A NATIONAL FRAMEWORK FOR OPERATION AND MAINTENANCE OF RURAL WATER SUPPLIES

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Rural Water Supply Division
Directorate of Water Development
With support from SNV, Netherlands Development Organisation

Foreword

The National Water Policy (1999), provides for user ownership and management of rural water and sanitation facilities as a sustainability strategy. This is promoted through the 'Community Based Maintenance System' (CBMS) as the most appropriate management option where the users take full responsibility over management and maintenance of their facilities. A key benefit of this kind of system is the empowerment of the communities to manage their development processes as promoted under current Poverty Eradication Action Plan.

According to an Operation and Maintenance (O&M) study commissioned by the Directorate of Water Development in 2001, findings indicated that about 30% of the all rural water facilities were not functioning. The facilities were either broken down or abandoned. These non-functioning facilities depict a waste of resources and heighten the need for a framework that defines and promotes CBMS. If the government goal to achieve 100% safe water coverage by 2015 is to be attained, it is important that beneficiary communities operate and maintain the facilities that are constructed so that the little available resources from government and our development partners are devoted to serving the people who are unserved.

This Operation and Maintenance Framework sets out the 'rules of the game' for all sector players involved in provision of water facilities to our rural communities in the CBMS context. The basic guiding principle is ensuring sustainability of the facilities that we provide to our rural communities.

This Framework could therefore not have come at a better time when the water sector is facing challenges of ensuring accelerated increase of safe water coverage and, at the same time, sustainability of the water facilities within the context of decentralisation. I urge the Local Governments to provide the necessary backup support to communities to ensure proper management and maintenance of existing rural water facilities.

The benefits of CBMS, which are in conformity with the Government of Uganda's Poverty Eradication Action Plan are; empowerement of communities, low cost options, and long-term sustainability. The impact of clean, safe and reliable water on poverty reduction can not be over emphasised.

I can not over emphasise the timeliness of this framework and I wish to thank all organisations, especially The Netherlands Development Organisation (SNV), and individuals who participated and worked tirelessly to ensure it's finalisation and production. It is my sincere hope that this framework will be well received and used as an important tool in planning, implementation, operation and maintenance of rural water facilities to enhance sustainability of the facilities provided in the country.

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Colonel

Minister of Water, Lands Environment

Uganda.

ABBREVIATIONS AND ACRONYMS

ATP	Ability to Pay
BMU	Borehole Maintenance Unit
CBMS	Community Based Maintenance System
DP	Development Partner
DWD	Directorate of Water Development
DWO	District Water Office
DWSDCG	District water and Sanitation Development Conditional Grant
GFS	Gravity Flow Scheme
H&S	Hygiene and Sanitation
HPM	Handpump Mechanic
LG	Local Government
MWLE	Ministry of Water, Lands and Environment
OP-5	Rural water and Sanitation Operational Plan: 2002-2007
O&M	Operation and Maintenance
PSO	Private Sector Organisation
RGC	Rural Growth Centre
RUWASA	Rural Water and Sanitation Eastern Uganda Project
RWF	Rural Water Facility
SPD	Spare Parts Dealer
SWIP	South Western Integrated Project
SWSC	Sub-County Water and Sanitation Committee
SWAP	Sector Wide Approach to Planning
VLOM	Village Level Operation and Maintenance
WES	Water and Environmental Sanitation Project
WSC	Water and Sanitation Committee
WTP	Willingness to Pay
WUA	Water User Association
WUG	Water User Group

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1. INTRODUCTION

1.1 Background

In May 2001, the Ministry of Water, Lands and Environment through the Directorate of Water Development commissioned a study on "Operation and Maintenance of Rural Water Facilities in Uganda". The study report presented an impressive number of findings that were discussed during a consultative workshop with key sector stakeholders in May 2002. During the workshop efforts were made to address the findings, something that was only partly successful. It is against this background that a decision was made for the Directorate to spearhead the development of a National Operation and Maintenance Framework for rural water to act as a guide for implementation of operation and maintenance (O&M) issues at all levels.

1.2 Objectives and Relevance of the O&M Framework

Significant progress has been registered in developing and initiating implementation of a national strategy for universal safe water coverage. However if these gains in increasing safe water coverage are to be consolidated, it is important that the issues of sustainable use and maintenance of the facilities developed are also appropriately addressed. Against the background of low functionality of facilities which plays against government commitment to increase coverage, it is important that more concrete attempts are made to address this situation.

The key goal of this Framework is therefore to provide guidance and policy direction for streamlining O&M in daily operations at all levels within the sector, to ensure long term sustainability of facilities and enjoyment of intended benefits (Figure 1). It shall form the basis for planning, implementation and monitoring of O&M to be used by all sector actors, including government and development partners. The Framework shall also serve to raise awareness on the need to plan and balance O&M issues with investments in new facilities at an early stage.

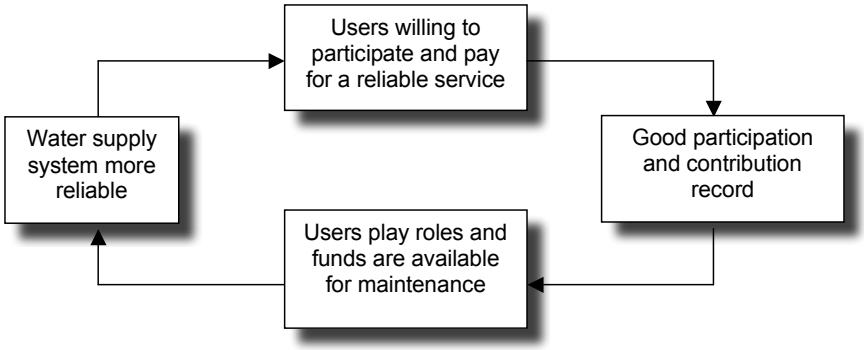

Figure 1: The virtuous circle of adequately funded and properly maintained water supplies

This O&M Framework reviews O&M findings arising from the studies and other observations, and proposes approaches towards their solution. It aims to streamline and strengthen O&M aspects in the planning and implementation of water and sanitation activities by all sector players. It focuses on issues, and attempts to address the concerns and approaches from different perspectives, so that the various sector players can identify and address the areas most suitable to their specific requirements.

The O&M Framework is to be used alongside other sector documentation on policy, strategies and implementation guidelines. In addition detailed materials exist or are doe to be produced for training and other extension work on O&M issues.

1.3 Operation and Maintenance

Operation refers to the everyday running and handling of a water supply, involving the actual delivery of services. It involves:

- Major operations required to convey safe drinking water to users; and
- Correct handling of facilities by users to ensure long component life.

The proper operation of a water facility results in its optimum use and contributes to a reduction in breakdowns and maintenance needs.

Maintenance refers to the activities aimed at sustaining the water supply in a proper working condition. It can be divided into:

- Preventive maintenance – regular inspection and servicing to preserve assets and minimize breakdowns;
- Corrective maintenance – minor repair and replacement of broken and worn out parts to sustain reliable facilities; and
- Repair (crisis maintenance) –responses to emergency breakdowns and user complaints to restore a failed supply.

Operation and maintenance (O&M) is therefore the sum total of activities required to achieve smooth running and continuous sustenance of a water facility to ensure long service.

The main potential benefits to a community of sustainable O&M are numerous, and include:

- Reduced time in water collection leading to increased time for more economically gainful activities for improved well being of the family;
- Improved health when combined with good hygiene practices to reduce disease morbidity and expenditures on health; and
- Less dependence on external organisations that often have limited resources.

The close linkages between cost recovery and sustainable O&M are characterised by the vicious circle shown in Figure 2. Considerable effort is required from all stakeholders to break the vicious circle and ensure proper O&M of communal water facilities.

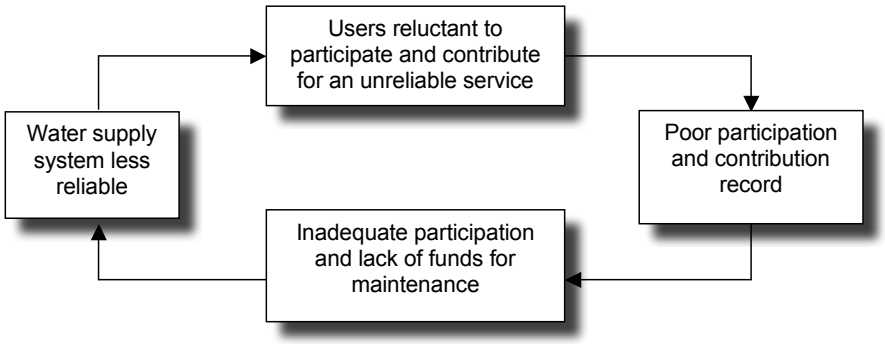

Figure 2: The vicious circle of under funded and poorly maintained water supplies

Generally O&M of community water facilities is poor due to a number of complex reasons including:

- Low priority given by institutions and politicians who are more interested in constructing new facilities, which they perceive as having a more dramatic impact;
- Poor cost recovery and low revenues leading to a lack of financial resources for O&M;
- Inadequate staffing, which may result from the relatively low status of O&M compared with construction activities; and
- Lack of appropriate capacity building for the key stakeholders (e.g. Water and Sanitation Committees, local governments and non-governmental organizations (NGOs))

1.4 The Ugandan Situation

In Uganda today, the O&M of rural water facilities (RWF) is largely based on the Community Based Maintenance System (CBMS), which emphasises community responsibility and authority over the development, operation and maintenance of their facilities.

The concept of CBMS was first introduced in Uganda starting 1986 as part of a national emergency programme supported by UNICEF. It was from the outset envisaged that an effective CBMS built on community ownership and community responsibility for O&M of installed water facilities, with support from various other actors, would ensure a long term operational sustainability. Since then, CBMS has been adopted and implemented by all rural water projects including SWIP, RUWASA and WES, and several NGOs involved in rural water sector programmes. CBMS is now formalised through the National Water Policy as a sustainable system for maintenance of installed rural water supply systems. However there are still a number of shortcomings with the O&M of water facilities.

A study on O&M conducted in 2001 found that only 71% of water facilities were fully functional and 19% partly functional, leaving 10% completely broken down. The functionality level of institutional facilities was found to be slightly higher than that for communal ones. Water points older than 4 years were found to have more major problems. Some areas where project and NGO support had ceased a few years back had functionality levels as low as 40%. Of the facilities found not functioning, 38% had been broken down for over 2 years.

A supply chains study in 2002 found that spare parts dealers (SPD) are established in only 13 towns nationally, because of the low turnover and low profitability of the business. They normally keep very low stocks of questionable quality and no quality control mechanism exists to check on the quality of the spare parts.

CBMS exists in theory as the desired approach, but not enough has been done to implement it thoroughly on the ground.

2. POLICY FRAMEWORK

Operation and maintenance of water facilities in Uganda is anchored in a number of water sector policy documents, some of which are discussed in the sections below.

2.1 Water Statute, 1995

The Water Statute provides for the use, protection and management of water resources and supply; and the constitution of water and sewerage authorities. It also facilitates devolution of water and sewerage undertakings.

In support of community management, it provides for the ownership and management of water supplies by users through the creation of Water User Groups (WUGs) operating through Water and Sanitation Committees (WSC) responsible for planning and management of water systems, including collection and utilisation of revenue. Where a water supply serves more than one WUG, they shall come together to form a Water User Association (WUA) comprising of representatives of the various WSCs, responsible to manage the water system, set tariffs and collect revenue for maintenance of the system.

WSCs and WUAs are to operate under direction of the Director of Water Development, who shall also approve the level of tariffs charged by them.

2.2 Local Governments Act, 1997

The Local Governments Act defines roles for different levels of government in provision and management of water and sanitation related activities. The provision of water and maintenance of facilities is a role of District Local Councils in liaison with the Ministry responsible for natural resources.

The Act empowers the different levels of government to plan and implement development interventions according to identified local priorities, i.e. planning and allocation of resources towards O&M support activities, and together with extension staff monitoring and follow-up support to established community structures. The Act also empowers Local Councils to make by-laws, subject to certification by the next higher Council or the Attorney General to ensure consistency with the Constitution, or any law, Ordinance or bye-law passed by a higher Council. In this context a WSC or WUA may propose a by-law to be adopted by the Village Council regarding the management and maintenance of their communal water facility.

2.3 National Water Policy, 1999

The National Water Policy formulated in 1999 aims at promoting an integrated approach to managing water resources in ways that are sustainable and beneficial to the people of Uganda. It anchors O&M as an important component in attaining water and sanitation coverage goals. It provides for capacity building at all levels for equitable and sustainable water supply in line with the decentralisation policy. It also provides for women's involvement at all stages and ensuring equal opportunities.

The National Water Policy provides for user ownership and management of rural point water facilities. It stipulates an expected functionality rate at any one time of 80-90%, and pro-

motes CBMS through a 3-tier[1] system as the approach to ensure sustainable management and O&M of facilities. All point water facilities are required to have WSCs, with half the membership being women, and at least two caretakers. These WSCs are responsible for management and maintenance, and should collect and manage (including banking) funds for maintenance and repair.

The Sub-County Water and Sanitation Committees (SWSC) are responsible for initial resource allocation, and should support establishment of private handpump mechanics and spare parts dealers. These private practitioners may then assist the WSCs with maintenance tasks beyond their capability. The District Water Office (DWO) should monitor O&M performance and provide back-up support. Rehabilitation and major repairs of boreholes are to be carried out by a Borehole Maintenance Unit (BMU).

2.4 Land Act, 1998

The Land Act vests all rights to water resources in the Government. It empowers the Minister responsible for water to regulate the management and utilisation of such water. The Act allows for reasonable use by the occupier or owner of a piece of land, of water for domestic and small-scale agricultural purposes.

The Land Act provides for a mutual agreement with the occupier or owner of land for execution of public works. Where agreement is not reached the Minister may compulsorily acquire the land. In all such cases the authorised undertaker is required to promptly pay compensation to any person having an interest in the land for any damage caused to crops or buildings and for the land used.

2.5 Rural Water Sector Reform and Investment Plan (2000 – 2015)

Lack of access to safe water and sanitation identified as being one of the major causes of poverty in Uganda. The government and other development partners have since devoted considerable efforts and investment in a bid to meet this great need. Sector goals/targets have been set at:

> "Sustainable safe water supply and sanitation facilities, based on management responsibility and ownership by the users, within easy reach of 65% of the rural population by the year 2005 with an 80%-90% effective use and functionality of facilities.
>
> "Then eventually to100% of the rural population by the year 2015".

2.6 Rural Water and Sanitation Operational Plan (2002 – 2007)

The Operational Plan for the 5-year period 2002-2007 (OP-5) focuses on increasing water supply and sanitation coverage while ensuring sustainability. It has thus developed critical requirements to be met by communities before installation of facilities as a sign of commitment towards the sustainable management, to ensure continuous reliable operation of the completed facilities. The requirements are:

(i) Signed Memorandum of Understanding which stipulates nature of cooperation and responsibilities between GoU, Districts, Sub-Counties, communities and contractors;
(ii) Ensuring meaningful involvement of women being the core users of water;
(iii) Hygiene promotion and sanitation through emphasising exemplary leadership and targeting latrine coverage of 30% during mobilization and 95% four (4) years after completion of the water facility for sustained health benefits;

[1] Under the 3-tier system the community structures constitute the first tier, the private sector the second tier, and the government back-up support systems the third tier.

(iv) Community contributions (in cash or kind) as a demonstration of commitment towards ownership and responsibility for ongoing O&M;
(v) Settlement of land and ownership conflicts with formal agreements in place;
(vi) Preparation of a realistic and viable eight year O&M plan with guidance from the District and Sub-County

2.7 Guidelines for Conditional Grants

The Guidelines for Planning and Operation of the District Water and Sanitation Development Grant were initially developed in 2000, and are continuously updated and disseminated over time. They spell clearly how the Conditional Grant forwarded to Districts shall be utilised and managed to ensure attainment of sector objectives. They detail the sector goals, key strategies and approaches, measures for strengthening of District sector capacity, activity based planning and reporting, release of funds, and monitoring and audit arrangements.

Sustainability is stressed in the objectives, implementation approaches, funding, staffing, and guidelines for monitoring of activities. Some specific areas mentioned are:

Sector-Wide Approach to Planning (SWAP): Use of a common approach to implementation by all major actors (government, local governments, donors, NGOs, and communities), and adoption of innovations and best practices to achieve improvement in sector performance, increased resource flows, more effective use of resources, and leading to positive outcomes for the poor.

Demand Responsive Approaches: Adoption of approaches that promote community demand and full involvement in all stages (planning, mobilisation, hygiene and sanitation promotion, construction and monitoring; and gender responsiveness and capacity building at user level for continued use and sustainable operation.

Effective Utilization and Improved Sustainability: Establishment of a sustainable community based management system through effective community mobilisation and training, monitoring and support supervision. 2% of the grant is allowed for water office operations and up to 10% for rehabilitation of boreholes. Multi-sectoral (technical and political) monitoring of implementation and maintenance of facilities is also promoted.

2.8 Water Sector Gender Strategy, 2003

The Water Sector gender Strategy aims to develop empowering approaches that will enhance gender equity, participation, access and control of resources leading to poverty alleviation. The strategy amplifies the provisions in the OP-5 and the National Water Policy. Among the areas of key focus are:

(i) Equal representation in all decision making fora;
(ii) Anchoring of gender roles in sector staff terms of service and human resource practices;
(iii) Capacity building on gender training and analysis;
(iv) Gender responsive recruitment into sector feeding institutions;
(v) Learning platforms involving various sector players;
(vi) Promotion of gender disaggregated data;
(vii) Poverty focus aimed at increasing options for creating wealth; and
(viii) Integration of hardware, gender and hygiene aspects.

3. MANAGEMENT OPTIONS FOR OPERATION AND MAINTENANCE

3.1 Community Based Maintenance System

CBMS is widely endorsed and regarded as one of the best options for O&M of communal water supply facilities in rural areas and rural growth centres (RGC). It has several benefits in terms of sustainability, empowerment of communities and low cost nature. It has been promoted by government, and shall continue to be the preferred option to be promoted by all stakeholders in the sector. However community participation and involvement at decision making level right from the beginning of the water supply development is a pre- requisite for it to succeed. Furthermore, continuous community sensitisation and mobilisation is required.

Chapter 4 looks in detail at the key problems afflicting CBMS in Uganda, and subsequent ones try and address some of the problems. It is recognised that the traditional CBMS may not be appropriate for different/ extenuating circumstances. In such cases it can be adapted to suit the degree of involvement of user communities and types of partnerships entered into with other stakeholders like the Sub-County, Districts, private sector and NGOs, or other options may be taken up. It is therefore crucial to facilitate user communities during the planning stages to assess themselves given the local conditions, technology choice and specific community capacity, to determine the best way in which the CBMS can be implemented.

3.1.1 Structure and Characteristics

Figure 3 below describes the structure of CBMS and gives its key characteristics.

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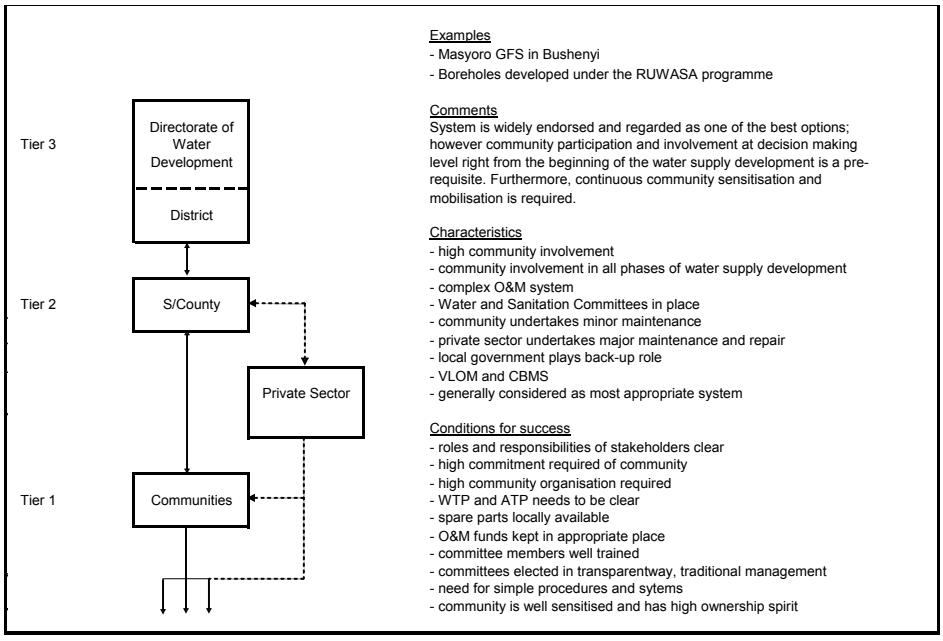

Figure 3: Three Tier Community Based Management System (Partnership Approach)

Different communities may pool their resources under an 'umbrella' approach to support each other in times of difficulty, say stocking expensive but essential spares, particularly where back-up services from the private sector and government are not adequately.

For simpler technologies like protected springs, or shallow wells and with good community organisation, CBMS may be modified to minimise or eliminate the need for Government involvement (Figure 4 below). It is cheap and the time between break-down and repair is short. This requires that simple guidelines are available to the communities. Depending on the location and type of water source, it may be necessary to boil water before consuming it since water quality monitoring is not carried out.

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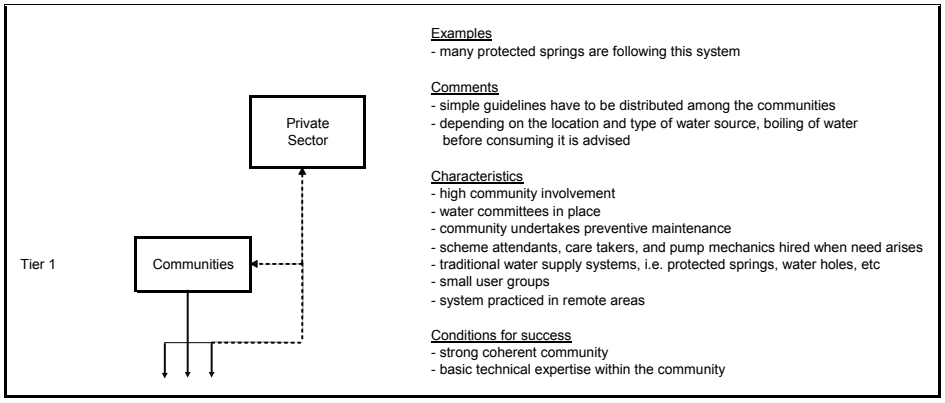

Figure 4: Single Tier Community Management

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3.1.2 Roles and Responsibilities

The different actors involved in the management and maintenance of water facilities, and their relationships and roles, are shown in Figure 5 below.

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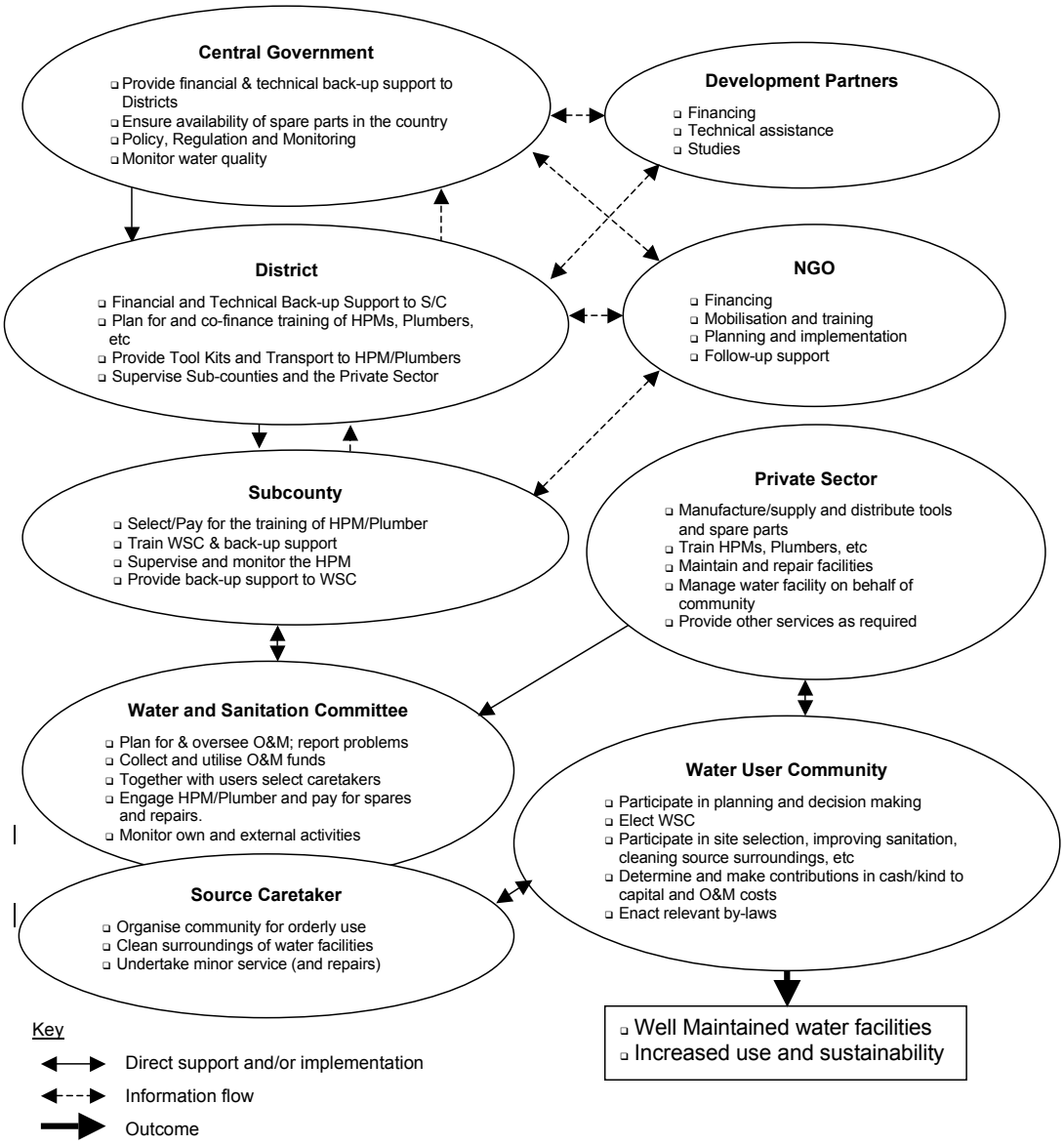

Figure 5: Roles of Key Actors in the CBMS of Rural Water Facilities

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Community: The community is responsible for management and maintenance of their water facilities. They do this through participation in planning, preventive maintenance and repairs, and payment of required funds. Each community should select a competent WSC and Care-takers to guide their participation. The mode of community involvement is dictated by the type of community and water source technology. In some communities, provision of ideas, labour for maintenance tasks and periodical cash contributions may work effectively, while in

others it may be more convenient to commercialise the service. The type of community; domestic, institutional, pastoralist, displaced/refugee (emergency situation, etc) will have an important bearing on the O&M factors and requirements for different community water supplies are discussed in **Annex 2**. Key factors to consider in determining O&M requirements for the different technologies are discussed in **Annex 7**.

Sub-County: The Sub-County is a body corporate, and has a mandate to plan and oversee implementation of development programmes. Therefore they should prepare plans and budgets incorporating O&M aspects. The O&M budget should provide for follow-up support and co-financing of major repairs. With good planning and facilitation extension workers (Community Development and Health Assistants) can carry out mobilisation and training, follow up and monitoring of WSCs to provide back-up support. They can also supervise the private sector carrying out such activities.

District: The District provides back-up support and technical guidance to Sub-Counties in planning and budgeting, implementation and monitoring of their work plans. It should also budget for co-funding of major repairs as part of the planning process. Where the need for major repairs arises the District should provide the required guidance and supervision, and also play a key role in ensuring established standards for O&M are maintained. The District is also responsible for routine water quality monitoring (after construction) to assess its suitability for consumption. It is also responsible for monitoring the performance of O&M and taking relevant actions to address shortcomings with support from DWD.

NGOs and CBOs: Several NGOs and CBOs are involved in the water and sanitation sector. They have useful roles to play as partners in mobilisation, training, planning, follow-up support and other activities, being already established in communities.

Private Sector: The role of the private sector is to support the communities in carrying out any activities beyond their capability. HPMs, masons and plumbers carry out maintenance and repair work, and are paid by the communities. Private firms manufacture, supply and distribute inputs and spares, and undertake major repairs. PSOs can also undertake community mobilisation and training. They can also manage point or small piped water supplies on behalf of the users, particularly in RGCs.

Central Government: Government prepares the overall policy framework, legislation and guidelines under which the sector operates. Central government here refers to the line Ministry (MWLE/DWD) and other sector relevant Ministries responsible for Health, Gender, Agriculture, etc. The Central government coordinates funding, training, supply of inputs and implementation. It is responsible for ensuring that policies are followed, and approaches used contribute towards the attainment of sector objectives. It should therefore monitor the performance and functionality of the water facilities nationally, and take the necessary remedial action. MWLE/DWD also contributes towards the costs of major repairs beyond community capacity.

Development Partners: Development partners support the government in improving the safe water and sanitation coverage. They provide funding and technical assistance directly to government programmes and through other agencies, and also offer support in studies to assess performance of different aspects of the sector, with a view to improvement. All support should be co-ordinated with government, and CBMS approaches promoted.

3.2 Emergency Situations

Natural disasters (floods, earthquakes, etc) and conflicts result in situations in which several people are displaced away from their homes, usually to camps. In such situations CBMS is inappropriate, and other approaches should be used. Usually the government and/or aid

agencies provide water and sanitation facilities to meet the emergency needs. It is difficult to organise for management structures and solicit community participation during the planning and implementation stages. Even after completion of installation the management is usually done through the formal structures, with minimal community input.

However such approaches should be limited to the duration of the emergency, and CBMS principles should be built in as the situation normalises in order to ensure sustainability.

3.3 Other Approaches

Some other approaches are still in use in different parts of the country, and while these may not be desirable to promote, they are mentioned for completeness.

3.3.1 NGO Supported Management

Due to the inadequate establishment of CBMS or due to funding requirements NGOs have in some cases established O&M systems that rely on them for their functioning. The community is usually involved in terms of establishing Committees, scheme attendants, caretakers and/or pump mechanics. The NGO then backs-up the community organisation through provision of inputs and other follow-up support.

As the Sector Wide Approach to Planning (SWAP) gets established and all sector players are encouraged to adopt similar broad implementation approaches, NGOs should endeavour to work along CBMS principles. This will contribute to strengthening of CBMS and expediting its spread across the country.

3.3.2 Centralised Management

This was the main management approach used before the adoption of CBMS. It was particularly common in large/complex systems involving high external (Government and/or Donors) investment with little or no community involvement. The mode and level of water fees is set by Central Government, and funds to maintain the water supply are from Government grants. Centralised management has often contributed to O&M failure. Currently it is one of the approaches used during provision of emergency water supply.

This management approach is gradually being phased out as CBMS is promoted for rural facilities, and privatised management for urban water supplies.

3.3.3 Decentralised Management

The decentralised management approach has similar characteristics to the centralised one, except that the local Government structures (District and/or Sub-County) are involved in the management.

4. KEY O&M ISSUES

A number of O&M issues have been identified from various studies and consultations as crucial for sustainability of water facilities. Some of the issues are discussed below, and the key ones are handled in greater depth in subsequent chapters. **Annex 1** also identifies common problems under each of these aspects and proposed remedial actions that can be taken up by the different stakeholders.

4.1 Ownership

One of the main issues that affects management and maintenance of communal water facilities is the understanding of ownership. The National Water Policy (1999) describes the community as the *owners* of a water facility. However the Water Statute vests the ownership in DWD, with the community managing and maintaining it for their joint benefit. The issue of community ownership is made difficult by the loose nature of the 'community' as an entity. In such instances it becomes difficult for communities to assume full responsibility and accountability for the maintenance of facilities.

Traditionally government and other agencies provided facilities without adequately involving communities. Now communities are involved to varying degrees by the different sector actors in planning, provision of labour and contribution of cash towards capital costs as a means of instilling the sense of ownership and responsibility.

The ownership of the facility needs to be clearly defined at the planning stage. Where CBMS is to be applied, this leads to the roles to be played by the parties being clearly demarcated. DWD can facilitate the registration of the WUAs as legal entities in some instances and commit Sub-Counties to take legal responsibility in others. This 'in-trust' arrangement is intended for an interim period only; the ultimate goal is to achieve full community ownership of facilities. WSCs could also establish themselves as CBOs, and register with the DCDO to become legal entities.

4.2 Technology Choice

O&M requirements are a major concern in technology choice, and need to be emphasized at the planning stage. This enables communities to make an informed choice of the type of technology they would like based on suitability, cost and maintenance requirements. The source of water gives the initial guidance, for instance springs (low or highland), groundwater, rainwater, etc. The technology used for developing a particular source also has an important bearing on the O&M requirements, and should be carefully considered. For instance in areas susceptible to corrosion, resistant materials should be considered.

Due to the usually hurried planning process lacking in bottom-up aspects, consultation and discussion on alternative technologies is not adequately done, which greatly contributes to the poor O&M.

The importance of adequate mobilisation before construction should be further emphasised. Standardisation of technologies to use at national level facilitates capacity building and availability of equipment and spare parts. Proper technology selection contributes to good quality facilities that are better accepted by users and easier to maintain. Current and planned interventions aim to review and strengthen the standardisation and detailed specification of technologies for community facilities.

4.3 Community Mobilisation and Training

It has been observed universally that mobilisation and training assists in clearly defining the problems, options and roles. It is crucial that adequate mobilisation and relevant training are provided at an early stage, to ensure that all stakeholders are supported to play their roles and that the magnitude of O&M requirements is well defined and planned for. This activity is continuous to maintain effective morale and involvement of all.

Currently some mobilisation is done during the implementation phase for communities to site sources and elect Committees. .Unfortunately many times it is not well targeted in terms of participants and content as well as hurried. The training if carried out at all is many times done after construction which ceases to make sense. Rarely is a needs assessment done to determine the specific needs of communities and Committees to tailor the training event. Instead a standard and inadequate curriculum that glosses over the roles and responsibilities of Committees while specifically weak in terms of skills that shall be required of Committees is followed.

Focus of the sector in terms of funding and implementation is still on the hardware components which may be more tangible but not as sustainable without due attention to the software aspects. Currently software activity costs per facility amount to only 3% of the investment cost. This is an area that needs to be immediately looked into.

Of recent DWD is piloting the outsourcing of software to be handled by Consultants or NGOs clearly detailing phase, activities, expected outputs and indicators per phase, which also comes with an improved budget. This promotion shall be monitored over one year on it's effectiveness in improving sustainability.

4.4 Replacement of Non-functional Committees

Non-functionality or inactivity of Committees (WSCs and Scheme Committees) seriously affects the management and maintenance of facilities. This creates a leadership vacuum during which all responsibilities and commitments are forsaken. There is need for a mechanism to reactivate and/or replace Committees that become non-functional due to various reasons including migration, abandoning work, death, etc. This should be initiated and taken up by communities and also established as part of the follow-up mechanism through government structures, NGOs or the private sector.

4.5 Supply of Inputs

Experience since the introduction of CBMS has shown that establishment of spare parts dealers (SPD) at each Sub-County is impractical. The recent study on supply chains found that despite major efforts at establishment, SPDs are operational in only 13 towns nationally. Establishment of HPMs and GFS attendants has been more successful, but where there is an inadequate replacement mechanism the fall-out rate is high. These factors contribute to the low level of functionality registered.

DWD has started an initiative to improve the supply chains for components and spare parts from the suppliers to communities. The approach being adopted is to support national manufacturers and suppliers to develop regional distribution networks in partnership with District dealers for distribution of components and spare parts. Communities will pay for handpumps directly from the District dealers using their community contributions, and the dealers will arrange for the delivery and installation. The District will then pay the remainder of the cost after completion of installation. This approach is intended to increase the sense of ownership and ensure availability of inputs when required.

4.6 Financing

In line with CBMS water users are expected to mobilise and manage funds for the maintenance of their water facilities. Management of funds at community level is one of the weakest links in effective O&M as it greatly hinders the collection of funds. At present most communities do not collect and keep funds in preparation for preventive maintenance and anticipated repairs. Instead they struggle to raise funds after a break-down has occurred, usually resulting in long down-times. In many cases HPMs undertake repairs, but do not get paid in time or at all. Training and follow-up programmes need to emphasize financial management and accountability aspects. In addition communities need to be empowered to take disciplinary action when their funds are mismanaged or when agreements are not honoured.

Major repairs (including replacement) are also a major concern at present, particularly rehabilitation of boreholes which are very common all over the country. Under CBMS Sub-Counties and Districts are required to budget for and contribute towards the costs of major repairs when the need arises. The Water Policy and the OP-5 require that Government (local and central) in the short run supports the cost of major rehabilitation, where this is beyond community capacity. The DWSCG guidelines allow for meeting some costs of major rehabilitations. Unfortunately this facility has been greatly abused due to the inadequate details on utilisation of these funds. More so the rehabilitation targets mostly the hardware ignoring the software and management aspects, which greatly reduces the chances of sustainability of the now rehabilitated structures. Specific guidelines have now been issued to Districts on the assessment, classification of required work and supervision of borehole rehabilitation, which have reduced on the misuse of such funds.

4.7 Gender

Collection and management of water for household use still remains a responsibility of the woman in many rural areas. The burden of disruption in water supply and O&M therefore also remains her problem. Numerous efforts have therefore been made to ensure the effective participation of women in planning and implementation to ensure delivery of appropriate services and sustainable systems. Successes have been achieved in the election of women on key positions on the WSCs, especially as treasurers (they are believed to be more trustworthy than men), and some have been trained as HPMs or GFS attendants to maintain and repairs water facilities. Despite these achievements, many women in these instances are unable to effectively perform these roles as a result of inadequate preparation and support to take them up. As WSC members, many lack the confidence, skills and time to participate effectively. Minimal advances have been made in trying to challenge the position of the women at home – they still have an enormous load of household duties which do not allow them adequate time to participate in meetings and trainings. Likewise for those trained as HPMs or GFS attendants, husbands are reluctant to let them do this work as it involves them spending a lot of time out of home in the company of men in isolated areas The tool kits are heavy and many of the tasks require enormous energy that women may lack.

To ensure practical gender integration, a more in-depth analysis should be done at different levels to assess clearly the gender issues that affect both men and women's participation. The OP-5 provides for a plan at community level for ensuring meaningful involvement of women as one of the critical requirements in order to be provided with support. Ways need to be identified in which the women can be supported to effectively take on these new roles. At the national level, more firm commitment should be made in terms of positive policy direction, time, resources and action for it to be effectively taken up at the lower levels.

4.8 Follow-Up and Back-up Support

In order to ensure success of CBMS it is important that back-up mechanisms to communities are established. Necessary support should be given to ensure continued functioning of established structures and facilities. HPMs, and GFS and pump attendants are required to carry out the maintenance and repair tasks, and spare part dealers (SPDs) to supply the required spare parts.

Districts need to provide technical and other guidance to communities, and assist in sourcing major repair services. Continuous follow-up is required to support the communities and WSCs carry out their roles, to bring in new ideas, and to reactivate dormant WSCs. At the national level, DWD is required to have a mechanism to disseminate relevant information and monitor the performance of the O&M systems around the country, intervene to support Districts where required, and initiate or adopt measures to improve the systems, if necessary. It also needs to coordinate with all players in the sector, including NGOs and the private sector, on O&M issues. This requires the strengthening of the O&M function within DWD.

4.9 Monitoring and Reporting

This is a crucial function to be undertaken regularly at all levels in order that proper track is kept of the performance of the sector and actual achievements made. Findings of monitoring are relevant for realistic planning and timely remedial action.

Monitoring and reporting under projects was done by CDAs and HAs. They were facilitated to carry out such activities. At present some monitoring is carried out at central and District levels, but this is not adequately coordinated. CDAs and HAs have more responsibilities from other sectors, reducing their availability for water sector monitoring. The MIS in DWD does not at present adequately fulfil the role of streamlining, collecting and organising social and technical data from all levels for meaningful use.

The monitoring approach should be simplified, though comprehensive enough to encompass technical as well as social parameters of functionality. Quantitative and qualitative information should be collected for integrated and sustainable action. The mechanisms for information collection need to be strengthened and the actual collectors (CDA, HA, HPM, PSO, etc) clearly identified. Monitoring of performance should also target making an inventory of best practises to be promoted and lessons learnt.

5. PLANNING FOR O&M

Inadequate planning can significantly affect the success of an effective CBMS. Key O&M aspects need to be defined right from the identification stage through the implementation phases. In order to ensure that O&M aspects are streamlined in all stages of operation, it is important that like other activities they are planned for. Through planning communities are able to make more informed technology choices looking at their abilities; their specific needs to fulfil their roles in O&M are identified and catered for. Mobilisation and training activities are streamlined alongside other implementation tasks to ensure their timeliness. The quality of the facilities is an important consideration from the outset, as a well constructed facility allows for more effective CBMS. In addition the management of water from the source to point of consumption should be addressed to ensure maximum benefits from the facilities.

It is generally agreed that most rural communities cannot at present afford to meet the full costs of replacement, and that there is need for external support to meet such costs. Government acknowledges this and has made a provision within the current conditional grants funding for major repairs beyond community capacity. These include replacement of complete handpumps, and borehole desilting and repairs. It is important in O&M planning to clearly identify what aspects are to be financed by whom.

The sections below outline how O&M issues should be planned for and integrated in the different stages of implementation. An example of a plan for O&M interventions based on a District Local Government is shown in **Annex 3**.

5.1 Considerations along the Cycle

5.1.1 Planning Phase

(i) Hold advocacy meetings at both the district and Sub County level at the outset creating awareness and demand for water and sanitation services. Such meetings should target balanced participation of women and men, and should raise awareness on the:
- Link between clean water, the health benefits derived and therefore the monetary benefits accruing;
- Ownership, responsibility of community towards O&M, relevance of community contribution as sign of commitment;
- Assessment of the O&M status; factors affecting functionality;
- Benefits of proper hygiene and sanitation;
- guidelines and steps for mobilisation of communities;
- Planning procedures, guidelines and conditionalities for accessing funding under different programmes.

(ii) Identify and appraise community priorities at various levels and integrate into local government development plans. Part of the appraisal criteria should be the ability to effectively maintain facilities and also meet the critical requirements of the OP-5.

(iii) Feedback to communities on approved plans / choices.

5.1.2 Pre Construction Mobilisation and Training Phase

(i) As part of the community needs assessment to guide in decision making on technology choice, allocation of facilities and input in planning for sustainability:
- Assess community capacity and willingness to pay and factors that can affect it;
- Map existing water and sanitation facilities and analyse on going O&M practices and challenges, population to be served (numbers, location), socio-demographic characteristics, institutions;

- Share information and facilitate discussion on the costs (investment and maintenance) and management and maintenance implications of the different technologies;
- Development of water and sanitation action plans.
- Formation of Committees, identification of attendants, masons, plumbers and/or mechanics to be trained; - ensure gender sensitivity;

(ii) During siting and verification of water sites assess:
- Feasibility of the water source in terms of:
  - Water quality as per standard guidelines as well as community perceptions,
  - Adequacy and reliability/ consistency in water supply, and
  - Appropriateness of site for optimal accessibility and ease of water collection); and
- Suitability of the site in terms of:
  - Optimal walking distance,
  - Accessible during all seasons,
  - Risk of contamination,
  - Cultural issues, and
  - Land agreement in place for site.

(iii) During mobilization and sensitisation of communities apply deliberate strategies to target effective participation of men and women. Ensure:
- Sensitisation on ownership, benefits of clean and safe water, link between clean water, health benefits derived and therefore the monetary benefits accruing, O&M obligations;
- Finalization of user lists;
- Mobilization of community contributions to capital investments;
- Consultation on appropriate O&M management systems to adopt in development of the O&M plan; and facilitate community meetings to develop bye laws and plans;
- Verification to ensure feasible and viable O&M plan in place; and
- Fulfilment of all critical requirements.

(iv) Signing of MoU with successful committees stipulating their roles and commitments towards O&M to be fulfilled

5.1.3 Implementation – Construction Phase

(i) Continued mobilization and sensitisation of communities on:
- Sensitisation on ownership, benefits of clean and safe water, link between clean water, health benefits derived and therefore the monetary benefits accruing, O&M obligations, Roles and responsibilities; and
- Maintenance of water facilities.

(ii) The training curriculum for WSCs, HPMs, GFS attendants etc should be geared towards preparation of communities to fulfil their roles during both the mobilization and the O&M follow-up phase. Special attention should be paid to:
- Roles and responsibilities;
- Technical skills, financial management, reporting, record keeping, monitoring;
- Hygiene and sanitation promotion and monitoring;
- Mobilization, communication, management and leadership skills;
- Importance of regulatory aspects e.g. WSC constitution and by-laws;
- Maintenance requirements of the different technologies i.e. preventive and curative aspects, maintenance costs over a period of time;
- Importance and planning for O&M; and
- Review and finalisation of O&M plans.

(iii) During construction monitor the quality of materials and work being done.

(iv) All through implementation monitor integration of key O&M aspects. Reporting formats should include components on functionality surveillance.

(v) Before commissioning can take place ensure:
- Management Committees are in place and functional;
- Communities are sensitised on proper and safe handling of water (safe water chain);
- O&M plan is in place showing how the facilities and systems shall be maintained;
- One year O&M funds have been secured;
- Water source is functional; and
- Follow up arrangement in place.

(v) Commissioning should be carried out to emphasize the ownership and CBMS aspects.

5.1.4 Post Construction / O&M Phase

(i) Provide support supervision and review on-going O&M approaches.

(ii) Plan for and support repairs, replacements and rehabilitation

(iii) Plan for and support replacement and (refresher) training of Committees, Caretakers, scheme attendants, HPMs, etc.

(iv) Continue promotion of latrine construction and usage.

(v) Monitor aspects of:
- Use of water;
- Functionality of the facility (technical, management, financial management and transparency);
- Behaviour change
- Interventions (technical and regulatory) taking place, both successfully and unsuccessfully;
- Quality and quantity of water; and
- Benefits realized from improved services (impact).

(i) Take any necessary remedial action according to findings.

5.2 Operation and Maintenance Plan

In line with the government's continued drive to sustainability of facilities, the OP-5 made it a requirement that each user community develops an eight (8) year O&M plan before it is assisted to develop a water facility. This is a plan showing how the water facility will be maintained and sustained to ensure continuous reliable operation over a period of time. It defines what (activities) will take place (when) by different actors, what kind of costs shall be incurred and how the resources will be mobilized. In subsequent discussions stakeholders agreed that 8 years is too long to be realistic at community level, and that a three (3) year O&M plan is more realistic and should be prepared instead. However it should focus on full cost recovery and the lifetime costs of managing and maintaining the facility.

After the village has been short-listed based on their application for support, it shall be facilitated through a discussion on alternative water technologies, their costs and O&M requirements for them to make a realistic choice based on affordability and cultural appropriateness. When the WSC has been formed and trained, then discussions on the O&M plan can commence. The user community should develop the O&M plan with support from both the Sub-County extension workers and District staff. This plan shall be verified for its viability before a water source can be constructed.

The O&M Plan should include at least the following components:

(a) Description of the water facility
- Location; name, type of technology, geographical location, GPS coordinates
- Components of the facility (for piped supplies, also specify geographical location of different components)

(b) Management structure
- Details on users / beneficiaries; statistics, sanitation status
- Composition, term, roles and procedures (meetings, allowances, sanctions, etc) of the WSC/WUA
- Replacement mechanism for the WSC/WUA
- Other actors involved in O&M of the water facility and their roles

(c) Description of O&M activities
- Type and frequency of occurrence
- Requirements to carry out activities (personnel, materials, equipment, costs)
- How to ensure users participate in O&M activities and make their contributions, and how to handle those who do not comply
- Where and how to access handpump mechanics/plumbers and spare parts when required
- Where and how to access extension workers when required for training, follow-up support, etc

(d) O&M budget
- Expected income and sources (community, benefactors, government, etc)
- Expected costs (minor and major maintenance; repair and replacement)

(e) Strategy for increasing household latrine coverage

(f) Regulatory issues (by-laws, agreements with HPM or other actors)

(g) Environmental issues

Since WSCs are at present not legal entities, the O&M Plan should preferably be ratified by the Village (LC1) Council to give it the required status.

The following information is required in order to prepare a realistic plan:
- list of preventive maintenance activities necessary to be carried out for the different water technologies
- up to date costs of spares and where they can be accessed
- life span of the different components of the facility
- update list of users
- information on alternative sources of funding
- monitoring indicators that can be reviewed together with communities before they are adopted

The detailed format of an O&M Plan is attached as **Annex 4**.

6. FINANCIAL MANAGEMENT

In line with CBMS, communities have the responsibility of operating and maintaining water supply facilities, including financial management aspect. It is therefore important that communities are involved in the choice of their water system and are made fully aware of the financial implications of operating and maintaining the scheme. They should therefore be supported to put in place transparent and sustainable financial management systems, and equipped with sufficient skills to be able to operationalise them.

6.1 O&M Costing and Budgeting

The costs of maintenance of water facilities shall be borne primarily by the users. They will meet costs pertaining to:

(i) Repair and replacements of worn out parts;

(ii) Labour costs of O&M (caretakers, scheme attendants, handpump mechanics, etc);

(iii) Administrative/ logistical requirements; stationary, public transport, fuel,

The community may get external support from lower local governments or NGOs to meet those costs beyond their ability. These may include;

(i) Borehole rehabilitation to include:
- Desilting of borehole,
- Fishing of dropped handpump parts (pipes and rods), and
- Replacement of whole riser pipe.

The current DWSCG guidelines provide for carrying out such repairs, and procedures for accessing such support are in place.

(iv) Major extensions of piped systems;

(v) Refresher trainings for committees, caretakers and technicians; and

The communities can request for support in the above mentioned areas, adhering to the bottom up planning principles and the critical requirements of OP-5. This can be planned for under the DWSCG or other local government development programmes.

As part of O&M plan development, communities should be facilitated to come up with realistic O&M costs. These vary according to the technology and age of the facility. Up to date information on costs of consumables, spares and labour is needed. A comparison with existing similar water systems may give a good indication of the costs to be expected. Costs should be forecast over a period to address daily maintenance requirements as well as allowing for savings for the future for major replacements.

On an annual basis, communities may review their costs and expenditures to come up with more realistic estimates.

There are various ways to come up with an appropriate tariff payable by users, which will cover the O&M costs. Depending on the specific situation and what the community finds appropriate, the tariff should be able to cover the main cost areas. Some guidance notes on calculating tariffs are given in **Annex 5**.

6.2 Collection of User Fees

Various methods can be adopted for collection of funds depending on the nature of the community. The following are some examples of such methods of funds collection:

(i) Fixed fee per household

(ii) Fee per *jerrycan*

(iii) Taxation

(iv) Donations and Auctions

(v) Selling of produce

(vi) District contribution

(vii) Government grants

(viii) When need arises

(ix) Revolving funds

These methods are discussed in further detail in **Annex 6**. The method(s) selected by a community for collection of funds should be suited to their circumstances, and should be agreed by them at the planning stage.

6.3 Use and Management of User Fees

One of the biggest challenges affecting user fees is the mismanagement of these funds, which may lead to users losing trust in the system and stopping paying. It is therefore important that beneficiaries have confidence in the management of their funds. Handling of funds needs to be done in a transparent way that can be understood by the community.

6.3.1 Keeping of O&M funds

O&M funds can be kept in different ways depending on the regularity of collection and expenditure, amounts collected, security concerns and ease of access when needed.

Where possible communities should open and operate bank accounts. For bigger water systems like GFS and piped schemes a bank account is strongly recommended.

Other alternatives include:

- Use of Sub-County accounts; and
- Investment in income generating activities or credit schemes (to benefit users), and ploughing the interest back into O&M activities.

The method(s) selected for keeping funds should also be agreed by the community at the planning stage.

6.3.2 Transparency and Accountability

At an early stage the community should define clear roles for different committee members in financial matters, and establish procedures for carrying them out. They should agree on who collects the funds, who keeps them, the process for approving payment, who checks records, etc. Penalties should be put in place for defaulters and fraudulent acts recognised by the community and local council. For this to be achieved,

Simple records must be kept of user fees, including a provision for signing against their payments or through use of receipts. Likewise all expenditures should be properly recorded. This information should be shared with users as frequently as possible during user/village meetings, or display of posters in public places, churches. Where a bank account is used the Bank statements should also be shared with users. This allows them check the records and seek clarifications, as part of their responsibility in financial management.

As part of back-up support, the extension staff or Village (LCI) officials should regularly check the financial records maintained by the committees for any mistakes or inconsistencies which results should be shared with users for information and action.

7. MAINTENANCE, REPAIR AND SPARE PARTS SUPPLY

7.1 Routine Maintenance and Minor Repairs

As discussed earlier, communities are responsible for the routine maintenance and minor repair of their water facilities. With good routine maintenance the need for repair is normally minimal, and where it occurs the costs are relatively low.

Some maintenance tasks can be done by the community with the facility Caretakers. The more complex maintenance tasks and minor repairs are done by a artisan (HPM, scheme attendants, mason or plumber).

7.2 Major Repairs

Some repairs to water facilities are classified as major on the basis of the inputs (skill and materials) required and costs involved. Table… below shows typical minor and major repairs.

Table…: Classification of Typical Repairs by Technology

Technology	Maintenance	Minor Repair	Major Repair
Borehole (with hand-pump)	▪ Clearing drains and surroundings ▪ Maintaining fence. ▪ Periodical checking and service of hand-pump. ▪ Periodical replacement of fast wearing parts (buckets, valves, etc).	▪ Repair of damaged parts outside routine service. ▪ Replacement of damaged slow wearing parts (handle, chain, few pipes and/or rods, cylinder). ▪ Repair of cracks to platform or drain.	▪ Fishing of dropped pipes and rods. ▪ Desilting of borehole. ▪ Repairs to borehole casing and screens. ▪ Replacement of platform and drain. ▪ Replacement of rising mains.
Protected Spring	▪ Clearing intake area, drains and surroundings. ▪ Maintaining fence.	▪ Repair of cracks to retaining wall, platform or drain.	▪ Re-protection (due to diversion or major failure)
Gravity Flow Scheme	▪ Clearing intake area, drains and surroundings. ▪ Maintaining fence(s). ▪ Periodical checking of components for proper functioning. ▪ Periodical replacement of fast wearing parts (taps, etc).	▪ Repair of minor leaks in structures or components. ▪ Repair of pipe bursts.	▪ Rebuilding of intake works or other major structures. ▪ Replacement of long pipeline sections damaged by landslides, etc.
Pumped and Piped Scheme	▪ Clearing intake area, drains, fence and surroundings. ▪ Periodical checking and service of pump.	▪ Repair of minor leaks in structures or components. ▪ Repair of pipe bursts.	▪ Rebuilding of intake works or other major structures. ▪ Replacement of long pipeline sections damaged by landslides, etc.

Communities may seek assistance from government towards undertaking major repairs. However such support can only be provided if the community has been playing its role of maintenance appropriately. This can be demonstrated by their records on user fees and

maintenance over time. In addition they should have raised some funds towards the planned major repairs.

Major repairs can be done by artisans either singly or in teams, with assistance from the facility Caretakers. The more complex repairs will require external contractors, with guidance and supervision from the DWO. In some cases tasks supervision may be required from DWD.

7.3 Spare Parts Supply

As discussed earlier, spare parts supply continues to be a weak link in CBMS in Uganda. The main problem is observed with handpumps, since plumbing equipment for gravity schemes and rainwater harvesting is reasonably available. DWD has therefore started an initiative to improve the supply chains for components and spare parts from the suppliers to communities.

The approach being developed will support national manufacturers and suppliers of handpump components and spares to establish regional distribution networks in partnership with District dealers. DWD is in the process of centrally procuring and financing the initial purchase of handpumps for the first two years operation. The selected suppliers in the four (4) Business Units (regions) will, as part of their contracts, establish district spare parts outlets. Handpumps procured will be delivered to districts for use under the DWSDCG implementation. However the district outlets (dealers) will stock and sell required spare parts openly to willing buyers. All handpump components and spares will be inspected prior to delivery, and DWD (with DWOs) will undertake quarterly inspections at the district outlets. This approach will become fully operational starting mid 2004.

After two years of operation the procurement system will then be decentralised to districts to manage.

8. FOLLOW-UP AND BACK UP SUPPORT MECHANISMS

After training, construction and commissioning of water sources, users formally take responsibility for management and maintenance. Often communities face problems and threats beyond their ability arising from their own internal changes and dynamics, and from the institutional and environmental setting.

For this, a follow up mechanism should be developed and institutionalised to provide the back-up support and assistance to communities to address these issues, so as to ensure long term use and sustainability of facilities and services provided. Such support should be provided by governments (central and local) or permanent structures like religious institutions. These institutions can offer support directly or outsource some aspects of it. NGO/CBOs may offer such support on a short-term basis where the permanent structures are not in position to do so.

8.1 Follow up Mechanism at District level

The follow-up mechanism should stretch right from the lowest level (community and WUG) through the Sub-County to the District. The higher local governments are charged with monitoring progress of O&M and assisting communities to deal with problems beyond their control. Therefore the communication lines between all levels must be clear and known to all – the success of this is a mechanism for quick flow of information. This implies that at the planning stage clear follow-up activities are identified and budgeted for to ensure their implementation.

Back up support can be provided through:

(i) Regular follow up and monitoring visits to check progress and provide advisory services. Visits by the extension worker or contracted NGO/CBO should be carried out quarterly.

(ii) Trainings and other capacity building activities for various players as may be required.

(iii) Use of existing fora at the different levels to maintain awareness and continuously advocate for O&M.

(iv) Facilitating linkages and contact between communities and external entities for advice and information.

(v) Putting in place enabling laws and regulations to reinforce community management.

The following specific areas need to be addressed during back up support:

(i) Access to spare parts and equipment;

(ii) Technical back stopping to established technicians (HPMs, scheme attendants, masons)

(iii) Continued sensitisation and mobilisation of communities;

(iv) Access to technicians and any other specialised support that is required;

(v) Review of management structures and financial processes to ensure viability, functionality and transparency;

(vi) Refresher training;

(vii) Water quality surveillance and monitoring

(viii) Enforcement of by laws and regulations as agreed upon by communities;

(ix) Major repairs, rehabilitations and extensions; and

(x) Adherence to national policies and guidelines.

At the Sub-County level, the extension staff shall take the lead in the follow-up and maintaining contacts with the communities. They are responsible for reporting to the Council for action. At the District level the District Water Office[2] and County Water Officers shall perform the same function. Reports and action taken shall then feed into district plans.

The central and local governments as the permanent institutions best suited for back-up support to O&M should provide the required funds as ongoing support to O&M.

8.2 Institutional Back-up at DWD

DWD as the government agency ultimately responsible for ensuring equitable and sustainable water supply retains an important back-up role. Restructuring is ongoing to tailor DWD to fit into this back-up role rather than the traditional implementation one. Under the reorganised structure DWD will focus more on:

- Development and updating of policies, guidelines, procedures and standards;
- A functional MIS monitoring the overall performance of the O&M systems (training, functionality, management, etc) and plan for strategic interventions;
- coordination and maintaining relations with established knowledge resource centres at the national and district levels;
- Strengthening of the spare parts supply and distribution systems;
- Strengthening of the private sector to carry out their roles in the water sector, including towards sustainability;
- Strengthening co-operation with the NGO sector;
- Support to major repairs, rehabilitations and extensions; and
- Research, development and promotion of appropriate technologies to facilitate CBMS (rainwater harvesting, shallow wells, rock catchments, etc);

Technical Support Units (TSU) have been established as a short term intervention by DWD to extend support services nearer and help Districts build the capacity required to implement their roles, with a particular focus on sustainability.

[2]Under the current structure the Assistant District Water Officer in charge for mobilisation should play a lead role in back-up support.

9. OPERATION AND MAINTENANCE MONITORING

9.1 Monitoring

Monitoring is vital to systematically assess their performance, identify problems and deal with them before they get out of hand, in order to ensure continued functional facilities. In line with the principles of CBMS, the practice of user participation in monitoring shall be promoted to ensure local ownership of all the processes and attendant responsibilities to take necessary action.

A national framework has been developed to guide the water and sanitation sector in measuring its performance. 'Golden' indicators have been adopted for measuring overall performance. The key indicator that focuses on O&M:

- % of improved rural water sources that are functional at the time of spot check.

In addition the following have a direct bearing on O&M:

- % of people within 1.5 km of an improved water source
- % of water samples taken at point of collection that comply with national standards.

Based on these more detailed monitoring indicators may be developed for use at different levels, in line with the following.

Monitoring Issue	Indicators	Levels
Sector policies, strategies and guidelines supportive of CBMS	▪ Annual revision of sector guidelines, OP-5 and O&M Framework in support of CBMS ▪ Number of districts and Sub Counties with ordinances on O&M developed and passed	▪ National ▪ District
Spare parts for different water technologies accessible to all and available at reasonable cost	▪ spare parts within easy reach ▪ Availability of spares at affordable rates	▪ National ▪ District
Sustainable financial systems for O&M	▪ Mechanism to regular collection of user fees in place and used ▪ % of WSC with proper/quality/up to date financial records	▪ National ▪ District
Functional and reliable water facilities	▪ % number of facilities that are operational and used ▪ % of water facilities satisfying national standards of quality of drinking water ▪ % of water facilities with reasonable quantity and continuous supply of water	▪ District ▪ Sub-County ▪ User
Equipped and skilled technicians to carry out repairs accessible to communities at reasonable cost	▪ % of technicians with access to tool kit within the S/C ▪ Presence of trained technicians within the Sub County level	▪ District ▪ Sub-County
Functional management systems based on user ownership and participation	▪ % of functional water committees in place ▪ % of water committees with up to date records in place i.e. user lists, minutes, O&M plan ▪ % of well maintained water sources ▪ % of water users who paid their user	▪ District ▪ Sub-County ▪ User

Monitoring Issue	Indicators	Levels
	fees in time, participated in water source cleaning and WUG meetings ▪ Increasing % of women in WSC holding executive positions	

Some examples of such indicators have been included in **Annex 7**.

Central to the success of these systems is the mechanism for collection of information, dissemination and feedback to input into action planning. Districts shall be supported to set up or update the current databases to integrate specific information on tracking of O&M.

Practise of Community Information Systems should be strengthened to involve communities in identifying their own monitoring needs and establishing mechanisms for information collection and dissemination. Simple systems and formats shall be developed at this level.

9.2 Reporting

Reporting on findings of monitoring should be shared at all levels. Local Government reports, both quarterly and annual, should integrate an analysis of both software and technical O&M considerations. WSCs should report to the respective established/existing local government structures to ensure the linkages and sustainability.

Reports should be shared among sector players for information sharing and joint remedial action.

9.3 Review and Evaluation

Annual reviews and evaluations of existing O&M systems are encouraged to check their relevance and effectiveness. It is through this evaluation that an in depth analysis of the community and social aspects can be done, therefore necessitating a strong community involvement. Through this both communities and Districts shall also be able to take stock of the lessons learnt and good practises to be shared and promoted elsewhere.

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ANNEX 1

TYPICAL O&M ISSUES AND PROPOSED REMEDIAL ACTION

Issue	Current Status	Constraints	Proposed solutions	Responsible
Institutional support	Although discussed several times there is no formal institutional setting in the DWD to deal with O&M issues	Between 20 – 30% of the water facilities is not functional There is no integrated approach to address O&M issues The focus of a lot of programmes is on construction DWD doesn't have a formal working group to address O&M issues neither is there a mechanism to support Districts, Sub-Counties or user communities to solve O&M related problems	A rehabilitation plan should be established to decrease the number of facilities currently not functional The DWD should lobby for an O&M fund A fulltime working group with a clear mandate should be established at DWD level Programmes should integrate O&M, the DWD should enforce this in the proposals	DWD DWD DWD DWD
Ownership	Ownership of water facilities in urban areas is by water Authorities, Ownership in RGCs is the sub-county (LC iii), Ownership of the big urban water systems rests with the government Ownership of the point water sources is ideally supposed to be vested in the user communities through their WUG and WUA	Community of users is not adequately defined, Community of users not adequately aware of their rights and responsibilities Lack of clarity of ownership and management of point sources reduces the sense of responsibility	Registers of Users should be attached to applications for new sources, together with details of their contribution towards construction WUCs be registered, supervised and monitored by the Director DWD in accordance with the Water statute. They will then be legal entities and can own the facilities. DWD to work out modalities for formation, operation of the WUGs as provided for in the water statute.	DWD DWD DWD
Funding	No mechanism at the user level, to budget and plan for O&M activities Inadequate user fee collection Collection of user fee based on when the need arises, i.e. when there is a breakdown which causes a long down time period with no access to safe water No proper means for safekeeping of user funds No cost recovery plan Poor record keeping and system of accountability for user funds	Limited planning, budgeting and financial management skills among Committee members Inadequate knowledge of the maintenance costs of the water facilities Poor accountability for user funds which discourages payments Low appreciation for improved facilities Lack of access to community banks and other means for safe keeping of community funds Limited ability of communities to meet full cost recovery i.e. major rehabilitation like replacement of riser mains for boreholes, etc. Weak monitoring and system of follow up of the community management structures for back up support	Start with social marketing approach emphasizing besides the social the economic value of water and the link between water facilities and health benefits. Development of a system/water facility maintenance overview over a period of time showing rate of depreciation, costs incurred to input in the budgeting and user fee derivation Develop appropriate formats and accounting systems and facilitate communities to adapt them for their own use Train Committees in good financial management and record keeping Institutionalize a follow up mechanism for the community management structures stretching from the lowest level to the	Sub-County, District, DWD DWD DWD District, TSU, consultants District

Issue	Current Status	Constraints	Proposed solutions	Responsible
			District level. They shall be charged with the major responsibility of regular monitoring, reporting on functionality and support in facilitating those communities to solve their problems. Promote regular record keeping for realistic budgeting	 District
Community Information System	Purpose not acknowledged Who to use it for what Updating the system and sharing information	There is a wealth of information and experience at community level, unfortunately there is no mechanism to capture and to share it. Establishing the CIS requires a system in which regular updating is carried out. The issue is who should be in charge. Poor use of the little data collected	Decide on user friendly format for CIS Identify the most appropriate level where it should be kept and updated. Establish a supportive framework clearly stipulating information to collect, methods, frequency and sharing Assign tasks to the planning officer in the DWO Train water Committee members in data collection, use and update Integrate O&M reports in regular reports received at SUB-COUNTY and District levels WES plans to include status reports on functionality of facilities	DWD, District DWD, District DWD, TSU District District District District
Spare parts	Spare parts supplied by private sector Some Agencies/NGOs have made other arrangements	Suppliers only confined to main towns. Most spare s are slow moving creating low demand and loss of interest in the business by the private dealers The cost of spares seems not easily affordable by rural communities	The study of the supply chain should be adequately guided to address all these issues	DWD
WSCs	WUCs are taken to be in charge of point sources on behalf of the communities WSCs lack the legal status	WSCs are not registered and therefore operating illegally. Mandate, roles & responsibilities of WSCs not defined Facilitation and remuneration of the WSCs is lacking. Community of users lack awareness of how to demand accountability from WUGs WSCs do not keep records or books of accounts WSCs lack authority and members lack motivation WSCs not adequately answerable to the community	WSCs be registered, supervised and monitored by the Director DWD in accordance with the Water Statute. They will then be legal entities Work out modalities for formation, operation of the WSCs as provided for in the Water Statute Work out ways of motivating/ remunerating WSCs, particularly Caretakers	DWD DWD DWD DWO
Gender	Gender mainstreaming	Gender mainstreaming in spite of	Use the TSUs to promote	District, TSU

Issue	Current Status	Constraints	Proposed solutions	Responsible
	Implementation of 1994 MWLE gender policy Women most affected by the poor maintenance of facilities given their domestic responsibility to ensure water in their homestead Policy in place to ensure representation of women on WUCs- a minimum requirement of 3 members. On many of these Committees they are occupying managerial positions, chairpersons, treasures Low women representation at management level in Committees	all the efforts is not taking place Position and mandate of the gender officer at DWD level not clear 1994 Gender Policy remains on paper Gender imbalance with regard to staffing in DWD and DWOs Gender mainstreaming does not feature in the annual workplans of the DWO Majority of the DWO staff have theoretical knowledge but are not using it in practice Low participation of women in planning especially as regards technology choice, location and selection of O&M systems Women lack skills to handle repairs as well as the funds to pay for services of mechanics/plumbers to ensure that repairs are timely Women lack confidence and exposure to take up management positions	gender mainstreaming Ensure gender mainstreaming is an integrated part in the annual workplans Review 1994 policy and operationalise it Address wherever possible the staffing issues wit regards to gender imbalance Decide on position and mandate of the gender officer in DWD, take outcome and recommendations of recently conducted gender consultancy into account Confidence building of women through exposure to success stories and skill development in identified areas Encourage women through their local groups to take up income generating activities like selling spares and tools Affirmative action through the promotion women to be trained as plumbers and attendants; at least one per Sub-County Gender awareness and sensitising of communities Mainstreaming to ensure women participation in planning, implementation and O&M through their effective participation in planning meetings, site selection, representation on WUC in management positions	 DWD DWD District, TSU, DWD DWD District, TSU District, TSU District District District
Environ-mental concerns	Catchment area protection (for all technologies and water resources in general) Monitoring systems i.e. EIAs, environmental audits Land acquisition	There are no criteria for catchment area protection. There are a number of practices, however these are not regulated. Proper monitoring does not exist. Monitoring related activities are reactive and only carried out when there is an indication that something is wrong. Land acquisition i.e. for protected springs is practised; however there are no clear guidelines about the extent of the land acquisition. Environmental concerns are not mainstreamed and there is no mechanism to do so.	The Directorate should develop clear guidelines on catchment area protection Environmental issues should be mainstreamed in water development Best practices should be studied, adjusted and adopted A monitoring mechanism should be established, preferably under the District Environmental Office Land acquisition should be regulated Land acquisition should not	DWD District, TSU, DWD DWD District MWLE

Issue	Current Status	Constraints	Proposed solutions	Responsible
			become a burden for the user community A utilization plan for the protected areas should be developed	District District, TSU
Private sector	Government promotes use of private sector in service delivery. Private sector in O&M of rural water facilities is young and under-capitalised. It comprises manufacturers, suppliers, handpump mechanics, plumbers, and spare parts dealers. Contractors do major maintenance funded by Districts and central government.	Mechanism to support young private sector is lacking Communities cannot afford services of private sector in areas of major repairs Mechanism to assure quality works of private sector by communities is lacking Demand/Market for private sector services in maintenance is low	Private sector promotion should be set up Establish O&M costs before making the water option choice Work out the association ideas Train Committee members in technical aspects Social marketing approach to be followed	DWD DWD, District, TSU District DWD DWD
M&E	Inadequate establishment of M&E culture Low funding of M&E activities Data collection, storage and usage. Weak follow-up mechanisms	M&E is not institutionalised and only takes place during the implementation phase. There are no clear benefits of M&E activities, this largely due to the fact that M&E information is not used There is no established data collection/usage/storage at District or lower levels.	There is need to integrate M&E in all activities undertaken whether during planning, implementation or O&M The importance of M&E should be promoted at different levels Community based M&E should be enhanced Swift action should follow on M&E results/outcomes A data bank on M&E information need to be established, preferably at District or Sub-County level	District, TSU, DWD District, TSU, DWD District District, TSU, DWD District, TSU
GoU policy, legal framework	Contradictions in the policies Adherence to policies Local by laws	Lack of awareness of policies and statutes at the District and community levels Skills and knowledge of process of developing by laws Poor enforcement of by laws	Develop popular versions of the Water Statute District ordinances on O&M User communities should play a key role in developing by laws and the enforcement of them.	DWD District District, Community
Training of HPMs/ Plumbers	Training and follow up Remuneration Institutional position	There is no institutional arrangement for training HPM. The training is done by projects which phase out leaving no mechanism for replacing HPM who die/dropout. There is no technical backup support/on-the-job training of HPM by the Districts. Trained plumbers are not available in villages and there is no curriculum for training gfs attendants. HPM/ gfs attendants are never, delayed or meagrely paid. There is no harmonized mode of payment – some are paid by communities,	Institutionalise the training of HPMs including incorporating their curriculum into that of technical institutions. Recruit borehole maintenance officers or train CWOs to give back up support to HPMs Design the curriculum for training gfs attendants and recruit a plumber to provide back up support. Mobilise communities to contribute towards O&M and streamline the modes of payment.	DWD/MWLE/MES DWD/Districts District/ /Sub-Counties DWD/Districts

Issue	Current Status	Constraints	Proposed solutions	Responsible
		subcounties and others by Districts New technologies are introduced without relevant training of HPMs	Before a new technology is introduced HPM/plumbers must have been trained	DWD/Districts
O&M Strategies	What is existing and what does work, identify good practices Identify appropriate structures and systems (alternatives to CBMS) depending on different technologies and different areas What are the minimum conditions for success of each and how can they be promoted	Currently the CBMS system is the only one established. For larger water supply systems other mechanism are in place, however it is not clear whether these are replicable. There is no social marketing system for O&M	Existing systems should be analysed. A more innovative approach should be followed in developing O&M structures and systems. Involvement of existing institutions and structures should be considered, i.e. Sub-County O&M should be marketed right from the beginning. Willingness, ability to pay should be established before implementing the water supply. O&M requires continuously promotion, this should be addressed at District and Sub-County level	TSU, DWD District, TSU District, TSU, DWD District, Sub-County
Equipment/ Tool issues	Availability Affordability Standardization; equipment, designs/specifications / choice of materials	Most tools are not locally available in Districts for the HPM/Plumbers to replace those worn out/lost Most HPM/Plumbers cannot afford to replace expensive tools because many are inadequately remunerated. There are different technologies within a Sub-County and the HPMs do not have the relevant tool kits for all of them. There is conflict over ownership of the tool between the Sub-County and HPMs.	Encourage suppliers/agents to stock tools. (The spare parts supply chain study will recommend appropriate strategies). Subcounties should buy the expensive tools and lend them to the HPM/Plumbers. Standardize the technologies to minimize the number of tool kits required for repairs For expensive tools like installation equipment, the Subcounties should buy and own them.	DWD/ District Sub-Counties DWD Sub-Counties
O&M funding Plan	Funding focused on new facilities Mechanism to be developed to generate funds for O&M Short/longer term financial plan development Mode and level of payments	O&M costs are addressed after the water supply is constructed. Costs related to specific water supply systems are not known Cost overviews for O&M over a longer period are not made The currently used fund raising mechanisms leave much to be desired In nearly all the water supplies the collected O&M fees are not sufficient to cover the real costs Curative based fund collection should be avoided The user community should decide during the planning phase how to deal with the mode and level of payment not excluding in kind contributions. Keeping collected funds up-	O&M related issues should be handled/initiated before implementation starts Financial information on O&M should be collected and disseminated The user communities should develop and decide about the most appropriate system of fee collection O&M fees should be established in relationship with the service level the user community desires. Banking options of O&M fees should be studied and recommendations formulated Financial planning for O&M should take place before the	District, TSU DWD District District, TSU DWD District, TSU

Issue	Current Status	Constraints	Proposed solutions	Responsible
		country is an issue that discourages regularly collection.	construction starts and be an integrated part of the project cycle The reasoning behind regularly fee collection should be explained to the user community	District

ANNEX 2

O&M FACTORS AND REQUIREMENTS FOR DIFFERENT COMMUNITY WATER SUPPLIES

Annex 2.1 - Domestic community water supplies

O&M Factors		O&M Requirements
Technology -	Operational understanding and technical competence	Training of system operators in use and servicing: spares available locally, back-up support for major repairs.
Demography	No. of potential users and the distance away	Ownership and responsibility for O&M need to be clearly defined.
Environment -	Effect on water source, how do you deal with waste water	Determine effect on water source? Is there need for protection, catchments plans, how do you deal with waste water.
Wastewater -		Drainage and control of wastewater at water points.
Cost -	Maintenance and extensions	What is the total cost of O&M? Costs per user. What would be the costs of extension
Management -	Who? How?	What kind of management system is required? This may depend on type of technology as well as level of community organisation, cohesion and expertise. Who is responsible and how do they do it? What kinds of skills are required? How do you ensure they are available.
Government policy and legal framework		Clarification on ownership and therefore who has responsibility for O&M.
General economy and level of development		No fuel and few water materials required for maintenance. Subsidized roofing materials prices may assist O&M.
User education -		What kind of user education is required? Who should be targeted?
Gender		How are men and women affected? How do we ensure all their needs and concerns are addressed?

Annex 2.2 - Institutional Water Supplies

O&M Factors		O&M Requirements
Technology -	Technical skills and spare parts	Training of pump operator/mechanic in use and servicing. Availability of reliable spares and fuel supplied. Back-up support for major repairs.
Environment -	Wells, valley dams and tanks are susceptible to surface contamination	Agreements and action to protect water catchments.
Cost -	Operating costs, spare parts, preventive maintenance and eventual replacement.	Institutions need to budget for ongoing maintenance and keep a reserve of funds for irregular expenditure. Training, appropriate financing, financial management and stock control are necessary.
Management -	Who? How?	Management skills training required: costing, budgeting, revenue collection, very basic accounting.
General economy and level of development		Spare parts: price stability and reliable delivery system.
Government policy and legal framework - Equipment ownership		Clarification of who owns the pump and therefore who has responsibility for O&M.
Gender		How are men and women affected? How do we ensure all their needs and concerns are addressed?

Annex 2.3 - Emergency Water Supplies

O&M Factors		O&M Requirements
Technology -	Technical skills and spare parts	Training of pump operator/mechanic in use and servicing. Training should be carried out for resident persons and from the group of displaced persons in order to make both groups responsible for the running of the pump. Availability of reliable spares and fuel ensured by LG. Back-up support for major repairs by whom?
Environment -	Wells, valley dams and tanks are susceptible to surface contamination	Arrangements and action to protect water catchments. (By-laws?)
	Extensive animal watering at a single water point can lead to environmental degradation	Control of animal herds.
Accessibility -	Back-up support	Settlements need special arrangements for spares and repair expertise in the short run(see under technology)
Cost -	Spare parts and preventive maintenance	Support agencies need to budget for ongoing maintenance and irregular expenditure. Training, appropriate financing and financial management are necessary.
Management -	Who? How?	Clear management procedure. Who takes the decisions – men, women or a sharing of decision making? The main issue is to distribute responsibilities, tasks and training opportunities between residents and the immigrant displaced persons. Management skills training required: Planning, financial management budgeting, revenue collection, very basic accounting. Sanitation issues have to be focussed on.
General economy and level of development		Spare parts: price stability and reliable delivery system.
Government policy and legal framework – Equipment ownership		Clarification of who owns the pump and therefore who has responsibility for O&M.
Gender		How are men and women affected? How do we ensure all their needs and concerns are addressed?

Annex 2.4 - Pastoral Communities

O&M Factors		O&M Requirements
Technology -	Technical skills and spare parts	Training (and retraining) of pump operators and mechanics. Their work should have a regular schedule known to the WUGs. Additional training for HPM for collecting of data (monitoring).
Environment -	Dams and tanks are susceptible to surface contamination	Agreements or by-laws: ▪ Prevention to garden, farm, make bricks etc. in the intake (catchment) area. The topography determines how big this area should be ▪ Direct access for people, animals and cars has to be either prevented or regulated
	Extensive animal watering at a single water point can lead to environmental degradation	▪ A schedule which regulates the watering of animals of different localities and that of "guests" has to be set up and agreed by all. It has to be decided who will supervise the watering and this has to be scheduled and agreed as well. Preferably traditional mechanisms shall be used or revived. ▪ If there are no cattle troughs, restricted watering points at the shore have to be agreed upon, the rest has to be fenced off if the watering points are not honoured. ▪ Any access to the dam itself has to be prevented. ▪ The dam has to be planted with grass or bushes and the vegetation cover has to be maintained. ▪ The spillway has to be cleaned regularly.
Accessibility -	Back-up support	Communities that are difficult to reach and/or are mobile have poor access to spares and repair expertise. A regular visiting schedule of the HPM to the pumps/dams has to be determined by DWO and has to be agreed between the LG and the water User Groups concerned to ensure that a that one of their representatives is present
Financial management	Spare parts and preventive maintenance	In pastoral areas the bank is often far away. A mechanism has to be agreed upon on how to proceed when money is needed. It can, for example, be collected during cattle markets and be given, against receipt, to the sub-county treasurer to be deposited on a sub-county WUGs account from where it will be retrieved when needed. Training, appropriate financing and financial management are necessary.
Management -	Who? How?	Who takes the decisions – men (of which age group), how much is it realistic to involve women in sharing of decision-making? Who actually carries out the tasks required? And who then should receive training?- in planning, budgeting, revenue collection, very basic accounting. Should be done on district level where the trainees would know each other and more mobile distribution of responsibilities could be agreed upon if necessary. Develop a local ToT programme, possibly through an NGO with focus on

O&M Factors	O&M Requirements
	health and sanitation. The management system has to take into account their mobile way of life and might be based either on traditional structures or be organised on a higher LG level, for example the sub-county – or even a mixture of both
General economy and level of development (would put it under accessibility)	Spare parts: price stability and reliable delivery system has, in this case, to be assured by the DWO
Government policy and legal framework – Equipment ownership	Clarification of who owns the pump/the dam and therefore who has responsibility for O&M. Is this different in these areas than in the rest of Uganda
Social issues, gender	▪ Meaningful involvement of women will probably have to be perceived as a process and might need different mobilisation and training approaches. ▪ Change in sanitation habits will require more time and mobilisation than usual. Intensive H&S education in school is an additional strategic option as well as any on-going adult education activities ▪ The whole issue of health/hygiene/sanitation has to be given extra attention

ANNEX 3

FORMAT FOR AN OPERATION AND MAINTENACE PLAN

A. DESCRIPTION OF WATER FACILITY

Name and Number of Facility	
Type of Facility	
Location	
Village/ Ward	
Parish	
Sub-County	
Description of water source	
Components	
Location of components (kiosks, tanks, etc)	

(Attach a sketch layout for a gravity flow scheme)

B. MANAGEMENT

(i) Description of beneficiaries

- Number of households being served, population (disaggregated into sex, children below 13 years)
- Number of institutions being served if any (schools, churches, health units, etc), including capacity.

(Attach detailed list of users broken down by number of households / institutions and number of members per household)

(ii) Water and Sanitation Committee

Name of Committee Member	Sex	Position on the Committee	Role of that person

- What is the duration of term of office of the WSC? (suggest two years)
- Under what conditions should the entire WSC or individual members of the committee be replaced?
- How will the WSC be replaced when its term expires?
- How will vacant positions in the WSC be filled if individual members leave?

(iii) Other Actors

- Who are the other actors involved in the O&M of the facility, and what are their roles?
- Where and how will the WSC find a handpump mechanic or plumber when required?
- Where and how will the WSC find spare parts when required?

- Where and how will the WSC find an extension worker when required for training, follow-up support, etc?

C. ACTIVITY AND EXPENDITURE PLAN

Component	Activity to be carried out	Frequency	Requirements (Personnel, equipment, funds)	Costs incurred (monthly)
Management				
Preventive maintenance				
Financial				
Environmental management				

Management: all those activities to be carried to ensure that systems are operating e.g. community and WSC meetings to check progress, updating of user lists and other records, monitoring and follow up, annual planning

Maintenance: routine / preventive maintenance, repairs and replacements to ensure facilities remain functional at all times e.g.purchase of spare parts, paying hand pump mechanics or other technicians, details on routine maintenance attached

Financial; all those activities related to the effective resource mobilisation, safe keeping and utilisation of these resources e.g. maintenance of financial records, sharing information on financial utilisation, collection of funds, checking books of accounts, etc.

Environmental management: activities related to maintenance of water quality and prevention of contamination of the water source or degradation of environment e.g. catchment protection activities (fencing, planting vegetation, making and clearing cut off drains, clearing drainage channels and soak pits. etc)

D. INCOME

Source of Funds	Strategy for Mobilization	Amount expected	Annual amount

E. PROJECTED CASH FLOW

ITEM	YEAR 1	YEAR 2	YEAR 3	TOTAL

F. STRATEGY FOR RAISING AND MAINTAINING SANITATION COVERAGE

- Current number of households with safe latrines i.e. one with firm and easy to clean floor, firm super structure, roofed, with privacy,
- Current number of household hand-washing facilities

Activity to be carried out	Expected Output	Indicator	Time Frame/ frequency	Person Responsible

G. MONITORING PLAN

- What do you want to monitor
- What kind of information is required
- How will this information be collected
- How often will it be collected
- Who will participate in the monitoring activities
- How will the findings be utilized
- How will the information be shared

H. REGULATORY ISSUES

- Agreements with HPM or other actors
- By-Laws or community rules regarding how to use the facilities, e.g.
  - How will the WSC ensure users participate in O&M activities and make their cash contributions?
  - What will happen to members of the community who do not comply?
  - Control of misuse of facilities e.g. grazing and washing.
  - Schedules for use and cleaning

ANNEX 4

GUIDELINES FOR TARIFF SETTING

There are various ways to come up with an appropriate tariff that will cover O&M costs. Depending on what the community finds appropriate, the following cost calculations can be considered.

Basic tariff (BT)

These are the minimum costs to keep the water supply functioning, i.e. small repairs, cleaning, etc.

$$BT = \frac{\text{Operation costs + Administration costs + Maintenance costs}}{\text{No. of users}}$$

Efficiency tariff (ET)

This tariff includes the costs of replacements. The percentage should be related to the lifetime of the parts to be replaced.

$$ET = \frac{BT + 25\%\ BT}{\text{No. of users}}$$

Environmental Efficiency Tariff (EET)

These are costs related to water source and catchment area protection necessary to guarantee the water quality and quantity.

$$EET = \frac{ET + 25\%\ BT}{\text{No. of users}}$$

Leakage Tariff (LT)

These are costs linked to leakages in the system. This tariff should be considered in case a electric or diesel powered pumped is used.

$$LT = \frac{EET + 25\%\ BT}{\text{No. of users}}$$

Total Efficiency Tariff (TET)

This tariff includes al above mentioned costs and the initial investment costs. Considering a life span of 20 years the investment recovery will be roughly 5% of the investment costs. It is advisable to increase the tariff due to additional costs, such as depreciation or inflation.

$$TET = \frac{\text{LEET + Investment recovery (5\% of the capital cost)}}{\text{No. of users}}$$

$$TET = \frac{\text{1.75 x Basic tariff + Investment recovery}}{\text{No. of users}}$$