

**A COMPARATIVE STUDY ON WOREDA MANAGED AND
COMMUNITY MANAGED RURAL WATER SUPPLY PROJECTS,
WITH RESPECT TO THEIR PLANNING, IMPLEMENTATION
FUNCTIONALITY AND UTILIZATION.**

**THE CASE OF AMHARA NATIONAL REGIONAL STATE,
ETHIOPIA**

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ACRONYMS

ADB	Africa Development Bank
AMCOW	African Ministry's Council on Water
ASCI	Amhara Credit and Saving Association
BoFED	Bureau of Finance and Economic Development
BG	Block Grant
CBO	Community Based Organization
CFT	Community Facilitating Team
CMP	Community Managed Projects
DA	Development Agents
DFID	Department for International Development
E.F.Y	Ethiopian Fiscal Year
EU	European Union
IDA	International Development Association
MoWE	Ministry of Water and Energy
MoWR	Ministry of Water Resources
NGO	Non-Governmental Organizations
O&M	Operation and Maintenance
RWS	Rural Water Supply
WaSH	Water Sanitation and Hygiene
WASHCO	Water Supply, Sanitation and Hygiene Committees
WB	World Bank
WMP	Woreda Managed Projects
WOFED	Woreda Office of Finance and Economic Development
WSP	Water and Sanitation Program

WWT

Woreda WaSH Team

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ABSTRACT

Water is life. It is a basic need for human being welfare. Adequate domestic water supply is an entry point to sustainable development. However, in most developing countries, limited access associated with poor water supply, hygiene and sanitation is widening the poverty gap.

Ethiopia is a country with high ground water potential. It has twelve major river basins, including the Blue Nile, and eleven major lakes, which makes the country the “Water Tower” of East Africa. Yet, access to safe drinking water supplies and sanitation services in rural parts of the country is among the lowest in Sub-Saharan Africa. While governmental and non-governmental organizations have been implementing water supply and sanitation projects in recent years, many lack sustainability due to improper management. This fact is attributed to the service delivery modalities adopted by financers and implementing agencies.

Accordingly, this study aimed at analyzing two basic service delivery modalities (WMP which is a commonly applied rural water supply and sanitation service delivery modality, and CMP, which is a recently applied rural water supply and sanitation service delivery modality), in a comparative manner with respect to their planning, implementation, functionality and utilization. The purpose is to contribute to the sector knowledge, and to provide implementing authorities with a scientific data, on the advantages and disadvantages of WMP and CMP.

This study has employed multiple research methods, which are both qualitative and quantitative. Data was gathered from a total of 64 Water supply schemes, and 74 beneficiaries in the Amhara National Regional State, through questionnaires, observations,

site visits, semi structured interviews and focus group discussions. Secondary data was also obtained through a detailed literature review.

The findings of the study show that in the CMP modality, which empowers the community with the full responsibility of planning and implementation, a higher sense of ownership, higher implementation and fund utilization rates, higher functionality and optimum utilization of water supply schemes prevails. However, both modalities face O&M challenges, though some promising qualities characterize communities served under CMP. In addition, the findings also show that water quality check and standard setting seem to be totally absent at the observed water supply schemes.

1. INTRODUCTION

Water is one of the primary driving forces for sustainable development of any country, where its environmental, social and economic development are to a large extent dependent on improved water supply services. Access to water supply and sanitation is a fundamental need and a human right, (Global Water and Sanitation Assessment, 2000).

Universal access to water and sanitation could prevent thousands of child deaths and could give ample time for women and children to go to work or school. In Ethiopia, access to rural water supply was among the lowest in the sub-Saharan Africa. However, over recent years, access to water supply has been on an increasing trend in rural Ethiopia. Though different data sources show different figures, all sources confirm that water supply in rural Ethiopia is on a strong upward trajectory. The official government data states that rural water supply coverage has risen from 11% in 1990 to 62% in 2009, (CSA/MoWR, 2009 indicated in AMCOW, 2010). The AMCOW second round Country Status Report 2010, also shows a remarkable increase in coverage, i.e. 1 million people per year for the period 1990 – 2008 at the national level.

One reason behind this success is a significant increase of financial resources committed to the water supply sector. The World Bank Document (Report no. 39119-ET/2007) stated that “The annual cost of achieving the government plan is estimated to be US\$350- 450 million in the first few years and falling to US\$200 million in the later years. A fivefold increase in the current US 100 million per year rate of investment (including this project) would be needed to achieve these targets.”

This document also indicated that the transformation in the institutional arrangements, through the government's decentralization process, as another key features which created an enabling environment for basic service delivery. Accordingly, Regional Water Bureaus of the country were endowed the autonomy over the development of their water supply projects, and the Central Ministry's, (MoWR established in 1995, which later became Ministry of Water and Energy (MoWE), mandate was limited to policy review, coordination, and regulatory functions.

This decentralization process was further strengthened in 2004, by shifting the autonomy of developing water supply projects to the Woredas (Districts), although the regional governments continue to provide the necessary technical support to the Woredas. At the federal level, different policies and Strategies continued to be developed to meet the MDG of achieving at least 60% coverage of water supply by the year 2015. One of these strategies is the Universal Access Plan(UAP) developed in 2005, which had set an initial target of 100% water supply coverage by the year 2012. The target date and coverage were later modified to 2015 and 98.5% respectively. However, based on the official government data Ethiopia has already met the MDG targets, (AMCOW: 2009/2010).

One prominent lagging feature in the water supply sector was limited stakeholder participation. Here, again, the World Bank Document (Report no. 39119-ET/2007) stated "To date stakeholder participation in the sector has been very limited. However, a trend is being set under the ongoing water supply and sanitation program, towards consultative process and participatory planning. Participation of the private sector is also growing. Though there is awareness on the efficiency and service improvement the private sector could bring about, progress is slow. As part of the EU country dialogue, a multi stake holder forum that brought

the key stake holders together in one hall to discuss on the water supply sanitation and hygiene sector coordination and agree on the way forward.”

This effort which began as a multi-stakeholder forum in 2005 under an European Union (EU) ‘Country Dialogue’ has focused on the cross-sector integration of Water Supply, Sanitation and Hygiene (WaSH) interventions, and has helped to put in place WaSH coordination structures across the water resources, health, and education sectors. This process became effective in harmonizing donor inputs in terms of programming and financial support, and evolved as National WaSH Program, and later as One National WaSH Program in 2011.

The One National WaSH is not entirely new, but rather takes into consideration lessons learned from previous water, sanitation, and hygiene projects in the country and builds on the foundations laid by these projects (MoWE, 2001). This program also incorporates, in its Rural WaSH sub-sector, an innovative and highly decentralized community project management program called Community Management Program (CMP), where the communities are fully responsible to directly manage funds and planning and implementation of water points and school and health post sanitation facilities.

In general, there are four funding and project management modalities under the One National WaSH program to finance projects under the Rural WaSH sub-sector. This include

- a) Woreda Managed Projects (WMPs) – under WMP, planning and implementation of rural water supply projects is the responsibility of the WaSH team at the Woreda level. Though the Kebele administration and the WASHCOs at the community level are involved in the project planning, implementation, monitoring and signing-off the project, the Woreda WaSH Team (WWT) is the project

manager and is responsible for contracting, procurement, quality control and project hand-over to the community.

- b) Community Managed Projects (CMPs) – under CMP the community is the project manager. The allocated funds are transferred to the WASHCOs through their CMP account at a micro-finance institution (a financial intermediary). A unique and innovative feature of CMP is that the WASHCO is directly responsible for planning and implementation, contracting, procurement, and quality control, and is also financially accountable to the community and to the Kebele and Woreda Administrations.
- c) NGO Managed Projects (NGO-MPs) – these refer to projects financed and managed by Non-governmental organizations, where their funding and project management arrangements with communities vary considerably. However, in concert with national WaSH principles and practices, they foster community initiative, develop community leadership and require community investment in water point projects.
- d) Self-Supply Projects (SSP) – these refer to projects implemented and managed by households and community groups out of their own financial resources. Though these projects are not financed under the rural WaSH program, their success is documented in the WaSH inventory.

Of the above four type of modalities WMP followed by CMP take the largest share of financing rural water supply projects. One unique feature of CMPs that differentiates them

from WMPs is increased community participation in the design and implementation stages, and the project-handover characteristic is no more existent. In addition, CMPs involve innovative fund transfer mechanisms, which further strengthen communities' ability and capacity in terms of fund management, as well as minimize time taking effects of the bureaucratic funding structure as in the case of WMPs.

To this end, both government and donors have been actively working over recent years to improve the effectiveness of aid delivery. Even though these efforts are organized in a single harmonized sector program (One National WaSH), innovative approaches which tend to benefit all the stakeholders involved should be promoted and strengthened so that donor financing walks hand- in- hand with government systems and the national Universal Access Plan (UAP).

This research is intended for financiers and policy makers at the national and regional levels responsible for supporting and implementing rural water supply in Ethiopia. The study is evaluative in nature and presents a comparative analysis on WMPs and CMPs, so as to find out which modality best serves the needs of the rural beneficiary communities, implementers, and financiers.

1.1. STATEMENT OF THE PROBLEM

Water is one of the primary driving forces for sustainable development of any country. The environmental, social and economic development of a country is to a large extent dependent on improved water security through effective management of water resources. However, sustainability of RWS projects, and the benefits they deliver, has now become one of the superseding concerns of the sector. Every year millions of dollars are invested by international financiers and national governments on RWS projects, for project implementation, despite increasing attempt to tackle the limiting factors, and many still fail to maintain the flow of expected benefits over their intended lifetimes of 10, or even 15 years, (WSP-Africa, 2010).

In recent years, a major shift of understanding, on the design and implementation phases, of RWS projects was observed as part of efforts to increase the efficiency and effectiveness of RWS projects. Different financiers have now understood the necessity of a demand responsive approach while delivering RWS services. Katz and Sara, in their study entitled “making rural water supply sustainable”, have stated that “...., participants at the 1992 International Conference on Water and the Environment in Dublin endorsed a set of principles advocating the concept of water as an economic as well as a social good that should be managed at the lowest possible level. The demand responsive approach to providing services is a direct extension of these principles. It advocates that to manage water as an economic good, projects should let consumer demand guide key investment decisions. Specifically, projects should adopt clear and transparent rules that allow users to select the level of service, technology, and location of facilities that best fit their needs, with a clear understanding of the costs and responsibilities that these options bear.”

However, not much attention has yet been given to the pre-construction stage. In Ethiopia, CMP is the first unique modality which gave attention to the pre-construction phase, i.e., promoting increased community participation and organization. On the other hand, WMP has been in practice for so long and basically focuses on the construction phase, and is with a lesser community participation in the planning and implementation phase, (WSP- Africa, 2010)

Therefore, it is necessary to examine types of institutional arrangements put into place by projects in the pre-construction phase so as to effectively undertake the post-construction phase. To date there has been no study, which tended to outline the procedural variations and relative outcomes in the pre and post construction phases in a comparative manner between WMPs and CMPs. This has been in effect an “info gap”, and it is important to learn more about it so as to ensure that large investments in RWS are not being wasted due to scant knowledge, and inadequate procedural and structural limitations in the pre-project phase.

1.2. OBJECTIVES OF THE STUDY

The overall objective of this study is to contribute for the frame of knowledge available to the sector on the advantages and disadvantages of WMP and CMP water supply and sanitation service delivery modalities. In this evaluative attempt this study seeks to investigate certain merits and demerits of these projects in terms of their planning and implementation, functionality, and utilization. The specific objectives of this study include

- To oversee the impact of increased community participation in the planning and implementation of rural water supply projects

- To serve as a tool, or reference source, for those working on the planning and design of RWS projects
- To provide rural water and sanitation project financiers with a precise scientific view as to which implementation modality best serves the needs of the local community.
- To contribute to sector knowledge more broadly

1.3. SPECIFIC RESEARCH QUESTIONS

- a) Which modality (WMP or CMP) acquires/possesses a more effective planning and implementation mechanism? And what factors are associated for success?
- b) Which modality (WMP or CMP) tends to be more need based regarding water quantity and quality, reliability and convenience?
- c) Is there a variation in utilization of water supply schemes between WMP and CMP? Why?

1.4. SCOPE OF THE STUDY

This study is designed to assess the planning and implementation, functionality, and utilization of RWS projects implemented under WMP and CMP. Accordingly, the specific areas of focus is as follows

- I. Planning and implementation – is one significant factor which assumes different forms in WMP and CMP. However, this study will be limited to analyzing project identification and planning, construction, funding, and procurement.
- II. Functionality – is another key feature among WMPs and CMPs. In its narrowest sense, functionality refers to the number or percentage of functional facilities implemented under WMP and CMP. This being one area of concern, however, the

major focus of this study is to critically examine the indicators of functionality, i.e., water quality, water quantity, reliability and convenience of RWS projects implemented under WMP and CMP modalities. But while assessing water quality the tasks of this research will be limited to analyzing, whether the necessary water analysis and sanitary surveillance are conducted by the respective authority.

- III. Utilization – to assess the utilization rates of water supply schemes implemented under CMPs and WMPs the very significant question that this research seeks to answer is “*is the intended proportion of the community using the facility? And if not, why?*”.

In addition, the tasks under this research are limited to make comparative observations on the water component of RWS projects implemented under WMP and CMP. Other components like sanitation, latrines, and aspects of environmental sanitation and hygiene are excluded.

1.5. ORGANIZATION OF THE DOCUMENT

This document consists of five main sections as follows. The following section (section two) focuses on the theoretical background, with a main concern on community participation, community and Woreda management of rural water supply projects, and O&M of RWS projects, based on a review of previous studies and of the broader literature.

In Section three, the research methodology and framework employed, and the sampling procedures adopted to gather the required relative information, are outlined. Section four deals with analytical description of the findings, with empirical evidence obtained from site visits and secondary sources.

The last section, section five, presents conclusions and recommendations on a number of specific issues and suggests areas for further research.

1.6. DEFINITION OF IMPORTANT TERMS IN THIS PROJECT

Rural Water Supply Projects - In this study, the term “Rural Water Supply Project” refers to the simple rural water supply schemes (hand-dug wells and spring development), where beneficiary communities are responsible for their management and maintenance.

Community - In the present study, the term “Community” would mean a group of people living in a specific proximity, and who are beneficiaries of a rural water supply scheme constructed in their vicinity

Woreda - is the lowest administration unit (next to Kebele), in the Ethiopian government’s administrative hierarchy.

Kebele - Is the lowest administration unit in the Ethiopian government’s administrative hierarchy.

Simple Schemes – in this study, simple schemes refer to simple water supply schemes (hand-dug wells, on spot spring development, spring development with rural pipe scheme)

Community managed rural water supply projects – in the present study, the term community managed rural water supply projects refers to the management of the design and implementation of rural water supply projects by the community.

Woreda Management rural water supply projects- in this study, the term Woreda Managed rural water supply projects refers to the management of the design and implementation of rural water supply projects by the Woreda.

Functionality – under the present study, the term functionality refers to the number or percentage of currently working/operational rural water supply schemes out of the total number of rural water supply schemes constructed over the previous years.

Utilization – in this study, utilization refers to the number of percentage of community members using the water supply scheme out of the initially intended beneficiaries.

2. LITERATURE REVIEW

2.1. CONCEPT OF COMMUNITY PARTICIPATION

The concept of community participation in development philosophy gained momentum as early as the 1980s. The concept first took place in the health sector, where it was stated that communities should have the right to participate in the planning and implementation of their own health programs. Similarly, the importance of community participation in water supply and sanitation projects was recognized by planners, so as to make the projects successful. (WHO: 1986)

The concept of community participation is vast, and has been investigated in such different sectors as environment, health, governance, rural development, etc. Boyce and Lysac (2006), have stated that “The phenomenon of community participation has been the subject of lengthy debates on its historical origin, its theoretical basis, and its practical application. There is general consensus that primary needs in the development of community participation theory are: to clarify concepts used to discuss participation; to delineate the factors believed to have an impact on participation; and to develop comprehensive methodologies for gathering information about participation which can be applied practically in a variety of settings.”

In the 1980s, it became widely recognized among sector professionals that many rural water supply programs in the developing countries were performing poorly regardless of type of technologies used, i.e., communities lacked the sense of ownership in their water supply projects, and were not satisfied with the projects implemented by donors and national governments. As a result, water supply systems were not repaired and maintained, revenues

were often insufficient to pay for even operation and maintenance, and much less capital costs. (Curchill et al. 1987, Therkildsen 1988, and DeFerranti 1988, indicated in Whittington, Davis, Prokopy, Komives, Thorsten, Lukacs, Bakalian, Wakeman, 2008)

As per WHO guideline (1986), community participation is defined in simple terms as “...the involvement of people in a community in development projects.” This guideline has managed to recognize the form and degree of people’s involvement in development projects vary due to a variation in social, economic, educational, and other conditions in different communities. The guideline further states that “..., since it implies action by the people to solve their own problems, it can be understood in terms of activities performed by the communities in development projects. Broadly, this include

- Assessment of local situations
- Definition of the problem
- Setting of priorities
- Making decisions
- Planning of action programs to solve the problems
- Sharing responsibility in project implementation
- Evaluating and modifying the project

...thus any project that requires people in a community to be responsible for any one or more of the above activities could be called participatory.”

2.2. RURAL WATER SUPPLY PROJECTS IN THIS RESEARCH

Rural water supply projects take different forms, ranging from simple, protected springs, to surface water systems with piped distribution of treated water system. This case is also true in Ethiopia. And, the main concern of this research is on the planning and implementation of simple schemes, where the related operation and maintenance is conducted by the beneficiary community.

In rural Ethiopia, in line with the current standard government approach, the responsibility for implementation and the associated management of investment finance remains with the government: Regional (in the case of more complex schemes) or Woreda and/or Community (in the case of simple schemes).

The more complex schemes require a pool of technical experts, modern technology, machinery and equipment, and are characterized by sophisticated pumps, storage tankers, treatment plants, pipe networks, etc. Under the above mentioned programs, the construction, implementation, operation and maintenance is conducted by regional water bureaus of the government.

On the other hand, the design and implementation of the simple schemes is conducted by government bodies at the Woreda level and/or by the beneficiary communities. These simple schemes refer to such small scale water production units like, hand-dug wells, protected spring on spot, and spring with rural pipe scheme. Simple schemes designed and implemented by the Woreda are known as Woreda Managed Projects (WMPs), and simple

schemes designed and implemented by the community are known as Community Managed Projects (CMPs), in the rural water supply and sanitation sector.

Under this research, rural water supply refers to the simple schemes, where the beneficiary communities are the responsible bodies for the management of the schemes.

2.3. COMMUNITY PARTICIPATION IN PLANNING AND IMPLEMENTATION OF RURAL WATER SUPPLY PROJECTS

Effective community participation exists in the context of political, social and legal structures which all shape the feasibility of participatory actions. Effective community participation in service delivery provide opportunities and incentives for local government officials to respond to community needs, which will reduce the accountability gap between the citizens and policy makers by creating opportunities for more down ward accountability. (Commins, 2007)

The role of local communities primarily in managing rural water supply projects is critically vital in reducing maintenance costs, promoting better local resource, skill and knowledge management, and empowering local ownership of community infrastructure. (Schouten and Moriarty, 2003, indicated in Annis, 2006).

In addition, the organized involvement of community in rural water supply development projects tends to reduce project costs, and increases service coverage, while encouraging technical and administrative flexibility. It is also anticipated that community participation will assist in improving operation and maintenance, stimulate broader socio-economic development, and strengthens community capacities for problem solving. (IRC:1988)

In most developing countries, rural water supply faces a critical challenge as a result of mixed water supply interventions. This is basically due to the engineering and technological determinism which has accompanied design considerations. While planning a water supply scheme in poor communities of the developing nations, donors and implementing agencies dominate the role of selecting technological specifications and design, without involving the local community in the planning and design phase. However, different perspectives in the last decade have shown that technology adoption and sustainable management of water supply innovations are determined by complex social forces and social relation that shape people's choice of technology, and water use behaviors (Vincent, 2003, indicated in Gleitsmann, Kroma, and Steenhuis, 2007).

Marks and Davis (2011), in their study entitled "Does user participation lead to sense of ownership for rural water systems? Evidence from Kenya", stated that "Rates of access to an improved water source in rural sub-Saharan Africa (SSA) are among the lowest worldwide, with approximately 1 in 2 rural dwellers, or 278 million people in total, lacking access [Joint Monitoring Program, 2010a]. Low levels of access to improved water supply in developing countries have been attributed to, inter alia, inappropriate system designs, poor management of water resources, rent-seeking behavior, and limited institutional capacity [Brookshire and Whittington, 1993; Downs et al., 2000; Lovei and Whittington, 1993; Pattanayak et al., 2005; Singh et al., 1993; Weiskel et al., 2007]. In addition, communities often have considerable difficulty in sustaining operation and maintenance (O&M) of water supply infrastructure over the useful life of the hardware [Davis et al., 2008]."

Successful community water supply programs involve a combination of hardware and software (technology and institutional/organizational support elements), combined in such a way that each community recognized the benefits of the improved supply, can afford at least the costs of operating and maintaining it, and has the skills, spare parts, materials and tools available to sustain it. (Arisoroff, Tschannerl, Grey, Journey, Karp, Langeneffer, and Roche 1987)

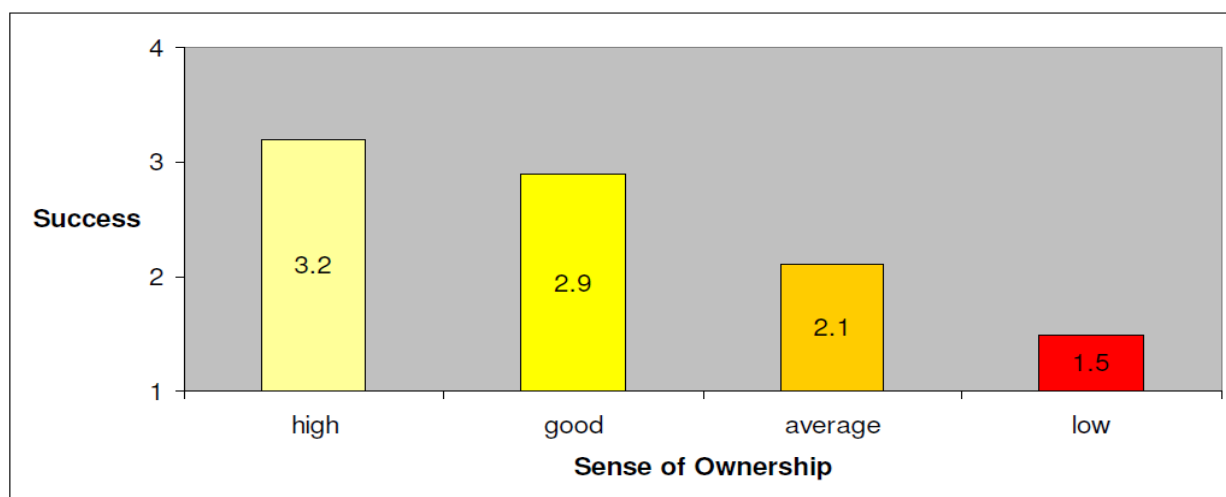
Accordingly, effective participatory approaches in community water supply planning should consider involving such key issues (Adopted from (Arisoroff, Tschannerl, Grey, Journey, Karp, Langeneffer, and Roche 1987)

- Effective involvement of the community in the design, implementation, maintenance and financing of planned improvements, with promoting agencies providing technical assistance and support services as needed.
- Technology chosen to match the resources available to sustain it
- Institutional and manpower development programs matching the needs of the planned water supply system

In addition, in rural water supply projects, it is often suggested that participatory planning is a key to maximizing the sense of ownership among beneficiary communities, which in turn is stimulated when beneficiaries are involved in key decisions related to the system, contribute towards the capital costs of system construction, and participate directly in planning and construction activities (Marks and Davis, 2011). This sense of ownership ensures beneficiaries' commitment to long-term operation and maintenance (Manikutty, 1997; Republic of Mozambique, 2001; Whittington et al., 2009; Yacoob, 1990, indicated in Marks and Davis, 2011)

Moreover, more over with increased sense of ownership sustainability of development projects also increases. A study conducted by Sahee foundation 2008, entitled Sustainability of rural development projects in Swaziland, Why Projects Fail or Succeed?, has stated that “analysis of the data reveals a strong correlation between the sense of ownership and project success The average success rating of projects with a high sense of ownership is 3.2 while that of projects with a low sense of ownership is only 1.5.”

Figure 1: Sustainability of rural development projects in Swaziland Sahee (adopted from Sahee, 2008)



2.4. COMMUNITY MANAGEMENT OF RURAL WATER SUPPLY PROJECTS’

IMPLEMENTATION

As noted earlier, the concept of community participation implies that beneficiaries are involved in the development projects concerning them. However, the concept of community management refers to the capabilities and willingness of the community to be in control and determine the nature of development activities affecting them. In water supply and sanitation projects, community management refers to the fact that community exercises its responsibility of decision making and becomes in charge of controlling the subsequent

execution of these decisions during project development (McCommon, Warner and Yohalem 1990)

McCommon, Warner and Yohalem (1990), further stated that “ Until recently, community management as applied to rural water supply and sanitation systems has generally been concerned with questions of maintenance, the participation of women, and in-kind contributions, all of which involve community participation and therefore were said to promote sustainability. Yet field experience has shown that sustainability depends on more than community participation alone, although community participation does appear to provide the environment required for successful community management, which has come to be known as the enabling environment.

Therefore, general community participation in significant decision making may be seen as one precondition for community management. Furthermore, if community participation occurs at different levels of intensity, then the potential for community management will depend on the level of community participation that has been achieved.”

In Ethiopia, the concept of community management in rural water supply was first perceived in the Amhara region in 2003, under a Finnish-Ethiopian bilateral Rural Water Supply and Environmental Program (RWSEP). RWSEP has been supporting the expansion of rural water supply services in Amhara since 1994, although financing via the Community Development Fund (CDF), (which later became Community Management Program, CMP), mechanism came later, being introduced on a progressive basis between 2003 and 2006.

Unlike other government-managed funding arrangements, the CDF is a community-centered mechanism, by which the communities themselves are supported to initiate, plan, implement and manage their priority water and sanitation projects using funds that are transferred to, and managed by, the community.

Under the community management program, the type of schemes constructed are simple and manageable by the local community, and since design and implantation of the schemes is conducted by the community, the project hand-over characteristic is no more evident, and projects are demand driven.

At large, community management refers to power and control on behalf of the beneficiaries, where its ultimate goal is not maximizing users' participation but rather optimizing it so as to achieve sustainability through human development (Naryan, 1993, indicated in Annis 2006). Accordingly, for effective community management to take place, the following key preconditions need to be recognized (Adopted from McCommon, Warner and Yohalem 1990)

- There must be community demand for an improved system.
- The information required to make informed decisions must be available to the community.
- Technologies and levels of service must be commensurate with the community's needs and capacity to finance, manage, and maintain them.
- The community must understand its options and be willing to take responsibility for the system.
- The community must be willing to invest in capital and recurrent costs.
- The community must be empowered to make decisions to control the system.

- The community should have the institutional capacity to manage the development and operation of the system.
- The community should have the human resources to run these institutions.
- There should be a policy framework to permit and support community management.
- Effective external support services must be available from governments, donors, and the private sector (training, technical advice, credit, construction, contractors, etc.).

2.5. WOREDA MANAGEMENT OF RURAL WATER SUPPLY PROJECTS' IMPLEMENTATION

In Ethiopia, the concept of Woreda Management of rural water supply projects came into existence, in 2004, with the government's strengthened decentralized system, which shifted the autonomy of planning and implementation of projects from Regions to Woredas. This is a very important step taken to minimize the gap between implementing authorities and beneficiary communities.

Even though, projects managed under the Woreda tend to be demand driven, they are characterized by the project handover effect, i.e. projects are transferred to the community after being designed and implemented by the Woreda, which in turn, has resulted in very low community participation. The World Bank Document (Report No; 391 19-ET) has indicated that limited capacity, limited finance, lack of maintenance, insufficient cost recovery for proper operation and maintenance, shortage of skilled manpower and poorly developed organizational structures as the basic constraints among government managed projects.

The problems of government managed projects, in developing countries, can be further outlined as (IDRC, 1981)

- a. Poor community participation which leads to

- Lack of ownership among the community, i.e., the water supply schemes lack owner in the later phases and suffer from lack of proper management during operation and maintenance. Lack of ownership among the community also conditions the beneficiaries to believe that the water gained from the schemes should be free and the associated costs should be covered by the government.
 - Ineffective communal labor mobilization and administration
 - Non-participatory technology choice, which creates the atmosphere not to consider affordability and technical capacity on behalf of the community.
- b. The requirements of the schemes are not matched by the corresponding institutional and manpower development
 - c. Fund accessibility and utilization problems
 - d. Limited capacity for procurement and mobilization of equipment, and also for technical crew mobilization
 - e. Inadequate operation and maintenance training for community members
 - f. Inaccessibility of spare parts, and
 - g. Lack of maintenance records

This is also true in Ethiopia. Admasu, Kumie, and Fantahun (2002), in their article entitled “Sustainability of Drinking Water Supply Projects, in Rural North of Gonder, Ethiopia”, have also indicated that lower technical and financial capacity, lack of instruments, limited skilled manpower, at the Woreda level and poor sense of ownership and operation and maintenance at the community levels as some of the limiting factors affecting the sustainability of rural water supply projects in North Gonder, Ethiopia.

2.6. OPERATION AND MAINTENANCE

Careful operation and maintenance is a key requirement of any mechanical system. Too many projects fail because the maintenance needs cannot be met. Richard C Carter in his Article entitled “Operation and Maintenance of Rural Water Supplies” have stated that “...Operation refers to the direct access to the system by the user (e.g. operating the hand-pump), to the activities of any operational staff (e.g. operators of motorized pumps), and to the rules or by-laws which may be devised to govern who may access the system, when, and under what conditions. Maintenance, on the other hand, is to do with the technical activities, planned or reactive, which are needed to keep the system working. Maintenance ranges from preventive (e.g. greasing, tightening nuts and bolts), to reactive (repair after failure, requiring tools and spare parts), to major rehabilitation or replacement...”

A key objective of any community water strategy should be to create projects which can be kept in proper working order with the resources known to be available. In many developing countries, operation and maintenance (O&M) of small community water supply systems has been neglected. Sanitation, in particular, is given much less attention in practice, even though “water-supply and sanitation improvements” are often mentioned together in project documents (Engr. Barat, 2007)

In rural water supply projects operation and maintenance assume such different levels as Central, Regional, District and Village level. In case of simple water supply schemes, village level operation and maintenance is most commonly adopted. The key element in this type of management is community choice. Success is related to a sense of community ownership of the scheme and can only be achieved when the organizational capacity of the community is adequate (A World Bank Paper, 1976).

Village/community level operation and maintenance has to fulfill the following key elements so as to be feasible (Arisoroff, Tschannerl, Grey, Journey, Karp, Langeneffer, and Roche 1987)

- The selected technologies must be suitable for simple routine maintenance with basic tools and minimal skills
- Common spare parts must be readily available in or near the community
- There must be a suitable community structure for recovering the costs of maintenance and repair operations.

In general, effective operation and maintenance brings about important health benefits by sustaining accessible water supplies in adequate quantity and quality, by reducing the time and effort spent on water collection, and by providing income-generating activities. Therefore, water supply and sanitation projects should not be viewed as an end in themselves, but as the initiators of benefits that continue long after the implementation of the projects. However, to ensure the long term benefits the projects must be sustainable, which means appropriate technologies must be selected, and O&M should be integrated into project development from the beginning.

3. RESEARCH DESIGN

This research is evaluative and used a cross sectional research design so that data was collected from multiple sources at a single point in time. Different methods of data collection like FGD, structured questionnaire, interview guides and personal observations were employed to produce primary data. In addition, secondary data was also collected from reports, existing documents, articles, and from respective Woreda and regional offices.

3.1. RESEARCH METHODOLOGY

As mentioned in the previous section this study aims at evaluating rural water supply projects implemented under WMP and CMP modalities in terms of their planning, implementation, functionality, and utilization. The main focus is on exploring the ‘which’ and ‘why’ questions with an aim of understanding the related advantages and disadvantages of both the modalities, and to recommend on key observations for further research on delivering rural water supply services.

Accordingly, to achieve its objectives, this research has employed the following data collection methods.

Site Visits

Site Visits has been made to a total of 64 rural water supply schemes (31 WMP, and 33 CMP) in the Amhara region to assess the current status and operational features of the schemes. Here, operators/caretakers, and users were interviewed. The main purpose of the scheme assessment is to observe the overall status of the scheme with respect to its operational, management, and maintenance procedures.

Beneficiaries found on site were interviewed in order to gain supplementary quantitative data on how the scheme is managed, the prevailing water quantity, quality, reliability, and convenience, and also on the sense of ownership among the beneficiary community. Non-beneficiaries were also interviewed to understand the reasons behind preferring traditional sources over developed and protected sources. Accordingly, 58 beneficiaries and 16 non-beneficiaries were interviewed.

FGD

A focus group discussion was also held with WWTs in 8 Woredas, and with WASHCO's in the visited sites, so as to investigate the procedures followed and pros and cons observed in planning, implementation and management of the water supply schemes under both modalities. Additional interviews were also conducted with Regional WMP and CMP officials to grasp the prevailing regional profile of the modalities in terms of service delivery and use.

Secondary data

A detailed literature review of related documents on rural water supply, community management, and operation and maintenance was carried out. The main search engine was Google, and additional documents were obtained from Ministry of Water and Energy Library, Woredas, and Regional Planning offices.

Positive Experiences during data collection

- Willingness and openness of respondents to provide information
- Interviews were carried out successfully

Some major challenges were also encountered during the site visits, which have resulted in the imbalance between CMP and WMP sites surveyed. These include

- The initial plan was to visit 40 WMP and 40 CMP water supply schemes. But due to limited time frame the researcher could not be successful in assessing all the schemes.
- In some woredas, especially in Senan and Yilemana Densa, the water supply schemes were scattered and long distance walk was required
- Site visit was conducted from March 26, 2012 to April 17 2012. This was basically a farming season, and it was hard to find WASHCO members and scheme caretakers
- It was found difficult to organize all WWT members for FGD, and in all cases a maximum of three WWT members were present for the FGD.
- The researcher could not conduct site visits in Bahir Dar Zuria Woredas, because Woreda Water Office officials were busy during office visit and could not assign technical personnel to guide the researcher.

3.2. TOOLS OF DATA COLLECTION AND ANALYSIS

This study has employed multiple research methods which are both quantitative and qualitative. The research basically relies on qualitative information on how increased community participation affects planning, implementation, functionality and utilization of rural water supply projects. Quantitative data is used as supplementary information to countercheck the findings from the qualitative data. The research tools designed include

- a. *FGD guides* – The FGD guides were designed to provide qualitative information on how WWT and WASHCO perceive the planning and implementation of the water supply schemes, both as individuals and member of a group, and how it affects functionality and utilization in the long-run.

- i. *WWT FGD guide* – prepared and administered to WWTs. The FGD guide consists 47 questions segmented into six sections (See annex 1). Respondent Identification, Identification and Planning, Implementation, Functionality and Utilization, Quality and Convenience, and Policies and Strategies, are the main focuses of Section one to Section six respectively.
 - ii. *WASHCO FGD guide* - prepared and administered to WASHCOs. The FGD guide consists a total of 52 questions divided into 6 sections (See annex 2). From section one to six, the main area of focus was Respondent Identification, Identification and Planning, Implementation, Functionality and Utilization, Quality, and Convenience respectively
- b. *Interview Guide* – Prepared and administered for WMP and CMP regional officials. (See annex 3)
 - c. Scheme assessment tool – Prepared and administered to assess the general scheme condition, and was administered with the help of scheme caretaker/guard or WASHCO member (See annex 4)
 - d. Questionnaires – prepared and administered to beneficiaries/users and non-users of the water supply schemes constructed under WMP and CMP modalities. The Questionnaire for the beneficiaries consists of 50 questions divided into 3 sections (See annex 5). The aim of section one was to get the respondents’ background. This helped the researcher to understand the socio-economic features in the household. Section two addresses the key aspects in relation to water use in the household, water

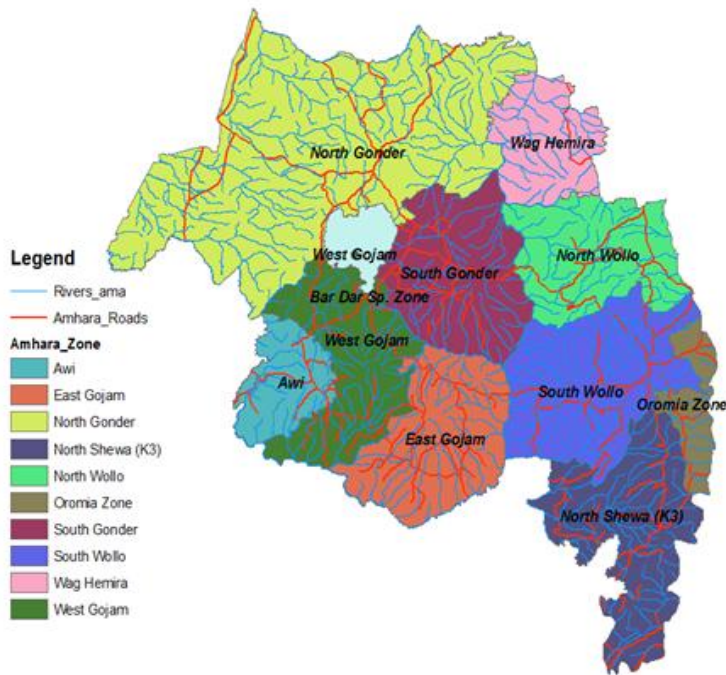
quantity, water quality, reliability and convenience. Reason for not using the developed and protected water source among the non-beneficiaries was also surveyed under this section. Section three aimed at understanding sense of ownership and knowhow among the beneficiary and non-beneficiary groups.

After data collection the findings were summarized using Statistical Package for Social Science (SPSS 15) and Microsoft Excel 2010. Data was organized and the sum and averages for each variable was further analyzed using pie charts, graphs and tables.

3.3. STUDY AREA

Amhara Regional State is located in the northern part of Ethiopia. It covers an area of 157,076 square kilometers, with a total of 2.1 million urban and 15.1 million rural populations. The altitude of the region ranges from 700 to 4620 meters above sea level. Agriculture is the main economic activity of the rural population, and basically takes up a subsistence nature. The region has a decentralized system of governance with 10 Zones and 166 Woredas/districts, though the central government retains the role of policy making, setting standards and supervision.

Figure 2: Amhara Regional State Map



The average annual temperature in the region ranges from 20^oc – 25^oc, and accommodates tropical, sub-tropical, temperate, and alpine climatic zones. The average annual rainfall also ranges from 1200mm-2000mm, 500mm-1200mm, and <500mm for 40.6%, 59%, and 0.4% parts of the region respectively.

The Amhara region has caught the attention of this research for two basic reasons;

- The region's typical geological and hydrological nature is the governing physical parameter for the occurrence of ground water, which is a common source of rural water supply using hand dug or drilled wells and naturally emanating springs.
- The CMP modality has been operational only in Amhara until recently. And this research aimed to also study WMPs with in the same region so as to keep other social, cultural, and geological factors constant.

3.4. SAMPLING PROCEDURES

Sampling Frame

This study intends to draw two sets of samples from two groups of populations for comparative analysis, where one group is WMP water supply schemes and the other is CMP water supply schemes. Consequently, the sampling frames are

- List of Woredas financed under CMP
- List of Woredas financed under WMP

Sampling Method

In order to increase the representativeness of the sample, and to have a clear view of all the disparities, this study has found multi-stage random sampling method to best suit its objectives.

At the initial stage, it was aimed to select 4 WMP financed and 4 CMP financed Woredas from the sampling frame. Unfortunately, due to a limited time frame and inconvenient route, 5 CMP and 3 WMP Woredas were randomly selected. Then from the Woredas' inventory lists a total of 33 CMP and 31 WMP water supply schemes were selected randomly.

In addition, a total of 58 beneficiaries and 16 non-beneficiaries found around the water supply schemes were interviewed to provide a quantitative and counter-checking view on the use, management and O&M of the schemes. *(N.B. the data from the 58 beneficiaries and 16 non-beneficiaries is only supplementary and may not represent the general population)*

Table 1: Visited schemes and Woredas

CMP			WMP		
Woreda	No. of Visited Schemes	Type of Schemes	Woreda	No. of Visted Schemes	Type of Schemes
Dejen	5	HDWs	Debre Elias	13	HDW
Senan	6	2 SPD and 4 HDW	Finote Selam	7	HDW
Bure	8	HDWs	Dembecha	11	HDW
Fogera	9	HDWs			
Yilmana Densa	5	1SPD and 4 HDWs			
<i>Total no. of Schemes</i>	33		<i>Total no. of schemes</i>	31	

4. ANALYTICAL DESCRIPTION OF FINDINGS

4.1. PLANNING AND IMPLEMENTATION

4.1.1. Planning

Both WMP and CMP modalities tend to follow a demand-driven approach in delivering RWS services. Prior to planning, community mobilization is the first step followed by both modalities. In CMP Woredas, officials from the Woreda water office, with the help of Kebele officials and DAs, approach the user community, especially during traditional ceremonies and on Idir meetings, and promote the concept of WaSH and the respective CMP guidelines, and how the community should organize itself so as to be potential beneficiaries.

In addition, the user community is also familiarized with the percentage of local contributions, both in cash and in kind, required to be eligible beneficiary. As per the CMP guideline, the community contribution should be in cash and/or in kind, and the minimum amount of community contribution expected depends on the type of the technology feasible in the area.

However, since this research focuses mainly on hand dug wells, on spot spring developments, and springs with rural pipe scheme, community contribution required under this category of technology, is a minimum of 15% of the total investment cost, consisting of both cash and in-kind contributions.

On the other hand in WMP Woredas, community mobilization is conducted by Community Facilitating Team (CFT), present at the Woreda level. CFT usually has 3 to 5 members. During community mobilization one CFT member becomes responsible to a maximum of 7

HHs, and CFT members approach the user community, usually during traditional ceremonies and on Idir meetings. The CFT promote the concept of WaSH, the guidelines, and how the communities should organize themselves so as to be potential beneficiaries. *(CFTs are present only in WB financed WMP Woredas)*

The user community is also acquainted with the percentage of local contributions, both in cash and in kind, required to satisfy the eligibility criteria. As per WMP requirements, 3% cash and 7% labor contributions are required.

As indicated by the WWTs, there is a high demand among the local communities for a protected and developed source. Thus, organization and WASHCO formation is a flawless process under both modalities. However, in some cases, community contribution has come to be difficult where scattered settlements are common, and where previous similar projects implemented by NGOs did not require any sort of contributions.

In WMP Woredas (financed under WB), it is CFTs that conduct community mobilization and promotion. These teams are not Woreda Water office members, but rather are Woreda WaSH agents, and tend to address the complete WaSH agenda better than water office officials mobilizing communities in the case of CMP Woredas.

After awareness creation, the user groups organize themselves and establish a WASHCO to take up the financial and operational responsibility for the water scheme construction, and future operation and maintenance. In CMP Woredas, WASHCO, with, and on behalf of, the user group prepares a CMP application, which includes, proposed siting, estimated costs,

technology choice, community contribution and O&M arrangements, and submits the application to Woreda Water Office.

Before submission, WASHCO should also raise community contribution both in cash and in kind (no less than 15%), and should open a saving account in ASCI and deposit the cash contribution. The cash contribution also serves as a maintenance reserve.

In the case of WMP Woredas, the communities organize themselves and establish a WASHCO to take up the financial and operational responsibility for the water scheme construction, and future operation and maintenance. Here, WASHCO, with, and on behalf of, the user group only selects, a potential site, raises community contribution both in cash and in labor (no less than 10%), and opens a saving account in ASCI sub-branch and deposits the cash contribution. As in the case of CMPs, here too the cash contribution serves as a maintenance reserve.

Moreover, in WMP Woredas, there is no application form to be administered by WASHCOs. Rather, the copy of the cash deposit slip from ASCI sub branch serves as an application letter, and WASHCOs will be given appointment for site appraisal.

One major constraint indicated by WWTs is that the CMP application format is too wide and too difficult to be administered by the local community, and extended Woreda support is constantly required, which in turn has created increased work pressure on behalf of the Woreda Water Office staff.

Once applications are submitted office appraisal will be conducted by the respective officers in the Woreda Water Offices. Under both modalities, this process takes an average of 5 days. If applications are feasible site appraisal continues.

As per the observations of this research, site appraisal usually takes longer, 20 – 30 days after completion of office appraisal, in WMP Woredas. The delay is mainly due to a prolonged work procedure followed by Woreda Water office, where site visits are only conducted if number of applicants reaches a certain amount. Finally, if applications are approved WASHCOs will be granted congratulations letter from the Woreda water office, and will be given instructions how labor contributions should be managed later on the construction phase.

CMP Woredas tend to follow flexible and non-bureaucratic manner of handling site appraisals. Usually, site appraisals are conducted within 5-9 days after completion of office appraisal, without a focus on number of applicants. Applications found practical are then submitted to Woreda WaSH Board for approval, and if approved, WASHCO will sign a funding agreement with Woreda Water Office, and becomes eligible to utilize finance under the supervision of the Woreda Water Office.

One major indication in the planning phase is, community participation in WMP Woredas is lesser as compared to the CMP Woredas. To be precise, WASHCOs in WMP Woredas are only responsible for O&M arrangements, site selection and raising community contribution unlike CMP Woredas, where WASHCOs are also responsible for technology choice and cost estimation despite of site selection, community contribution and O&M arrangements. This

has tended to elevate the level of community contribution and sense of ownership (which will be discussed in the next sections) on behalf of CMP communities.

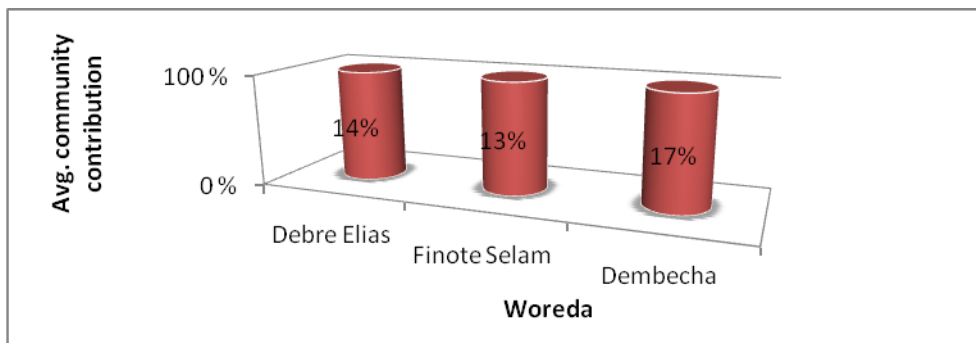
4.1.2. Implementation

Community Contribution

Implementation is the key differentiating feature of WMP and CMP projects. Under both modalities, since the main concern of this thesis is simple projects, construction of such schemes is conducted by local artisans. In some instances, in WMP Woredas, construction of schemes is also conducted by local contractors through a tender award system.

In WMP modality, the Woreda is fully responsible for implementation of projects including procurement of materials and services. The community is expected to make material contributions (gravel and digging tools), and labor contributions (well digging). As per the requirements set the total community in kind and labor contribution should not be less than 7%. The current actual level of community contribution is indicated in the following Figure.

Figure 3: Average in kind community contribution in WMP Woredas

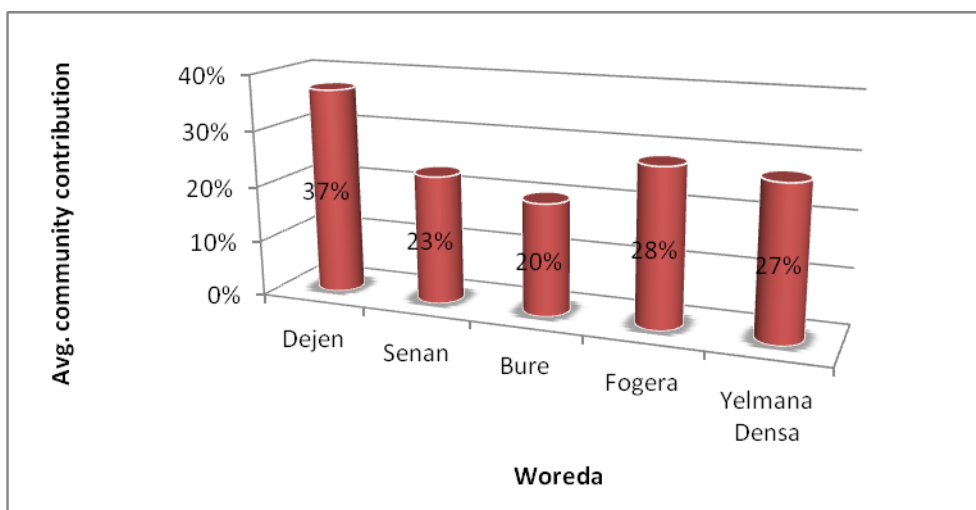


N.B. these figures do not include Cash deposits at ASCI

On the other hand, in CMP Woredas, the community (through WASHCOs) is fully responsible for implementation including service and material procurement, and in managing the funds allocated to them. The community will receive the necessary technical support from Woreda authorities before, during and after construction of schemes. In the observed CMP Woredas, construction is conducted by local artisans selected, supervised and hired by the user community.

One unique feature observed in CMP Woredas is that, in kind community contribution tends to be higher than the specified minimum limit. (15% of total investment cost including cash contribution). Here, beneficiaries are fully responsible for implementation and organizing the respective community contribution. Usually, the beneficiaries are expected to make labor, tool, gravel, and wood contributions. But, in some instances like Dejen Woreda, beneficiaries were able to make contributions to cover additional costs.

Figure 4: Average In Kind community contribution in CMP Woredas



N.B. these figures do not include Cash deposits at ASCI

To sum up, as indicated in CMP Woredas, equipping the local user community with the full responsibility of implementation has increased their sense of ownership and willingness to contribute in cash, labor, and material. For example, the above table shows that Dejen Woreda has attained the highest community contribution so far (37%). Communities in this Woreda also make financial contributions for the procurement of sand and masonry stones, despite other common material and labor contributions, and use finance allocated for construction (under CMP) only for procurement of pump, cement, and artisan services.

Finance and procurement

WMP Modality

The WMP Woredas surveyed under this research are financed primarily, by the World Bank, ADB, and the government's Block Grant System under the National WaSH program. Therefore, under the WMP modality, this research will basically focus on the WB and Block grant fund transfer systems.

Block Grant is a financing modality adopted by the Ethiopian Government in financing the different activities that are executed by resources mainly generated from own sources(domestic sources). The main feature of the Government Block Grant is distribution of the available financial resources from federal down to Woreda levels, which later form annual budgets at all levels. The Block Grant at regional level includes the federal subsidy (treasury, foreign borrowing and grants), and the regional income. The Block Grant at Woreda level consists of regional subsidy and own income. The grant is channeled on the basis of an agreed formula, where the proportion of the grant remains with the regions for regionally managed expenditures while the remainder is transferred down to the Woreda level

for Woreda managed expenditures, again on the basis of pre-agreed formulas by regional assemblies.

On the other hand, under the WB financing modality the IDA, ADB, and DFiD are included. In this fund transfer system, a special account is opened for the World Bank's fund under BoFED and WOFEDs managed centrally at both levels. Accordingly, the bank releases the fund to BoFED, and then BoFED disburses the amount it received to WOFEDs entitled to the fund. WOFEDs shall effect payment from the received money when requested by the Woreda's water desk. The financial advances to the region and the Woredas is based on annual action plans approved by the donor and the Ministry of Water and Energy, and the fund requires a 15% matching fund at the proportion of 10% and 5% from Woredas and beneficiary communities respectively.

Procurement

The procurement procedure followed in the WB and BG financed Woredas is similar. The procedure followed is the tender award system, where the Woreda Water Office prepares its annual procurement requirements and submits it to WOFED. Then WOFED will approve the request after confirming that the sector office demanding procurement has budget for the purpose.

After approval, the Woreda Water Office will process the procurement through its own tender committee, selects the winning bidder and sends the result to WOFED, and it is WOFED's duty to procure goods and services processed by Woreda Water Office. As indicated by WWT, this procedure is too bureaucratic and time taking. Procurement of a single item usually takes a minimum of two months.

However, the WB has put a Proforma system to conduct both material and service procurement. Though in place, this was not in effect in Debre Elias and Finote Selam Woredas. In Dembecha Woreda, it is practical, and the Woreda was able to minimize procurement time to a maximum of 2 weeks.

CMP Modality

The CMP modality operates at community level, where resource is directly transferred to communities, and in turn is fully managed by the communities. Transfer of funds is carried out through micro finance institutions that have branch offices down at the community level. The whole idea behind CMP modality is enabling WASHCOs to fully manage the fund they are provided with, and effectively implement water supply and sanitation projects by themselves.

Under the CMP modality, there are two fund transfer methods. The first is finance transferred to communities for water and sanitation projects, and the second is finance transferred to Woredas for capacity building. Here, the donor transfers the required resource for the specific budget year to BoFED, and BoFED disperses the fund for Woreda capacity building to WOFED as per the approved specifics in the Woreda annual plan.

In order to transfer finance for construction, at the head office of ASCI, in Bahirdar, a special CMP account is opened. The same is done in Zonal ASCI branches and sub branches found in at Woreda level.

The unique feature of the CMP modality is that it transfers funds for physical construction directly to the communities through ASCI branches and sub-branches. The communities, through WASHCOs, are responsible for the full planning and implementation process, including procurement of materials and labor, and maintenance. Each community through WASHCO, whose project is approved for funding, will be required to open two accounts at ASCI's sub branch. One of the accounts will be used to deposit the matching fund (15% both in cash and material) contributed by the community, and which letter be used as a maintenance reserve. The other account will be used to deposit the fund for implementation.

The management and utilization of fiancé under CMP follows strict regulations and has established a detailed working procedure that serves as a means of supervision and control. To this effect the project has prepared different procedures and formats to be followed by all beneficiaries. In addition, since the main aim of CMP is to enable the beneficiary communities in a self-sufficient manner, the projects under this modality are required to be simple and manageable by the user community. Accordingly, a maximum budget limit (45,000 for HDW and 60,000 for SPD) is set.

This fund ceilings, however, seem to affect communities with higher spring capacity and inconvenient topographies, and that usually construct spring with rural pipe scheme. One example could be Senan Woreda which has a very high spring capacity, and the most common water supply scheme constructed in the Woreda is spring development with Rural Pipe scheme. Accordingly, the fund allocated through CMP is not sufficient to complete the implementation of the planned amount of schemes, and the Woreda usually uses additional finance form the Block Grant to finalize the construction.

Construction and Supervision

As described in previous sections, in CMP Woredas, construction of water supply projects is fully managed and supervised by the community through WASHCOs with assistance from the Woreda Water Office. This has contributed, on one hand, to the effective use of the Woredas' restricted capacity by limiting the Woredas' responsibility only to provision of technical assistance to WASHCOs and monitoring WASHCOs' fund use. On the other hand, it has empowered the user community in terms of mobilizing organized effort towards managing, supervising and controlling their own projects, which led to a very high implementation rate. (See table 2).

In WMP Woredas, weak construction supervision due to limited Woreda capacity is one significant weakness observed, which affects the construction quality and later its functionality. Moreover, the fact that planning is not fully participatory in WMP Woredas, has put "the demand responsiveness" of the approach in question, which resulted in the construction of non-usable facilities.

Debre Elias Woreda could be one good example of such facilities. In this Woreda most of the water supply schemes are constructed together with cloth washing and animal watering facilities. The idea is good but not participatory. The need for such facilities is completely absent among the local communities, who usually use traditional sources for animal watering and clothe washing. Thus, all such facilities in the visited schemes (except those in school compounds) have never been used by the local community, and were starting to crack during the site visit period.



Chew Afer Scheme, Debre Elias Woreda



Mechene Scheme, Debre Elias Woreda

The data secured from both WMP and CMP Woredas indicates a higher average implementation rate in CMP Woredas (95.9%) compared to the average implementation rates in WMP Woredas (79.25%). This shows that through delegating responsibilities of implementation to WASHCOs CMP projects are 16.65% better over WMP projects in meeting the goals set in their annual plans.

Table 2: Implementation Rate of Water Supply schemes in CMP Woredas in 2010 and 2011

Name of Woreda	2010			2011		
	No. of Schemes planned	No. of Schemes implemented	Rate of Implementation	No. of Schemes planned	No. of Schemes implemented	Rate of Implementation
Dejen	----	----		20	30	100%
Senan	----	----		30	26	86.6%
Fogera	68	60	88.2%	60	56	93.3%
Yilmana Densa	45	64	100%	50	65	100%
Total	113	124	94%	160	177	97.8%

Table 3: Implementation Rate of Water Supply schemes in WMP Woredas in 2010 and 2011

Name of Woreda	2010			2011		
	No. of Schemes planned	No. of Schemes implemented	Rate of Implementation	No. of Schemes planned	No. of Schemes implemented	Rate of Implementation
Debre Elias	30	20	66.7%	40	33	82.5%

Fnote Selam	34	13	38.2%	30	14	46.7%
Dembech a	76	76	100%	60	55	91.6%
	140	109	80%	130	102	78.5%

From the above tables, if we try to analyze the trend of constructed schemes per year per Woreda, (by excluding Dejen and Senan Woredas, because they were not yet under CMP in 2010), on average 59 and 35 water points per Woreda per year are constructed during the past two years under CMP and WMP modalities respectively. The major factors for the improvement of the overall implementation rates are effective community supervision and financial management.

Here, procurement could have also been one factor, since CMP has a more flexible procurement system, which usually takes 3 to 6 days and is much shorter than WMP's system. However, this delayed process still does not affect the implementation rates. The main reason is, under both modalities, implementation of all the water supply schemes is conducted only from April to June, because this is the season in the year with the lowest rainfall, and it is also one mechanism to check the ground water capacity.

Therefore, in WMP Woredas, procurement is often conducted starting from January, and is concluded before the implementation season begins. This shows that though procurement is time taking in WMP Woredas it does not necessarily affect implementation.

As indicated by the WWT, the main delay in implementation is due to weak implementation supervision by the Woreda, and failing to meet the implementation deadline on behalf of the artisans and the contractors.

Fund Utilization

The observations from the records available at the Woreda and Regional level show a higher fund utilization rate in CMP Woredas as compared to WMP Woredas. WASHCOs in CMP Woredas have managed to utilize the fund for construction in an effective manner, with strict supervision from the Woreda Water Office.

Table 4: Disbursed and settled finance from 2001 – 2003 E.FY (CMP)

Woreda	2001		2002		2003		Total	
	Disbursed	Settled	Disbursed	settled	Disbursed	Settled	Disbursed	settled
Fogera	2334420.44	2334420.06	1434190.72	1434190.72	1471632.72	1471632.72	5240243.88	5240244
Bahirdar Zuria	2993388.1	2976834.83	1523763	1521560.78	1834379.95	1832671.58	6351531.05	6331067
Yilimana Densa	2804458.14	2801152.96	1508924.85	1508923.95	1688319.15	1688304.05	6001702.14	5998381
Total	8132266.68	8112407.85	4466878.57	4464675.45	4994331.82	4992608.35	17593477.07	17569692

Table 5: disbursed and settled finance from 2001 -2003 E.F.Y (WMP)

Woreda	2001		2002		2003		Total	
	Disbursed	Settled	Disbursed	settled	Disbursed	settled	Disbursed	settled
Dembencha	382251	351560	2377593	1844588	1381628	1663399	4141473	3859487
Debre Elias	320210	302817	1611169	1310738	1228977	1554185	3160357	3167741
Finote Selam	367873	198190	524578	239798	524578	683012	1417029	1120951
Total	1070334	852567	4513340	3395124	3135183	3900596	8718859	8148179

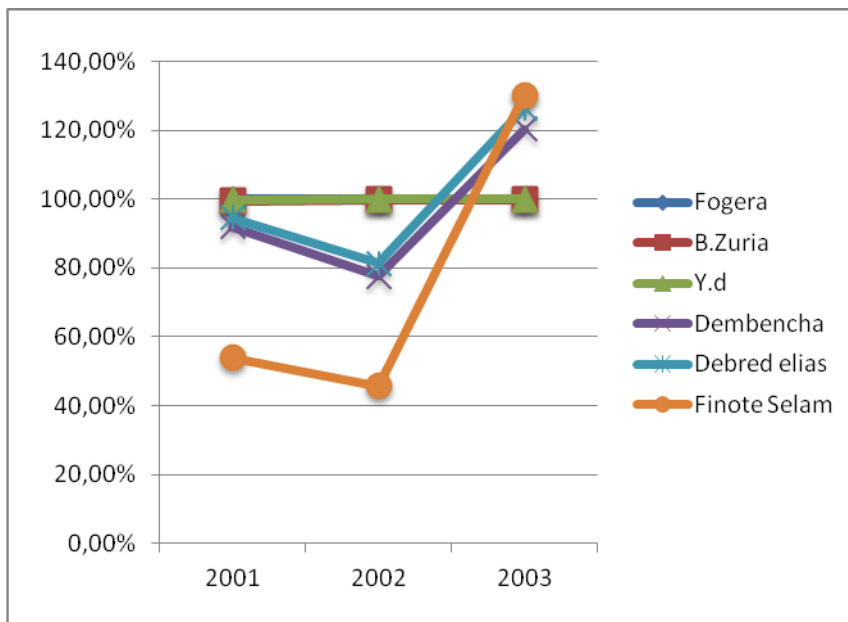
From the above tables we can understand that the overall fund utilization rate over the three years period is 99.86% and 93.45% among CMP and WMP modalities.

Figure 5: Allocated and utilized budget over three years period (E.F.Y)



Figure 5 indicates a fund utilization rate of 124.41% by WMP Woredas in 2003. This shows the late utilization of allocated but not utilized fund in the previous financial years.

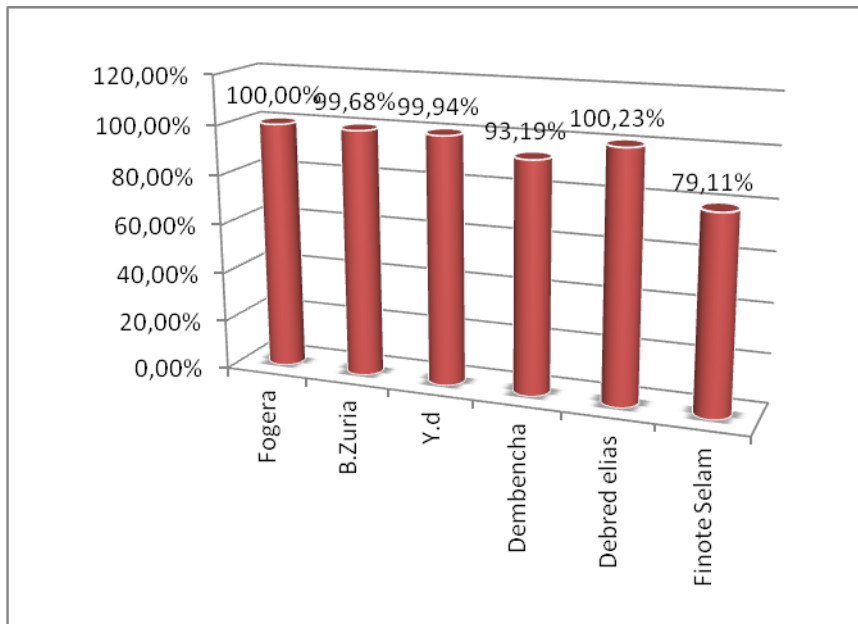
Figure 6: Fund utilization pattern of WMP and CMP Woredas over three years period (E.F.Y)



The above figure indicates a constant fund utilization pattern in the CMP Woredas. The lines, moving down and up, show the irregular utilization patterns of WMP Woredas. This

irregularity is not due to lack of demand. Rather, it explains lack of efficient capacity by the Woreda to absorb the allocated fund.

Figure 7: Total fund utilization of Woredas over three years period (E.FY)



4.2. FUNCTIONALITY AND UTILIZATION

This section focuses on functionality and utilization of RWS schemes in general, and the post construction activities which affect functionality and utilization in particular.

4.2.1. Sense of ownership

As argued in the previous chapter, for developing a solid sense of ownership effective community participation is a key necessity. And effective community participation should not imply increasing the number of participants, rather should focus on maximizing the level of participation.

This research has employed FGD held with WASHCOs and beneficiary assessment as the basic tools for analyzing sense of ownership. In the beneficiary assessment tool users were asked two multiple choice questions; “Who was responsible for the construction of the

developed and protected source?” and “Who is responsible for the management of the source currently, e.g. cleaning and repairs in-case of any breakdown?”, the findings are summarized in the tables below

Figure 8: Beneficiaries’ View of who was responsible for construction of the water supply scheme

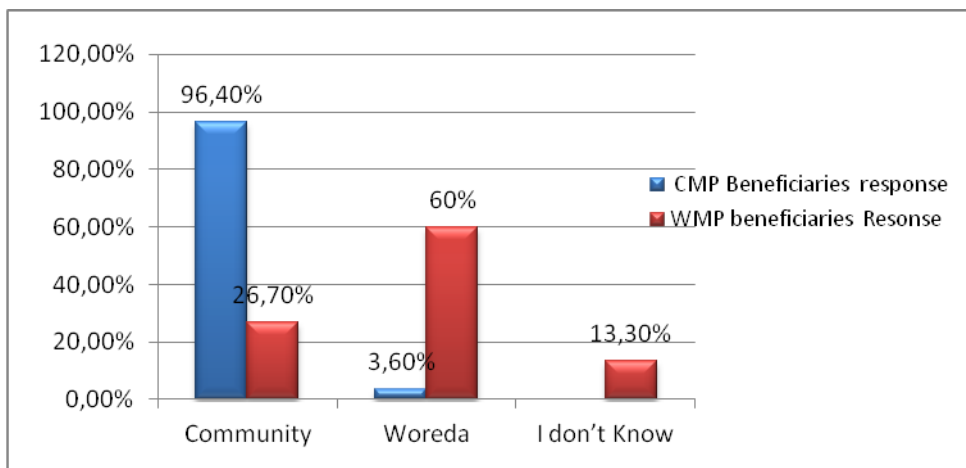
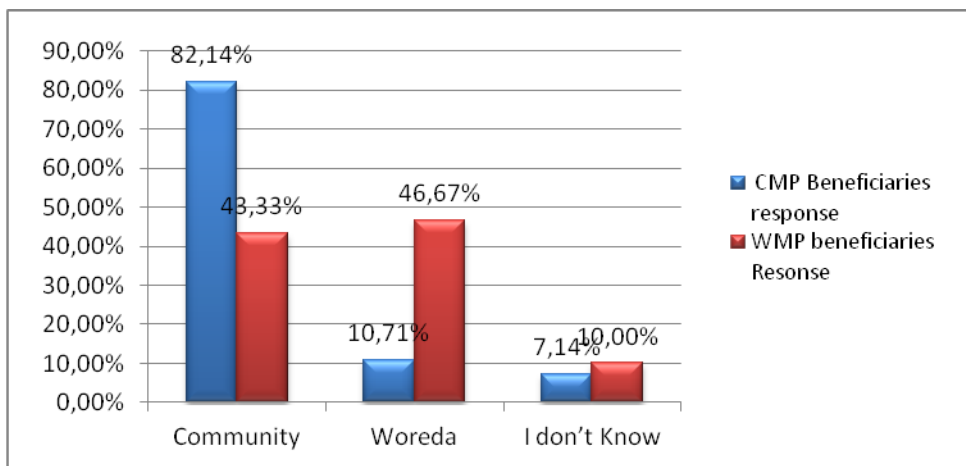


Figure 9: Beneficiaries’ View of who was responsible for the management of the water supply scheme



The above figures show that there is a clear awareness regarding the responsibility of implementation in CMP Woredas (96.4%). On the other hand in WMP Woredas there is

ambiguous awareness on who conducted the implementation. Only 60% of the respondents tend to indicate that responsibility of implementation was that of the Woredas'. Consequently, the beneficiaries' view of who manages the water supply schemes assumes similar trend.

82.14 % of beneficiaries under the CMP modality understand that management of the scheme is their own responsibility, while the majority of the beneficiaries under WMP modality (46.67%) believe that management of the scheme is the Woredas' responsibility. This indicates a higher sense of ownership established in CMP Woredas.

In addition, the FGD with WASHCO has also revealed that an increased sense of ownership is created among beneficiaries under the CMP modality. According to the FGD, some WASHCOs (Enaberga, Kulkual, and Jardome schemes in Degen Woreda, Atesar Fute, and Gonda schemes, in Bure Woreda) under CMP have developed good cost estimation knowhow and scheme control mechanism. These WASHCOs have calculated the material and labor contributions of the community and have set membership price, i.e. a new user/beneficiary has to make a onetime payment of a specified amount of money to the community so as to be able to use from the scheme constructed.

This is one indication of higher sense of ownership among CMP modalities. This case is also true in very few WASHCOs (Shish Beka and Hudanish scheme in Finote Selam Woreda) under the WMP modality. The following tables show the number of WASHCOs that have determined a membership fee (which is based on material and labor contribution estimations), and the amount of fee specified.

Table 6: Beneficiary Group membership fee set per scheme

Modality	Total No. of Schemes Surveyed	No. of Schemes with set membership fee		Price set per scheme		
		Number	Percentage	Max	Min	Average
CMP	33	9	27.3%	700	250	392
WMP	31	3	9.7%	140	35	75

As the above table shows, though the percentage is way below average (27.3%), it can be concluded that CMP has to some extent empowered the community in terms of management and control, which is significantly due to the increased sense of ownership among the beneficiary community.

4.2.2. Management and O&M

This study has tried to analyze different factors affecting management and O&M. Thus, below schemes hygienic profile, WASHCO's meeting pattern, contributions for O&M, and contributing and non-contributing WASHCOs, are discussed below.

Hygienic profile

Figure 10: Scheme's hygienic profile CMP communities

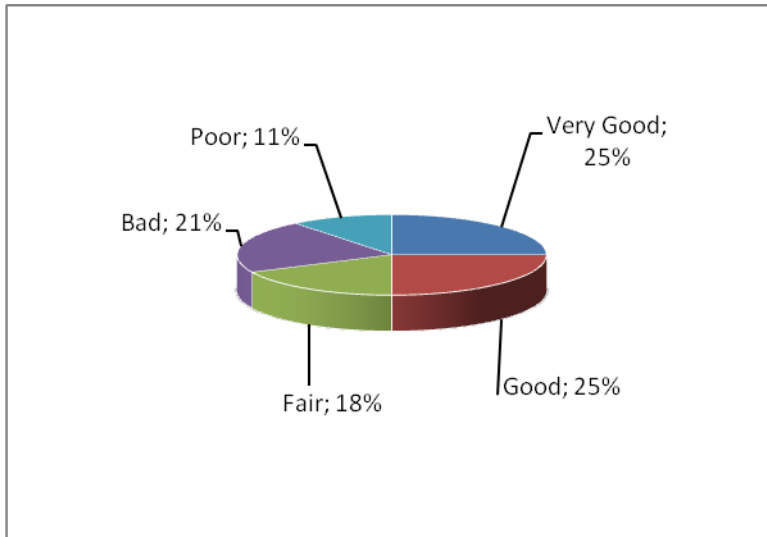
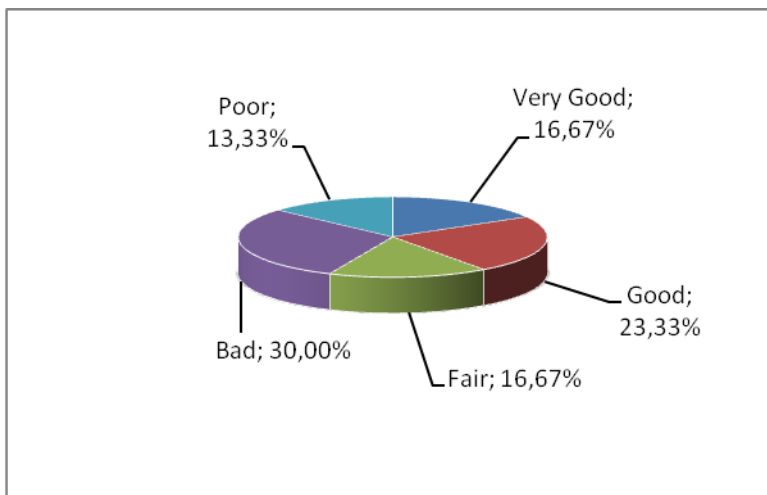


Figure 11: Schemes hygienic profile WMP Woredas



The above figures show that communities in CMP Woredas manage their scheme in a more hygienic manner than communities in WMP Woredas. The majority of the schemes in CMP modality (25%) fall under the “very good” and “Good” hygienic profile, while the majority of schemes under WMP modality (30%) fall under the “bad” hygienic profile. This indicates the higher sense of ownership and management practices developed in CMP communities.

Washing water container and animal watering inside scheme compound, lack of fence and water drainage in and around the scheme are among the major reasons for poor hygienic profile of the schemes under both modalities.



Senan Woreda , Gendam mich



Fogera Woreda, Misir Midir

Management Challenges

One significant factor observed is that, WASHCOs' management performance seems to decline year after year. This is one important problem pointed out by WWTs. As per their indications, WASHCOs get tired of organizing and mobilizing the community from time to time, and in some cases WASHCO are dissolved and a new WASHCO is elected. However, the new WASHCO could not get any type of management or O&M training either from the previous WASHCO or from the Woreda.

Table 7: WASHCO Management profile by year of construction (WMP and CMP)

WASHCO performance	1990-1995	1996-2000	2001-2005	2006-2010	>2010	Total	Total Percentage
Poor				5	3	8	13%
Bad	2	1	3	5	8	19	31.2%
Fair				5	2	7	11.5%
Good			5		9	14	23%
Very Good				2	11	13	21.3%
<i>Grand Total</i>						61	100%

Operation and maintenance

Community level operation and maintenance is the prevailing maintenance strategy under both modalities. Scheme management and O&M training is provided for the WASHCOs before the scheme is in use. However, regular meetings and contributions for O&M seem to be very low and commonly unpracticed activities among the WASHCOs under both modalities.

Usually WASHCOs meet whenever there is a problem with the scheme. And regular contributions for O&M are not commonly practiced among the beneficiaries (under both modalities).

It seems that, under the bigger scenario, the cash contribution made prior to construction is the only maintenance reserve for the schemes, which could be enough to conduct minor maintenances. However, in case of major breakdown, the funds available will not be sufficient to cover the true costs of repair.

Table 8: WASHCO meeting pattern

WASHCO Meetings	CMP		WMP	
	No. of Schemes	Percentage	No. of Schemes	Percentage
Regularly	15	45.5	14	45.1
Irregularly	9	27.3	8	25.8
Never met	6	18.1	7	22.6
Site not Operational	3	9.1	2	6.5
Total	33	100	31	100

The FGD held with the WASHCOs has revealed that, water use fee are non-existent in all most all the schemes surveyed under this research, and only 30.3% of the beneficiaries under CMP and 16.1 % of WMP beneficiaries make monthly contributions for O&M. Other

WASHCOs have claimed that the respective community would make contributions if the scheme failed or whenever maintenance is required.

But this is not always true. Some observations have indicated that users tend to revert to their former traditional water sources or dig their own undeveloped and unprotected wells, whenever contribution for scheme maintenance is required. In such cases, local communities make a rational choice considering financial cost, time, and internal conflicts that may arise, which would outweigh the benefits they get from the developed and protected sources. This shows the danger of maintenance challenges faced by the user communities under both modalities.

Moreover, even the regular contributions made among the very few communities are very low and could not serve as a maintenance reserve under any scenario. This is mainly because the monthly contributions are often determined by the users, and are not based on real life cycle costs.

The findings of this research have indicated that the average monthly contribution per HH (under both modalities) is 2 birr. In additions, the findings also show the average number of beneficiaries per scheme to be 54.5 for CMP and 61.5 for WMP.

Accordingly, the total average monthly contribution per scheme can be estimated to be from 109 to 123 birr. From these contributions an average of 50 birr per month is paid for the scheme caretaker/guard. In general, a total of 59 to 73 birr is retained per scheme for future maintenance, which would not be enough to cover if actual replacement and maintenance costs are examined.

Maintenance responsibility

It was mentioned earlier that maintenance of the water supply schemes is the responsibility of user communities under both modalities. The Woreda Water Office gives minor maintenance training for WASHCO members, and also tries to establish 2 maintenance professionals at the Kebele level. However, neither WASHCO members nor Kebele level maintenance professionals have the capacity to even conduct a minor maintenance. Under both modalities both minor and major maintenance are conducted by Woreda Water Office maintenance teams.



Scheme requires only changing the gate valve. At the time of site visit gate valve was purchased by the community, and Woreda Support was required to conduct the maintenance.

Senan Woreda, Ketema Minch, SPD



Scheme is abandoned because 2000 birr is required to maintain the pump.

Fenote Selam Woreda, Atahegn scheme

In general, the data from the surveyed schemes indicate that, under both WMP and CMP modalities, management and O&M of schemes tends to be unsatisfactory and additional

training and capacity building of the local community is a significant task in order to have sustainable water supply systems.

Functionality

Previous studies (WSP, 2010) have indicated that the functionality rate to be 94% and 78% for RWS schemes under CMP and WMP modalities respectively. In addition Abraham Kebele, in his thesis entitled, “a study on evolving community development fund approach for sustainable rural water supply and sanitation projects implementation” , considered functionality status of 312 water points implemented under CMP and WMP modalities over four years period, and found that out of 124 water points constructed under CMP 112 were functional, and out of 188 water points constructed under WMP 146 were functional, implying the functionality rate for CMP water points to be 90.3%, and WMP water points to be 77.7%.

The aim of this research was to analyze the current functionality of water points, under both modalities, at the regional level. However, the relative data was not available at the regional water offices, thus the considerations are limited only to the visited Woredas. Still, In order to analyze the functionality rates, this research has omitted Woredas that have become beneficiaries under CMP recently, because the schemes are only a year old and are all operational. Moreover, since the sample size is minimal the data should only be considered as indicative.

Table 9: Functionality of schemes constructed until 2011.

Modality	Woreda	Total no. of schemes constructed	Functional Schemes		Non-functional schemes	
			Number	Percentage	Number	Percentage

CMP	Fogera	350	331	94.6%	19	5.4%
	Yilmana Densa	540	530	98.25	10	1.8%
	Total	890	861	96.7%	29	3.3%
WMP	Debre Elias	173	155	89.6%	18	10.4%
	Finote Selam	263	221	84%	42	16%
	Dembecha	230	213	92.6%	17	7.4%
	Total	666	589	88.4%	77	11.6%

The above table indicates higher functionality (96.7%) among CMP water supply schemes over WMP water supply schemes (88.4%). This shows an increased sense of ownership and better care for schemes under CMP modalities and satisfactory community supervision which has a considerable role to improved construction quality, which in turn contributes to functionality.

Water use and quantity

Among the beneficiaries of both modalities, water from the developed and protected source is basically used for drinking and cooking only. Animal watering, personal hygiene and clothe washing is performed at the traditional source. The average household water use in the visited Woredas is 40 liters/day. The beneficiaries were asked if the quantity of water fetched from the developed and protected source is enough.

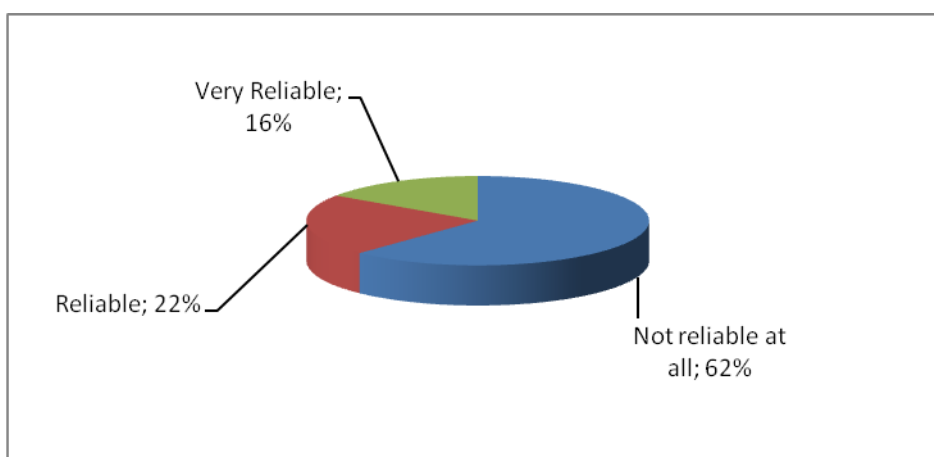
Accordingly, 72.3% of respondents in WMP Woredas believed that the water quantity from the developed and protected source is enough, while 75.6% of respondents in CMP Woredas indicated enough water quantity from the developed scheme. One reason behind limited quantity in CMP Woredas is that, WASHCOs under this Woredas have put a water use limit that ranges from 20 to 40 liters per household assuming that the source would deplete from too much use.

The case of depleting water source or frequent water stoppage with increased use is also true among schemes under both modalities. The scheme assessment has shown that 18.2% and 26.7% of the water supply schemes in CMP Woredas and WMP Woredas respectively, have water stoppage problems. As indicated by WWT higher water stoppage in WMP Woredas is associated with higher number of beneficiaries. Unknown number of users and depleting water source is one limiting factor observed in WMP Woreda water supply schemes.

Reliability

Domestic water supply is highly affected by seasonal variations most especially during the dry seasons. In all the visited Woredas, WWTs specified that the majority of springs and HDWs either decrease their yield to the minimum, or (some) dry up, and beneficiaries divert to traditional sources for water use. The beneficiaries have rated the seasonal reliability of the schemes as follows

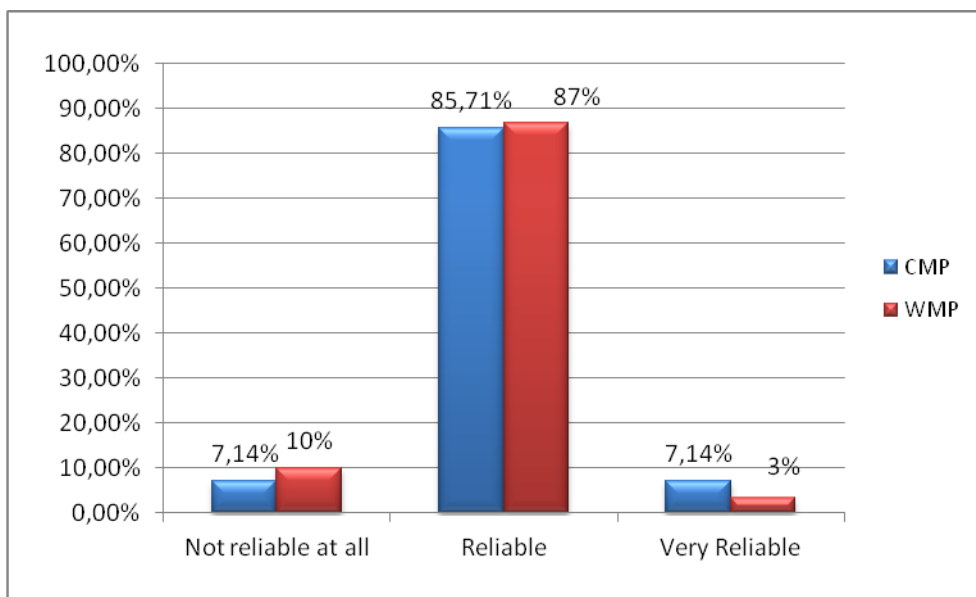
Figure 12: Seasonal Reliability of Water supply schemes under both modalities



Daily reliability of water supply schemes is also one area assessed under this research. Too much number of beneficiaries is the basic reason (other than geology) for daily unreliability of water supply schemes. 10% of WMP and 7.2% of CMP schemes are rated not reliable by the respective beneficiaries.

As indicated above, keeping geographical factors constant, the percentage increase of unreliability in WMP Woredas may be associated with higher number of beneficiaries. However, this is only an indicative data, and should not be considered as a general statement.

Figure 13: Beneficiaries' View of Daily Scheme Reliability (WMP and CMP)



Utilization and Convenience

The utilization analysis in this research seeks to answer one question; “ are the initial beneficiaries still using the scheme? If no, Why?”. Therefore, data on both the initial and current number of beneficiary HHs per scheme was gathered, and the findings show an average of, 98% utilization rate for CMP schemes, and 134.4% utilization rate for WMP

schemes. This shows that, on the average, schemes under the WMP modality accommodate 34.4% additional users over originally intended beneficiaries.

As the number of beneficiaries per scheme increases, the life time of the scheme decreases. This is one setback observed among WMP water supply schemes. In the FGDs WMP WASHCOs have indicated that, since the scheme is constructed by the Woreda, it is difficult to limit the maximum number of users because new users view the scheme as something given to the community by the Woreda, and no one has the right to stop them. This is one factor that discourages WASHCOs efficiency in management.

Table 10: Average initial and current beneficiaries per modality

Average Beneficiaries/scheme	CMP	WMP
Initially	51.6 HHs	49.2 HHs
Currently	50.5 HHs	61.5 HHs
Total average increase	-1.07 HHs	12.4 HHs
Total % increase	-2.1%	25.1%

The above table shows an average decrease 2.1% among CMP beneficiaries. Construction of other new schemes, lack of financial ability, convenience, scheme breakdown, low water quantity and very long queuing time are among the basic reasons for not using the facility.

In most CMP communities, water supply schemes are known to be constructed by the respective communities, and outsiders know the schemes belong to the communities. Accordingly, the majority of CMP communities do not allow additional users from other places to use their source, while the rest have set a membership fee for new users. This has created an encouraging opportunity for optimum use of facilities, which in turn has

contributed to the increased operational life and higher functionality rate of the CMP schemes.

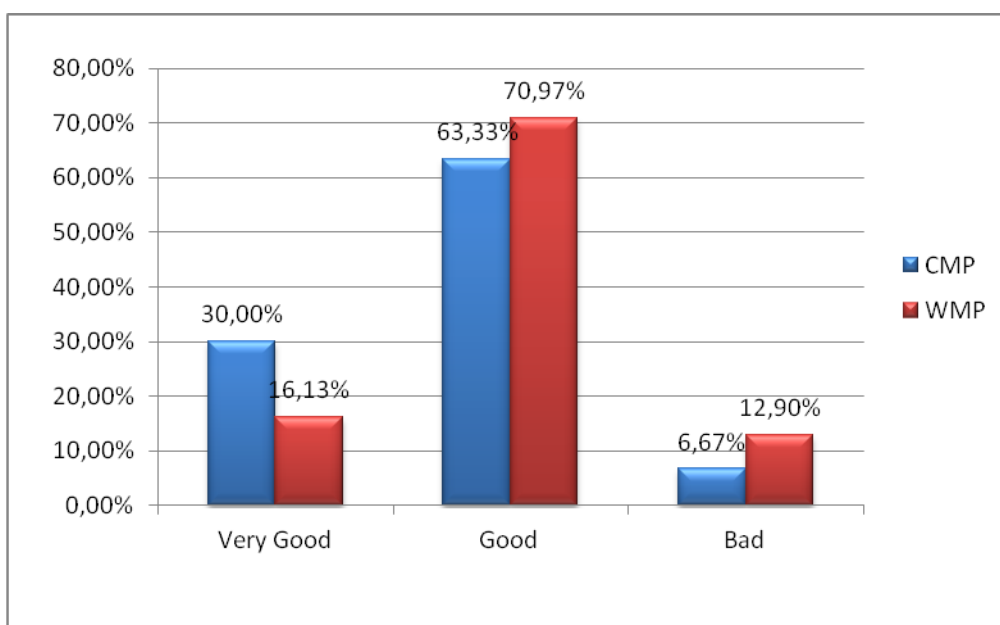
Convenience

Convenience of water supply schemes is not a problem among beneficiaries under both modalities. As per the beneficiaries indication the average time taken to reach water points is 13.8 minutes. Only in some rare instances schemes tend to be inconvenient, when beneficiary HHs are located on scattered settlements, and when geographical topography is inopportune for water supply scheme construction.

Water Quality

The beneficiaries under both modalities were asked to evaluate the water qualities of their water supply schemes, and the respective results are summarized in the figure below.

Figure 14: Respondents' view of Scheme's Water Quality



Among the schemes with bad quality, Misir Midir in Fogera Woreda, Dega Janhada and Menkorkorit in Dembecha Woreda are totally shut down due to persistent quality problems. The issue of water quality requires a special attention of the financers and policy makers. Generally, in all the surveyed water supply schemes water quality suffers from the following problems.

- There are no test kits and lack of skill gap to perform the water quality investigation at Woreda level
- There is little understanding for regular water quality testing by policy makers
- There is no cloth and persistent examination for bacteriological testing at the developed schemes
- Lack of effectiveness in timely chlorination. Woredas usually lack the capability to conduct chlorination with in the specified period (every six months).

4.3. SUMMARIES OF STRENGTHENS AND WEAKNESSES

Strengths of WMP

- There is a progressive approach towards capacity building at the Regional, Woreda, and Community level
- Ensures community participation at the grass root level
- Effective transmission of the concept of WaSH through CFTs. Community mobilization is not only water and sanitation oriented (*N.B. this is limited to WMP Woredas financed under the WB*)
- Has adopted a less time taking Performa system for procurement, but its application needs to be promoted

Weaknesses of WMP

- Vague communication system between Woreda and WSGs at the regions. Fund release is based on previously allocated finance settlement reports issued by the Woredas and sent to the WSGs at the Region. And, once this report is submitted, there is usually a delay of one month until the next fund is released. In addition, sometimes the Woredas find released finance in their bank account, without having requested for it.
- Limited capacity of Woredas to absorb resources, and also in processing the financial statements to reimburse the used amount on time, thus resulting in low implementation and fund utilization rates
- Failure to give Woredas prior notice on the amount that will be released to them, so that it can be incorporated in their annual plan.

- Limited capacity of Woredas to utilize the Performa system set in the modality for procurement. Somehow, Woredas prefer to use the customary tender-bidder procurement system set by the government.
- Delayed procurement
- Limited Woreda capacity to conduct effective supervisions on construction
- Beneficiary communities tend to be with lower sense of ownership
- Lower functionality rates of constructed schemes
- Overrated utilization of constructed schemes
- No emphasis is given on water quality
- O&M arrangements are not properly administered

Strengths of CMP

- There is a progressive approach towards capacity building at the Regional, Woreda, and Community level
- Ensures community participation at the grass root level
- involves all the possible development agents (from region, to woreda, and community), and makes them responsible for the undertakings carried out with the fund
- The cash flow mechanism adopted is very efficient and ensures the timely delivery of resources
- Fast and efficient procurement procedure
- Empower community members in terms of organization, management, control and supervision

- High implementation and fund utilization, ensuring the accessibility of large number of communities with clean water supply sources and introduce and promote the use of sanitation facilities
- Effective construction supervision and control by the beneficiary communities
- Increased sense of ownership among the beneficiary groups³
- Higher functionality rates of constructed schemes
- Optimum utilization of constructed schemes
- Indications for promising asset valuation and financial management abilities.

Weakness of CMP

- Community mobilization is usually conducted by Woreda Water Officials. And the message transmitted tends to be more water and sanitation oriented, than WaSH oriented as in the case of WMPs
- The working procedures involve administration of a number of application and recording forms, which are difficult to be computed by the local community
- The fund ceiling for individual projects affect Woredas implementing spring development with rural pipe scheme.
- In some cases, material suppliers take advantage of the local communities in matters associated with price and quality of materials.
- Promising but unsatisfactory arrangements for O&M
- No emphasis is given on water quality

5. CONCLUSION AND RECOMMENDATIONS

Conclusion

This study tried to assess the basic differences between WMP and CMP modalities with respect to the planning, implementation, functionality and utilization in delivering water supply services for the rural community. The reviewed literature under the topics of community participation, community management, Woreda management of projects, and O&M shows that the factors affecting RWS sustainability are complex and require specific attentions of donors, financiers and sector professionals.

Based on the assessment in eight Woredas, this study has found that both modalities (WMP and CMP) are demand-driven, and promote community participation in the planning phase. However, the findings illustrate that there are important connections between community participation, and the key goals of responsibility, management, reliability, functionality, and implementation of projects. Thus, regarding RWS service delivery, this research believes that awarding the local community the full responsibility of planning and implementation, with cloth supervision, is the right approach for optimum sustainability of projects, basically because it empowers the community and develops a high sense of ownership, and ensures effective and efficient fund allocation and utilization.

In addition, the findings also show that due to increased community participation in the planning phase, and due to community empowerment in the implementation phase, water supply schemes under the CMP modality tend to achieve higher reliability and functionality,

better management performance, and optimum utilization, as compared to water supply schemes implemented under WMP modality.

Challenges

The results of this thesis also indicate some major challenges regarding the issues of community management of O&M under both modalities. One overarching issue in the observed communities is that though the cost recovery system seems to be meeting program objectives (i.e. some communities make minor financial contributions for O&M), it is not moving towards a financially sustainable future which would allow the beneficiaries;

- 1) To conduct a major maintenance in case of sudden breakdown,
- 2) To replace the system when it reaches the end of its economic life, and/or
- 3) To expand the system so as to accommodate additional users with increase in population and demand.

As per the FGDs with WASHCOs and WWTs, the basic reasons behind this challenge include

- a) Lack of capacity and knowhow on behalf of the local community on O&M and replacement cost estimations, and no specific training provisions on the respective matters by the Woreda,
- b) Communities often tend to be distrustful of the accounting and security of cash balances, and even WASHCO members may mistrust each other on matters of cash
- c) Community and WASHCO members tend to spend collected contributions on other communal or social activities. All these factors create a lesser incentive on behalf of WASHCOs to lead communities in making the required contribution for O&M. Thus both WASHCOs and communities revert to a commonly reached agreement, i.e., contributions are collected when maintenance is needed.

The other major challenges regarding the issues of community management of O&M is that the beneficiary communities under both modalities still rely on the Woreda for major and even minor maintenances. The trained maintenance professionals at the Kebele and community level do not acquire the right skills to conduct simple and minor maintenances.

Two important reasons are indicated by the FGDs as causes for such challenge

- a) Pumps are usually maintained whenever they fail, and there is no preventive maintenance. Accordingly, maintenance professional both at the community and Kebele levels get to practice their acquired skills if only maintenance problems occur, and this makes the professionals forget their unpracticed skills overtime.
- b) Woredas themselves are not fully detached from the community on matters of maintenance. WWTs have indicated that in some cases there is a tendency among the Woredas to finance major maintenances (free spare parts and free repairs). This has created a feeling of “probability” on behalf of the beneficiary communities, i.e, they tend to wait until major repairs are needed and see if the Woreda finances the maintenance.

Recommendations

Based on the findings this research seeks to forward the following recommendations

- i. Operation and Maintenance
 - a. Under both modalities management trainings should consider the concept of asset management rather than scheme management. Woredas should integrate asset valuation and costing in their training curriculums so as to capacitate WASHCOs in estimating the minimum monthly contributions required for O&M.
 - b. Implementing authorities should consider making O&M trainings more practical and participatory. For such matters, equipping Woredas with the right capacity is one aspect, but since it means additional task for the Woredas, its reliability is questionable. However, the observed maintenance challenges could be addressed, if training of maintenance professionals is practical, and if it is conducted by local consultants and small scale enterprises with a well-designed curriculum and extended period.
 - c. Increased Woreda Support (Post Implementation Monitoring and Evaluation)
 - I. The Woreda Water Office should conduct frequent situation analysis, and should identify areas requiring training and support.
 - II. Once such areas of weaknesses are identified, the Woreda Water Office should make sure that both WMP and CMP WASHCOS get the necessary extended support. It should be made sure that post

implementation support from Woreda Water Office is part of both
CMP and WMP package.

- ii. The findings have indicated a high (62%) seasonal unreliability among both CMP and WMP water supply schemes. This problem would be avoided if the design criterion is adjusted on matter of standard scheme depth, and number of users per scheme. Therefore, implementing Authorities under both modalities should consider increased depth of wells, and integration of environmental management in the programs so as to ensure seasonal reliability

- iii. The fund ceiling set under the CMP modality makes sure that the projects are simple and manageable by the local community. However, Woredas with high spring capacity and inconvenient topography tend to construct springs with rural pipe scheme, and find the per scheme available finance inadequate to finalize implementation. One way to embrace this fact could be making the financial ceilings Woreda specific based on the topography and type of scheme constructed.

- iv. Active and Harmonized fund transfer and capacity building mechanism for implementing agencies at all level
 - a. Both CMP and WMP are not 100% exclusive modalities because they have a number of similar approaches. It would be more effective and beneficial to both modalities if government entities engaged in rural water supply and sanitation create appropriate forums to exchange best experiences of the different modalities.

- b. CFTs and CMP officers play a significant role in assisting Woreda Professionals in the implementation of RWS projects. However, these are external entities existing independently outside the government structures set in the Woredas, and their performance is fundamentally challenged by lack of prospective upward trajectory in their respective career. Therefore, both modalities should more extensively use existing government structures in order to sustain results. The role of external assistance in form of CFT and CMP officers should be limited to building the capacity of government structures and support the facilitation of the project implementation process.
- c. It would be more effective if each modality adopted the other's good aspects and finally evolve into a single sector financing approach. This would create an active and harmonized fund transfer and capacity building mechanism for the implementing agencies at all level.
- d. Community management is a new concept with a progressive trend. Successful management practices are observed among some WASHCOs in the CMP Woredas. These practices would best disseminate among other WASHCOs if a continuous experience sharing forum is established.
- v. The key concept in the CMP modality (empowering the community with the full responsibility of planning, implementation and management of their own projects) with the right support, could evolve to such community based development programs like village and community road constructions, communal health posts and in school classroom constructions, agriculture, etc.... Thus a special attention should be given

to this specific quality of the program by the Federal government, and further research on the matter is compulsory.

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Annex 1

Interview Guide Woreda WaSH Team

Section 1: Respondents identification

Name of Woreda

Name of respondent/s.....

Position/s.....

Date of interview.....

Section 2: Identification and Planning

1. What is the initial step in project identification?
 - a. How is the community mobilized?
 - b. How is awareness created on the use of new schemes?
 - c. What are the prevailing problems during this stage?

2. What type of assistance/training is provided for the WASHCO
 - a. To form or strengthen a WASHCO?
 - b. To facilitate planning on behalf of the WASHCO?
 - c. How do you evaluate this training? Why?
 - i. Was it given effectively for the WASHCO? Why?
 - ii. What problems were observed on behalf of the WASHCO and/or the Woreda during training provision? Why?

3. What is the proposal evaluation procedure?
 - a. What are the steps?
 - b. How long does it take to approve a proposal at the woreda?
 - c. What cause delays, if any? And Why?

4. What weaknesses or setbacks are there in the project identification and planning stage? What do you think the reason is? What solutions do you propose?

Section 3: Implementation

Section 3.1: Implementation (CMP)

5. How many water supply schemes were intended to be constructed as per the Woreda's WaSH Plan in the past two years?

6. How many of these schemes are constructed? Why?

7. What type of support do you provide for the WASHCOs during project implementation? What are the most common setbacks? Why? And what do you propose?
 - a. Selection of contractors and procurement of materials and services

- b. Organizing materials and services from the community
 - c. Implementation supervision
 - d. Fund allocation
8. What type of materials and services are usually provided by the community?
 - a. How did the community react towards providing these services?
 - b. Were there any delays in service provision? Why?
 9. What type and amount of contributions are required from the community? What percentages are usually secured? Why
 10. From your experience, is there a delay on behalf of the WASHCO while procuring materials and/or services? What are the reasons behind the delays, if any?
 11. Do you think that the funds for construction are managed efficiently by the WASHCO? Why? And what do you think should be done?
 12. How would you evaluate the timely availability of finance for construction? Describe average time taken to finalize finance request. Outline reasons for delays, if any?
 13. Are there any financial constraints? Please describe
 14. What type of training did the WASHCO/caretakers receive from the contractor/artisans? Was the training adequate? Why?
 15. How do you evaluate the construction process?
 - a. Was construction conducted as per the requirements of the community? Why?
 - b. What was the intended and actual time taken for construction? Were there any delays? Why? (management, administrative or technical)

Section 3.2: Implementation (WMP)

16. How many water supply schemes were intended to be constructed as per the Woreda's WaSH Plan in the past two years?
17. How many of these schemes are constructed? Why?
18. What is WASHCO'S level of involvement during selection of contractors/artisans?
19. What type of materials and services are usually procured?
 - a. By the Woreda?
 - b. What are the most common inconveniences/delays? Why?

- c. What do you think should be done?
20. What type of materials and services are provided by the community?
 - a. How does the community react towards providing these services?
 - b. Were there any delays in service provision? Why?
 21. What type and amount of contributions were required from the community? What percentage were secured? Why
 22. From your experience, are there any delays while procuring materials and services? What are the reasons behind the delays, if any?
 23. Do you think that the funds for construction are managed efficiently by the Woreda? Why? And what do you think should be done?
 24. How would you evaluate the timely availability of finance for construction? Describe average time taken to finalize finance request. Outline reasons for delays, if any?
 25. Are there any financial constraints? Please describe
 26. What type of training did the WASHCO/caretakers receive from the contractor/artisans? Was the training adequate? Why?
 27. Were there any shortfalls? Why?
 28. How do you evaluate the construction process?
 - a. Was construction conducted as per the requirements of the community? Why?
 - b. What was the intended and actual time taken for construction? Were there any delays? Why? (management, administrative or technical)

Section 4: Functionality and Utilization

Reliability

29. How many water supply facilities do you have in the Woreda? And how old are the facilities?
30. Which of these facilities are functional? Non-functional? Abandoned? And why?(reasons - administrative, technical)
31. What problems of reliability are observed among the facilities? (Explain)
 - a. Adequacy in water supply

- b. Productivity
- c. Stoppage
- d. Neglect on behalf of the community

32. What do you think the reasons behind these problems are? (administrative, technical or operational)?
33. What Kind of support does your office provide (maintenance and procurement)
34. How would you evaluate the availability of maintenance professionals on site?
Why
35. How would you evaluate the training provided for the maintenance staff? Why?
36. Are spare parts available on time? At what level? (regional, woreda, community, or beyond?)
37. What are the significant problems associated with spare part accessibility and availability? What solutions would you suggest?
38. Are there any challenges with regard to the maintenance of the water sources?
If yes please specify type and nature (administrative, technical, operational)
39. In your opinion what do you feel is lacking and needs to be improved in the management of the water supply schemes?

Section 5: Water Quality and Convenience

40. What procedures are involved in water quality check?
41. What problems associated with water quality prevail?
 - a. Water contamination
 - b. Odor, taste, smell, etc..
 - c. Water born and related diseases / Top ten diseases in the Woreda?
42. What measures have been taken towards addressing water quality problems?
How do you evaluate them?
43. Do you believe the water supply facilities are convenient for the user community? How is site selection conducted and what problems do usually prevail in the process? What solutions do you propose?

44. Why do you think the reason for the non-user members of the community not to use the facility? (cost, convenience, etc...)

Section 5: Policies and strategies

45. What support do you get from the regional offices?, and what criteria are used for allocating the support?
46. Do you believe the support is adequate, and fulfilling in equipping the Woreda WaSH team in effective decision making and implementation of the water resources? Specify
47. In your own opinion what do you think should be taken into consideration to improve the implementation, management, operation and maintenance of rural water supply projects?

Annex 2

FGD for WASHCO

Introduction

Section 1: Respondents' identification

Name of Woreda

Name of Village/Got

Name of Water Supply Scheme

Names of present members of WASHCO.....

List of their respective positions in the WASHCO.

Date of FGD.....

Section 2: Identification and Planning

48. What was the process involved in community mobilization and awareness creation on the use of the new schemes, and how would you evaluate these process? Why?
49. How was the WASHCO formed?
- a. What type of community meetings were conducted at the formation phase?
 - b. How were members selected?
 - c. Number of women in WASHCO?
 - d. Organizational structure of WASHCO?
50. How would you describe the need among the community to participate in the projects? Why?
51. What kind of training did the WASHCO receive from Woreda in the planning stage?
- a. Type and effectiveness of training as it is evaluated by the WASHCO?
 - b. Duration of training?
 - c. Areas requiring more training
52. What kind of assistance did the WASHCO get while preparing
- a. Facility Management Plan/WMP?
 - b. CMP application proposal?
53. What factors did the WASHCO take into consideration during
- a. Technology choice
 - b. Selecting site
 - c. Estimating costs, community contribution and tariff
 - i. Type and amount of contributions required
 - ii. Percentage of contributions secured
 - d. Arranging for Operation and Maintenance
 - i. Describe proposed strategies in the planning stage
 - ii. How well are these strategies followed now? Why?

54. Once you have submitted your proposal how long did it take the Woreda to approve the proposal?
55. What weaknesses or setbacks are there in the project identification and planning stage? What do you think the reason is?

Section 3: Implementation

56. What kind of assistance did the WASHCO get from the Woreda during
- a. Selection of contractors/artisans (CMP)
 - i. What procedure was followed?
 - ii. Were there any inconveniences while selecting the contractors? Why?
 - iii. What do you suggest should have been done?
 - b. What was the WASHCO's level of involvement during selection of contractors/artisans (WMP)
 - i. What procedure was followed?
 - ii. Were there any inconveniences? Why?
 - iii. What do you suggest should have been done?
57. What type of materials and services were procured?
- a. By the Woreda? (WMP),
 - i. What was the role and level of involvement of the WASHCO?
 - ii. What procedure was followed?
 - iii. Were there any inconveniences? Why?
 - iv. What do you suggest should have been done?
 - b. By the WASHCO? (CMP)
 - i. How was the Woreda Helpful?
 - ii. What procedure was followed?
 - iii. Were there any inconveniences? Why?
 - iv. What do you suggest should have been done?
58. What type of materials and services were provided by the community?
- a. How did the community react towards providing these services?
 - b. Were there any delays in service provision? Why?
59. How long did it take to procure material and services? What are the reasons behind the delays, if any?
- a. Time taken to select and hire contractors
 - b. Time taken to procure materials
 - c. Time taken to secure community contributions
60. Do you think that the funds for construction are managed efficiently? Why? And what do you think should have been done?
61. How would you evaluate the timely availability of finance for construction? Describe average time taken to finalize finance request. Outline reasons for delays, if any?

62. Were there any financial constraints? Please describe
63. What type of training did the WASHCO/ scheme caretakers receive from the contractor/artisans? Was the training adequate?
64. How do you evaluate the construction process?
 - a. Was construction conducted as per the requirements of the community? Why?
 - b. Was the construction finalized within the intended timeframe? Were there any delays? Why? (management, administrative or technical)

Section 4: Functionality and Utilization

Reliability

65. Who is responsible for the management of the source e.g. cleaning and repairs in-case of any breakdown?
66. Are there any stoppages in water supply? If yes, list frequency and duration of stoppages, and whether stoppages are complete or partial
67. As per the design criteria,
 - a. What would be the present production rate/output?
 - b. What would be the present consumption of water would be?
68. What is the water production trend since the facility was in use? (Why?)
69. What is the number of people expected to draw water from the facility?
70. What proportion of these people are currently using the facility? Why?
71. Is water from the facility sufficient for the community? If no, what do you think the reason is? And what alternatives are used?
72. Are there any seasonal Variation in the capacity? Why
73. Are there any seasonal variations in demand? Why
74. How is the water sources managed? (financial and administrative procedures)

75. How often does the WASHCO hold meetings?
76. Do users pay for the water they draw? If yes how much? If no, why and how is the cost recovered?
77. Is there any inconvenience while collecting contributions or water fees? List
78. How is the maintenance cost addressed?
79. Do the communities contribute towards the maintenance costs? If yes please specify what way and how much?
80. Was the facility maintained for failure? If yes,
 - a. Frequency of maintenance
 - b. Describe maintenance (minor or major)
 - c. Cost for maintenance
81. Is maintenance performed as per the specified strategy in the project plan?
82. What is your financial control mechanism? Financial management formats, and amount of money in WASHCO account?
83. Is finance for maintenance available on time? Are there any delays ?
84. How would you evaluate the operation and maintenance training provided for WASHCO/Caretakers? Why?
85. How would you evaluate the availability of maintenance professionals on site? Why
86. How would you evaluate the timely availability and accessibility of spare parts? And at what level are spare parts available? (regional, woreda, community, or beyond?) Why? What solutions would you suggest?
87. Are there any challenges you have faced with the maintenance of the water sources? If yes please specify type and nature (administrative, technical, financial)

88. In your opinion what do you feel is lacking and needs to be improved in the management of the water source?

Section 5: Water Quality

89. Has the Woreda/regional Health/Environmental office conducted any type of water analysis or surveillance for quality check, since the facility was in use? If yes, specify frequency of surveillance and recommendations made

90. How do you evaluate the quality of the water? Taste, color, odor, etc..

91. How do you evaluate the area around the water point in terms of hygiene? Why?

92. Do you think water from the facility is susceptible for contamination? Why?

93. Are there any water bore or water related diseases observed in the community? If yes, specify

Section 6: Convenience

94. What is the average distance travelled between the facility and households? (in min./hr.)

95. Do you think distance is one factor among the non-user members of the community not to use the facility?

96. Do you believe poor families afford the cost of water transport? Why? (in terms of Labor, health, time, etc.)

97. Where are the traditional water sources, which were used in the wet and dry season, located?

98. Are the traditional water sources still in use? Why?

99. How do you evaluate the facility's convenience? Why?

Annex 3

Interview guide Regional Officials

Section 1: Respondent's identification

Institution.....
Name of respondent/s.....
Position/role.....
Date of interview.....

Section 2: Identification and Planning

100. What type of support does the Region provide for the Woredas in Planning and implementation of rural water supply projects?
101. What constraints are observed in the planning and implementation of rural water supply projects? Among the Woreda and the WASHCO (CMP and WMP)
102. As per the Regional Wash plan, how many water points were ought to be implemented under WMP and CMP? (past two years)
103. What percentage of these facilities are implemented (CMP and WMP)? Why? (describe weaknesses on behalf of WASHCO and/or Woreda)
104. How do you evaluate the construction rate in WMP and CMP? Is there a variation? Why do you think that is?
105. Under which modality, WMP or CMP, is finance best managed and utilized? Why do you think that is?
106. How do you evaluate availability and accessibility of spare parts?
107. What constraints have you observed in WMP and CMP?
108. Which financing modality, WMP or CMP, would you consider as more efficient and effective in terms of
 - a. Planning and Implementation, Why? (construction, fund utilization, etc...)
 - b. Operation and Maintenance, Why?
 - c. Reliability and Functionality, Why?

Required Secondary Data

Regional Socio-economic profile

Annual Regional-Rural Wash plan for the past 2 years

Annual Regional rural WaSh Project implementation report (CMP and WMP) for the past 2 years

Data on Functional, Non-functional, and abandoned schemes (if available at the regional level)

Annex 4

Scheme assessment tool

Name of respondent/caretaker.....
Date of interview.....

Section 1: Scheme Profile

Name of Woreda
Name of Village/got
Name of Scheme
Year of Construction.....
Source type
Protected spring on spot.....
Hand-dug well.....
Spring development with rural pipe scheme.....
Other.....
Extraction system
Hand pump.....
Rope pump.....
Other

Section 2: Scheme reliability and Water Quantity

1. Status of Scheme
 - a. Functional
 - b. Functioning but faulty
 - c. Not functional
 - d. Abandoned

2. When did the scheme last breakdown?

3. After How many days was the scheme operational again?

4. Hygienic profile of the area
 - a. Poor
 - b. Bad
 - c. Fair
 - d. Good
 - e. Very Good

5. Are there any stoppages in water supply? If yes, what is the frequency and duration of stoppages? Are stoppages are complete or partial

6. Number of people drawing water from the facility?

7. Water production in m³ per day
8. Facility's operation hour per day
9. Facility's operation hour per week
10. The capacity of the facility in m³ per day
11. The capacity of the facility in m³ per hour
12. Prevailing seasonal variation in the capacity
13. Prevailing seasonal variation in demand
14. Which component of the facility is the limiting factor? (the source or the production)?
15. What are the type and nature (source, production, administration, operation and maintenance) of the limiting components of the facility?
16. What proportion of people living in this settlement use this scheme?
17. Do users pay for the water? If yes, how much
18. What is the average queuing time?

Annex 5

Beneficiary assessment tool

(designed to provide a quantitative back-up information on reliability, water quantity, water quality, and Convenience)

Questionnaire code;

Questionnaire no.

Date of administration;

Section one: Household Profile

1. Name of Respondent
2. Sex of Respondent
 1. Male
 2. Female
3. Educational Background
 1. Primary
 2. Secondary
 3. Tertiary
 4. If other please specify.....
4. Occupation.....
5. What is your position in the household
 1. HH head
 2. Spouse
 3. Child
 4. Other, please specify.....
6. How many people live in your household.....
7. What is the monthly household income.....

Section two: Water use

8. Prioritize your water use purpose as per follows
 1. Drinking
 2. Cooking
 3. Washing tools and personal hygiene
 4. Washing animals
 5. Garden Watering
 6. Other_____
9. How much water do you use per day for the following domestic activities?
Please specify in liters/jerry can
 1. Drinking
 2. Cooking
 3. Washing Cleaning including personal hygiene
 4. Other please specify.....
10. Where do you collect water used in your household?
 1. Developed and Protected source only
 2. Traditional source only
 3. Both Developed and Traditional
 4. Other, please specify.....
11. How long do you travel each day to collect water from
 1. Developed and Protected Source
 2. Traditional Source.....
 3. Private water vendors.....
 4. Other.....

If the answer for Q no. 10 is 1 or 3 proceed to Q.no. 12. If the answer for Q no. 10 is 2 or 4 go to question no.38

12. Is the communal water source convenient in terms of location?

- 1. Yes
- 2. No

13. If no, why?

14. Is water transportation cost (in terms of labor, health or time and energy) affordable

- 1. Yes
- 2. No

15. If no, How is it not affordable? And what do you suggest as a solution?

.....

16. Is the water quantity from the developed and protected source enough to satisfy your daily domestic needs?

- 1. Yes
- 2. No

17. If no, what alternatives do you use to satisfy your need?

- 1. Fetch additional water from traditional source
- 2. Limit domestic water consumption rate
- 3. Other, specify.....

18. If the answer for Q.17 is "traditional", for what purpose do you use the water from the traditional source?

- 1. Drinking _
- 2. Cooking _
- 3. Laundry (cloth and utensils)
- 4. Personal Hygiene
- 5. Other please specify.....

19. How reliable is the developed and protected water source during the dry season?

- 1. Not Reliable at all
- 2. Quite Reliable
- 3. Very Reliable

20. How reliable is the developed and protected water source during each day?

- 1. Not Reliable at all
- 2. Quite Reliable
- 3. Very Reliable

21. Do you pay for the water from the developed and protected source?

- 1. Yes
- 2. No

22. If yes, please specify, how much.....
23. If yes for Q.21, How do you evaluate the fee you pay for the water?
 1. Very Cheap 2. Cheap 3. Fair 4. Expensive 5. Very Expensive
24. Do you have to take a lot of time queuing to collect water?
 1. Yes 2. No
25. If yes, please specify time.....
26. How do you evaluate your developed and protected water supply source reliability?
 1. Poor 2. Bad 3. Fair 4. Good 5. Excellent
27. How do you feel about the water quality from your communal source?
 1. Poor 2. Bad 3. Fair 4. Good 5. Excellent
28. Does the water has any particular quality problem like smell, test, color, etc...
 1. Yes 2. No
29. If yes please specify type
30. Does the quality of water affect the use of water in your household?
 1. Yes 2. No
31. If yes, how.....

32. Do you use any particular treatment for your drinking water?
 1. Boiling
 2. Use of gravel filters
 3. Solar disinfection
 4. Others please specify.....
33. What type of water container do you use? Please specify,

34. How often do you clean your water containers? Specify

35. Are there any particular water related or water borne disease evident in the community? If yes, please specify

36. Which of the following factors do you consider when collecting water from the communal source?
 1. Not much 2. Average 3. Very much

Easy access	1.	<input type="text"/>	2.	<input type="text"/>	3.	<input type="text"/>
Good water Quality	1.	<input type="text"/>	2.	<input type="text"/>	3.	<input type="text"/>
Reliability	1.	<input type="text"/>	2.	<input type="text"/>	3.	<input type="text"/>
Cost	1.	<input type="text"/>	2.	<input type="text"/>	3.	<input type="text"/>
Hygiene	1.	<input type="text"/>	2.	<input type="text"/>	3.	<input type="text"/>

37. How do you evaluate the developed and protected water source in terms of the above parameters?

For non-developed and protected source users

38. Why do you prefer other sources over developed and protected source

.....

39. What solutions do you suggest for the problem?

.....

40. Is there a seasonal water supply variation in the traditional/other water source you use?

- 1. Yes 2. no

41. If yes, what alternative sources do you use?, and specify the distance travelled to the alternative source (in minutes)

.....

42. Is the main traditional/other water source you use accessible during all seasons?

- 1. Yes 2. No

43. If no, what alternative sources do you use?, and specify the distance travelled to the alternative source

.....

Section three: Sense of ownership and Knowhow

44. Who was responsible for the construction of the developed and protected source?

- 1. Community members
- 2. Woreda officials
- 3. Don't know
- 4. Other, Please specify.....

45. Did you make any contributions towards the construction e.g in terms of money or labor?

- 1. Yes
- 2. No

46. If yes, how much did you contribute?

47. Who is responsible for the management of the source e.g. cleaning and repairs in-case of any breakdown?

- 1. Community
- 2. Woreda
- 3. Don't know
- 4. Other please specify

48. What do you think the role of the WASHCO is?

.....
.....

49. How do you feel about the way the source is maintained?

.....
.....
.....

50. In your opinion, what do you feel is lacking and needs to be improved in the management of the water source?

.....
.....

.....

Annex 6

DECLARATION

I hereby declare that the Dissertation entitled A COMPARATIE STUDY ON WOREDA MANAGED AND COMMUNITY MANAGED RURAL WATER SUPPLY PROEJECTS, WITH RESPECT TO THEIR PLANNING, IMPLEMENTATION FUNCTUTIONALITY AND UTILIZATION, IN AMHARA REGIONAL STATE, ETHIOPIA submitted by me for the partial fulfillment of the M.A in Rural Development to Indira Gandhi National Open University, (IGNOU) New Delhi is my own original work and has not been submitted earlier either to IGNOU or to any other institution for the fulfillment of the requirement for any course of study. I also declare that no chapter of this manuscript in whole or in part is lifted and incorporated in this report from any earlier work done by me or others.

Place: Addis Ababa, Ethiopia

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Annex 7

CERTIFICATE

This is to certify that Mr. Yewondwossen Tesfaye , student of M.A. (RD) from Indira Gandhi National Open University, New Delhi was working under my supervision and guidance for his project work for the course of MRDP-001. His project work entitled A COMPARATIE STUDY ON WOREDA MANAGED AND COMMUNITY MANAGED RURAL WATER SUPPLY PROEJECTS, WITH RESPECT TO THEIR PLANNING, IMPLEMENTATION, FUNCTUTIONALITY AND UTILIZATION, THE CASE OF AMHARA NATIONAL REGIONAL STATE, ETHIOPIA, which he is submitting, is his genuine and original work.

Place: Addis Ababa, Ethiopia

Signature:

Date: May 21, 2012

Name: Dr. Wodimagegne Chekol

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