



Ministry of Water and Energy (MOWE)
Rural Water Supply and Sanitation Systems Management Guideline
(RWSSSM)



Draft Document

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OPERATIONAL DEFINITION

1. **Aquifer:** *an underground body or layer of water-bearing rock, soil, sand or gravel of sufficient porosity and permeability to allow groundwater flow and abstraction. Includes geological formations and structures that store and/or transmit water, such as to wells and springs.*
2. **Cross boundary water supply:** *- Portable water supply source and supplying system cross adjacent kebele, woreda, zone or regions for human uses.*
3. **Cost recovery:** *- Recovering the costs incurred in the development, operation, maintenance and rehabilitation of water systems to ensure long-term sustainability and continuity.*
4. **Climate resilient Water Supply and Sanitation (CR-WSS):** *a system that ensures reliable WSS services in the context of a changing climate.*
5. **Equity:** *- the principle of fairness which recognizes that people are different and need different support and resources to ensure their rights are realized.*
6. **Inclusion:** *- the process of ensuring that all are able to participate fully and supporting people – including those who are discriminated against and marginalized – to engage in wider processes to ensure that their rights and needs are recognized.*
7. **Non-revenue water:** *- the difference between the volumes of water produced and delivered to a supply system and the volume of water for which revenue is collected.*
8. **Rural water supply and sanitation:** *- it is to mean all water supply and sanitation services rendered in rural areas which are out of urban town boundary with municipality access.*
9. **Safely managed water supply:** *-improved water supply source located on premises, available when needed and free from microbiological and priority chemical contamination.*
10. **Rural Water Supply and Sanitation system management:** *- is to mean managing and coordinating of all water supply and sanitation system, related services and resources through the process of planning, organizing and directing of those systems processes undertaking within the pre & post construction stag in rural areas.*
11. **Sanitation:** *- is a proper disposal or re-use of human excreta, management of waste, indoor air pollution and safe drinking water chain*
12. **Stakeholder:** *- Organization, group or individual that is concerned with or has an interest in water supply system and that would be affected by decisions about water supply system management process.*
13. **Water Supply:** *- For the purpose of this guideline, water supply implies supplying of a human uses drinking water in home, industrial, rural utility and livestock use in rural areas,*
14. **Water Supply system:** *- is infrastructures used for the collection, transmission, treatment, storage, and distribution of potable water for homes, commercial and other public needs within a catchment to end consumer cups.*
15. **Water Demand Management (WDM):** *- The use of pricing and non-pricing instruments, to efficiently and rationally use the available water resources.*
16. **Water Services Fee (charge):** *- it is to mean fees charged for water supply services only.*
17. **Water conservation:** *practices, measures and actions to reduce unnecessary water usage, improve efficiency of its use, and reduce losses and waste.*
18. **Water safety plan:** *a comprehensive risk assessment and risk management approach that encompasses all steps in the water supply, from catchment to consumer.*
19. **Water tariff:** *a price assigned to water supplied to water users for the amount of water consumed and services provided, which will be set by a legally authorized body.*
20. **Water governance:** *the political, social, economic and administrative systems in place to influence water's use and management through processes for decision making.*

ABBREVIATIONS AND ACRONYMS

| | |
|----------------|--|
| CRGE | Climate Resilient Green Economy |
| CR-WSS | Climate Resilient Water Supply and Sanitation |
| ESIA | Environmental and Social Impact Assessment |
| GLM | Government Led Management |
| PSPE | Private Service Provider Enterprises |
| GTP | Growth and Transformation Plan |
| MFI s | Micro Financing Institutions |
| MoWE | Ministry of Water and Energy |
| M&E | Monitoring and Evaluation |
| NGOs | Non-Governmental Organizations |
| NRW | Non-Revenue Water |
| O&M | Operation and Maintenance |
| R&D | Research and Development |
| RWSSSM | Rural Water Supply and Sanitation System Management |
| SDGs | Sustainable Development Goals |
| TVET | Technical and Vocational Education and Training |
| WRMP | Water Resources issued the Water Resources Management Policy |
| WRSS | Water Resources Sector Strategy |
| WASH | Water, Sanitation and Hygiene |
| WASHCos | Water, Sanitation and Hygiene Committees |
| WDM | Water Demand Management |
| WRMP | Water Resource Management Policy |
| WSS | Water Supply and Sanitation |
| WSP | Water Safety Plan |
| RUM | Rural Utility Management |

1. INTRODUCTION

1.1. Back Ground

Supplying and sustaining clean water and sanitation service is a priority in global development policy, reflected in 2030 Agenda indicated in goal six. It is to ensure availability and sustainable of water and sanitation Service for all. Safely, adequately and affordably managed water, sanitation and hygiene services are the foundations of human health, well-being of society, socio-economic development and human dignity in broad term. In this essence, delivering improved, affordable and adequate water supply, sanitation and hygiene service and its management are intimately related to improve living standards, economic development and human dignity of the Ethiopian citizens. However, sustainably delivering potable water supply and its management system through a highly decentralized system in a populated and predominantly rural country is not an easy task. It is significantly correlated to appropriate water supply and sanitation service management system duties to sustain the services as long as possible.

The Water Resource Management Policy (WRMP) signifies water as both social and economic goods. The principle of cost recovery, decentralized system management, sustainability of water supply and capacity building, research and development are well articulated as the most important pillars in the policy to improve the services in the water supply and sanitation sector. Both the water sector policy, as well as the strategy, promotes the principles of integrated water resources and delivering system development and management as well. It accelerates the water supply and sanitation services by putting in place a system to legalize the ownership of rural water supply systems management and promotes decentralized management of these systems. By developing guidelines, principles and norms for streamlining the internal integrations and interventions, all stakeholders and actors are expected to be involved in this management practices. Securing effective collaboration and integration amongst all formal and informal stakeholders in the water supply sectors is important to ensure the management practices.

The last many decades, considerable efforts have been made to improve these situations and expand access to water supply, sanitation and hygiene services and its sustainability by governmental and nongovernmental institutions. However, many rural communities are still suffering from lack of adequate, affordable and safe water, sanitation and hygiene services. Furthermore, there are interruptions of developed services due to some inappropriate study, design, construction and unlinked management of

O&M with local community participations, private's involvement, government, and weak commitment and ownership sense within the service delivery processes.

Community participation in rural water supply needs serious improvement. For many areas in Ethiopia, experiences are showing that numerous communities have relied on government and non-governmental organizations for rural water supply services unsystematically. Moreover, the maintenance and spare parts requirements, which have been delivered free or subsidized heavily is misleading the community participations and missing appropriate ownership senses. This free or subsidization alone couldn't make sustainability for the water supply service and sanitation system, and its management or ensure a sense of ownership. Furthermore, without community participation, private involvement, government commitment and partners' integration, sustainability of water supply and sanitation service delivery system can't be assured. As result some water users are not capable enough to cover the cost of O&M alone and even not willing to pay for their services have been rendered.

Access to safe drinking water supplies is increasing but at the same time the functionality of water schemes to the end of their design periods is a serious problem. Moreover, the culture of O&M service is also not experienced in planning or designing stage of the system development and implementation. Uneconomical operation and maintenance process, unsystematic water quality and quantity management issues, unplanned water safety management, weak system management and inequitable distribution of water as result has been observed.

Increasingly fluctuating functionality rate of the schemes and fragmented sanitation service throughout the country is a usual incident. Based on the result of the national WASH inventory before nine years ago (2010 baseline assessment), out of the total 92,588 existing water schemes in the country 18,750 (25%) were not functioning. From the recent inventory undertaken by MoWE at national level (in the end of 2018) indicated the schemes numbers increased from 92,588 to 155,482 and non-functionality rate from 18,750 (25%) to 29,204 (19%). These facts indicating that the schemes numbers were increased by 67.9% within the last ten years, while the non-functionality rate was decreased only by the rate of 24%. Fortunately, for the coming ten years MoWE planned that 81% functionality rate will be assured to be increased to 93%.

Although taking different pathways, Operation & Maintenance practices are facing similar challenges in terms of being sustainable and scaling up some practices to further stage. From a systems-perspective, it is to overcome the barriers to establishing successful operation and maintenance service provision requires in a holistic approach. The entire system management and existing gaps desires far beyond

technical skills. These are including governance; tailored business model aspects, capacity building, M&E, market linkages and critically the government engagement to with and oversee such services.

In other side a water safety management represents a significant responsibility that is shared by all relevant stakeholders within micro catchment areas. Development and implementation of safety management is time consuming and requires significant resources as it has involved various stakeholders. Its implementation requires commitment of all stakes leaders and organizations concerns. The most effective means of consistently ensuring the safety of a drinking-water supply is through the use of a comprehensive risk assessment and risk management approach that encompasses all steps in the water supply from catchment to consumer through participating of all concerned bodies. But it is not practicing as it is the beginning of water supply and sanitation system management to improve water supply and sanitation service sustainability.

Furthermore, a primary purpose of the consideration for drinking-water quality is to protect the public health and manage clean water supply process. Water quality management is not only useful to ascertain whether water is fit for drinking or not. But also, to locate the source of contamination which could be from the catchment area or leaking pipes to water supply distribution system. Protection of water sources and improved management of the water source catchments are likely to bring benefits both now and in the future to water availability and water quality. To ensure safe potable water, a holistic risk assessment and risk management approach is required. But in most cases the water quality status is exposing to flooding situations, chaotic agricultural practices and uncontrolled land use management practice respectively. During well construction proper grouting and construction of riser pipe and apron is not focused that lead wells to expose to well head with run-off contamination etc.

All these gaps are requiring a systematic approach for water supply and sanitation delivery system to sustain the services suitably. The water safety management, O&M approach, community participation, sense of ownership of the service users, their demand and supply administration and water supplying technologies (water collection, storage, treatment, distribution and users' utilization style) management aspects need significant considerations and common system management guideline suitably.

1.2 Policy and strategic framework

The former named ministry of Water Resources issued the Water Resources Management Policy (WRMP) in 1999. Water Resources Sector Strategy (WRSS) was also formulated in 2001. The Water Resources Management Policy signifies water as a both social and economic good. The principle of cost

recovery, decentralized system management, sustainability of water supply and capacity building and research and development are well articulated as the most important pillars in the policy.

Both the water policy, as well as the strategy, promote the principles of integrated water resources development; accelerate the water supply and sanitation coverage and its management correspondingly.

Based on this sector policy and strategy provision, Rural Water Supply and Sanitation System Management related issues are organized with this document as highlighted hereunder, table 1.

| Components/ Aspects | Provision by Water Resources management Policy |
|--|---|
| Access right | As far as conditions permit, every Ethiopian citizen shall have access to sufficient water of acceptable quality, to satisfy basic human needs. |
| Ownership of schemes | <ul style="list-style-type: none"> ▪ Create and promote a sense of awareness in communities of the ownership and their responsibilities for schemes and its O&M as well as develop participatory management practices ▪ Ensure that the system of ownership of water supply systems recognizes the local objective realities on the ground, and involvement of the users and other stakeholders, as well as be based on conducive conditions for sustainable management ▪ Provide the legal basis for active and meaningful participation of all stakeholders, including water users' associations, the community and particularly for women to play the central role in water resources management activities |
| Operation and Maintenance support issues | <ul style="list-style-type: none"> ▪ Promote the establishment of integrated O&M framework that provides reliable and sustainable water supply systems in all the regions ▪ Ensure that all studies and development activities undertaken by various stakeholders' budget for reliable O&M purposes ▪ Develop guidelines and procedures for inspection, preventive, routine and curative maintenance services and for training of technicians as well as develop a network of monitoring systems ▪ Promote the direct involvement of communities, particularly women, in the O&M of water systems. ▪ Promote that operation and maintenance of water systems is based on decentralized approach which enhances sustainability. ▪ Ensure system ownership of water supply systems is recognizes the local reality at the ground and involvement of users & other stakeholder and as well as be based on conducive condition for sustainable management |
| Water Pricing | <ul style="list-style-type: none"> ▪ Water has economic value and ensure that <i>fees are paid for service rendered</i> ▪ Ensure that the price of water should be neither too high nor too low ▪ Ensure that Tariff structures are site-specific depending on the particular's location, use, cost and other characteristic of the catchment ▪ Ensure that rural tariff settings are based on the objective of <i>O&M cost recovery and expansion</i> ▪ Ensure that tariff structures in water supply systems are based on <i>equitable and practical guidelines and criteria</i> ▪ Provide subsidies for disadvantaged rural communities and the communities shall cover the <i>operation and maintenance cost</i> ▪ Develop flat rate tariffs for communal services like hand pumps and public stand posts |
| Financing of water development | <ul style="list-style-type: none"> ▪ Coordinate and promote that all funding in the water sector is based on the country's water resources objectives, policy and strategy. ▪ Promote saving, credit services, by the government, for water resources development undertakings ▪ Ensure accountability of proper fund utilization obtained from different sources |
| Gender Issue | <ul style="list-style-type: none"> ▪ Promote the full involvement (50%) of women in the planning, implementation, decision making and |

| Components/ Aspects | Provision by Water Resources management Policy |
|---|---|
| | <p>training as well as empower them to play a leading role in self-reliance initiatives</p> <ul style="list-style-type: none"> ▪ Promote the direct involvement of communities, particularly women, in the O&M of water systems |
| Involvement of Private Sector | <ul style="list-style-type: none"> ▪ Promote private sector participation in technology development, construction, and in operation and Maintenance of utilities (by now in the rural and urban area) ▪ Develop a framework for Community-Government-Private Sector-External Support Agencies Partnership |
| Users’ management | <ul style="list-style-type: none"> ▪ Decentralization of water management to the local level ▪ Foster participation of user communities ▪ Support community self-initiatives and direct involvement in water resources management |
| Capacity building | <ul style="list-style-type: none"> ▪ Enhance the service promotion of regional states in the area of consultancy and training ▪ Promote objective oriented training with special emphasis on trades-level training, community participation, administration and finance, and O&M ▪ Assist in the establishment and strengthening of <i>water users’ associations</i> ▪ Equip water supply organizations with the necessary facilities |
| Clarification of roles, responsibilitie s and authority of actors | <ul style="list-style-type: none"> ▪ Define the relationships and interactions among the Federal, Regional, Zonal, Woreda and Kebele levels of institutional framework. ▪ Promote linkage to coordinate water resources management activities between federal and regional government. ▪ Avoid or minimize institutional instability ▪ Provision of information, guidelines and directions for external support agencies and establish reliable framework for coordinating and monitoring their activities. ▪ Define and implement the respective roles of the various institutions and stakeholders at all levels including Federal, Regional governments, NGOs, private sector, etc. |

Table 1: Policy Provisions Related to RWSSSM

The water sector strategy paves way and a road map to translate the policy provisions into action. The strategy promotes the principles of integrated water resources development, and accelerates the water supply and sanitation coverage and its management by: -

- Putting in place a system to legalize the ownership of rural water supply systems and promotes decentralized management of these systems. In the case of rural systems, institutionalizes and regulates the role of local communities by:
 - Clarification on promoting the establishment of community-based structures;
 - Facilitating community in developing an interface with the local administrative structures;
 - Defining the rules of engagement for service providers.
- Develops guidelines, principles and norms for streamlining the interventions of external support agencies and NGOs. Secures effective collaboration amongst all the formal and informal stakeholders in the water supply subsector by undertaking the following actions:
 - Promoting private/informal sector involvement in consultancy, contracting, supply of spare parts, maintenance and operation as well as management of schemes services;
 - Involving NGOs in funding and in the actual implementation, operation and maintenance of water supply and sanitation projects;
 - Equipping water supply and sanitation organizations at all levels with the necessary facilities in terms of manpower and equipment.

1.3. Rationale

Water supply, sanitation and hygiene service and the entire management system is naturally covering from micro catchment to potable water users' containers even mouth. This is critically requiring taking ownership; manage water user's demand, proper system executing, wide-ranging financing mechanisms, strong service regulations, comprehensive plan and practice of water safety management and environmental concerns respectively. The ownership of the service delivery systems is demanding a thoughtful consideration in the sector. Who have more or less accountability and responsibility to manage the water supply and sanitation systems? An ultimate pre-condition for long-term sustainability is a strong and integrated accountability framework that sets out the roles, duties and responsibilities of different stakeholders and their inter relationships.

In theoretical perspective, provision of water supply and sanitation systems management is a public **responsibility**. Government officials also held accountable by their constituents for providing access to water and its management. In practice, the rise of community management models has to pass this responsibility in part onto the constituents themselves. In fact, community management encourages local **ownership** and puts volunteer society representative's members in charge of scheme sustainability. The existence of a legal framework with clearly defined roles and responsibilities of the various stakeholders is one of a particular elements for developing successful water supply and sanitation system management approach. So far decentralized structure and local authorities are mandated to play a central role in the regulation of water supply and sanitation service management. Furthermore, it needs more clarification and common approach to take tailored **ownership** in various levels starting from local villages to federal entities, integrating with community representatives, private sector and other key partners.

The water supply and sanitation service delivery process is requesting a significant financing **mechanism** to strengthen and explore existing and emerging systems through strong combination. In Ethiopian experience, the financial aspects of system service provision can be categorized into two broad areas. Firstly, direct costs (investment cost) and the operational transactions of maintenance between the service providers and the consumers. Second, the indirect or higher order costs (overhead cost) relating to running cost and the costs of management and oversight of the technical staff provides the services on the ground. Most of the times, water supply system establishment costs have been made available for service delivery process by government effort. But service financing mechanisms in the rural areas is not clearly defined and directed that result in exposed to inappropriate utilizations. More over community contribution is also not experienced as much as essential in this regard.

In other side, even if water sector **regulatory body** is under the process, there wasn't sufficient guide or manual for the water supply and sanitation sector consistently to regulate service delivery options in the rural areas. The de facto regulatory roles are therefore played by local government staff with responsibility for water supply sector. As such, in the majority of the cases, for instance maintenance and operation providers are in theory overseen or 'regulated' by local government. But in water sector policy, there is no ground for government to undertake O&M by government budget alone; it is expected to cover by community contribution in which practically hasn't reality.

Fundamentally the **environmental issues** in water supply and sanitation system management should be considered in rural areas. Mainly water catchment or water supply sources, location of schemes (storage, treatment and distribution line) and related factors were considered in environmental consideration cases. In some situation water sources may available near to communities in most areas where there is insufficient yield or even other difficulties may there. Where the maintenance and operations providers are also part of an implementing entity, water quality testing is done at commissioning of some water supply system like boreholes. Surface water resources are generally more vulnerable to pollution (both diffuse and point source pollution), as they do not have soils covering and protecting them.

Groundwater water can become polluted by existing chemicals like fluoride existing in the soils or while practicing in agricultural practices (pesticides, herbicides, fungicides, nitrates, ammonium), chemicals used in industrial activities (mining, tannery, cement production etc.) and leaking wastewater pipes or petrol/diesel/oil spills etc. Surface water runoff is also a significant source of water pollution and poses risk for surface water resources. As runoff water flows down on land surfaces, it picks up and carries contaminants (nutrients, chemicals, pathogens) and eroded soil material (sediment) along with it. Land use choices (agricultures and other practices) can be used to reduce the harmful effects related soil erosion. Soil erosion is a natural process in which the topsoil of land surfaces is eroded and carried away by either water or wind.

Groundwater pollution cannot be **easily reversed**, once contamination begins to take place. Therefore, it is imperative to adopt good catchment area practices and avoids contamination of groundwater and even other resources. Moreover, it needs management practice that involves the communities living within the catchment areas by collaboration, to plan, implement, manage and share the water supply system continually.

When a single family or community member lives within a catchment area, there should be internal discussion and create awareness to take ownership and communal service within the community about

water supply system management strategies. Moreover, within the catchment in the upper and down streams water demand and uses may not same for the communities. It needs to balance water demand by integrating and collaborating with government and community structure in the upper and downstream for deep boreholes, river and piped spring cases. The upper stream may need for irrigation and the down may need for drinking purpose or vice versa.

In other side, the experiences are indicating that failure to give sufficient consideration for **operation and maintenance management** in the study, planning and construction stages. These are resulting in early system failure and rapid deterioration of many water supply schemes before its intended service and planned time, which are eventually leads to under performance of the system management aspects.

Cognizant of the above facts and others are requiring preparing and making use of a guideline at national level that helps to plan, implement and manage rural water supply and sanitation system management. The guideline is essential to assist the sectors and its partners in improving the effectiveness, efficiency, continuity and sustainability of water supply and sanitation system management activities in the rural areas of the country. Hence this management guideline is a strong assumption to enhance the system management in rural areas. Sustaining potable water supply, hygiene and sanitation service system can enhance or enable environment in service delivery process in the rural areas of all regions and city administrations. Moreover, integrating the stakeholders' role and available resource mobilization to ensure the intended service is required.

This requirement is demanding the internal and external actors' collaboration. Confirming the major activities like water safety management, community participation, water quality and quantity controlling and **O&M** and rural sanitation service including the entire service delivery in the system management process is requiring a common approach. This is really calling for a sound guideline to manage the overall process of rural water supply, sanitation and hygiene service delivery process. It is not only for rural water supply and sanitation system management but also to link the overall planning and implementation process in urban areas in case multi-village schemes.

Furthermore, the following key issues contributing to the poor system management are summarized as major gaps in which water supply and sanitation service system management rationally necessitate providing RWSSSM guideline. Consider table 2 below.

| S. N | Major gap category | List of key issues |
|------|--|---|
| 1 | Coordination between partners | Poor integration with key partners (government, private service providers, and NGOs) Un clarified multiplicity activities and defined responsibilities to manage RWSSSM process Less market chain (e.g., among government institutions, private sectors and user communities) Poor in participatory plan with the end users like community and key partners |
| 2 | Technical & strategic focus | Inadequate emphasis on preventive maintenance of the developed system Inappropriate system design, technology selection and weak project implementation process Insufficient experience sharing and business diversification platform Poor procurement process, non-standard spare parts selection and hand tools supplying Lack of access operational manuals for the implementers Less focus on water supply and sanitation system management (catchment to end users) including catchment management (water safety, community participation, O&M service) |
| 3 | Leadership orientation | Poor attention of government organizations on strengthening the entire RWSSSM actions especially on predesigning and post constructions of the system development Weak commitment on community and private mobilization to initiate, create demand, resolve common challenges in water supply and sanitation service system management Weak controlling system in resource utilizations and non-motivational tools Weak system thinking and organization cultures |
| 4 | Data management | Inadequate data collection, organization and analysis system and updating process, Inadequate Operation & Maintenance service process Poor technology applications in system management Poor Asset Management, |
| 5 | Community, private and other key stakes ownership | Poor demand creation and supply side management (diversified Users & Service Providers) Unable to enhance self-reliance of communities and local experiences to participate in the management process Poor attention for community participation to plan, implement, own, responsible for and manage in schemes and system management |
| 6 | Organizational set up | Weak community organizations in village, kebele, and woredas even in zone or region level Weak community organization (WASHCO, ASSOCIATION etc...), legalization and supporting Lack of system management guideline to increase learning curve and continues improvement of intended service delivery process Lack of regular monitoring and performance evaluation system |
| 7 | Resource adequacy | Inadequate workmanship, capacity development and high turn over Lack of sufficient finance, equipment (spare part) and materials (O&M tools) Weak resource mobilization and management challenges to support community participation, private sector and other structures |
| 8 | Capacity Development | Lack of real time field information and review status Weak continuous capacity development, continuity and completeness of the service |

1.4. Objective

The main objective of this guideline is to offer overall management of rural water supply, sanitation and hygiene service delivery systems through actively and genuinely participating and coordination of all stakeholders by utilizing available or improved system management and structures linking to safety management, users demand administration, O&M service and finance mechanism in a very collaborative approach to ensure affordability, continuity and sustainability of water supply system and sanitation as a result enforce national water supply policy and strategy in rural areas.

Specific objectives

The following are the specific objectives to:

- 1) Provide applicable guiding document to manage Rural Water Supply and Sanitation System Management.
- 2) Strengthen appropriate involvements of key actors including community and private sectors in Rural Water Supply and Sanitation System Management.
- 3) Provide a partner's learning alliance between governments, community, private sectors and NGOs for resource mobilization, proper budget assignment, utilizations and implementation process.
- 4) Integrate legal issues, institutional structures, required technologies and technical issues, major activities, and available resource.
- 5) Implement emerging system management model for O&M, Sanitation Service, Water Safety Management and supply demand admin in rural areas.
- 6) Standardize, implement, control, measure and manage change may occur in rural system management practices to ensure affordability, continuity and sustainability of the service delivery processes.

1.5. Scope

This rural water supply, sanitation and hygiene system management is involving government, local community, private sectors and other key partners. This is undertaken through coordinating and integrating relevant partners operating in the water sectors within the country. It is to manage effectively the water supply, sanitation and hygiene service delivery process by managing water safety management, O&M, systems sustaining finance mechanism, upper & downstream community demand to ensure water supply quantity, quality, service continuity and sustainability in general. The starting point for these intensions is micro water supply catchment (source) to water ends users (beneficiaries) in the rural areas. It is realized through facilitating lessons learning approach in the sector at various levels and experiences

scaling up even from neighbor nations and local experiences. Moreover, it is to apply diversified rural water supply and sanitation service system management modalities to fit the diversified local context of rural areas in terms of ensuring sustainability of the service within the country.

2. RURAL WATER SUPPLY AND SANITATION SYSTEM MANAGEMENT (RWSSSM)

2.1 Concept

Rural Water Supply and Sanitation System Management: - is to mean managing and coordinating of all water supply system, related services and resources through the process of planning, organizing and directing of those systems processes undertaking within the pre & post construction stag in rural areas. This is consisting of basic elements undertaking in the pre & post construction of the service rendering process. In fact, RWSSSM is including O&M service ranging from scheme development ideas inception to rehabilitation or reconstruct old construction phase of the scheme's development. It is incorporating managerial, environmental, economic and social aspect of the service in rural areas. Water Supply System (WSS) is infrastructures used for the collection, transmission, treatment, storage, and distribution of potable water for homes, commercial and other public needs within a catchment to end consumer cups. Sanitation is a proper disposal or re-use of human excreta, management of waste, indoor air pollution and safe drinking water chain. Basically, it is intended to achieve the policy and strategy of the rural water supply and sanitation sector.

RWSSSM intended to interlink at least four basic concepts described briefly to improve the entire performance of Rural Water Supply and Sanitation System Management. These are including the basic management elements in the rural water supply and sanitation system description. Water supply and sanitation service management effort is assumed to be applied in various levels (Public, Community and Private) correspondingly. Principally the concept comprises the following main arguments in the management process. The arguments are mainly considering the following steps as a basic element.

1. Water Safety management

- ✓ Organizing sound water safety plan
- ✓ Safety management service mapping and implementing,
- ✓ Water and sanitation surveillance Service,
- ✓ Support and standardize service delivery process,
- ✓ Risk assessment,
- ✓ Risk management,
- ✓ Provided mitigation measures-for water quality and quantity treatment,
- ✓ Create conducive and resilient environment, and

- ✓ Contribute to climate resilient by cleaning and protecting the environment,

2. Water Quality and Quantity Controlling (WQQC)

- ✓ Surveying and monitoring (assessment) water quality and quantity status,
- ✓ Water quality sampling, testing and analysis,
- ✓ Recommend appropriate resolution,
- ✓ Community-based surveillance (a careful and continues watching and protecting of drinking water from possible contamination risks),
- ✓ Working on water safety management, sanitation and hygiene behaviours of the societies,
- ✓ Rehabilitation (partly reconstruct, fully expansion or other corrective actions),

3. Operation and Maintenance (O&M) Management

- ✓ Consider O&M in planning & make alignment with during and post construction phase,
- ✓ Create spare parts supply chain and align with O&M service, private sector, and community management models,
- ✓ Provide responsible scheme operation entities either from community or private sector,
- ✓ Plan and undertake scheme maintenance (preventative, predictive and corrective) actions,
- ✓ Scheme data management (records history of scheme, organize data, analyse & provided information about the schemes) yearly,
- ✓ Documentations and create learning alliance to scale up best practices in the sector,

4. Community Participation

- ✓ Participate local community on development study, design review, and plan of the water supply system and sanitation services
- ✓ Creating community demand on system development, management, and finance mechanisms
- ✓ Regulate users demand, contributions and conflict in the upper and downstream
- ✓ Take ownership of water supply system development, O&M and management actions
- ✓ Contribute to investment, cost recovery (partially cover to return investment cost fully plus further expansion or change technologies)
- ✓ Mobilize and ensure community participating in all concerns of water supply system, sanitation and hygiene services initiatives and management options.

5. Sanitation and Hygiene

Sanitation is the creation of a clean and hygienic environment and making it sustainable. Hygiene is the purification of the environment from microorganisms causing diseases. On other hand sanitation is the measure taken for cleaning and hygiene. The purification of foreign substances, microorganisms, drugs,

cleaning agents and all visible sources of pollution from the production environment is an essence of Sanitation and Hygiene. Therefore:-

- ✓ Improved sanitation has proven impacts on quality of life and poverty reduction.
- ✓ In relation to health benefits, improved sanitation has been described as, ‘the greatest medical advance in the last 150 years. It demonstrating both a high benefit to cost ratio and a cost-effective reduction of Disability Adjusted Life Years.
- ✓ Improving sanitation is not just about physical infrastructure. Much is dependent upon human behaviour change.

2.2 Key Component

2.2.1. Water Safety Management (WSM)

Water quality, quantity, micro catchment area, water safety plan and their implementation are the basic consideration in the water safety management component. Water Safety Management (WSM) is the beginning of water supply and sanitation system management to improve quality, reliability, continuity and sustainability of water supply and sanitation service delivery process. It is expected to meet the process periodically through risk assessment to review the position of the micro catchment area, take corrective action and implement the process by involving the community and other stakeholders within the area. Therefore, the water safety management needs to be reviewed and revised regularly to remain up-to-date in RWSSSM process. The most effective means of consistently ensuring the safety management of a drinking-water supply and sanitation is through the use of a comprehensive risk assessment and risk management approach that encompasses all steps in the water supply from catchment to consumer.

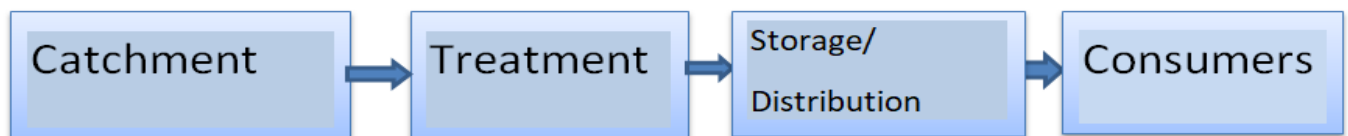


Figure 1: - Water supply and sanitation catchment assessment elements

Water safety management is one of a critical approach to insure preventive management in water supply, sanitation and hygiene service delivery process. It is the preferred approach for ensuring drinking-water safety and should take account of the characteristics of the drinking-water supply and sanitation service from catchment to its users (consumers) cups. The following Figure is depicting Water Safety management concerns.

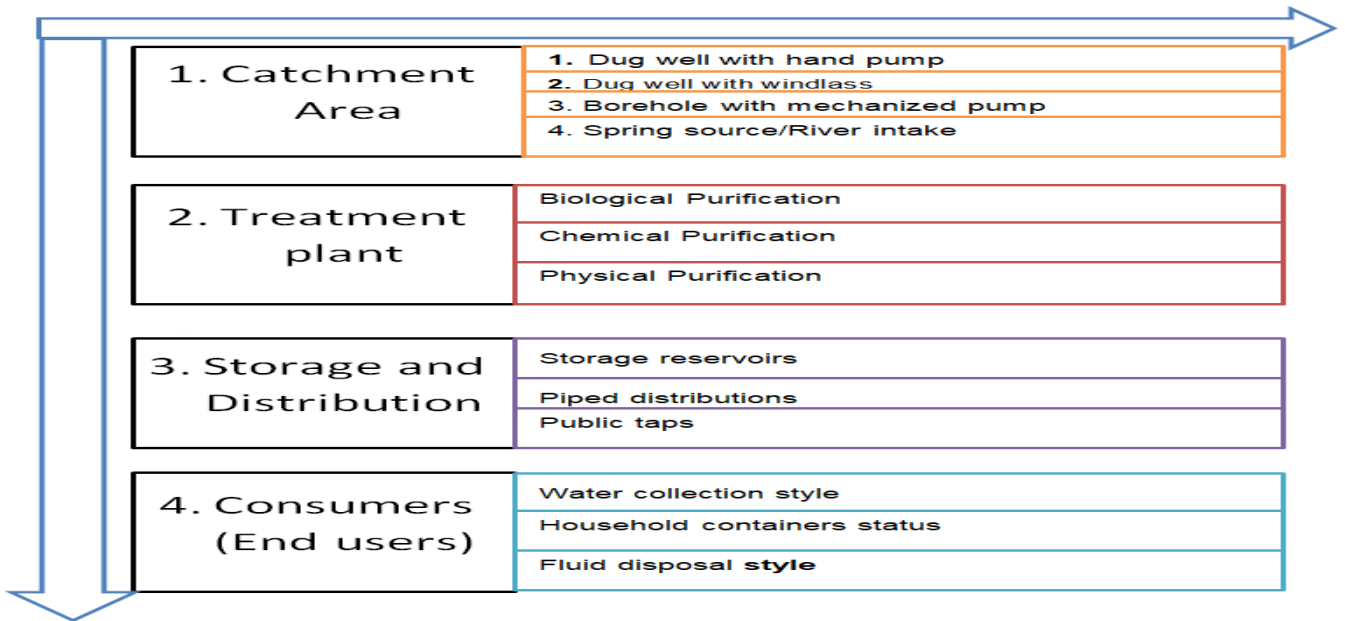


Figure 2: - Water Safety management focus areas and considerations during its plan

The primary purpose of considering this management component is to ensure drinking-water quality, quantity, service continuity, sustainability by integrating local community and other stakeholders. This is also to protect entirely the public health and manage water supply and sanitation process appropriately. Water safety plan and water Quality controlling is not separately viewed in its management process. Hence, they are expected to integrate under water safety and quality management process. They directly linked with the water supply sources and catchment protection; water quality and reliability, continuity and tailored technologies used in supplying save water.

Water is contaminated along with the way (supply technologies selected to transport the service in the home) from source to consumption point. Hence water safety and quality management are not only useful to ascertain whether water is fit for drinking or not. But also, to dictate water supply technologies and locate the source of contamination which could be from the catchment area or leaking pipes to water supply distribution system. Protection of water sources and improved management of water catchments are likely to bring benefits both now and in the future to water availability and water quality. To ensure safe water, a holistic risk assessment and risk management approach is emphasized as well as the importance of considering the entire water supplying system from catchment to consumer.

In rural water supply addressing potential water quality issues; such as the water quality of protected springs from increased rainfall and flooding situations. Build drains to divert flow away from springs, use robust construction standards and materials, and raise awareness of the risks from water quality

deterioration during and after flooding. During well construction proper grouting and construction of riser pipe and apron is required for wells to protect the well head from run-off contamination.

There is a need for technical and logistic support to strengthen existing public health laboratories and increase the number of laboratories in each regional administration woredas; It is to access better coverage and logistical reasons in handling bacteriological and chemical samples, etc. Remaining gaps can be bridged through the use of portable water testing kits for rural areas. There for interlinking these issues with Rural Water Supply and Sanitation Service System Management to make the service more sustainable and insure better performance is very important. Moreover, considering World Health Organization's (WHO) and Ethiopian water quality standard guidelines for managing the risk from hazards that may compromise the safety of water interlinked with document. It is to consider recommendations in the guideline in the context of managing the risk exposures of various hazards within the catchment raised from dry and fluid wastes disposal system, agricultural practices, animal grazing system, suitability land topography for distribution line, soil erosion, conflict may occur in upper and down streams should be managed appropriately.

In order to mitigate the hazards and risk associated with these factors, various stakeholders and community need to be involved and work by integration. Climate Resilient (CR)-Water Safety Plans should provide a reliable framework for communities' socio-economic base to strengthen their capacities and capabilities with a focus on cost-effective management of their water supplies.

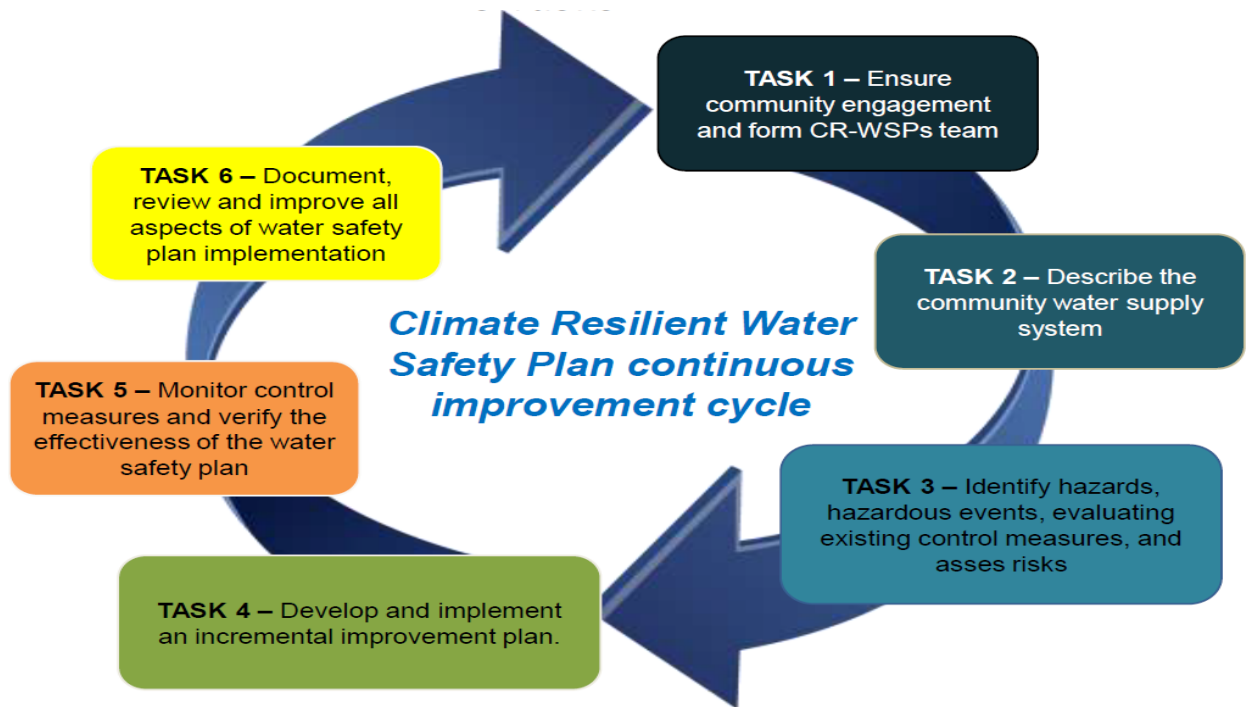
This guideline puts water safety planning in the context of rural community water supplies and provides a step-by-step approach for those charged with dealing with the everyday realities of maintaining a reliable and safe supply. It aims to:

- Prevent contamination of water from the source to the point of consumption which are directly impact a socio-economic status of the community;
- Treat the water to make the water safe to use and to meet the water quality targets;
- Prevent re-contamination during storage, distribution and handling of drinking-water.
- Create awareness and participation of consumers to maintain water quality.
- Ensure the reliability of water supply to satisfy the demand requirement of the consumers.

Therefore, to achieve these objectives, the Rural Water Supply and Sanitation System Management should follow the following step by step procedure:

1. Engaging the community and assembling a Climate Resilient Water Safety Plan (CR-WSP) team with members representing the community's interests with knowledge of the water supply system and how to identify and prioritize potential risks to the community water supply, including health, social, economic, environment and physical planning considerations; with interest in promoting sustained access to safe drinking-water; who can help mitigate risks and support from relevant government units and NGOs;
2. Describe the community water supply scheme system which can help to understand the various components of the water supply system, which is also important to identify particular hazards and assessment of risks. It can be done through mapping of the community water supply from catchment to consumers;
3. Identify and assess hazards, hazardous events, risks and existing control measures. This step should identify the potential hazards at different components of the system; Understand the situation of introduce the hazard events and control measures for the identified risks;
4. Develop and implement an incremental improvement plan. It is the part of water supply scheme management plan (building block for Scheme management) to reduce the hazards, implement the measures. Then it is to link the monitoring and evaluation blocks of Rural Water Supply and Sanitation System Management so as to verify the effectiveness of the CR-WSP, review and improve all aspects of water safety plan;

Therefore, capacity of regional laboratories should be strengthened in **manpower, equipment and consumable spare parts**. It is important to have laboratories in all towns and cities administration in woreda level. That is to ensure better access and improve reliability and standardization through inter-laboratory benchmarking. Skilled manpower for water treatment and quality control is required at **all town in the woredas to support the rural areas**. **Capacity building** is also required for water supply laboratory facilities and treatment control and monitoring aspects. CR-WSP Processes for rural water supply system, Figure 3.



2.2.2 Asset Management

Asset management in water supply and sanitation case is purely to mean water supply, sanitation and hygiene service delivery schemes or infrastructures management. It is the process of managing and monitoring assets of a scheme effectively and efficiently. It is a system of managing, organizing, and maximizing and enhancing values of spare parts from objects or holdings of assets in water supply, sanitation and hygiene services delivery process. Fundamentally, its main function is to track and records assets across the entire life cycle of the schemes. It involves documentation of schemes history, improved service delivery approach, inventory records and the condition of facilities. It is considering fixed asset, financial asset, enterprise asset (PSPEs, WASHCOs, association and federations etc.) and infrastructure asset that may be tangible (physical asset) and nontangible (legal license to render community) in its nature.

Physical asset management resolves issues of organizations such as return on investment, operation and maintenance activity, inventory and financial performance management etc. The system creates a steady data stream through asset tracking in real time, encourages accountability and keeps planning and equipment maintenance on track. Scheme O&M management are often quickly viewed, as asset management tool. Since, it is more related to track technologies supply, operation and maintenance activities in general term. In fact, O&M management is really much more than merely these two words

(O&M). For this reason, water supply system management is viewed as a backbone to improve system's performance, continuity, efficiency and sustainability of the service.

O&M is usually discussed and introduced only after projects get completed which should not be understood like that. This neglect or delayed application of asset management part has adversely affected functioning of the services and creditability of the investments made. Better recognition is also coming up on the need to approach in a comprehensive & holistic manner, emphasizing should be given not only the study, design and construction but also on other post construction including O&M activities from the beginning as part of water supply system management process and asset management part. O&M activity should be considered in the following basic points during water supply and sanitation service development and management phase.

a. Pre-planning

Identifying schemes and following recommended operation and maintenance procedures as asset management part, in the time of design and construction is a noble practice. This is to manage sustainability of schemes service. The plan has to be followed by the O&M staff and also will be the basis for supervision or inspection process and criteria. It also may be used for evaluation of the O&M status and designed outcomes. The service consumers in-charge for O&M of water supply shall become service oriented. It is essential that the organization responsible for O&M has well qualified, trained, experienced motivated and efficient staff to perform better service.

Generally, rural water supply scheme is the essential physical component of asset management that actually assists the service delivery process. It comprises not only hardware but also the mechanisms and processes for developing new infrastructure and maintaining existing facilities. New scheme is often financed from the national level but may be implemented through local processes. Ownership and responsibility for those assets should be clear at the time of study and design and development phases. Establishment of institutional structure through strong engagements of user community for registering, regulating and establishing long-term asset ownership and operations as well as maintenance is critical before developing new scheme.

b. Planning

Planning or design of community water supply & sanitation systems including site selection, decision on technology selection from available options and setting service level. It is often done by others than the ultimate users of the systems. But it is not to be likewise. This approach may potentially cause serious

problems in the acceptance and system management as a useful and own asset. It is thus susceptible to quicker disuse, deterioration and abandonment of the asset. From the range of available technology options for adaptation, selection of the most appropriate for particular situation needs to be done with utmost care and due consideration to the prevailing conditions with informed decision of the ultimate user communities' asset management procedures and its key partners recommendations.

c. Construction

Likewise, the case on planning, design, and construction phase during which the designed facilities and technologies are put in place has to involve user communities or the entity expected to take over operation & maintenance management, as a part of asset management. Particularly constructions of water supply schemes often consist of system component/parts. Those are **buried (not visible on the ground)** underground and whose whereabouts will be difficult for O&M managers who were not involved or informed during actual construction. The communities should be treated as the real future managers of their own water supply system and hence be involved and capacitated during planning or design, construction, operating, monitoring and evaluation phases. Hence management of rural water supply schemes management should not be viewed merely as technical issues but as the users' communities' too. It should be:

- a) Introduced and capacitated throughout all process phases,
- b) Get adequate outreach from sector office,

A number of technologies are used in construction system of water supply, water lifting, and conveyance (transportation), storage, and treatment process. There may be transitions also from mechanical and motorized (engine consumed schemes) to solar energy piped network and from on spot schemes to multi-villages schemes.

Firstly, in terms of technical capacity and competency, moving to more complex schemes or maintenance services, especially for reticulated networks relying on pumping will enable technicians or other operators to expand their business offering.

The rural water supply technologies can be seen under the following potable water sources categories. These are comprising many assets should be managed properly based on their nature: -

I. Surface Water Technologies

1. Spring (surface water)
 - Spring on spot
 - Spring taken by Gravity

- Motorized Spring
- Others: such as
 - Boosters
 - Distribution lines
 - Water points /public taps/

2. River intake, Lakes, Ponds (surface water)

- Reservoirs
- Treatment plant
- Others
 - Boosters
 - Distribution lines
 - Water points

II Ground water supply technologies

1. For Ground water (Well)

- HWD(<35m)
- SWD (<100m)
- DW(>100M)
- Bore Hole
- Others
 - Boosters
 - Distribution lines
 - Water points

These are based on the location, type and complexity of the water supply system need to be categorized and managed consequently. However, it requires consideration to manage the technologies integrating the private sector, community associations and public accordingly.

Rural water schemes can broadly be categorized in to two; on spot and Rural Piped Schemes (RPS).

1) On spot schemes

These are those built up at source and users collect water right at the source without further piping system that fetching taps. On spot schemes mainly include but not limited to: -

- Hand Dug Wells, Drilled Shallow/Deep bores fitted with hand pumps,
- Bore Holes (BHs) fitted with motorized pumps but used on-the spot with no further distribution &
- Spring tapped at the source.

From the management point of view, on spot schemes can be grouped in to two broad categories. On spot schemes are **highly dispersed** and **isolated settlement** which do not favor private management and on

spot schemes with densely populated and clustered settlement. Community owned management model (CMM) will continue as feasible management option the first while the latter can be handled with private sector management option.

2) Rural Piped Water Supply Schemes (RPS)

Water from developed source is transported, stored and distributed to strategically selected collection points like public fountains, stand pipes, public taps and etc. These again exhibit a wide range of variations where common ones are listed below:

- From **spring source** water conveyed either by gravity or pumps to reservoir & eventually distributed to the villagers through a network of distribution pipe lines by public fountain, stand posts or taps.
- **Ground water** (Shallow or Deep Borehole) schemes, water pumped often to storage reservoir and then gravitated to distribution system to collection points like public fountains, stand posts or taps.
- From **river or stream** source, water is pumped or gravitated to the treatment plant or intermediate sump and then to storage reservoir & finally to distribution network constructed /laid often by the gravity feed schemes to collection points like public fountains, stand posts/taps etc.

d. Commissioning, Operation and maintenance (O&M) of water supply schemes

Although taking different pathways, after commissioning of scheme or system in place, operation & maintenance practices are facing similar challenges in terms of being sustainable and to scale up for further stage. Principally implementation bodies' commitment, ownership, financing mechanisms and diversifying markets or expanding options to achieve greater economies of scale and in some cases improving spare parts chains and logistics supply are significant parts to be considered.

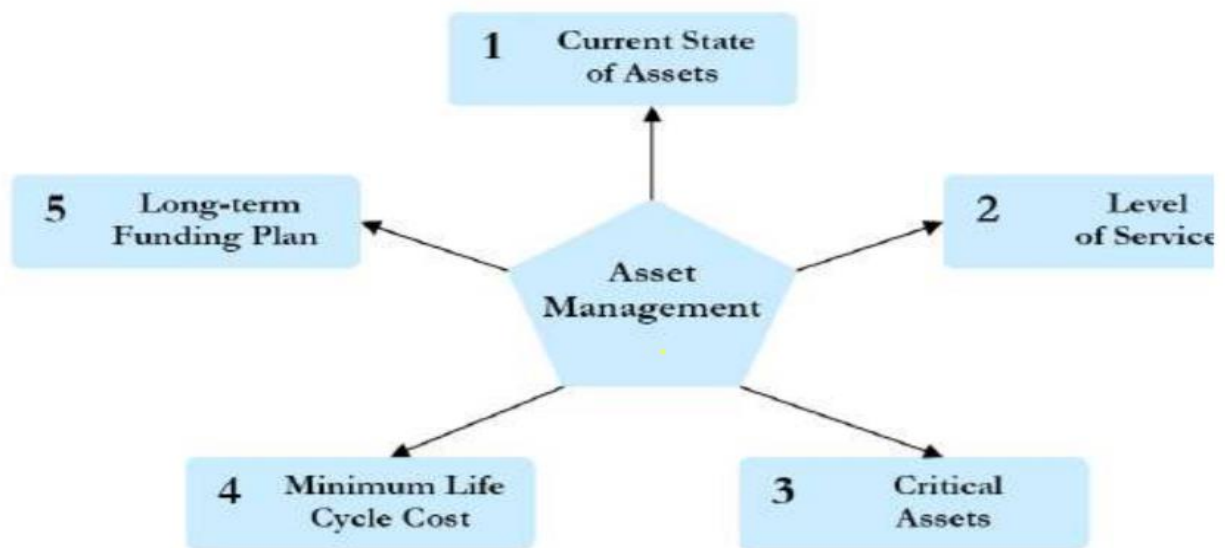
From a systems-perspective, it is to overcome the barriers to establishing successful operation and maintenance service provision requires in a holistic approach. The entire system and addressed gaps desire far beyond technical skills. These are including governance; tailored business model aspects, capacity building, M&E, market linkages and critically the government engagement with and oversee such services. Summarily, asset management is a multi-step process that **can be automatized** once the initial stages are completed. No matter the type, its many advantages will quickly become evident.

Expectations are not high for finding a complete, accurate and current inventory and evaluation of fixed assets in the various water supply system. Because buried asset is difficult to identify and original cost

records are likely to be sparse. Complete physical inventories will be required. Extensive amounts of estimation will presumably be required, starting probably with setting the initial cost. Realistic depreciation rates will need to be determined and applied; this implies first establishing useful life and salvage values. A systematic procedure must then be proposed for maintaining fixed asset values on a continuing basis. This will involve both systems and methods.

The sub-tasks for asset valuation are:

- ❖ Analyze the present fixed asset records,
- ❖ Review methods of recording assets, calculating estimated life, arriving at salvage values, and setting annual depreciation charge,
- ❖ Establish procedures and conduct a physical inventory of assets with useful lives of over one year and determine or estimate their original cost,
- ❖ Identify basis for capitalization and method of valuation,
- ❖ Relate capitalized book value to replacement value, to the extent that it can be estimated, and prepare a fixed asset register. Core component of asset management, figure 4,



e. Spare part supply chain

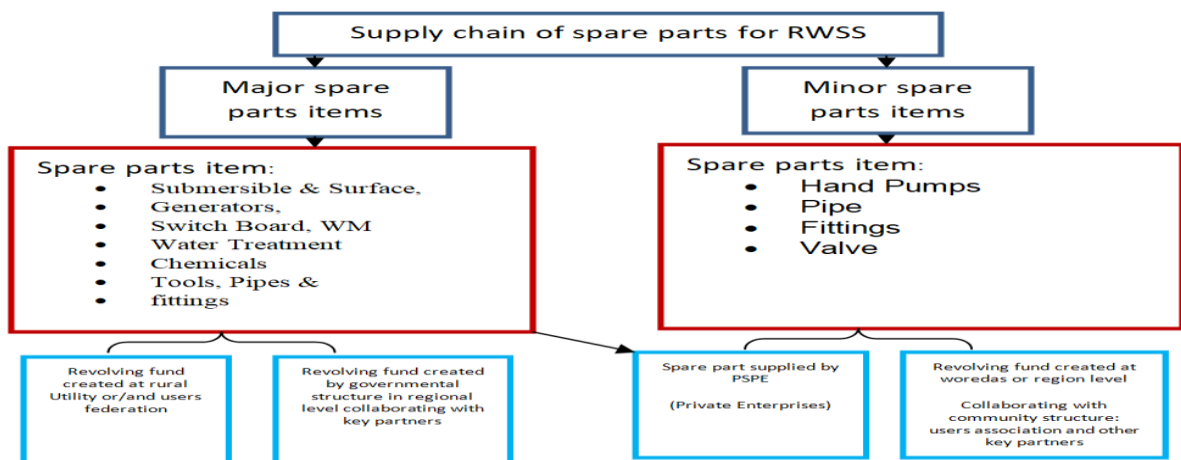
Water supply chains is understood to mean the entire process that includes planning, budgeting, specifying, tendering or direct purchasing, delivery, procurement, production and distribution of spare parts and services for new installation and sustainable running of existing water supply schemes

involving all the stages from raw material to final production of goods as well as the associated services.

Practically, construction of rural water works and supply of spares has yet been done mainly by government agencies or water sector partners (NGOs, UN agencies, bilateral, multilaterals, etc.) and virtually free. This has resulted in a distorted concept that the consumers expect all expenses to be covered by someone else and that water services are free. Most of the RPS procured pipes from locally manufacturers, but fitting and valves from private retailers. The procurement is done through local bidding. Electro-mechanical (pump, generator, and accessories) and water meter are procuring into two ways in urban areas: 1) Bulk supply through regional water bureaus, 2) bulk supply by the utilities and 3) private shops. The quality of the materials procured from private shop is relatively poor. The procurement through regional water bureau and water utilities has taken long process since they are imported.

So far there were different alternative models can be provided which fulfill the requirements of spare part supply chain for rural water supply system. These can be classified as public and private sectors. In the public sector, parasternal enterprises can be established (Revolving Fund Enterprise, Water Supply Service Enterprises, and Water Utility Service Enterprises, Regional Water Bureaus, Water Utility’s Associations) while in private sector (sole, plc., share companies, Micro and Small Enterprises). The selection of the models based on merit and demerit analysis and regional context. The choice is left to the respective stakeholders to decide which model is fit to them.

Therefore, this is to provides different optional models for supply chain of spare parts for rural water supply system. Spare parts supply chain of options, figure 5.



2.2.3 Community Demand, conflict and multi-village system management

Community demand, conflict and multi-village water supply and sanitation system management is one of critical management area that needs special consideration in rural water supply and sanitation service. Community demand is related with ensuring affordable, sustainable, equitable, and economically efficient clean water supply and sanitation services in the rural areas. But what matter for these concerns? Ultimately decent governance, strong institutions, protected water source and tailored system management concerns are matter more. Creating water supply and sanitation service system governance in all level of community within region, zone, woreda, and kebele even in village is very significant. It is to assist visible improvements in drinking water supplies and sanitation services that contribute to the renewal of the social contract of the community that grasp reasonable back and forward demand of the community.

Conflict can have positive or negative impact in local or national community social contract. One of the tools to manage negative conflict in social contract is decent governance and provision of guiding rule, bylaws, internal producers and following servant leadership in the community. Social contract in this case is to describe a desirable and mutually accepted form of interaction among individuals and groups existing within a micro catchment and social environment using common water source. To sustain such mutual benefits, it is expected to establish village water users' association in the village level by legalizing the wash committee existing at each scheme.

Association at kebele level will be organized based on scheme types (on spot schemes association and RPS association or rural utility). These organizing associations have their own scheme governing committee selected by and from its members (water users' residential and permanent institutions leaders in the area). All community representative or committees in level, kebele, woreda, zone and / or region as federations or co-federation of those association established based on the scheme types (RPS or other type MVs schemes,) integrating with community, private government structure and key partners to sustain and improve the service peacefully.

The mandate of these community representatives' committees is but no limited to: Manage water utilization style, set water consumption tariff, facilitate operation, maintenance and rehabilitation activities, integration with key partners. Moreover, they can manage demand arise from the community due to common water source, water economy or any other human made or natural disasters, water crisis and conflict occurred within the community and catchment areas related to the water supply and sanitation service system process.

A community settled in micro catchment area may endowment with water resource or not. The micro catchment areas may involve spring, ground, river or stream water source. Those who haven't water source need potable water through water distributions line and boosters to address their demand from the source areas. The areas which have a single source may have also two or more village, kebele, woredas or zone even regions. In both cases a sense of ownership for the system management may not similar to the source areas, supply system and scheme types. Hence the catchment with water endowment and without areas should be systematically integrated for their water demand and system management suitably in the win-win or give & take approach.

Moreover, a micro catchment area with spring, ground, river or stream water source have two bound; the upper stream and the downstream areas. In all cases there may be specific demand by the community. The upper stream may need for irrigation practices and the downstream may need for drinking purpose or vise verse. Communities who haven't water source within their micro catchment area may need irrigation or potable water from its source by using various water supply systems.

A community settled within an endowment catchment area which have spring, river or stream water source may care and other may not for the entire supply system. Hence during establishing of governance board for MVs management in various level from users' committee and government institutions this essence should be based considered; Even during community and fund mobilizations, new demand creation or capacity building sessions.

When a single community lives within a catchment area, there should be internal discussion and create awareness to take ownership and integration. Moreover, when several communities share a common catchment area, there should be cooperation between communities in catchment area in the upstream and downstream to ensure safe and economic water supply. Rural water users' association can be organized on spot schemes and multi-village level. But water users' association in multi-woredas or multi-regions should be organized in rural utility level. In all cases the association can be federated or confederated with their respective scheme types to manage resource mobilization and utilization purpose. Therefore, how to manage and govern these situations? Who can integrate with whom? The water users' association, federation and confederation are organized and perform their own duty independently and autonomously but can integrate with key partners come from governmental sectors and other promoters.

To manage common situations, water users' association, federation or confederation should have created **triple cooperation**¹ (community organizations as water users' representatives with water sector and administration entities as governed bodies and other key stakeholders as promoters or have mutual

interest). Community with these key actors governs and mobilizes additional resource and utilizes reasonably, Table 3.

| S.N | Community Based Drinking Water Users' Organizations | Governance mode of association, federation and /or confederation | | | | | Remark | |
|-----|---|--|---|---|--|--|--|--|
| | | On spot schemes | Multi-Village | | Multi-Woredas | Multi-Regions | | |
| | | | Multi-villages within one kebele (RPS) | Multi-kebeles within a woreda (Medium MVs) | Multi-Woredas or Zone (complex MVS) | Multi-Region (highly complex MVs) | | Nation & neighbor (highly complex MVs) |
| 1 | Water users' association (village level), | Governed by WASHCOs and Kebele administration (village leaders) | | | | | | Scheme Management team are supporting technically at any requirement for users' association level or above villages which are assigned by water sector structure |
| 2 | Kebele or cluster water users' association (kebele level) | Governed by WASHCOs and Kebele administration (kebele leaders) | Governed by WASHCOs, woredas scheme & sanitation service management team & Kebele administration (kebele leaders) | | | | | |
| 3 | Woreda water users' federation (Woredas level) | | | Governed by woreda administration & scheme & sanitation service management team | | | | |
| 4 | water users' confederation (zonal, Regional or National level) | | | | Governed by zonal board & water supply scheme & sanitation service management team | Governed by region water board & management team at region | Governed by national board & management team | |

NB:

1. Rural water utility can be organized on medium RPS and other Piped systems and associated or federated with similar entity or peer RPS associations or federation having its own Budget source, HR modality, PR, M&E, procurement and finance mechanism which are guided by regional level detailing procedures. More over users' associations are organized based on scheme or technology types which can be changed according to their capacity and consumption requirement.

2. Scheme & sanitation service management team is expected to team up with O&M, water quality controlling, water safety management, community participation, agricultural farming system, health extension and land use management related professionals to manage the micro catchment areas too.

2.2.4 Sanitation Service

Water supply and sanitation service are not separable in the social development aspects. Hence, one key goal of sanitation is to safely reduce human exposure to pathogens. Pathogens are excreted by infected individuals and if not properly contained or treated, may present a risk to humans who come in contact with them. These individuals can also be exposed to pathogens through drinking water or eating food contaminated with pathogens found in human excreta.

One key goal of sanitation is to safely reduce human exposure to pathogens. Pathogens are excreted by infected individuals and if not properly contained or treated, may present a risk to humans who come in contact with them. These individuals can also be exposed to pathogens through drinking water or eating food contaminated with pathogens found in human excreta. Sanitation practices such as developing and using toilets, latrines, mechanized waste water treatment is currently deployed as a way to contain and/or treat human excreta to protect human health and the environment.

Sanitation and human health are closely connected to each other. Inadequate treatment or disposal of human excreta and other waste can lead to transmitting and spreading of diseases originating from excreta. Polluted water and inadequate sanitation cause 5,7 percent of all epidemics. Especially children are susceptible to diseases. Therefore, it is very important to safeguard adequate sanitation and hygiene education to reduce the amounts of infections and access of causes of diseases to water.

2.2.4 Monitoring & Evaluation

Monitoring

Monitoring is a continuing function that uses systematic collection of data on specified indicators to provide management and the main stakeholders of an ongoing development intervention. It is a continuing function that aims to provide stakeholders and decision makers with regular feedback and early indications of progress or lack thereof in the achievement of intended activities. In monitoring process, a wide range of activities requires data collection. Hence frequently collecting and recording information from the pilot areas is commenced, organized and analyzed. Designing data collection systems helps us to improve chances that the data will be collected carefully and put to use in the program implementation processes.

Monitoring tracks the actual performance against what was planned or expected according to pre-determined indicators and targets.

- Monitoring is based on physical and financial progress reports, focused on achievement of objectives and outputs including any possible deviations from work plans and budgets and suggestions for improvement of the program.
- The RWSSSM Framework is aligned with WaSH M&E Framework and National WaSH program. The reporting cycle, formats and indicators of the program are presented in the Monitoring and Evaluation Framework prepared, providing tools for reporting and performance evaluation for the success of management improvement needs.
- The emphasis in monitoring is on checking progress towards the achievement of the objective.

Evaluation

Evaluation is the systematic and objective assessment of an on-going or completed task; its design, implementation and results. It is a method to systematically investigate an achievement of a program's results. The aim is to determine the relevance and fulfillment of intended objective, development efficiency, effectiveness, impact and sustainability. An evaluation should provide a results information that is credible and useful, enabling the incorporation of lessons learned into the decision-making process for all end users, governing body and technical supporters including financiers. Hence the evaluation has typically involved in measuring whether predetermined targets have been met or not. In this regard it will undertake based on indented result frame work and other outcome expected.

Performance Measuring and Promotion

Key performance indicators: -The key performance indicators will measure the following outcomes:

- 1) Increased functionality and sustainability of water supply system through improved service delivery process,
- 2) Improved system management in the community and
- 3) Improved water users, associations, federation or confederation and stakeholders participated in the management process.

The measurement of outputs for this guideline includes following measures:

- Improved functionality rate
- Improved inflow status of money in system management,
- Improved utilization finance with minimum audit error (%),
- Mobilized capital and management process and
- Improved community-based service and participation.

The data for performance indicators will be collected through assigned structure at region, zone, woreda Water Offices, association at various level and enterprises level. In this regard the most responsible

bodies to undertake monitoring and evaluation should be identified. All community organizations (WASHCOs, Association, federation and confederation) have to plan, perform, collect, organize and provide basic data and information about the scheme status and entire system performance. The government structures working on water supply and sanitation sector and watch group should have also assess, organize, analysed and evaluate performance of community organizations and take correct actions for further improvement.

2.3 Rural Water Supply and Sanitation System Management Models

2.3.1 Factors considered in the management model

RWSSSM model for rural water supply system is significantly influenced by different factors. These include population size & settlement pattern and complexity of water supply infrastructure or technologies. They are the most critical factors to be considered while selection and development of management model.



1) Population Size & Settlement Pattern

In business terms, more population means higher number of customers (water users) and hence better potential to generate income. Customer in densely clustered settlement eases management task for service providers. Hence large population number in a fairly dense settlement has better chance to attract service providers in general and private sectors in particular.

2) Complexity of water supply infrastructure or technology

Rural Water Schemes can broadly be categorized in to two classes as already described above. These are on spot and rural piped schemes. On spot schemes are those built up at source and users collect water right at the source without further piping system and fetching taps. On spot schemes mainly include but not limited to: Hand Dug Wells, drilled Shallow/Deep boreholes fitted with hand pumps, Boreholes fitted with motorized pumps but used on-the spot with no further distribution and springs tapped at the sources. From the management point of view, on spot schemes can be also grouped in to two broad categories. On spot schemes in highly dispersed and isolated settlement which do not favor private management and on spot schemes with densely populated and clustered settlement attractive for private operators.

Furthermore, the following factors should be considered to identify the state of complexity for the given water supply system, which in turn guides selection of management model.

-  Types of water Source
-  water quality & treatment plant used

- ✚ Type and number of electromechanical equipment's installed
- ✚ Mechanism for water abstraction and type of energy used
- ✚ Number and size of storage and transfer reservoirs
- ✚ Length and size of system networks
- ✚ Potential for the future expansion

For the sake of management purpose, rural piped water supply schemes (RPS) can further be classified in to two categories namely less complex or high complex as depicted below; in the Table 4.

| Class of System Complexity | Parameters for complexity | | | |
|----------------------------|---------------------------|-----------------------------|--|--|
| | Number of beneficiaries | Length of Pipe system in Km | Water source | Source of Energy for water lifting |
| Less complex | Up to 15,000 | up to 15 | Spring, Borehole with no treatment | Gravity, Solar, grid system |
| High complex | More than 15,000 | More than 15 | BH, spring, river intake/dam with or without treatment plant | Generator, Gravity, solar, grid system |

Based on the depicted criteria in the above, we have categorized the management modalities in to three groups. Community management, private service provider management and government let management model respectively.

3) Dispersion of schemes, Villages and Preferable models

| S. N | Distinguishing features | Description of service level | Category of preferred Management Model | Form of Service providers |
|------|---|--|---|--|
| 1 | Highly dispersed rural villages, uneconomical for packaging | Point source (on spot spring, hand dug/shallow wells fitted with hand pumps etc.) in highly dispersed rural small community with not more than 60 households, not economical to package with neighboring communities | 1. Community Based Management Model (CBM) 2. Private Sector Management Model | Water point users' associations or other similar organizations Private service provider Enterprise (PSPE) |
| 2 | Aggregated Rural villages or growth centers | Point sources with reasonable dispersion Small rural piped networks with public fountains stand posts. | 2. Private sector Management Model 3. Rural utility Management Model (RUM) | PSPE, RUM |
| 3 | Concentrated rural growth centers | Large & complex Rural piped network with public fountains, standpipes, yard connections | 4. Integrated management Model (PSPE, RUM and CBM) | Professionalized Rural Utility |
| 4 | Peri-urban population (small towns) | Piped networks with yard and household connections | PSPE, RUM and CBM based on the suitability of the areas | Expanding public utilizes from nearby Town Professionalized Rural Utility |

Table 5: Management Models with some criteria

2.3.2 Community Management Model

With better social economic development and stringent international and national commitments, assuring quality and adequacy of service provision is being focus points at the right time now and to come. Being conscious of this fact is vital step towards looking alternative management models that is commensurate to improve service delivery process. Complexity of water supply technology and size of infrastructure is increasing. Community management is not equally applicable in all community settings and varied technologies. Furthermore, the issue in rural water supply schemes management is going beyond functionality of hand pumps, infrastructure and merely access to technology.

Community Management Model is one of a major rural water supply and sanitation service management options. It is scoping from management used by WASHCOs and association organized at single scheme to communities' representatives organized at multi-village as federation at woreda level and confederation in zonal, regional or national level. There are two local organizations as long as rural water supply and sanitation service in the village is concerned. These are basically Water users' association (WUA) and Water Sanitation and hygiene Committee (WASHCOs). In fact, water users' association is a legalized form of WASHCOs by community assignment and regional WASHCOs legalization guidelines procedures.

One of a basic community-based management is rural utility management approach. In this modality the management activities are undertaken by hired human resource assignment in the utility or contracted with private service providers or other options externally.

2.3.3 Privately Management Model (PM)

This is realized by private business owners called private service providers enterprises (PSPE) undertaking water supply and sanitation services' O&M, supply spare parts; manage the scheme performance and other activities based on the agreement made between community organizations and government institutions on specified payment, quality and time limit. They are expected to service the water supply and sanitation facilities including any extension of services which is managed fully or partially as business owner individual or group organized for this purpose. They are organized on the business base for profit basis but ownership of the scheme remains under beneficiary community.

The model is not a type of delegated management model because of the complete absence of delegation. However, after being capacitated by its promoters, private service provider enterprises are expected to decide in supplying spare parts, operating and maintenance activities in a water point and a small piped

network to serve a neighborhood that does not have access to any kind of such services. These private service providers' enterprises can be encouraged by the government or other promoters if it does not have the capacity to provide the required water services. Privately- owned management models are driven by competition and therefore often develop in highly populated, peri-urban contexts, where there is the possibility of offering an alternative to the service provided by the dominant utility, Table 5.

| No | Private Service Providers Enterprises (PSPE) | Professionals' skills requirements and main duties | |
|----|---|--|--|
| | | Main Duties of the private providers | Professionals' skills requirements |
| 1 | Number of members vary from 5-12 based on the activities exist in the areas | <p>1. Operation and Maintenance</p> <ul style="list-style-type: none"> ✓ Spring on spot operation and maintenance. ✓ Hand dug wells construction ✓ Medium RPS Maintenance, ✓ Contracted all or some scheme operating system ✓ Pond and brick construction. ✓ Rehabilitation of existing water schemes ✓ Installation of distribution line pumps. ✓ Operate solar linked schemes <p>2. Spare Part Supply</p> <ul style="list-style-type: none"> ✓ Major & fast-moving water supply schemes' spare parts ✓ Water supply, Sanitation and hygiene materials and technologies ✓ Energy and renewable energy supply spare parts ✓ Construction material used for water schemes development and maintenance <p>3. Scheme Management duties</p> <ul style="list-style-type: none"> ✓ Contract water supply, hygiene and sanitary service management ✓ Contract data management (scheme history catalog) ✓ Others service, based on agreement made ✓ Software management, etc. | <p>Profession and skills requirements may include but not limited to: -</p> <ul style="list-style-type: none"> ✓ Artisan for masonry and carpentry ✓ Plumber graduated from TVETs or above ✓ Bar bender. ✓ Diploma or BSC degree in Civil Engineering or/and electro-mechanical Engineering*. ✓ Diploma or Degree in rural water supply and sanitation*. ✓ Diploma or degree in electro-mechanical from colleges ✓ Marketing, Business management, economics related BA degree*. ✓ Diploma or degree in Hydraulic Engineering. ✓ Diploma or Degree in Geology ✓ Diploma or Degree in Information management. . <p>NB * The indicated list must consider during organization or reorganization stage.</p> |

2.3.4 Government led Management (GLM) Model

The government management model is indicating when government undertakes direct management or via contracting to private entity or done by its own structures. The government management model in some pastoralist and hard to reach areas where schemes operation and maintenance is exclusively managed by woredas and zones or even by regional sector Bureaus. Moreover, highly urbanized rural areas may be categorized under this management model. This can be also undertaking by hiring human resource in woreda level or else organized team stand by woredas, zone or/and regional level. Naturally all practices can be undertaking until the first and second model comes in place and take over.

In fact, all management models have their own advantages and limitations. Identification of their salient features is vital for selection on which model fits best for what environments.

| Model | Advantage | Limitation |
|--|--|--|
| Community-based management | <ul style="list-style-type: none"> Proximity to users and local capacity to manage all rounds Flexibility in dealing with defaulters (those who are in overdue with their payments) The structure is permanent (members come and go, but the committee stays) The status of an association reduces the risk taken by each individual member Users have a better mechanism for expressing their demands and their concerns usually financially independent (when formalized), | <ul style="list-style-type: none"> The impetus is lost if members get no benefit from their involvement No assurance in case of mismanagement Limited skills to manage technically complex equipment Tendency to reduce expenses rather than increase revenue from water Difficulty in developing a strategic vision for network extension Often limited to only one level of service in the name of equity (which makes it difficult to meet the demand). |
| Private Management Model | <ul style="list-style-type: none"> Better management and financial autonomy. Have financial incentives to increase the consumer base and meet the users' demands. Private service providers are nearly creative in inventing new ways of meeting the demand and in being flexible | <ul style="list-style-type: none"> Difficulty on keeping a good balance (in terms of transparency and accountability) between the asset owner and Service provider) Difficulty of organizing a system of regulation that helps to keep prices down while guaranteeing service quality. Social Equity on access (limited access to the poor due to higher fee) |
| Government led Management model | <ul style="list-style-type: none"> Guarantee on social equity (poor do not loss access due to water fee issue) Uptake of more staffs temporarily eases workload on local government Tolerance on uncertainties as it is backed by local government | <ul style="list-style-type: none"> Difficulty on ring-fencing the revenue from water users Difficulty on retaining good professionals in the public office Difficulty on creating incentives to expand services and finance for new facilities, Management autonomy is usually weak, often overstaffing with negative impact Poor record in terms of demand responsiveness and financial management |

Table 5: - Rural Water Supply and Sanitation System Management model advantage & with its corresponding limitation

Strategically promoting the first and the second model listed in the above will benefit the sustainability of the water supply system. Fundamentally these models can improve the status of accessing the water supply reliably and make the entire community self-reliance society. Then the public institution may only play on coordination and technically supportive role. In fact, these can be assured through continuously capacitating the community representatives and their legalized structures.

At the core of the community accountability framework (consumer orientation, accountability and financial autonomy) lays the relationship between the rural water users association and its consumers.

Giving consumers the right to hold service accountable can help depoliticize or balance the accountability framework and can help prevent political capture. Ethiopia has a long history in consumer participation in rural water management. Keeping the water user groups as consumer representatives with different mandate and responsibilities is reflecting the main approved national WASH structure.

2.3.5 Finance Mechanism

Water supply and sanitation (WSS) is a major activity that needs to have a sound financial basis for supply and service system management in the rural areas. The sums involved in operating and maintaining services and infrastructure administration, rehabilitation and upgrading them to meet current social and environmental expectations are a massive. Yet most systems are underfunded with terrible consequences for the users, especially the poorest. The vital importance of using financial model in water supply and sanitation service delivery process is to give a solid platform for achieving the planned targeted in the sector. It entails taking a long-term perspective of the financial needs of the sector, the factors affecting them, the main sources of funds and the balance between them, and how needs can be reconciled with potential resources. The alarming evidence of current underfunding, and the looming costs of future development lend urgency to various exercises as leading parts.

1) Income generation

Getting more money into water supply and sanitation service is a crucial part of this model but it is not the end target. Aspiration to produce a realistic balance between the demand and supply of finance and promoting the financial sustainability of the system management is very significant. This mission involves looking beyond money to service standards and quality, efficiency in provision, and how governance of the system related income and self-reliance needs to change live standard and service quality sustainably.

Sustainable water supply and sanitation service delivery requires sustainable income generation. This is true whether the money comes from user fees, government subsidy, development grants or private sector or community structure investment. Whatever is income generation size as rural community payment ability and pic time, it shall consider the natural settlement, community economic status and type or payment form. Depending on the nature of specific rural areas' income can be generated as fee, fund raising program and regular payment monthly, semi-annul or yearly in item or cash form of payment.

2) Tariff setting

Based on the available policy and strategy, tariff setting for rural scheme management can be applied incorporating the regional sector regulations and procedures content. As already known water has

economic value and ensures that fees are paid for service rendered. Therefore, it is important that ensuring the price of water supplied should be neither too high nor too low. Tariff structures ought to be site-specific depending on the particular's location, amount of use, cost and other characteristic of the catchment. Rural tariff settings are based on the objective of Operation & Maintenance service, fully or at least partial cost recovery and expansion assumption. Tariff structures in water supply systems are based on equitable and practical guidelines, criteria and specific scheme administration of the regional procedures and internal bylaw of the WASHCOs and/or association or federation.

In some cases, determination by regional administration, provision subsidies for disadvantaged rural communities and the communities shall cover the operation and maintenance cost. Furthermore, developing flat rate tariffs for communal services like hand pumps and public stand posts is expected. Multi-village crossing some rural areas and commercial area should be treated to subsidize dispersed rural villages, disadvantaged group and communities in the source areas.

Finance source for rural water supply scheme development, operation and maintenance may come from service fee or tariffs based on the local content, payment modality (in cash, in kind or free labor service), transfers and various payments and may be supplemented by credit as well. However, the finance must be sufficient to cover current operation and anticipated costs for different types of service cost. Hence it is requiring strengthening the finance components of the system as a means of improving system management process and increasing the overall financial flows into Rural Water Supply and Sanitation System Management.

Almost all components of rural water supply system are linked to finance component. Therefore, the most important directions are depicted as follows:

- Government institutions and community organization should be strong enough in covering or accessing finance source to engage effectively in finance decisions. These know how in finance mechanisms assist to decide appropriate decisions. Finance institutions such as banks and other financial facilities are among the institutions of the Rural Water Supply and Sanitation System Management partners.
- National level and local specific legislative and rules are essential for enforcing tariff regulations and attracting private sectors and micro finance institutions by ensuring security and clarity of contracts.
- **Tariffs** should be the priority mechanism before the decision of subsidy and other options for various cost including operation and maintenance, rehabilitation and new expansion. It is

decent to set the financial benchmarks and tariff policy that balance the needs and rights of consumers, service providers and financiers.

- A clear asset inventory is essential for managing assets and planning financing needs. Information about actual use of services is required for accurate billing on service delivery in the rural areas.
- Financing needs to be closely linked to planning and budgeting mechanisms of the community organizations.
- Finance is needed for water supply scheme O&M, rehabilitation or reconstructing purpose as it is essential to ensuring sustainable services.
- Responsibility for financing spanning all levels: setting the framework for sector financing is largely the role of the regional or/and national level, whilst cost recovery through tariffs involves the individual users and their service provider. Planning and budgeting take place at all levels, but at community, woreda and kebele levels, it is particularly important to budget and obtain fund raising for all key cost components. Theoretically, operational costs and maintenance are typically the responsibility of local actors and users, but practically it needs further integrations of all actors and partners to strengthen the local community to cover their service cost by themselves.
- Financial records include a statement of retained earnings and cash flow, income statements (tariff collected) and the institution balance sheet. Financial record is the formal documents, which represents the transactions of the services. Keeping the financial record in an organized way is a key indication of a successful financial management.
- In rural tariff collection, the financial constraint not only delays but also makes the cost of O&M to freeze during non-harvest seasons. Thus, access to finance is very important for both water supply scheme O&M and user communities to ensure sustainable supply of water supply services. Therefore, devising mechanism through which users can get access to improved water supply services at affordable cost. Therefore, the community, key partners and local authority should find and implement alternative financing options for the consumers.
- Incentives are the motivating influences or stimuli inciting people participating in management process, and thereby inciting institutions and other actors involved in the rural water supply service provision to pursue certain objectives or to behave in a certain way.

3) Expenditure and data management

To manage the utilization process, consider the following basic components

- ✓ Cataloging the scheme and its operating consumption data
- ✓ Operation and Maintenance Budget,
- ✓ Capital Expenditure Budget,
- ✓ Financial Statements, including the Cash Flow and Income process.
- ✓ Expense, billing and receivable assets controlling on fixed time limit (monthly, semi-annum and yearly base) and,
- ✓ Annual capital expenditure status considering these factors: -
 - O&M Cost
 - Capital Cost
 - Lifeline Rate for Poor
 - Cross Subsidy Non-Domestic to Domestic
 - Cross Subsidy City to Town
 - Sources of Capital Works Funding (Central Govt, Local Govt, Donors, Other)
 - Average Household Income per Month

More over using some guiding points indicating and liked here in financial Management for RPS manuals is very important to manage the financial mechanism.

[...\Downloads\Financial Management for RPS.pdf](#)

3. ADDRESSING CROSS CUTTING ISSUES

3.1 Community Participation

When a single community lives within a catchment area, there should be internal discussion and create awareness to take ownership within the community about water supply system management strategies. Moreover, when several communities share the catchment area, there should be cooperation between communities to coordinate safe catchment area practices in the upstream areas, to ensure safe water quality in downstream areas too. More over community should be involved in management system as an ultimate owner of water supply system and sanitation services. Involving the entire communities' members is difficult in this aspect. But it can be ensured by representing all community parts through selecting strong and literate individuals to work as a management's team in WASHCO, Association, Federation and Confederations. At any means of service delivery, without community participation

nothing is achieved alone letting them as external bodies. Therefore, community participation is a cutting issue that should be considered in the first place.

3.2 Social and Environmental Safeguards

Social and Environmental Safeguard Section/Unit within the water sector are facilitating effective enforcement, capacity building and monitoring of adherence to the social and environmental policies and guidelines. There is also a need to have a unit responsible for environmental and social safeguards in the regions; woredas and villages preparing guiding document that match the local context.

The CR-WSP is the most effective way of ensuring safe and reliable water supply for human consumption that meets the health, economic and social demand-based standards and other regulatory requirements in a specific socio-economic environment. It is based on a comprehensive enhancing improved socio-economic environment by undertaking risk assessment and risk management approach to all the steps in a water supply chain from catchment to consumer.

The development and implementation processes of the CR-WSP for rural water supply have six Inter-dependent tasks. The tasks have been identified to be accomplished by steps and clarify what to be considered under each task during development, implementation, monitoring and Evaluation of the CR-WSP focusing on how to ensure safety and quantity water from catchment to point of consumption in specified socio-economic environment.

3.3 Gender

The guideline recommends considering gender responsive approach that reflects an integrated approach to preventing and avoiding gender-based violence and empowers women. Women already occupy important managerial roles in the health and education sectors, but less so in the water sectors. Other gender-related aspects include but are not limited to planned support to women and youth-led supply chains, construction of the service in the community and use of gender disaggregated indicators to monitor the results. In most of Ethiopia experiences, water fetching is predominately related to children and women, at least 50% of management team member, should come from women representation.

3.4, Equity and Inclusiveness

Equity and inclusiveness (Poor, differently able, HIV Mainstreaming, etc.) is a human rights-based approach to programming that extends beyond focusing on the specific needs of marginalized groups. It is about empowering people who are marginalized and improving wider systems of governance,

changing the power dynamics between those without access and the duty bearers in the water supply system. Inclusive WASH aims to bring about sustainable and long-term structural and systemic change in policies, procedures and laws, as well as changes in attitudes and behaviors to ensure water supplying process results are achieved by all.

It is to enhance equity and reduce disparities in access to WASH outcomes. It should focus to reduce inequality, sustain access to services at scale, promote climate resilient development and strengthen accountability at all levels. This can provide a flexible service to accommodate as many users as possible, ensuring facilities are accessible and easy for all to use. It mainstreams a rights-based approach to support people to engage in wider processes and ensure their rights are recognized. Achieving access to water for the poorest and most marginalized groups such as people living in informal settlements needs;

- (1) Improved information on community WASH facility services in slums (particularly for people with disabilities, children and the elderly),
- (2) Designing and testing technologies that address the needs of poor and marginalized people at system development and
- (3) Prioritization of the poorest people in the service delivery process.

3.5 Refugees, Internal and External Displacement

Ethiopia is a host to the second largest population of refugees in Africa, may right now the first nation. Given the complex nature of the situations within and in the neighboring countries the refugee situation in Ethiopia is protracted in nature with refugee populations and their hosting populations competing for limited resources. Integration of refugee populations that includes enhanced provision of basic and social services is very important. Moreover, rural water supply, sanitation and hygiene service is requiring different focus by government and community management model with special treatment.

3.6 Differently able (Disability)

Access to WASH services for people living with differently able is the priorities in the water sector. According to a World Bank and WHO report, there are an estimated 15 million children, adults and elderly persons with differently able in Ethiopia, representing about 17.6 per cent of the population. Recognizing that the objective of this guideline cannot be reach if the special needs of those groups are not met; This platform is required to adjust the technical designs to make them differently able (disability) inclusive. Depending on local and situational context all regions and city administration should have their treatment guideline.

4. ENABLING ENVIRONMENT

4.1 Integration and coordination of key stakeholders

Developing a framework for the sustainable and effective collaboration amongst all stakeholders including the public, donors, communities and private sector at all levels respectively. Participation of all stakeholders is a strategic issue as already has been said.

By its very nature, management of rural water supply and sanitation system is often characterized through the large number of partners. Each partner may have peculiar merit points and contributions to part or whole system which others don't possess and vice versa. Identification of key partners and clarifying their typical link and relationships is therefore a key for better understanding and selection of management model that more solve the current problems. These partners are the key stakeholders who have important contributions as individual House Holds (HHs) and organizations which actively involved in the intended activity to ensure Rural Water Supply and Sanitation System Management to ensure sustainability. They have also their own interests which may have affected positively or negatively of the implementation and by execution of the implantation process.

These key stakeholders can be internal to the water sector or external. In many missions the public at large will become a stakeholder to be considered during the implementation of the program. The challenge for the management is when the public as stakeholder will be to act while considering public needs. Often there is no direct representative of the public to be consulted during planning and execution. It includes basic stakeholder's analysis which depicted the interests, involvement, expectations, importance, influence, information requirements and impact of the stake holders on the model implementation process and the intended impact to have. The Potential stakeholders are, Table 6.

| S. N | List of Stakeholders | Involvements | Interest | Level of Impact | Information requirement |
|------|--|------------------------------------|---|-----------------|---|
| 1 | MOWE | Overseer | Coordinate, Develop & Secure Rural Water Supply and Sanitation System Management to insure sustainability in the community. | High | Entire implementation process and its performances status report |
| 2 | OWNP | Coordinator | Achieving one water national program plan | High | Performance status report |
| 3 | Water & sanitation infrastructure management Directorate | Co-administrator | ensure sustainability of service | High | Coordination of Regional, zonal, woredas, federation, association, & activities status report |
| 4 | Regions water sector | Implementers | Benefiting the entire community, ensure sustainability | High | Performance status report |
| 5 | City administrations | Implementers | Benefiting the entire community, | High | Performance status report |
| 6 | Zonal | Implementers & supporters | Benefiting the entire community, ensure sustainability of service | High | Performance status report |
| 7 | Woreda water office | Implementers & promoters | Benefiting the entire community, ensure sustainability of service | High | Performance status report |
| 8 | Staff | Planners, implementers & promoters | Success and achievement | high | Performance status report |
| 9 | CO-Partners (IRC, SNV, UNICEF, JICA, COWASH,) | Partners | Social benefit, through ensuring sustainability of service | Medium | Status information |
| 10 | MOH | Partners | Healthy community | Medium | Status information |
| 11 | Rural and Urban job creation | Partners | Job creation, reduce unemployment and income generation for the citizens, | Medium | Private sector follows up, Number of job and benefit created in the process |
| 12 | Trade Agency | Partners | Legality | High | Status information |
| 13 | TVET Agency, EWUTI | Partners | Technically skilled HR | High | Status information |
| 14 | Land use management | Partners | Legality | High | Status information |
| 15 | Agricultural and environment | Partners | Sustainable farming system and green economy | High | Status information |
| 16 | Wholesalers | Spare part & products selling | Business generation | High | Increase income |
| 17 | Local communities | Beneficiaries | Water, sanitation and hygiene service | High | status of service standard |
| 18 | WASHCO, Association, federation | Beneficiaries | Improved and sustained service | High | status of the service |
| 19 | Financial institutions (AfDB, WB, Banks, MFI) | Fund facilitator | Collaboration in the business | High | Financial utilization trend report |
| 20 | Competitors | Suppliers | Competent | Medium | Status report |
| 21 | Private service providers | Suppliers | Competing in the market | High | Performance status report |
| 23 | BoFEC | finance in and out flow | Legality | Medium | Finance flow system |
| .. | | | | | |

4.2 Capacity building

The guideline emphasizes on strengthening the capacity of community organizations, water users, and implementers in attitude, technical and financial performance. Therefore, it intended to: -

- Promote objective oriented training with special emphasis on water supply, sanitation and hygiene service sustainability by focusing on attitude change, system thinking, financial management, book keeping, and in all key components for users and local implementers,
- Strengthen capacity building for private service provider enterprises, associations, water boards, and others gov't structures so that they can make improve the service delivery system in the RWSSSM
- Ensure autonomous and decentralized management of the rural water supply systems.
- Establish viable information management systems and
- Capacitating the implementers in all level to update and sustain the service
- Technically and systematically the support the entire structure of the sectors to integrate more.
- Moreover, referring the HR and capacity building document linked here in the guideline is very significant. [Human Power and Capacity Building.pdf](#)

4.3 Finance source

Sustainable water supply and sanitation service delivery process requires sustainable financing mechanism. This is true whether the money comes from user fees, government subsidy, development grants or private sector or community investment in cash or items. The finance source deals with identifying service delivery costs, the sources of finance, the roles of different actors in providing finance, where it is needed audit, and endorsement or manage it.

Rural water supply scheme development, service management, operation and maintenance finances can come from service fee or tariffs, transfers and various payments and may be supplemented by credit as well in cash or items. However, the finance must be sufficient to cover current operation and anticipated costs for different types of service even for new expansion purpose. Hence it is requiring strengthening the finance source for the system management as a means of improving existing financing mechanisms and increasing the overall financial flows into Rural Water Supply and Sanitation System Management. The finance source can be including but no limit to:

1. Service fee and service sales through identified tariff setting in local context,
2. Initial service capital contribution by community organizations (in cash/items) and
3. Sector and community promoters
4. Governmental supports
5. Associations, federation and confederations can access financial through funding raising options, create platform credit and saving policy for their members in the rural areas.

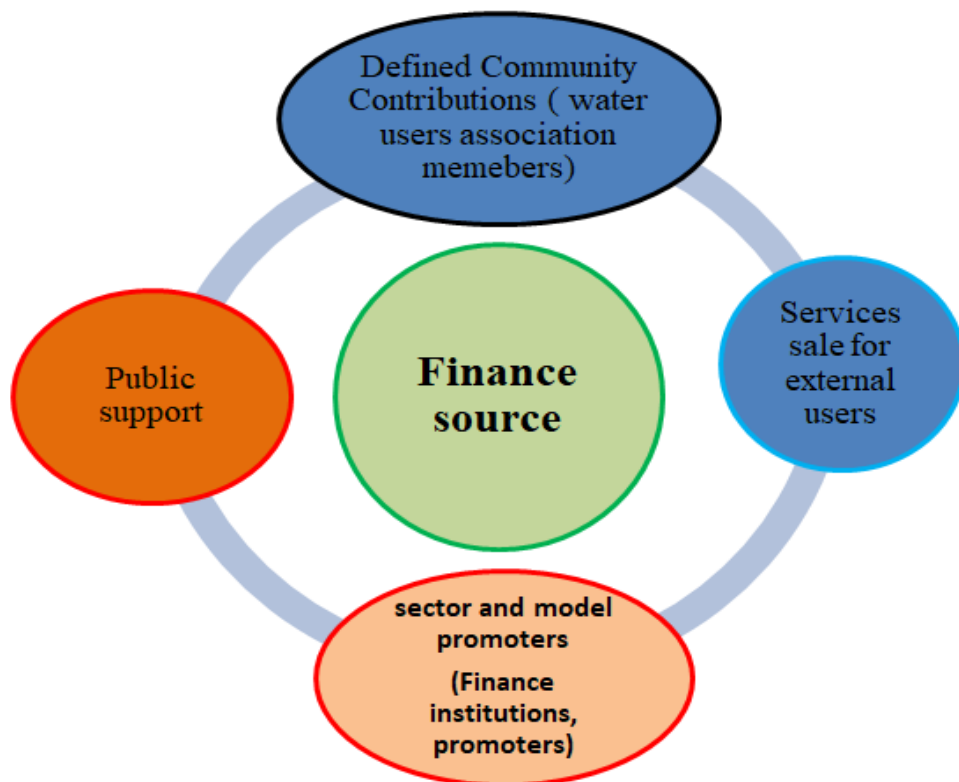
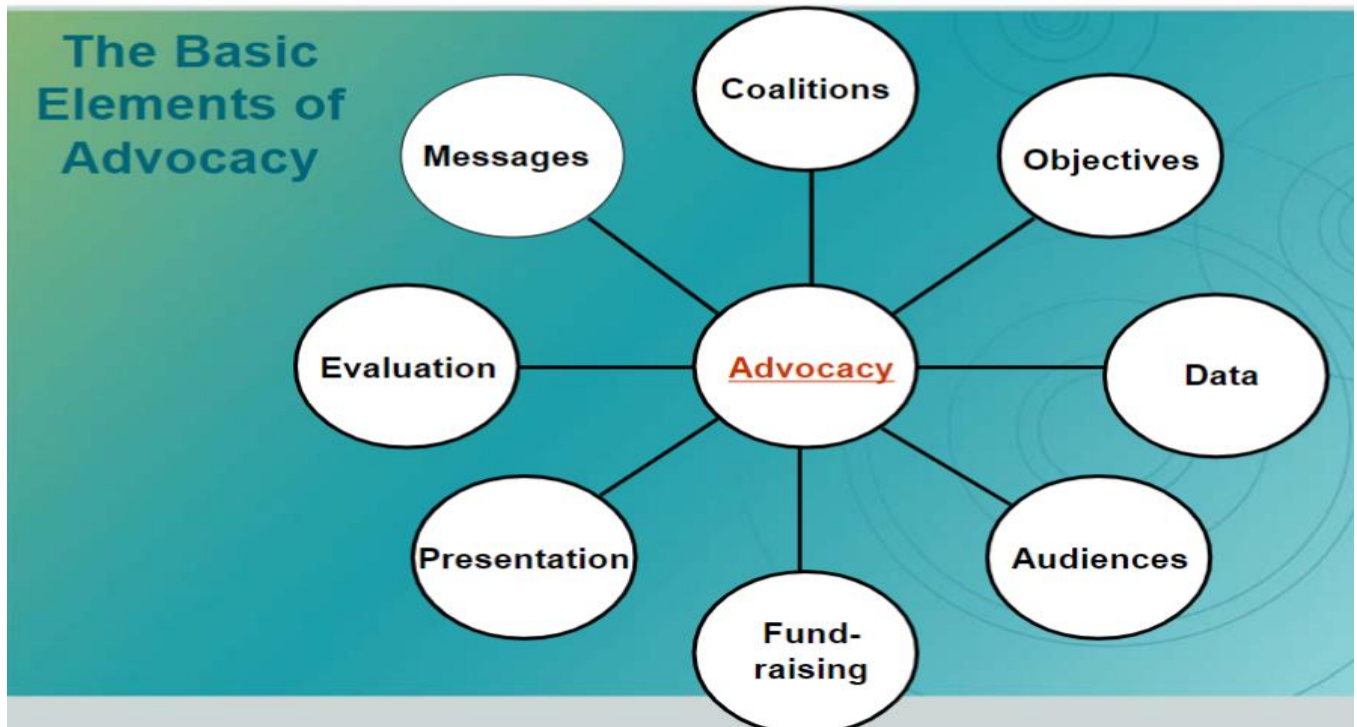


Figure 4: - Finance source for rural water supply system

[..\Downloads\Description of water sources for water supply.pdf](#)

4.4 Advocacy and communication

Advocacy involves getting those with power to correct a situation. Directed at influencing policy, laws, regulations, programmers, or funding—decisions made at the upper-most levels of public or private sector or community. Developing an advocacy campaign requires clarity about the goals to be achieved, available strategies, resources, and potential allies and opponents. Sound advocacy and communications should be considered in this management model can incorporate the following basic elements to achieve its targeted goal or objectives, Fuger 5:



Moreover, the following two aspects are a major player in advocacy and communication activities. These are documentations a lesson learnt and scaling up best practices.

a) Documentation of Lesson learnt

Well managed and closed process promotes future efficiencies and effectiveness by reducing dependence. On tribal knowledge, as successes and lessons learned are appropriately documented. Such documentation will help future program implementation process and implement the strategy intended to be implemented in the water supply and sanitation sectors. This is one advantage that implementing of designed program enhances the efficiency and effectiveness by lowering costs as they can easily leverage the lessons learned of previous and well- closed achievement.

Therefore, a format for selection good practices will be addressed in the implementation processes at each process and attached to the guideline to follow the activities undertaken in each step of the activity's steps.

b) Scaling up best practices

The lesson learnt documented from the guideline implementation processes is organized and presented for the further reviews to assess and evaluate the extent it has for further promotion. Then it will be approved by MoWE, regional, and Zonal higher officials accordingly. Based the direction given by higher officials during the best practice approval, it becomes scaled up for further water supply and sanitation sectors promotions.

5. IMPLEMENTATION ARRANGEMENT

5.1 Institutional arrangement

5.1.1 Community organizations

1) Water user Association (WUA)

Water user Association (WUA) is a community-based organization with legal recognition. It is organized by households with common purpose, which is intended to manage their water supply schemes, mobilize community, finance and other resources. The water users provide payment for operation, maintenance and resource conservation, rehabilitation, new scheme establishment or investment with administrative requirements.

The size and responsibility of WUA greatly varies depending on the nature and complexity of water supply schemes. From single on spot scheme to large like multi-village system which is covering a number of villages, kebeles, woredas and even zones. There might even be the case where the multi-Village schemes (MVS) extends crossing regions. The difference lies on the scope of responsibility which should necessarily be limited to the schemes developed at the point of sources for the former while for the latter extends to comprehensive infrastructures like pipe network, reservoirs, water collection points etc. besides the water sources.

2) Federation and Confederation

Federation is a member of the water users' associations associated while retaining their specific powers & authorities. They can form a federation **or Confederation** to further enhance their capacity and serve as upper arm for handling high level tasks like resource mobilization, facilitation of supply chains, handling major maintenance, bridging communication with public body, training and etc.

Federation of water users' association should be established at woreda level and no more than one federation per woreda. At zone or/and region level it can be formed and even confederated further for task. In case of MVS crossing more than one woreda, federation may be set up at convenient structures like zone or region level.

3) Water, sanitation and hygiene committees (WASHCos)

WASHCos is established to manage and sustain better access of WaSH services. The collaboration between the communities, a platform called Water supply, sanitation & Hygiene Committee (WASHCos) is institutionalized at the community level. It is democratically elected group of 5 to 7 members and serves as an arm of WUS at a more decentralized level. Female members should constitute at least 50% in WASHCos and to a minimum one in the leadership positions like chair person, deputy chair person or secretary should be held by female member. Furthermore, election of WASHCos members should take in to account both social and geographical representations. Water Sanitation & Hygiene committees should be established at each water supply scheme and can also be set up at water collection points like public fountains.

5.1.2 Private Service Provider Enterprises (PSPE)

The available private service operator options called PSPE are assumed to be suitable to incorporate with water users' association at community level and woreda water sector. It is required a model revision for fitting the service delivery process. To address rural schemes, spare part supplying, sanitation service, system operation and maintenance and system management services. To address intended intervention, the Private Service Providers Enterprises (PSPE) has to be diversified water sector and management professions to hold a strategic place.

The enterprises shall be engaged in spare parts supply, O&M services, energy and sanitation products supplies etc. They are undertaking the given duties through licensing their services in existing trade procedures. The service of registration and licensing of PSPE for service is treating at woreda level water supply and Trade office. Numbers or limit of enterprises shall be decided according to service available in woreda and as described in this document table 5. The established PSPE are expected to render on spare parts supplying, scheme data management, Operation & Maintenance focusing on penetrative and predicate maintenance approach. Based on the local context and available resource, it can be implemented by projectizing or programing its duties indicated here.

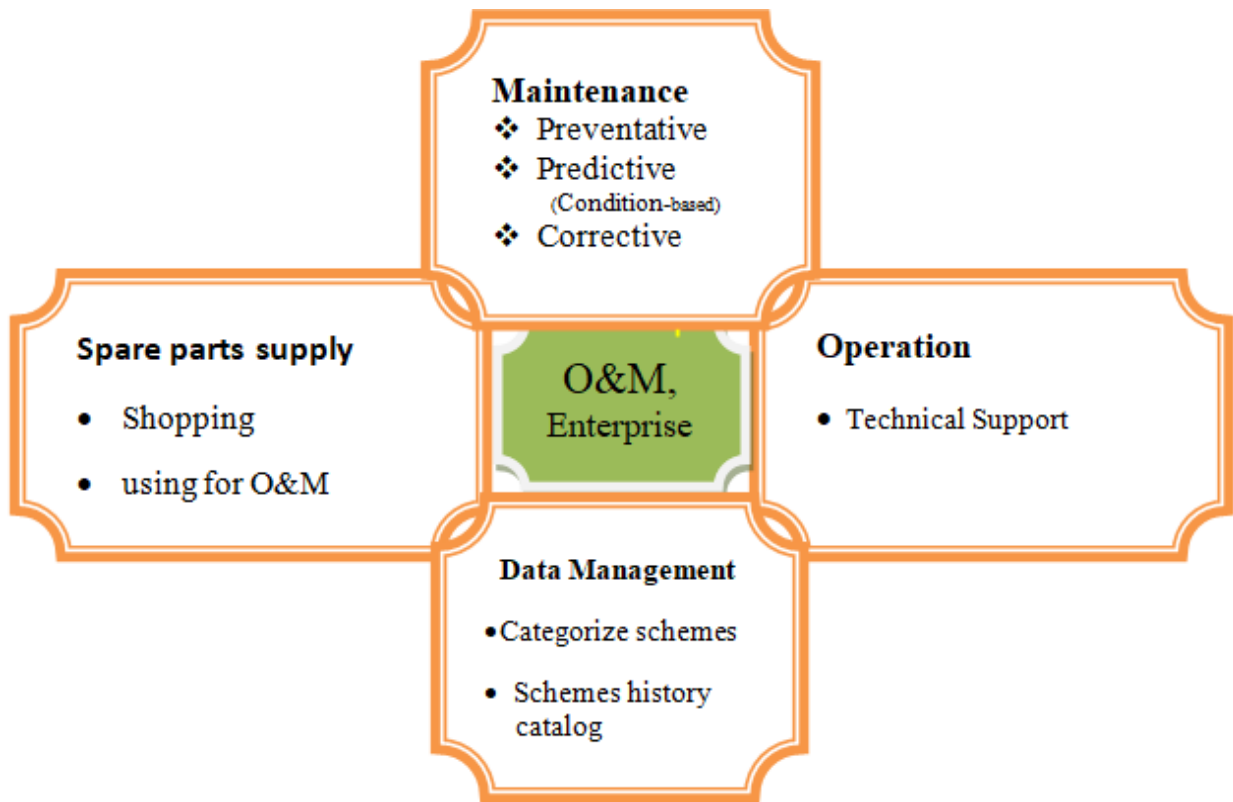


Figure 6: Major duties of PSPE

Maintenance of any water supply scheme is a basic and essential intervention in preventing individual scheme component failure. Maintenance is extending the useful life of such components, limiting deterioration of service levels, minimizing disruptions in the services. It is also lowering the costs of sustaining access levels to water in rural areas. It is ultimately to ensure the continued operation of the scheme over time. Maintenance is a sub-set of activities that come under a broader umbrella of infrastructure asset management (often simply termed asset management).

This refers to a set of approaches and practices which can collectively ensure the continued functioning of a water supply system. It is to be achieved by having knowledge of individual components, their costs and ensuring the incremental repair and replacement of these components in a planned manner, with a related financing plan in place. Different forms of maintenance are an essential part of asset management. Hence operation and maintenance are not only technical aspect but also others like managerial, social, financial and institutional issues.

Most of water supply and sanitation system is not staffed with skilled and experienced personnel to operate and maintain the service delivery processes. Even it is not possible to cover for all schemes without community, private sectors and other external partners' integration. Adequate tools and equipment's are expected to be available in most proximity of schemes which is also calling for partners'

integration. Moreover, the day-to-day actions by most system are anticipated to be well planned and are delivered according to the required standards.

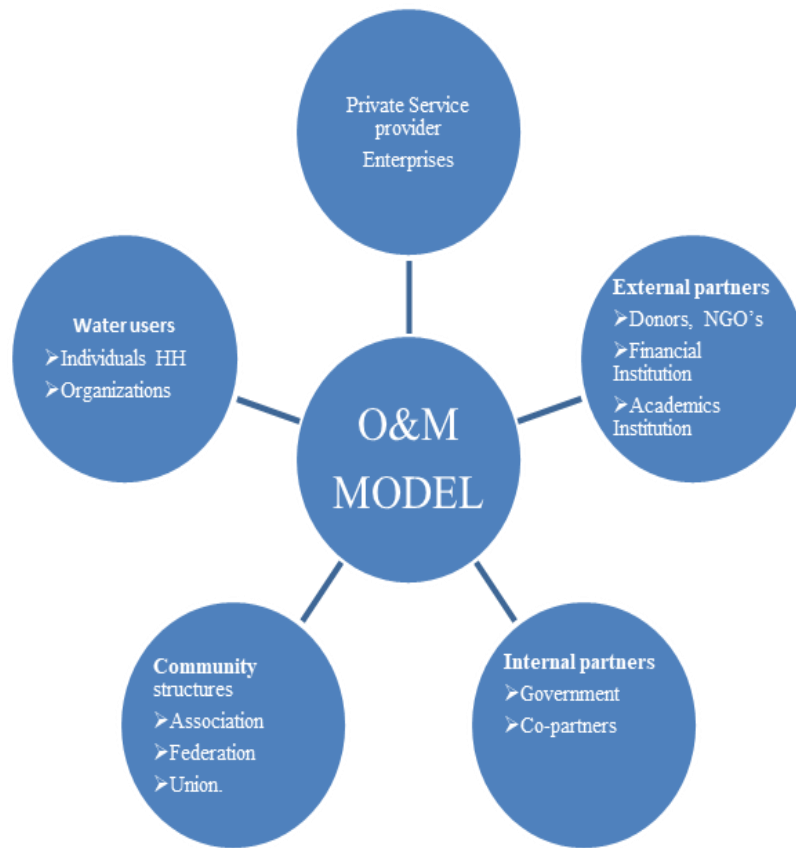


Figure 7: Owners for O&M services

5.1.4 Government structure

During the implementation of this guideline, checking government structures starting from regions to woreda is important whether it can fit or aligned with the service planned to be rendered. More over water quality, water safety plan, O&M and community participations related experts are required to be available to integrate with woredas water supply, sanitation, and hygiene service management teams in woreda and next lair of water supply and sanitation sector.

5.1.4 Board of management (Watch Group)

Whatever management model is in place, an overseeing body as management board is required to ensure the service delivery is heading in the right direction creating M&E frameworks.

For community management model, management is carried by WASHCOs or Association elected by the user community and its general assembly (entire community member) that over sees the service. For

other management models, there should be a board represented from each member of association, federation and confederations integrating with government structure based on the local context.

- a) In case of the clustered water supply schemes managed by private sector, board member shall be drawn from each water user association and federation (community).
 - Chairperson will be woreda water office head /representative
 - Chairperson of association and federation secretary
 - Manager of the private sector will be member
- b) For rural utility management model (MVS with one woreda),
 - Board members shall be established with fair representation of user communities
 - Head of woreda water office will be chair person
 - Utility manager will be secretary
- c) For rural utility management (MVS crossing more than one woreda)
 - Board members shall be established fair representation of user communities' association or federation from all woredas)
 - Heads of woreda, zone or region water sector head will be included as board members
 - Woreda, zone or region where majority of infrastructure falls will be chair person
 - Utility manager will be secretary.
 - At least two numbers of community and area administration representatives from upper and downstream of catchment areas will be assigned.

5.1.5 Role and responsibilities of each stakeholder

The existence of a legal framework with clearly defined roles and responsibilities of the various stakeholders is one particular element for developing successful water supply and sanitation system management models. In Ethiopia, decentralized structure, local authorities/ (woredas and zones in some cases) are mandated to play a central role in the regulation of water supply service management. But critical supports like financial, material and human resources are assumed to be effectively transferred from higher (national and Regional) to local authorities in order to enable fulfill their roles.

Scheme development planning, financing, construction, operation and maintenance falls under the responsibility of legal organized waters users at village, kebele and woredas level. The schemes, once constructed, are not handed over to the community directly. Their role shifts from community management to community participation, consumer representation in the rural area community structure and consumer monitoring. The community structure may include association at individual scheme, rural

water utility at village, kebele or woreda level association and Federation at zone or regional level respectively. Various key partners in RWSSSM are positioned at different levels from the national down to the community level with strategic functions is summarized here under, Table 7.

| Level | | Key partner | Position | Roles |
|--------------------------|--------------------------------------|--|--|--|
| Government sector | Federal Government | Federal water supply and sanitation sector | Regional Gov't Council | Providing policy direction, guidelines and sourcing funds for capacity building, strategy formulation, Supporting Regions in Programming (new / rehabilitation of water supply and sanitation facilities as necessary) |
| | Regional Government | Regional WB, TVET, health bureau, financial institutions etc. | Council | Backstopping in the supply of spares (spare parts), technical support and monitor zonal, Woreda Water office, Under take Research, assessments, reviews etc. |
| | Zone | Zone Water Office | Council | Backstopping in the supply of spares (spare parts), especially in situations beyond woreda's capacity. Technical support and monitor to woreda |
| | Woreda office | Water, trade, TVET, job creation, Health, land use management, agriculture, environment and financial institutions etc.) | Woreda board | Creating enabling environment (legality issue, collaboration, governance etc.) Backstopping support towards supply of spare parts; Accounting, Planning, and Storing of spares (shop), Implementing Training, Monitoring, Supervision, Reporting & Recommendation, service with watch group |
| Partners | Co-partners & External partner | Donors, financials and academic institutions, charities, & NGO | Technical support and financial support | Involving in strengthening community and private based system managements (guiding, financing, training, auditing, etc) |
| Community | Community level | Water users committee. Associations, Rural water Utilities, Federations | Federations and confederation | They are the ultimate owners of the water supply system, Managing, Planning, Budgeting, coordinating resources, organizing meeting and training for community users' organizations members, arranging spare part supply integrating with PSPE & other suppliers, O&M activities and service payment, |
| | | Associations at single or few schemes | Caretaker | Water users Sensitization, mobilizing community and resources, Monitoring, acquiring local resource, financial management, pay & collect services for investment and running cost. |
| Private sector | Private service provider Enterprises | PSPE | Service rendering in O&M, Spare part supply, Data management | Collaborating with associations and Woreda Water office: - undertaken · Operation · Maintenance · Spare parts and sanitary products supply · Scheme construction · Asset management, data cataloging others based on the agreement has been given |
| Watch Group | Boards | Integrated group | Overseers | Community, MVS with one woreda, MVS crossing more than one woreda |

5.2 RWSSSM Indicators

The key performance indicators will measure the following outcome in this RWSSSM guideline.

- a) Increased functionality of schemes and sustainability of water supply, sanitation and hygiene service in %
- b) Increased services quality and standard in %
- c) Increased self-reliance and earnings of community for their service rendered%
- d) Improved women's and youth participation in water supply system management
- e) Service uniformity throughout the country
- f) Improved sustainability of services of scheme

ANNEXES

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