teams, training of health workers
		WSDF	MWE, JPF, Donor Funds	Promotion for household sanitation in RGCs and small towns, setting up management of public latrines in cooperation with Umbrella
		DHO	MoFPED	Ditrict Health Office is in charge of household latrines
	Supervision, monitoring and evaluation of construction works	DWO	MoFPED	For public latrines and latrines in schools.
		DHO	MoFPED	For latrines at health facilities
		WSDF	GoU, Donor Funds	Public latrines in RGCs and small towns
		NGOs	International NGOs, Donor Funds	Public latrines, latrines at health facilities and schools
		DEO	MoFPED	For latrines at schools
	Hardware (Capital investments, engineering works etc)	DWO	MoFPED, USF	For public latrines and latrines in schools. 6% of DWSCG is for construction of latrines. From 2012, DSHCG. USF for 16 pilot districts in Eastern Uganda. Sometimes part of 70% hardware component of DWSCG can also be used for public latrines.
		DHO	MoFPED	For latrines at health facilities
		Sub County	DLG	Sub county can use part of their grant to build public latrines or latrines at health centres
		DEO	MoFPED	For latrines at schools
		WSDF	MWE, JPF, Donor Funds	Public latrines in RGCs and small towns, household demonstration latrines
		Multilateral agencies/UNICEF	Multilateral agencies/UNICEF	Only public latrines
		NGOs	International NGOs, Donor Funds	Public latrines, latrines at health facilities and schools, some give subsidy to household latrines as well
		Private Contractors/Companies, local masons	DLG, MWE, NGOs, households, Multilateral agencies/UNICEF	Carrying out the actual construction works and selling sanitation materials such as pans and slabs. Often informal sector
		Community	household spending on own latrine	Household latrines are mostly paid entirely by households
OpEx (Operational Expenses)	Minor repairs/preventive maintenance	Community	Household spending on own latrine or household contributions to public latrines or schools	For household latrines each household is responsible. For public latrines, committees can ask for contributions in cash
		Health Centres	DLG	Part of running budget
		Schools	DLG, household contributions	Part of running budget, sometimes schools ask for contributions from households in addition to UPE funds
	Soap	Community	Household spending on own latrine or household contributions to public latrines or schools	For household latrines each household is responsible.
		Health Centres	DLG	Part of running budget
		Schools	DLG, household contributions	Part of running budget, sometimes schools ask for contributions from households in addition to UPE
	Cleaning	Community	Household spending on own latrine or household contributions to public latrines or schools	For household latrines each household is responsible. For public latrines, committees can ask for contributions in cash or labour
		Health Centres	DLG	Part of running budget
		Schools	DLG, household contributions	Part of running budget, sometimes schools ask for contributions from households in addition to UPE
	Water	Community	Household spending on own latrine or household contributions to public latrines or schools	For household latrines each household is responsible. For public latrines, committees can ask for contributions in cash
		Health Centres	DLG	Part of running budget
		Schools	DLG, household contributions	Part of running budget, sometimes schools ask for contributions from households in addition to UPE
	Pit Emptying	DWO	MoFPED	Public latrines (conflicting information)
		NGOs	International NGOs, Donor Funds	Public and institutional latrines, not normally part of programme
		Community	Household spending on own latrine or household contributions to public latrines or schools	For household latrines each household is responsible. For public latrines, committees can ask for contributions in cash

CapManEx (Capital Maintenance Expenditures)		Health Centres	DLG	own latrines
		Schools	DLG	own latrines
	Rehabilitation of structures	DWO	MoFPED	Public latrines
		Community	Household spending on own latrine or household contributions to public latrines or schools	For household latrines each household is responsible. For public latrines, committees can ask for contributions in cash
		Health Centres	DLG	
		Schools	DLG	
ExpDS (Expenditure on Direct Support)	Continuous community mobilisation, hygiene promotion, PHAST, CLTS (post construction)	NGOs	International NGOs, Donor Funds	Different NGOs continue mobilisation for different periods, from 3 months to 2 years
		Multilateral agencies/UNICEF	Multilateral agencies/UNICEF	hygiene and sanitation promotion
		Sub County	DLG	promotion of household sanitation, training of village health teams, training of health workers
		DHO	MoFPED	Household latrines
		DWO	MoFPED, USF	Follow up of management of public latrines until 3 months after construction
	Technical support to communities	NGOs	International NGOs, Donor Funds	Demonstrations, explanation of different technologies
		Umbrella	JPF, MoFPED, Donor Funds	Support to WSSB and SO in RGCs and small towns
		DWO	MoFPED, USF	Public latrines
		DHO	MoFPED	Household latrines
	Technical support to institutions (schools, health centres)	Multilateral agencies/UNICEF	Multilateral agencies/UNICEF	Sanitation in schools
		NGOs	Donor Funds, International NGOs	
		DWO	MoFPED, USF	
	Sanitation Marketing	NGOs	International NGOs, Donor Funds	Different approaches are currently piloted
		MoH	GoU	This is a priority area for MoH
	Training of masons	ATC	JPF	
		MWE	GoU	
		WSDF	MWE, JPF, Donor Funds	In construction of eco-san public latrines in RGCs and small towns
		NGOs	International NGOs, Donor Funds	In construction of different technologies
	Monitoring and Evaluation (data from individual communities)	DWO	MoFPED, USF	Reports quarterly to MWE, copies MoH
		WSDF	MWE, JPF, Donor Funds	Sanitation baseline survey at post construction stage
		Umbrella	JPF, MoFPED, Donor Funds	WSSBs report monthly to Umbrella
		NGOs	Donor Funds, International NGOs	mostly on own projects
	Macro-level planning and policy making	NGOs	Donor Funds, International NGOs	Support for policy review, making guidelines etc.
		UWASNET	Donor Funds, International NGOs	Represents civil society in steering committees and working groups
		Multilateral agencies/UNICEF	Multilateral agencies/UNICEF	
		MoE	GoU	Sanitation in schools
		MWE	GoU	Household sanitation, public sanitation. Through an MoU between line ministries signed in 2001, MWE is responsible for planning and provision of sanitation facilities in RGCs and private places
		MoH	GoU	Household sanitation, latrines at health centres
	Sector coordination	MWE	GoU	MWE has a lead role
		MoE	GoU	
		MoH	GoU	
		Donors	Donors	Through Sector Working Group
	Planning at sub-county and District level (WSSCC)	NGOs	International NGOs, Donor Funds	NGOs support coordination meetings at sub-county and District level
		DWO	MoFPED	District is supposed to organise quarterly coordination meetings, but often not done due to lack of funds
	Capacity building of local and central government structures	NGOs	International NGOs, Donor Funds	Training in participatory approaches, sanitation promotion approaches, different technologies and sanitation marketing
		Multilateral agencies/UNICEF	Multilateral agencies/UNICEF	
		UWASNET	Donor Funds, International NGOs	Promotion of approaches and technologies
		MWE	GoU	Training of TSU and district staff on CLTS, PHAST
		Umbrella	JPF, MoFPED, Donor Funds	Builds capacity mainly on sub-county and town council level
		ATC	JPF	Capacity building of NGOs, TSUs and DWOs on appropriate technology options
		TSU	JPF	Support to DWO, with guidance from MWE
	Monitoring and Evaluation (data compilation, analysis and collection from governent entities and NGOs)	MWE	GoU	through reports from districts and Umbrellas, Annual Sector Review, reports to donors
		DWO	MoFPED	Districts report quarterly to MoFPED and MoLG, MWE is copied and certain annexes sent directly to MWE. On public latrines and latrines in RGCs
		TSU	JPF	Reports to MWE
		WSDF	GoU, Donor Funds	Quarterly reports to MWE
		MoH	GoU	Household sanitation, sanitation in health facilities

		Umbrella	JPF, MoFPED, Donor Funds	Quarterly reports to MWE and JPF
		UWASNET	Donor Funds, International NGOs	through reports from members, reports to MWE
	Research	UWASNET	Donor Funds, International NGOs	Document good practices amongst members
		MWE	GoU	For example through ATC
		NGOs	Donor Funds, International NGOs	Some, like Triple-S and NETWAS have a very strong research component
		Private sector	Donor Funds, Higher Education Institutions, NGOs, MWE	Private sector companies (like consultancy firms) can also do research on belahf of donors, government or Higher Education Institutions, or at own initiative
		Higher Education Institutions	GoU, Donor Funds	For example Makerere Univresity
		ATC	JPF	Research on different technology options
	Demonstration units	NGOs	International NGOs, Donor Funds	
		ATC	JPF	appropriate technology options
		MWE	GoU	New technologies such as Ecosan for schools
	Technical support to local governments	MWE	GoU	For example on CLTS, demonstration latrines
		MoH	GoU	Household sanitation, sanitation in health facilities
		TSU	JPF	with guidance from MWE
		NGOs	Donor Funds, International NGOs	On different technologies, re-use
	Writing guidelines, manuals etc.	UWASNET	Donor Funds, International NGOs	Review of manuals, guidelines
		Private consultants	Donor Funds, MWE, NGOs	Often the actual work is done by consultants
		NGOs	International NGOs, Donor Funds	Pay for review of manuals and guidelines, hire consultants
		ATC	JPF	Manuals for technology options
	Knowledge Management	NGOs	International NGOs, Donor Funds	Some like Water Aid and NETWAS have resource centres
		Higher Education Institutions	GoU, Donor Funds	
		MWE	GoU	Dissemination
		UWASNET	Donor Funds, International NGOs	Has a resource centre
	Financial Services, Audits	UWASNET	Donor Funds, International NGOs	for members
	Sanitation Marketing (promotion at national level)	NGOs	International NGOs, Donor Funds	
		MoH	GoU	
	Environmental Aspects	MWE	GoU	
		NGOs	Donor Funds, International NGOs	
		MoH	GoU	
	Advocacy/Good governance	International NGOs	Donor Funds	
		UWASNET	Donor Funds, International NGOs	
		MoH	GoU	
		Local NGOs/CBO	Donor Funds, International NGOs	
CoC (Cost of Capital)	Interest on loans taken by government	MoFPED	Multi-lateral financial institutions	Paid directly by MoFPED
	Interest on loan taken by households	Households	Households	Loans can be accessed at micro-finance institutions

Assumptions/Comments:
No data on drainage or sewerage projects in rural centres found
Funding source: the immediate source the money is transferred from, not the original source. See map for further details
Environmental management is not specific for the rural sanitation sector and therefore not included