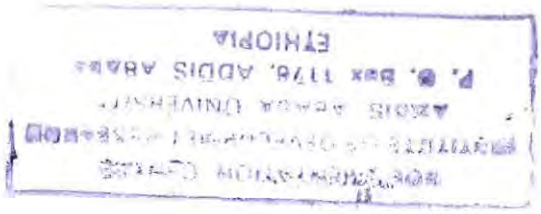

ADDIS ABABA UNIVERSITY
SCHOOL OF GRADUATE STUDIES
COLLEGE OF DEVELOPMENT STUDIES
(CDS)

ASSESSMENT OF RURAL WATER SUPPLY SCHEMES IN MACHAKEL WOREDA

A Thesis Submitted to the School of Graduate Studies of Addis Ababa University in Partial Fulfillment of the Requirements for the Degree of Master of Arts in Development Studies (Institute of Water, Environment & Development)

By
Nigus Simane

Advisor
Yohannes Abera (PhD)

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Addis Ababa

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Assessment of Rural Water Supply Schemes in Machakel Woreda.

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Nigus Simane

DEVELOPMENT STUDIES

APPROVED BY THE BOARD OF EXAMINERS: SIGNATURE

Dr. Belay Simane
INSTITUTE DIRECTOR

Dr. Yohannes Aberra
ADVISOR

Dr. Mulugeta Feseha
INTERNAL EXAMINER

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List of Acronyms

CSA- Central Statistics Authority

DDA- Demand Driven Approach

E.C- Ethiopian Calendar

ETB – Ethiopian Birr

FGD- Focus Group Discussion

HH- Household

IDWSSD- International Drinking Water Supply and Sanitation

IRC- International Water & Sanitation Center

MDGs- Millennium Development Goals

M & O- Monitoring & Evaluation

MoWR- Ministry of Water Resources

O & M- Operation & Maintenance

PASDEP- A plan for Accelerated and Sustained Development to End Poverty

RWS & S – Rural water supply and Sanitation

SDA- Supply Driven Approach

UNDP- United Nations Development Program

UAP- Universal Access Program

WatSan- Water Supply & Sanitation

WHO- World Health Organization

WOARD- Woreda Office of Agriculture & Rural Development

WOWRD- Woreda Office of Water Resource Development

Glossary of Local Terms

Bega: Dry season in Ethiopia

Gote: Village in the study area

Idir: Voluntary community based organization formed mainly for funeral purpose

Kebele: Government's smallest administration unit

Kiremt: Rainy season in Ethiopia

Woreda: District level of administrative unit above kebele

Operational Definition of Terms

Community Management: refers to the capacity of the community to control or at least strongly influence the basic decisions over the construction and management of the water supply system.

Functional: refers to the state of water supply scheme that was not stopped to provide service and physical state at the time of survey.

Improved Water Source: a water source (spring, HDW, borehole etc) which was constructed by qualified people and protected from any possible contamination.

Insira: a container made from clay soil used to fetch water that can carry 20-24 liters of water.

Participation: refers to any contribution of the rural community to the development, operation and management of water supply.

Rural Water Supply: refers to provision of clean and safe water for rural communities through construction of protected HDW, SWs, Deep well or boreholes etc.

Rural Water Supply Schemes: refers to water supply points/systems installed in rural areas that include protected HDW, SWs, Deep Well or boreholes etc

Traditional Water Source: any water source used by the rural people for domestic purpose which is not properly constructed by qualified people to protect from any possible contamination

Water Fee: payments charged in rural area for water supply service.

Water Committee: a group of people usually 5-7 at community level who are responsible for the management of rural water supply schemes.

Wealth Status: The WOARD prepare a local wealth status criteria & this study used this criteria

I. Rich – A HH with at least: 2 Oxen, 4cows, 2ha of land, 5sheeps

II. Medium – A HH with 2 oxen, 2cows, 1ha of land, 4sheeps

III. Poor – A HH with 1 oxen, ¼ to ½ ha of land

IV. The Poorest of the Poor – A HH with no property

Abstract

This study was conducted with the objective of assessing the status of rural water supply schemes and to identify the challenges and factors that affect rural water supply schemes' performance in the study area. The necessary data collected from ten sample schemes in ten rural kebeles. The study was a cross sectional research based on collecting information from 100 beneficiary households (selected randomly) using household survey, ten focus group discussions conducted with each scheme water committee, key informant interviews with WOWRD experts, direct observation on each sample scheme and various secondary data (document review). The study revealed the following results. First, in many areas the approach used to implement rural water supply program was found to be supply driven. The idea of provision of improved water supply in many areas did not come from the community rather from experts. Second, community participation was restricted to laborious activities. The beneficiaries' involvement in requesting their demand, selecting type of scheme and location of scheme etc was very limited. Particularly women participation is found insignificant, in all water committees women's position is in sanitation aspect which is not influential in decision making. Third, the community management was found to be unsuccessful. The assumption that the users can manage their scheme by collecting money for maintenance, guard and other management costs was not successful. In seven schemes (70%) there was no any water fee/contribution and in all the schemes (100%) the community cannot maintain even simple breakages. Fourth, institutional capacity and support was found to be very weak. The capacity of the WOWRD was below the expected particularly in man power, logistics and recurrent budget. In addition to this the office focused on constructing new schemes, overlooking sustainability of completed schemes. The office was found very weak in strengthening water committees, organizing and mobilizing the community etc. Fifth, as a result of the above problems the status of rural water supply schemes in the study area was found in a very dangerous condition. Many schemes are not performing as expected; the pipes and structures are broken and damaged with in short period of time more over many schemes are becoming unprotected water source that provide unsafe and inadequate water to the target community. Therefore the findings call for adopting demand driven approach, improving community participation in all phases, building community capacity to operate and maintain the schemes and capacitating the WOWRD in all rounds are crucial

CHAPTER ONE

1. Introduction

1.1 Background

Access to safe and adequate water is one of the top priorities for billions of people in the world. One billion people have no access to potable water and 2 billion people have no access to sanitation. Over 5 million deaths per year are attributed to water related diseases (Global Health Council, 2008; De Regt, 2005).

The problem is worse in poor countries; out of 1.4 billion people who do not have adequate drinking water, 450 million people found in Africa. Average daily water consumption for an American is about 295 litters while a person in poor African countries use very low amount of water, for example, 4.5 litters/person/day in Gambia, 9.3 litters/person/day in Uganda, and 19.3 litters/person/day in Ghana (Peter, 1996).

Some scholars, for example Garriga and Foguet (undated) explain that the water discourse in recent years has been shifting toward water as a human right issue. For billions of people not having clean water is a daily source of indignity and threat to well being. Access to clean and adequate water is not only a necessary condition to improve people's health, but also becoming a matter of human right.

Clean and adequate water supplies also contribute to achieve rapid socioeconomic development and to alleviate poverty. When people are healthy, they become more productive, government and house hold expenditure for health service reduced and can invest on other sectors. It contributes in reducing deaths of millions of people due to water related diseases. For this reason safe and adequate drinking water is one of the top priorities for many developing countries. 'Halve, by 2015, the proportion of people without sustainable access to safe drinking water' is also one of the MDGs (UN, 2006).

To alleviate the problem a number of programs are being implemented. The period from 1981 to 1990 was officially deemed International Drinking Water Supply and Sanitation Decade (IDWSSD) with the objective of providing safe and adequate water supply and sanitation

facilities to all people. To realize this global objective huge amount of resource was mobilized and allocated, different programs at all levels (global, regional, national and local level) been designed and implemented. During the period an estimated $133.9 billion dollar was invested worldwide and approximately 1.6 billion people were served with safe water and close to 750 million with adequate sanitation facilities (De Regt, 2005).

But the IDWSSD did not achieve its intended goals. Many schemes in many countries were not sustainable and failed to provide the required service for long period. Rural water supply programs in many developing countries frequently fail to deliver benefits to society in the long run mainly because of the approach used (De Regt, 2005). Now a days performance of water supply schemes is viewed as the basic measure of success and therefore, successful performance in water supply and sanitation is a dominant concern.

Many organizations in the sector focus on the construction of new schemes. Garriga et al. (undated page 2) explain the issue as follow, "it is much easier, faster and controllable to construct schemes than to build up recipient capacity to manage them". Both governmental and nongovernmental organizations usually engaged and spent much of their time in the hardware aspects of rural water supply overlooking the software aspects. As a result many rural water supply schemes fail to provide the required level of service. Though huge resource is invested on rural water supply, the level of service (access to clean water) is not as expected.

1.2 Statement of the Problem

Shortage of improved water supply is a crucial problem in Amhara regional state. Access to safe and adequate water is below the national level i.e. the national level of access to clean and adequate water is 52.46% but the figure in the region is 48%. More over about 23% of rural water supply (RWS) schemes in the region are non functional at any time. The problem is worse in the rural areas and because of this; most morbidities are associated with unclean water (MoWR, 2008; CSA, 2006).

According to the Woreda Office of Water Resource Development (WOWRD), the situation in Machakel Woreda is more or less similar with the region; access to clean water is 50.5% (74.5% in urban and 48.4% in rural). To improve the clean water coverage in the area; the government and NGOs are working in the sector. But a number of problems affect the effort in the woreda especially in rural kebeles. Non-functionality of schemes in rural kebeles is one of the most

crucial problems. A number of schemes that are completed and handed over to the beneficiary communities are non-functional. Some schemes remain non-functional for years; while many others stay non-functional for months. The problem undermines the efforts of the Woreda Office of Water Resource Development and NGOs working in the area to improve clean water coverage. Even though a number of new schemes are being constructed every year, non-functionality of schemes force a number of people in rural areas to use from unprotected water source.

The problem also forces implementing agencies to invest additional capital to repair schemes that would be use for constructing new schemes that expend the service. Particularly when schemes become non-functional due to breakage of expensive spare parts, the Woreda Office of Water Resource Development covers the expense to replace broken spare parts from its meager resource. This condition limits the capacity of implementing agencies to expend the service. The problems of non functionality of schemes also affect the achievement of the "Universal Access program" (UAP) that plan to provide safe water of 15 litters/person/day with in 1.5 km for 98% of the rural population by 2012. The problem also affects the achievement of the MDG that is 'halve, by 2015, the proportion population without sustainable access to safe drinking water and basic sanitation. This affects the government's objective to improve the socio-economic condition of the people by providing safe drinking water. Therefore, assuring long term functioning of completed schemes should get equal attention with constructing new schemes.

However there are no through studies conducted in the area about the problem. What the Woreda Office of Water Resource doing is surveying the number of functioning and non-functioning schemes. No other organizations/individuals in the Woreda also did on what should be done to assure long term functioning of water schemes. So still functioning of water schemes at the level of expected in the Woreda remains a challenge and questionable, it is an issue that needs a close investigation. Therefore this study tries to fill this gap i.e. assessing performance and challenges of water supply schemes. Hence it will contribute to improve performance of rural water supply schemes.

1.3 Objective of the Study

1.3.1 General Objective

The general objective of the study is to assess rural water supply schemes in the study area (Machakel Woreda).

1.3.2 Specific Objective

The study also tries to address the following specific objectives:

1. Describe the water resource base of the woreda
2. Describe the status of rural water supply schemes in Machakel Woreda
3. Identify all the challenges and problems of the schemes

1.4 Research questions

The study also attempts to answer the following basic questions:

1. Are rural water supply schemes performing as expected?
2. Is financial scarcity and management one of the causes for failure of rural water supply schemes?
3. Is community participation one of the causes for failure of schemes?
4. Is institutional arrangement the cause for poor community management?
5. Are environmental factors affecting the schemes?

1.5 Significance of the Study

Clean and adequate water supply (WS) is one of the major issues in developing countries. The agenda 'reducing poverty and improving the livelihood of the poor' includes in it creating access to safe and adequate water supply particularly to the majority of rural community. It is also one of the Millennium Development Goals (MDGs), target 10 of Goal 7 of MDGs states 'halve, by 2015, the proportion of people without sustainable access to safe drinking water' (UN, 2006).

Achieving this objective require a huge effort, resource mobilization and investment. It needs to construct hundreds and thousands of water supply schemes. But the issue is not only constructing new schemes. Many rural water supply projects fail to provide the required service for long time. Hence, the findings of this study may contribute in identifying major challenges of managing rural water supply schemes Therefore; the study may contribute to improve management of rural

water supply (RWS) schemes so that performance of schemes may improve. It will contribute for planners and managers of Water Supply projects to improve planning and implementation towards the goal of good performance of schemes. The finding of the study may also serve as a baseline for those who want to conduct an in-depth study in relation with water supply in the study area.

1.6 Scope of the Study

The study focuses on assessing rural water supply schemes. It tries to assess the status of the schemes and some major factors that affect rural water supply schemes. Though a given water supply scheme can be affected by a number of interrelated factors, this study focuses on some aspects such as community management, community participation, financial aspects and institutional support as key factors. Other factors that can affect rural water supply schemes are not within the scope of this study. The study concentrates on rural and community managed water supply schemes in Machakel woreda. Hence the results and findings of the study basically reflect the situation in the woreda or other woedas with similar conditions.

1.7 Organization of the Study

The study consists of six parts. The first part is the introduction part which deals with some background discussions; statements of the problem; objective; significance and scope of the study. The second part is literature review. In this section various reading materials about key concepts in rural water supply program are presented. The third part is description of the study area and methodology of the study. The fourth part is project description of sample schemes which present detailed information on the planning, implementation and current status of the schemes. The fifth part is assessment of the projects. The last part deals with conclusion remark and recommendation.

1.8 Limitation of the Study

The most crucial problem of the study was lack of adequate information in WOWRD and WOARD. The water office as well as the agriculture and rural development office do not have well organized information about the water resource base of the area. The information is available in pieces of papers. More over because of different problems the staffs in the water office were not able to cooperate at required level.

CHAPTER TWO

2. Related Literature

2.1 Factors Affecting Performance of Rural Water Supply Schemes

Performance of rural water supply schemes is a function of multi-interrelated factors. To keep a given water supply scheme functional, a number of social; financial; institutional; managerial; environmental; and technical factors need to be consider.

In this regard Carter and Rwamwanja (2006) estate that for long term functioning of rural water supply schemes the following are crucial factors: ensuring that the community is fully involved in decision making; building on what people already know and do; selecting appropriate technology, good quality construction; reliable support from private sectors and others in terms of for instance spare parts, strong community organization strengthened by appropriate capacity building; ongoing support by an agency external to the community .

Komives et al. cited in Bezabih (2008) also indicates that village level pre-construction and implementation factors such as demand responsiveness, participation of communities in general and women in particular in the planning process are crucial. In addition post construction factors like type and extent of post construction support; village level water characteristics for example technology type, age of schemes, financial management and cost recovery practices; village level institutional characteristics like strength, transparency, and membership of water and sanitation (WatnSan) committee; village characteristics like measure of remoteness, alternative water supply sources are crucial factors.

On the other hand factors that undermine long term functioning of water supply schemes include poor physical structures; low reliability of the services and facility designs; insufficient and inadequate technology; insufficient water facilities; distance and time required to collect water and low awareness about their use etc. More over communities may never have been convinced the desirability of new water sources; the amount of cost which the community is expected to raise as a contribution to capital or recurrent expenses may be unacceptable or impracticable; the

community may never have sense of ownership of the schemes, government may not have the capacity so that repair and maintenance may not take place; benefits promised at the beginning of the project may fail to materialize; community level committee and care takers my lost interest etc (Mangesha, Abera, and Mesgnaw2003; Bezabih, 2008).

In this regard MoWR (2008) and RiPPLE (2008) states that about 33% of rural water supply schemes in Ethiopia are non functional at any time because of lack of funds for operation and maintenance, inadequate community mobilization and commitment and lack of spare parts.

All stated issues that affects good performance of rural water supply schemes can be categorized in to 5 broad interrelated factors (community; financial; legal and institution; technical; and environmental) in which performance of rural water supply schemes depends on all of them and a weakness in any one of them can lead to the failure of the scheme.

2.1.1 Community Factors

I. Demand for Clean Water Supply

Community's need for improved water supply is the starting point. The presence of felt need should be the first criteria for decision. MoWR (2003) estate that, past experiences show when development interventions are based on the priorities of the community, the chance of Success increases. Since the sense of ownership increases, the community work to maintain the results. Demand Responsive Approach (DDA) for rural water supply increases the likelihood of achieving the objective of the schemes. Supply Driven Approach (SDA) is a traditional or top down approach of service delivery where the needs and preference of the community are centrally decided by external body with little or no contact with the beneficiaries. According to World Bank study projects guided by SDA are usually poor in performance, capital intensive, and poor service quality.

Repeatedly it is said that if people have the need for a certain service, they will take care to maintain the service, but it is not always true. As to the researcher's opinion, though demand for clean water supply is very important issue, presence of demand can't guarantee for successful performance of rural water supply schemes. Many communities in the rural area express that they have demand for clean water but they fail to manage the scheme. Usually rural people explain that they have the need and express that they will participate in the process and will

manage the scheme, but usually fail to maintain the services. Therefore, water should be a pressing problem of the community (not only need). Moreover awareness raising must be done first to increase the community's commitment.

II. Community Participation

Participation is a means by which efficiency of projects improved i.e. when people are involved they are more likely accept the project, take key parts and responsibilities in ongoing operation and maintenance, management. Participation also increases self reliance and sense of ownership within the community over the water system. When projects are planned, implemented and services are provided by government agencies or NGOs, it create dependency syndrome which results failure of the water supply. Beneficiaries do not have interest to repair and maintain the system since they don't assume responsibility.

Harvey and Reed cited in Haysom (2006) and Harvey and Reed (2007) explains that community participation in water supply can take different forms, including expression of demand for water, selection of technology and its sitting, labor and local material provision, contribution in cash, selection of management type, water tariff, etc.

It is said beneficiary participation is the single most important factor contributing to project success. Without participation, water supply systems are unlikely to be Sustainable even if other factors are fulfilled. Community participation beginning from the first stage results in effective water systems. Choices of technology and design, construction, cost and financing, tariff management, water allocations, operation and maintenance, system expansion and replacement are important issues confronting the rural infrastructure that the community should participate (Narayan, 1995).

De Regt (2005) explains that a review of World Bank water supply projects founds that beneficiaries' involvement in decision making in implementing and managing services leads to greater beneficiary satisfaction and a greater willingness to pay which contributes to successful in outcomes and impacts and long term performance as well as replicability. On the contrary a lesser degree of participation like only providing labor and materials is associated with a higher likelihood of failure. Community participation is closely related to Demand Responsive Approach (DRA). If the project is based on felt need, the community participates right from the

beginning to the end which enhances success of schemes. Community participation will be successful when both the beneficiaries as well as the agency are convinced in the advantage of participation. Though the community may be diverse, a common interest that is access to improved water supply will bring people together.

Many organization start participating the communities at some point like during labor needs or after handing over. In relation to this Narayan (1995) said that:

> ... *to maximize its benefits, participation must be treated as a continuous process. Beneficiary participation is important throughout the life of a project; it is a cyclical, iterative process that cannot be broken in to elements. In other words, participation cannot be effective when it is limited to the later stages of a project, as it is the "handing over" syndrome.*

Community participation should involve identification of community pressing needs and priorities, collective decision making in technology, level of service, site, amount of water fee, operation and maintenance, in alternative management system ...etc. This contributes for successful rural water supply programs. People's participation can contribute to the achievement of effectiveness; efficiency; empowerment and equity.

Though community participation is a key factor, there is an unfortunate tendency to interpret this in terms of "cheap labor" and to burden the community with laborious responsibilities while the needs and priorities of the community are overlooked. Another misconception is that many experts assume local communities lack the ability to define real needs and priorities, and to choose, plan and implement solutions. As a result many development interventions are technically oriented and planned by external experts. At the end, most development initiatives fail to sustain (IRC, 1989).

Some crucial questions in community participation are who participate, in which phases and to what extent/degree. An important problem in this aspect is that usually a small number of prominent local people may be consulted. Disadvantaged segments of the community (women, the poor, youngsters and children...) are usually excluded from participation with their needs and priorities. Especially women are highly marginalized in community participation. Many projects are designed assuming that men are responsible for the public sphere and women for the private sphere (UNDP, 1995).

Even when women are involved, their contribution is minimal. The quality of participation is as important as the amount. Inclusion of women may not in itself provide for their effective participation. They must appear in sufficient number with active role. They should be included in different committees with necessary trainings and position.

The exclusion of women's needs, priority and opinion is a serious constraint in rural water supply development. According to IRC (1985) implementing programs without the involvement of users, women, have now results clear drawback. A number of water and sanitation projects have fallen in to disrepair which obliges many countries to give priority to rehabilitation old schemes over investment in new schemes.

In the above literatures it seems that community participation is a key factor for success in rural water supply programs. However, as to the researcher's opinion, though community participation has positive contribution for better performance, it is not a guarantee for successful rural water supply system. A community that participated in one stage does not mean that it will continue participation in ongoing service delivery or that it will successfully manage its water supply because participation does not automatically lead to effective community management. Successful water supply scheme requires formation of management body with the necessary capacity and knowledge, collection of water fee adequate for the costs of operation and maintenance, managing and facilitating the operation and maintenance activities, etc. Communities may participate in labor or technical activities but may not have the capacity to make the schemes' performance successful.

III. Community Management

Managing rural water supply means operating and maintaining a water supply system on a day to day basis so that it continues to provide services. Management issues are critical to successful community water supply. Most experts normally think about technical aspects when they think about rural water supply. But it is much more than constructing and fitting the system. With the failure of centralized management, community management came in to being. It is an approach where the community is responsible for the management of their schemes. It is a guiding principle in rural water supply that determines success or failure and regarded as the best way to secure Sustainability (Davis, Garvey and Wood, 1993).

The concept came in to being during the 1980s when the problem of existing, state and agency driven management paradigms came in to the surface. The failure of the 1960s, 70s and 80s were recognized and leads to a paradigm shift towards communities taking responsibility for implementing, managing and paying for their water supply. By the end of IDWSSD (1980-1990) hundreds and thousands of schemes were constructed in many developing countries and by 1990 no region had achieved less than 73% coverage of the population in urban areas and less than 32% coverage of population in rural areas. This was an enormous achievement. However many of the constructed water systems (some say up to 40%) broken down soon after implementation as a result of poor management. The governments did not have the fund, did not have experts and did not give priority to maintain the systems. Strengthening this idea Lammerink (1998) express that experience in many developing countries shows that even the best run water agencies cannot successfully implement, operate and maintain a network of widely dispersed water systems without the full involvement and commitment of the users. Despite the best endeavors of central agencies, staff, transport and budgets become overstretched, leading to broken down systems, dissatisfied consumers and demoralized agency personnel. The solution was to ask the communities to maintain the schemes. That is how community management came in to being. The communities should not only be involved in labor and material contribution, but should accept ultimate responsibility and ownership of the entire life cycle of the system. The principle is officially adopted in the New Delhi meeting in September 1999. During the 1980s and 1990s different actors, with very different agendas accept the concept of community management. Governments saw it as a way of reducing demands on over-stretched resources, donors saw as an opportunity to focus and stretch development budgets towards effective implementation of water supply and sanitation facilities and to bypass the problems posed by corrupt and inefficient governments, the multilateral donors such as the World Bank saw community management as an ideal means to reduce government involvement (De Regt, 2005; Schouten, 2006; IRC, 2007).

Since the 1980s, most rural water supply systems are being implemented with some kind of involvement or participation of people. But community management is not only participating/contributing labor or money. It is to make sure that the community is responsible for managing its own schemes. Strengthening this idea Schouten and Moriarty (2003) indicate that collective community: control, operation and maintenance, ownership and contribution to

costs are the heart of community management. The community took on the full range of management tasks related to maintaining (and in some cases developing) a domestic water supply including setting tariff, collecting fees etc. The community makes strategic decision such as level of services, payment and contributions, and involved on day to day routine activities. In general community management include the following principles:

- Participation – for successful community management , a cross section of the community must participate in the process
- Control – it is ability to make strategic decision
- Ownership – the community must perceive that it is the owner of the scheme; in addition legal ownership of the physical structure is desirable.
- Cost sharing – contributing to the recurrent costs of running and maintain the system is closely related with ownership.

Poor governments cannot afford to cover all costs of operation and maintenance of hundreds and thousands of schemes due to scarcity in man power, finance, logistic etc. Therefore, in principle community management is the best option to improve performance of rural water supply schemes in developing countries. But as to the opinion of the researcher, community management is not as easy as many scholars and institutions (like De Regt, Schouten, IRC, etc) claimed. In the current condition, rural communities in poor countries like Ethiopia have a lot of limitations to take full responsibilities of managing rural water supply schemes. Low level of awareness, weak economical capacity to cover all costs of operation and maintenance and low knowledge are some of the problems that minimize success of community management. Therefore, options like government involvement in the management and other options should take in to account.

2.1.2 Financial Factors

Financial issues are critical for proper functioning of rural water supply schemes. Many schemes in developing countries fail due to lack of fund for operation and maintenance. The New Delhi Statement on safe water and sanitation held at New Delhi, India, gave prominence to financing as a central concern. The statement placed important emphasis on the need for increased contribution from users.

A number of factors affect the availability and management of finance. Ability and willingness of the beneficiaries to pay is one important factor. Boydel (1999) cited in IRC (2007) elaborates this as follows. For schemes to be sustainable communities should pay for operation and maintenance and should make a "substantial" contribution to capital costs. The contribution may vary from project to project. Though full cost recovery is not a prerequisite for effective community management, some contribution from users is a must. Beneficiaries should at least contribute as much of the recurrent costs as possible.

In this regard Musonda (2004) also indicated that communities' ability to raise users' fees is crucial to sustain water supply facilities because they are used to purchase spare parts and paying technicians for carrying out repairs. Insufficient fund/finance is a major factor for poor maintenance which leads the scheme to failing out of operation.

Bezabih (2008) indicate that in Ethiopia some rural people do not use developed water points because they believe that water is a gift of nature that they do not need to pay for it. To solve such and other problems Hodgkin (1994) recommends it is important that anticipated recurrent cost level be known to beneficiaries prior to the start of the project. The community must understand that they will cover at least the recurrent costs of services through user charges, household fees or by any other arrangement. It is necessary that a balance exist between a community's desire for water supply services and ability and willingness to pay for them. For those segments of the society who can't afford the minimum level of payment, it is possible to arrange contribution in other ways for example in labor or crop or some kind of subsidies by government or by the community so that they will benefit the service. Otherwise the poor may force to collect water from unprotected source. In relation to community contribution there is a debate on whether users should pay for capital costs and if so what percentage is reasonable. Some scholars Hoko and Hertle, 2006; Kleemeier, 2000; Metha et al. 2005 cited in Carter et al, (2006) argue that the beneficiaries should contribute for capital costs by saying that the only true indicator of future performance in revenue collection is the completion of the initial contribution stipulated by the implementer. On the contrary Harvey and Reed (2004) cited in Carter et al. (2006) argue that user financing of implementation cost for improved rural water systems is an unrealistic goal for most developing countries. But if services are to remain operational, at least full cost recovery for Operation and Maintenance (O and M) of the scheme must be considered.

Determination of real cost of water/services is another key problem in developing sustainable financing system in the sector which cause the water committee to collect insufficient funds. When a major equipment replacement of breakdown occurs, the collected money is not enough for maintenance.

Another problem in the financial aspect is poor financial management. Even when the community is willing to pay, if there is no a suitable mechanism to collect and manage the fee, sustainability can't be guaranteed. Proper training and follow up on book keeping, saving, revenue collection, purchasing spare parts and paying for repair are crucial. According to Bezabih (2008) misappropriation of collected revenue in Benishangul Gumuz Region, Ethiopia, the collected revenue has been misused by members of WatSan committee which causes the water point non-function for eight months due to lack of money for operation and maintenance.

Though most scholars promote users contribution of fund for partial capital cost and full operation and maintenance cost, it doesn't consider the situation in the third world and practically it is difficult to implement. Considering the current economic status and level of awareness, users' contribution for capital cost is unpractical. Moreover, it is the duty of the government to create access to basic services like water supply. With the current situation, the community is not even willing to cover full costs of operation and maintenances. And because of this many schemes are non-functional. Therefore, for some period of time the government should has some contribution for operation and maintenance cost.

2.1.3 Institutional Factors

To ensure appropriate functioning of rural water supply schemes, adequate institutional arrangements must be in place to support community management. Clear policy, strategy, legal and institutional frame works at federal as well regional level is important.

In line with this, Carter et al, (2006) and Harvey andReed (2006) estate management by the community can only become sustainable with appropriate institutional support where governments do not neglect their responsibilities to enable communities to realize this. MoWR (2003) also strengthen the issue, that for rural water supply the basic concept is that schemes are user community base and because full self reliance cannot be achieved in the rural context,

support structure is required to assist the community in planning; implementing; and operating or managing its schemes.

Concerning o n ongoing support, Carter et al, (2006) estate that it is crucial, nothing lasts without follow-up support. Backup is needed to assist in the solution of technical problems, and to support committees when they run into difficulties; a lot at the beginning, significant support later on, and continuing but reducing over the long term. But the support must be the exact type and amount (depending on the technology and the community).

Strengthening this idea Locwood cited in Bezabih (2008) also clearly states that it is unrealistic to expect that government can leave rural communities to their own devices after a water project is completed, and that for rural water supply systems to be successful, post construction technical support is crucial Davis et al. (1993).

The lowest governmental agency /the nearby concerned body should provide all round support in managing schemes, operation and maintenance, financial management, accessing spare parts, in monitoring and evaluation. The government should also provide support in conflict resolution. To achieve these, roles and responsibilities of different stakeholders (in implementation and management) must be clearly stated. The Woreda Office of Water Resource Development (WOWRD) should be strengthened in man power; technical and financial capacity. The private sector also should be enhanced to involve in the sector especially in operation and maintenance, and provision of spare parts etc.

2.1.4 Environmental Factors

Continued performance of water supply schemes also highly depends on environmental factors. Bezabih (2008) said that long term functionality of water supply systems depends on a reliable source and a reliable system. Obtaining water from the source is affected by seasonal changes, land use and pollution. Some sources may fail during dry season due to drop in the water table. In addition pollution of water causes the water be harmful for human health (Aklilu, 2009). To access safe and adequate water requires environmental and water resource management. Maintaining healthy environment and is crucial and all stake holders needs to involve in the management process: the government and non-governmental agencies and the community should

secure long term water supply, local activities should not adversely affect the quantity and quality of water.

2.1.5 Technical Factors

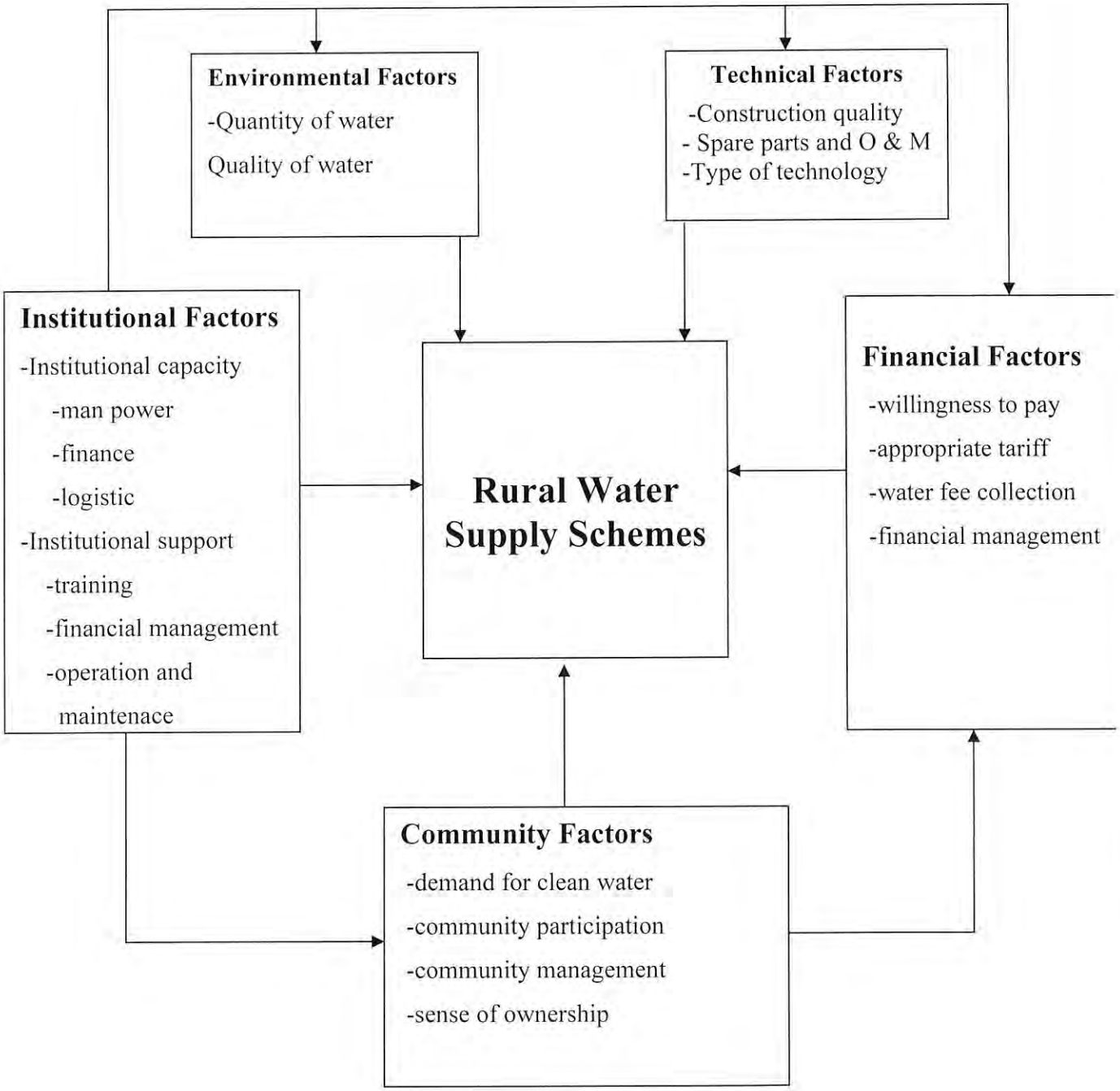
Technical aspects such as the selection of the technology and construction quality have important impact on sustainability of rural water supply schemes. Especially the technology type directly affects the Operation and maintenance duties in relation with availability and affordability of spare parts and availability of the required skill for Operation and Maintenance. To solve the problems associated with technical issues Carter et al, (2006) recommends the need to involve water entities in the choice of service level and selection of water supply systems. The scheme should be both technologically appropriate to the physical and social environment and financially affordable both in the investment phase and during the operation and maintenance phase. In addition to this, if possible, it is better to use low and simple technologies which do not require expensive spare parts or highly trained technicians.

In technological selection the lower implementing agency, the Wordeda Office of Water Resource Development, has insignificant contribution. The office can give feedback to higher bodies on the performance of the current technologies. Therefore the government at regional and federal level should intervene in importing appropriate technologies.

2.2 Conceptual Framework

Performance of rural water supply (RWS) schemes is the ability of a water supply scheme to maintain or expand benefits after the scheme is handed over to the beneficiary community. Performance of rural water supply schemes is a result of a number of interrelated factors that a weakness in one factor affects other factors. Hence based on the literatures, the researcher has tried to develop conceptual framework for the analytical exercise of the study.

Conceptual Framework



Source: adapted from Musonda, 2004; Bezabih, 2008

CHAPTER THREE

3. Description of the Study Area and Methodology

3.1 Description of the Study Area

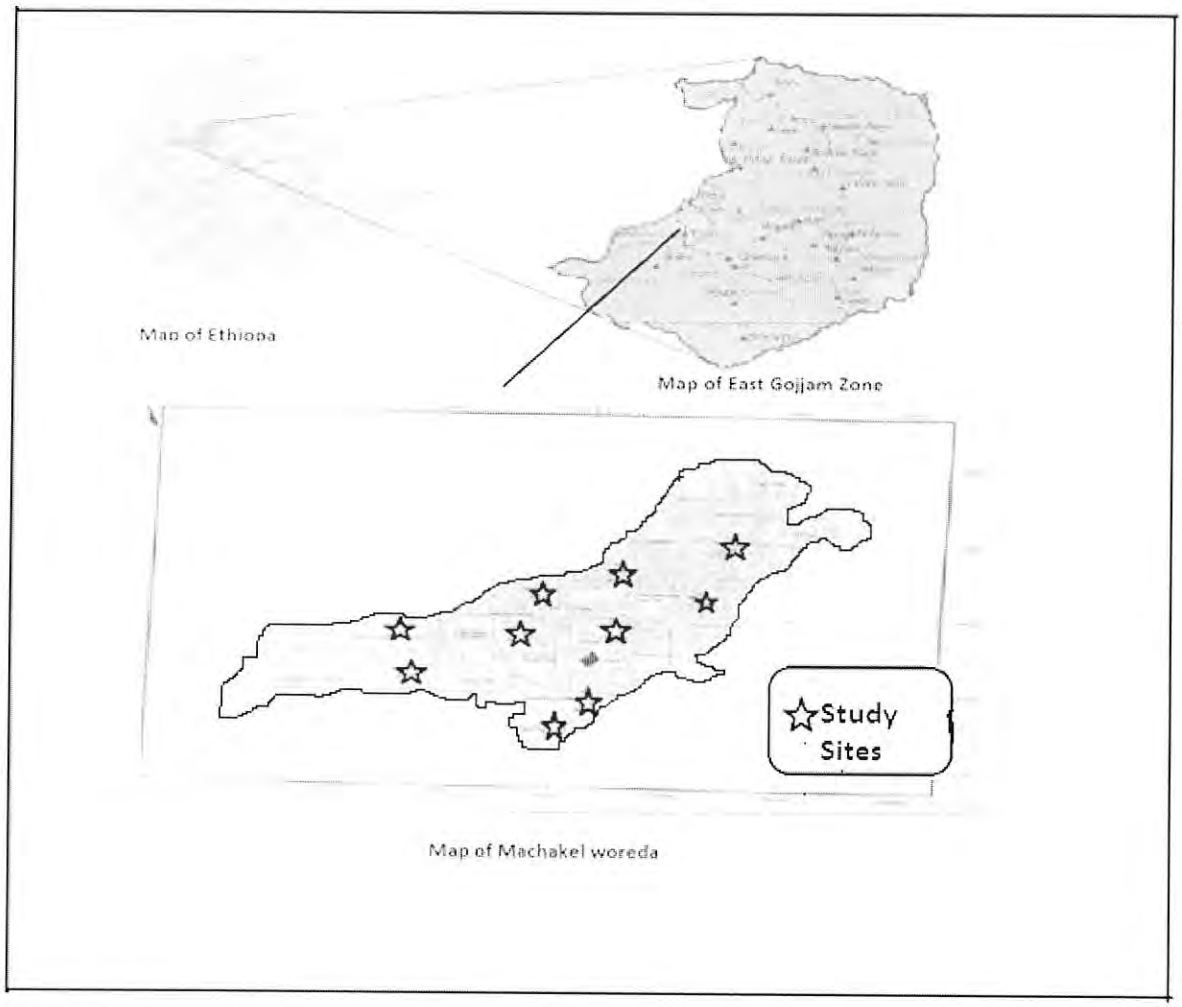
A. Physical Characteristics

Machakel is one of the 18 woredas in East Gojjam Zone, Amhara Region. It is found on the main road from Debre Markos to Bahir Dar. The woreda shares boundaries with Sinan woreda in the North, Debre Elias woreda in the South, Gozamin Woreda in the East and West Gojjam Zone in the West. The Woreda consists of one urban kebeble and 24 rural kebeles. Amanuel is the only urban kebele and administrative center of the Woreda located at 28 km from the zone capital Debre Markos, 230 km from the regional center Debre Markos and 328 km from Addis Ababa.

The total area of the woreda is 73410.5ha which is used for different purposes where agriculture uses the majority of the land. About 35,505.8ha of land (48.36%) is used for cultivation, 13,658ha (18.61%) of land is used for pasture to animals feed, 3472.4ha (4.73%) of land is covered by forests and bushes, 2304ha (3.14%) of land is used for settlement and the rest 18,470ha (25.16%) of land is not used for any purpose. In addition to this, the topography of the woreda consists of planes, hills and plateaus and gorges and gullies. About 50% of the woreda land is plane area, 48% constitute hills and plateaus and the rest 2% consists of gorges and gullies.

According to the Woreda Office of Agriculture and Rural Development (WOARD) the woreda has suitable climatic condition for human living in the area and for agricultural activities. 'Dega' which constitute 58.76% is the dominant climate in the woreda followed by 'Woyna Dega' with 39.1% and 'Wurchi' constitute about 2.12%. The annual rainfall of in the woreda ranges from 1250 mm to 1750 mm and mean annual temperature ranges between 15.3°c to 22.5°c.

Map of the Study Area



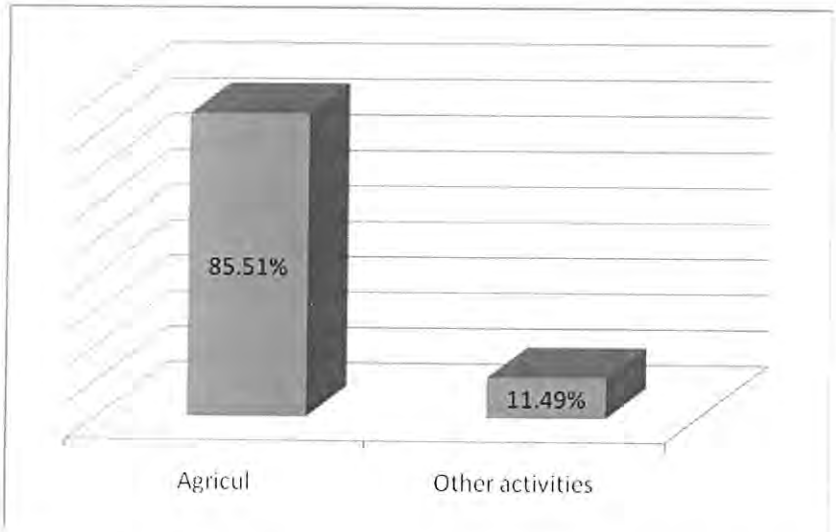
B. Socio-Economic Characteristics

According to the 2007 population and housing census, the total population of the Woreda is 118,067 (49.56% male and 50.44% female). Regarding the settlement pattern about 92.6% (109,340 people) of the people live in rural kebeles and the remaining 7.4% (8,727 people) people live in the urban kebele. In addition the annual population growth rate of the area is 1.7% which is lower than the national level (CSA, 2008).

According to the Woreda Office of Agriculture and Rural Development (WOARD), the dominant climate types in the Woreda are Woyna Dega (39.1%) and Dega (58.76%). Its annual rainfall ranges from 1250-1750 mm and mean annual temperature ranges between 15.3°c-22.5°c.

Under normal circumstance the woreda gets adequate rainfall necessary for agricultural activities.

Just like the national level, most of the people in the woreda engaged in agricultural activities. Since the woreda is one of the less urbanized areas, agriculture is the major economic sector where mixed farming (crop production and live stock rearing) is the common practice of farmers in the area. However crop production is the main source of income. In this regard as shown in the figure below, about 85.51% of the population in the woreda is engaged in agricultural activities and the remaining 11.49% of the population engaged in other activities like trade, waged employment etc.



According to the Woreda Office of Agriculture and Rural Development, wheat, teff, maize, and barley are the major crops grow in the Woreda. During dry season particularly in April and May preparation of land is the main agricultural activity, June and July to some extent August are months of sowing and December, January, and February are harvesting periods. The data in the office indicate that the area is one of the productive woredas in the Zone.

Like other rural parts of the country, the social service of the woreda is poor. Access to basic social services such as health, education, clean water supply and communication are among the lowest in the country. Communicable and preventable diseases are common. Diseases such as intestinal parasites, respiratory tract infections, malaria, tuberculosis and diarrhea are most common causes of morbidity in the area and this is mainly related with poor water and sanitation

services (CSA, 2004). To address health problems, there are the following health institutions in the woreda: one referral and five medium level health centers, twenty four health posts (one health post in each rural kebles) and three private clinics. However the institutions are not well equipped adequate man power, equipments and drugs which cause inadequate level of service.

C. Water Resource of the Woreda

The woreda is naturally endowed with immense amount of water resource. If sufficient man power and financial resources were available, the water resource of the woreda could sufficiently satisfy the domestic and agricultural requirements of water in the area. According to the Woreda Office of Agriculture, due to its favorable climate, the woreda gets adequate rainfall. Its annual rainfall ranges from 1250 mm to 1750 mm. It has one main rainy season called 'Kiremt' which occurred during June, July and August. During these months under normal circumstance the woreda gets more than 90% of its rainfall. In September, October, November, March and April the woreda gets showers of rain but sometimes these months might be dry. The rest of the year is usually dry season called 'Bega'.

According to the Woreda Office of Water Resource Development, in the woreda there are 48 rivers and streams. Most rivers are seasonal which hold a lot of water during rainy season and the river banks become empty during dry season. Particularly two rivers called Temcha and Gedeb are big and permanent rivers and are famous in the woreda. Like many other rivers in the country, fluctuation in the amount of water is common characteristics of the two rivers. During rainy season the rivers hold enormous amount of water and during the long dry season the amount of water declines drastically. Other three medium rivers are also known in the woreda. 'Betka', 'Komed', and 'Atmena' are medium rivers which get in to Gedeb and Temcha rivers. The woreda is found within the Abay drainage system. Temcha and Gedeb collect most of the runoff in the woreda and from adjacent areas and gets in to Abay (they are tributaries of Abay). 'Betka' is a tributary river to 'Temcha' and 'Komed' and 'Atmena' are tributaries of 'Gedeb'. Many households use these rivers for small scale traditional irrigation. In general the woreda drainage pattern is towards the west getting in to 'Abay' river. The rest 43 are streams where

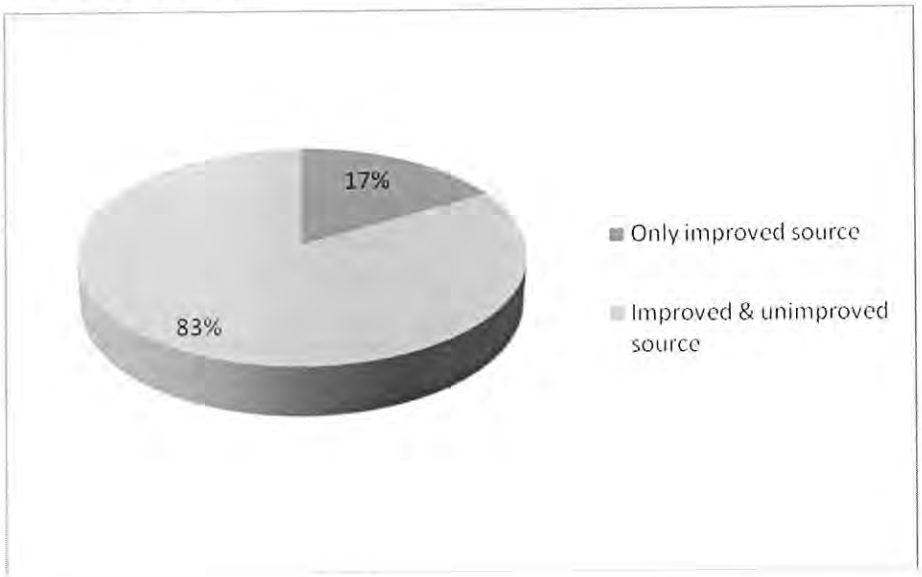
appear during rainy season and disappeared during dry season. The rivers and streams are the main source of livestock water supply in the area.

The woreda also has about 329 unprotected (traditional) springs distributed all over the kebeles particularly in rural kebeles. However most springs dry during 'Bega' and become full and flow during 'Kiremt'. Most springs are used by the community for domestic purposes (for drinking, food preparation, cleaning and washing) and few strong springs use for irrigation. In addition in the woreda there are about 818 traditional hand dug wells mostly owned by individual families. The springs and traditional hand dug wells are the most important source of water in the woreda for domestic purposes. In two villages where rivers/streams and springs are scared, two artificial ponds are constructed by the community and the Woreda Office of Agriculture and Rural Development mainly for livestock water supply.

On the other hand in the woreda there are about 109 different improved rural water supply schemes. According to the office in the woreda there are 53 developed springs with different capacity, 40 hand dug wells (HDWs) and 15 shallow wells (SWs). Most schemes were constructed by the Woreda Office of Water Resource Development mostly with financial support from SIDA and UNICEF. The local community also contributes in labor and locally available materials.

Both the unprotected/unimproved water sources (the rivers, streams, springs and traditional hand dug wells) as well as protected/improved water supply schemes are serving the community as source of water supply for various domestic purposes. This is because access to clean and adequate water supply in the woreda is among the lowest in the country. Due to this problem the rural people suffers from a number of diseases. For example the two diseases intestinal parasites and diarrhea accounts about 17% of the total morbidity in the area which are caused by poor water and sanitation services (CSA, 2004). Access to clean water at national level is 52.46% but in the woreda it is 50.5% (74.5% in urban and 48.4% in rural). The figure does not consider non-functioning rural water supply schemes. If non-functioning schemes are take in to account, the percentage of rural people with access to improved water service definitely declines. Because of this problem most people in rural kebeles fetch water both from the improved/protected and unimproved/unprotected water sources. Few sample respondents fetch only from improved water

sources for all purposes. But as depicted in the figure below, most of the people (about 83%) fetch water both from improved and unimproved sources. Particularly during 'Kiremt' small seasonal springs appear near to settlements so that people fetch water from them. On average unimproved rivers/streams and springs are about one hour and five minutes distances to fetch and come back to the settlement.



According to the Woreda Office of Agriculture and Rural Development, the woreda is also endowed with enormous irrigation potential. The potential for irrigation is about 11096ha of land which is about 15.1% of the total area of the woreda and 31.25% the cultivable land. Compared with the potential, actually irrigated land is small. In the woreda about 3946ha of land, that is about 35.56% of the potential, is cultivated with irrigation. The majority of the irrigation is traditional; developed and managed by farmers themselves just by diverting strong springs and streams/rivers. Usually farmers own not more than ¼ ha of land accessible for irrigation as a result most farmers produce sugar cane and vegetables that have better market price.

3.2 Methodologies

3.2.1 Research Design

The research design of this study is a cross-sectional research design based on collecting information from a cross- section of population at one point in time. The information was collected at one shot then organized and analyzed. More over the study was a case study based on collecting, organizing and analyzing information from selected cases. Therefore the research design is a case study and cross-sectional research design.

3.2.2 Types and Sources of Data

The study uses both qualitative and quantitative data, based on the collection and analysis of both types of data. The qualitative data collected through Focus Group (FGD), Interview, and direct observation. The quantitative data collected from house hold survey.

Both primary and secondary data source were used as source of data. Primary data was collected from beneficiary HHs, watSan committee members, woreda water office experts. In addition direct observation was used as source of data.

On the other hand the major source of secondary data include annual reports and inventories in the Woreda Office of Water Resource Development (WOWRD), different documents in water committees, publication of GOs and NGOs, previous studies etc.

3.2.3 Methods of Data Collection

Data on the planning and implementation of projects, performance and challenges of rural water schemes in the study woreda, community management, financial, environmental, technical and institutional factors affecting the performance of the schemes were gathered by employing different data collection methods. Document review, HH survey, FGD, direct observation, and interview were the main data collection instruments of the study.

I. Document Review

The starting point to collect important data about water supply schemes is reviewing the available documents. Monthly, quarterly, biannual and annual reports, inventories, different

records at scheme as well as woreda levels specially records related to water fee collection, expenditure, operation and maintenance...etc. were reviewed.

II. Household Survey

Issues such as community participation; need for clean water, availability and adequacy of clean water; role and strength of water committees; people's attitude to water price etc are addressed in the survey. For this purpose structured questionnaire was used.

Since most of the beneficiaries in the area are illiterate, structured questionnaire or oral questionnaire was used. The questionnaire was managed by ten enumerators, they were oriented how to manage the questionnaire and the researcher closely follow-up the process.

III. Key Informant Interview (KII)

Key informant interview was employed to collect data such as institutional set ups, institutional support, and Operation and Maintenance (O and M) etc. For this purpose woreda water office experts and the head were interviewed. To facilitate the process interview guide was prepared and used.

IV. Focus Group Discussion (FGD)

FGDs were among the major data collection methods. More over FGD used to elaborate issues addressed by questionnaire, used to triangulate important issues. In each scheme one FGD was conducted with water committees, totally ten FGDs were conducted in the ten sample schemes. To facilitate the process, checklist/guide was used in key issues such as community participation, strength of the water committees, service of the schemes, operation and maintenance, water price ...etc.

V. Direct Observation

The researcher directly observed all the selected schemes. The physical status of each schemes, service level, how the whole operation is managed, collection of water fee were directly observed by the researcher.

3.2.4 Sampling and Sampling Procedure

Machakel Woreda has 24 rural kebeles. According to the Woreda Office of Water Resource Development (WOWRD) only 4 kebeles do not have improved water schemes. The rest 20 kebeles have different schemes developed by governmental and different NGOs. Within the 20 kebeles there are about 109 communal hand dug wells, shallow wells and developed springs. The sampling process involved purposive and random sampling techniques.

I. Selection of sample Kebeles and sample schemes

The WOWRD divide the 24 rural kebeles (woreda) in to three zones based on accessibility and distance from the woreda town Amanuel.

1. In the first category there are six kebeles - three kebeles were selected randomly
2. In the second category there are eight kebeles – four kebeles were selected randomly
3. In the third category there are ten kebeles (in four kebeles there is no water scheme) – three kebeles were selected randomly

II. Selection of Sample Schemes

From each selected kebeles one scheme was selected randomly. The selected schemes are those handed over to the community and being functioning. Completely non-functional schemes were not included in the sample because since people abandon using the schemes it was difficult to get information.

III. Selection of Sample Beneficiaries

According to the Woreda Office of Water Resource Development (WOWRD), on average 100 HHs use on one scheme. Therefore from each selected schemes, 10% beneficiary HHs were selected randomly for household survey. Focus Group Discussions (FGD) held in all sample schemes with each water committees. Totally about 170 beneficiaries were selected for the study.

3.2.5 Methods of Data Analysis

The study depends on both types of data i.e. qualitative as well as qualitative data. Therefore depending on the nature of the data, different data analysis methods (qualitative and qualitative

methods) are used. The data collected from house hold survey was organized, coded and entered in to Statistical Package for Social Science (SPSS) soft ware and descriptive statistics such as frequencies, percentage, means etc are produced. Then the figures are analyzed and interpreted.

On the other hand, data gathered from interview, direct observation, FGD and document review are first categorized thematically and written up in to narrative. Then the narrative followed by analysis and interpretation.

CHAPTER FOUR

4. Description of Projects

In this part a detailed description of the sample schemes is presented. How each sample scheme was planned, implemented, community role in the process, current status and situation of the schemes, performance of the schemes compared with the expected etc are presented in detail.

4.1 Kebele – Yedefas

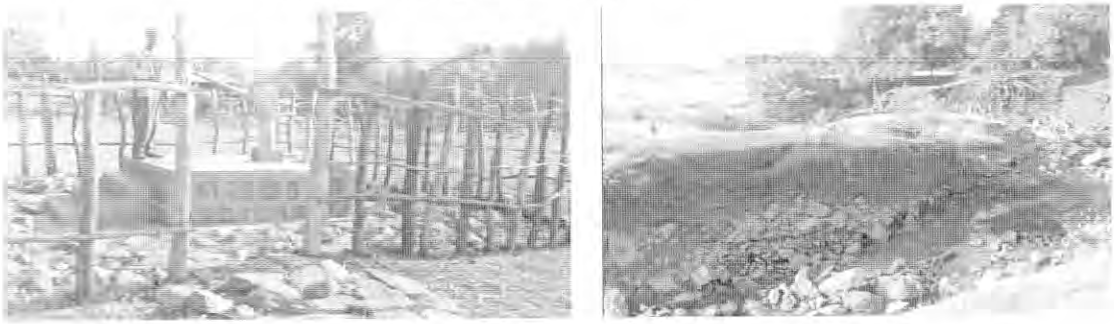
Gote – Lay Abebeb

Type of Scheme – Hand dug well

The scheme was developed in 2004 by the WOWRD. SIDA provide the fund and the office plan and implemented the project. The scheme takes about 35,000 Ethiopian birr. The community contributes in labor (digging the well, looking after materials), collecting locally available materials like stone, preparing and providing food for workers. The well is expected to serve for 80 HHs with adequate and clean water (15litter/person/day) for at least 15 years.

The location of the scheme is on plain area, in front of some of the villagers, suitable to look for. But some other villagers (users) can't easily access the scheme, because there is a growing gully near to the scheme that women and children found difficult to cross the gully carrying water especially during rainy season.

The gully is very near to the scheme



Source: researcher's field visit, 2010

According to the water committee shortage of clean and adequate water was a pressing problem in the area. 70% of the sample respondents reply that they had a demand for improved water

supply before the construction of the scheme. During dry season women fetch water from a long distance from unprotected source i.e. Gezem River and during rainy season from small seasonal springs. To solve the problem the community organized and requests the government for clean water supply. Elite people repeatedly inform the WOWRD about the problem, then the office accepts the request and planned to develop improved water source. A committee having 5 members (4 men and 1 woman) elected to organize and mobilize the community during and after the construction.

According to the water committee the number of HHs benefiting from the scheme are below the plan. The plan was to serve 80 HHs with adequate and clean water for at least 15 years. But currently only about 30 HHs are using from the scheme which is 37.5% of the plan. Even the 30 HHs are not getting adequate water. Especially during dry season the amount of water declines drastically. About 80% of the respondents explain that currently they do not get adequate water. More over quality is also a problem, sometimes the scheme produce worms during dry season. For instance, the committee describe that, in 2001 EC because of this problem people did not fetch water from the scheme for one month. During this time Gezem River was the source of water for most HHs.

As to the management the assumption is that the community can manage the scheme for long period at least for 15 years. According to the WOWRD, the following are some of the key responsibilities of the committee and the community:

1. Protecting the scheme by fencing and locking it and assign/employ a guard.
2. Collect water fee/contribution adequate for operation and maintenance.
3. Maintain simple problems and report higher problems to the WOWRD.
4. Keep the surrounding of the scheme clean.
5. Meeting and discussion with beneficiaries.
6. Prepare bylaw which govern the user community properly.

The data collected from sample beneficiary HHs, experts, available documents, FGD with the committee, direct observation indicate that the water committee and the management is not as strong as expected though it is performing some of its responsibilities

1. The scheme is fenced (but the fence is very weak) and there is schedule/program for fetching water. The schedule is morning 3:00 am to 11:00 am and after noon 3:00pm to

6:00 pm. Other than this schedule fetching water is forbidden and the pump is locked, a person is assigned every day to open and lock the pump according to the program. Though the scheme is fenced, the fence is weak, the door is not locked; there is no guard that can look for the scheme. As a result the scheme is exposed for damage.

2. In the area water is a free resource, where everybody can use any amount of water without any kind of payment. Though 60% of the sample respondents believe in that users should cover operation and maintenance cost of the scheme, all (100%) reply that they are not paying water fee. Consistent with this the water committee explained that there is no water fee or any kind of contribution; they explain that they did not able to organize and convince the community and the WOWRD did not support them.
3. The surrounding of the scheme is clean.
4. The committee has no any kind of meeting with the community as well as among themselves. They explain that they are doing some activities only by discussing whenever the issue becomes important. Most of them do not feel that they have responsibility to manage the scheme; they are using water as any user.
5. There is no any kind of bylaw; the scheme is a common property just like unprotected water source.

According to the water committee even though the scheme improves the problem water shortage to some extent, most beneficiaries are not satisfied with the service. 100% of the sample respondents approve this idea by responding that they are not satisfied with the scheme service and the committee is not performing well. Taking the current situation in to account, experts in the WOWRD judge that the scheme will not function for 15 years (as expected) and if the situation will not improve the scheme will not serve more than five years.

4.2 Kebele – Amanuel Zuria

Gote – Dembuti

Type of scheme – Hand Dug Well

The scheme was developed in 1998 by the WOWRD. SIDA provide the fund and the office plan and implement the project. According to the office the scheme takes about 20,000 Ethiopian

birr. The community contributes in digging and looking after construction materials. The scheme was expected to serve for 76 HHs with clean and adequate water for at least 15 years.

The scheme is found on a plain area, it is near and suitable to some members of the village but for some other users it is not easily accessible because there is a huge gully between the village and the scheme which is difficult for women, old people and children to pass the gully carrying water. The scheme is threatened due to a growing gully

Source: researcher's field visit, 2010

According to the water committee scarcity of adequate and clean water was a serious problem in the area. About 70% of the respondents also express that they did have demand for improved water supply before the construction of the scheme. During dry season women fetch water from Gezem River walking for more than 2hrs and during rainy season from small seasonal springs. To solve the problem the Kebele Development Agent (DA) organized the community and requests the WOWRD for improved water supply. The DA organized some elite people in the area to influence the office, and then the office planned to develop a HDW in 1998. A committee consisting of 5 members (2 men and 3 women) and 2 care takers (1 male and 1 female) elected to organize the activities. When the construction started the committee mobilizes the community for participation on various laborious activities like digging, looking after construction materials, preparing food for workers. The committee assigned people every day for daily activities.

The expected number of beneficiary HHs is greater than the current users. The plan was to serve 76 HHs with adequate and clean water (15litter/person/day) for at least 15 years so that

improving the socio-economic condition of the people. According to the water committee the number of HHs benefiting from the scheme are below the plan i.e. only about 30 HHs which is 39.5% of the plan. Even the 30 HHs are not getting adequate water, especially during dry season the amount of water declines drastically. About 80% of the respondents explain that currently they do not get adequate water. More over quality is also a problem, sometimes the scheme produce worms during dry season. For instance, the committee describe that, in 2001 EC because of this problem people did not fetch water from the well for three weeks. During this time Gezem River was the source of water for most HHs.

The management of the scheme is the responsibility of the community. The assumption is that the community organized by the committee can manage it for long period of time at least for 15 years. According to the WOWRD the community/committee has the following key responsibilities.

1. Protecting the scheme by fencing, locking and assigning/employing guard.
2. Collect water fee/contribution adequate for operation and maintenance.
3. Maintain simple problems and report higher problems to the WOWRD.
4. Keep the surrounding of the scheme clean.
5. Meeting and discussion with beneficiaries.
6. Prepare bylaw which govern the user community properly.

The data collected from sample beneficiary HHs, available documents, FGD with the committee, direct observation indicate that the management of the committee is not as expected.

1. The scheme is not protected at all; it is not fenced well, nobody look after it, everyone can use the water. As a result the structure is cracked and it is going to collapse.
2. In the area water is a free resource, where everybody can use any amount of water without any kind of payment. Though 40% of the sample respondents believe in that users should cover operation and maintenance cost of the scheme, all reply that they are not paying water fee. Consistent with this the water committee members explain that there is no water fee and they did not try to convince the community.
3. Though the structure is cracked before three or four years, the committee cannot maintain it. The committee did not organize and mobilize the community for maintenance; the problem is beyond their capacity. Though two care takers were elected and trained, they

are not able to maintain because they do not have the skill and the toolkits. As a result the structure is going to collapse.

4. The surrounding of the scheme is not clean, youngsters wash around the scheme.
5. The committee has no any kind of meeting with the community as well as among themselves. They explain that they are not doing anything; even most of them do not feel that they have responsibility to manage the scheme; they are using water as any user.
6. There is no any kind of bylaw, the scheme is just a common property.

The committee is very weak that 90% of the sample respondents agree that the committee is weak in managing the scheme and all of them are not satisfied with the scheme service. The current situations indicate that the scheme fail to provide the intended service.

According to the water committee even though the scheme improves the problem to some extent most of beneficiaries are not satisfied with the service. Taking the current situation in to account, the experts in the WOWRD judge that the scheme will not function for 15 years as expected. If the situation will not improve the scheme might be completely non-functional within 2-4 years.

The structure is cracked, the surrounding is not clean, people pump water at any time

Source: researcher's field visit, 2010

4.3 Kebele – Ansilala

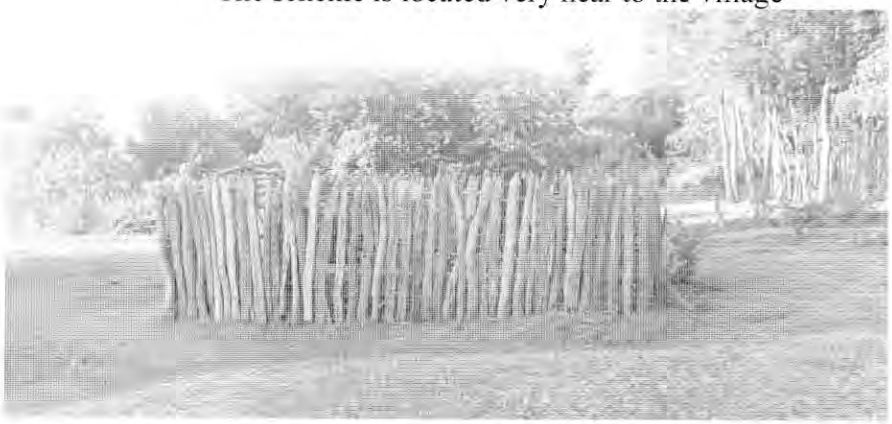
Gote – Debir

Type of Scheme – Hand Dug Well

The scheme was developed in 2004 by the WOWRD. SIDA provide the fund and the office plan and implement the project. According to the office the scheme takes about 25,000 Ethiopian birr. The community contributes in labor and locally available materials. The scheme is expected to serve for 97 HHs with clean and adequate water at least for 15 years i.e. 15litters/person/day.

The location is accessible and suitable for fetching; people can easily watch what is going on around the well and suitable to look for.

The scheme is located very near to the village



Source: researcher's field visit, 2010

Shortage of clean and adequate water was a pressing problem in the area. About 90% of the respondents reply that they did have strong demand for clean water before the construction of the scheme. Consistent with this the water committee explain that, during dry season women fetch water from Gedeb River which is more than two hours walking and during rainy season from seasonal small springs. To solve the problem the Development Agent of the kebele organized the community to request for improved water supply. Elite people in the area repeatedly ask the WOWRD, and then the office accepted the request. During focus group discussion the committee members express that with the request of the office, the community collects about 300.00 Ethiopian birr before the construction started to show their commitment for future operation and maintenance. At the beginning the office also facilitates the establishment of a committee consisting of 7 members (5 men and 2 women) to mobilize and organize the community during and after implementation. During construction 5-8 HHs were assigned every day for participation in digging and other laborious activities.

The expected number of beneficiary HHs is by far greater than the capacity of the scheme. The WOWRD expect the scheme to serve for 97 HHs with clean and adequate water (15litter/person/day) so that to improve the socio-economic condition of the people. But according to the water committee currently the scheme is serving only 40 HHs i.e. 41% of the plan. Even the 40 HHs do not get adequate water, 90% of the sample respondents reply that they face serious water shortage. Particularly during dry season when the water decline significantly,

every HH cannot fetch more than 2insira/day. Consistent with this, the focus group discussants also explains that water is still not adequate particularly during dry season.

As to the management of the scheme the water committee is responsible to organize and mobilize the management. The assumption is that the community can manage the scheme sustainably through the established committee. According to the WOWRD, the following are some of the key responsibilities of the committee and the community:

1. Protecting the scheme from damage by fencing, locking and assigning/employing guard.
2. Maintain simple breakages/damages and report to WOWRD for serious problems.
3. Collect water fee/contribution adequate to operation and maintenance.
4. Keep the surrounding of the scheme clean.
5. Meeting and discussion with beneficiary communities.
6. Preparing bylaw that govern the user community

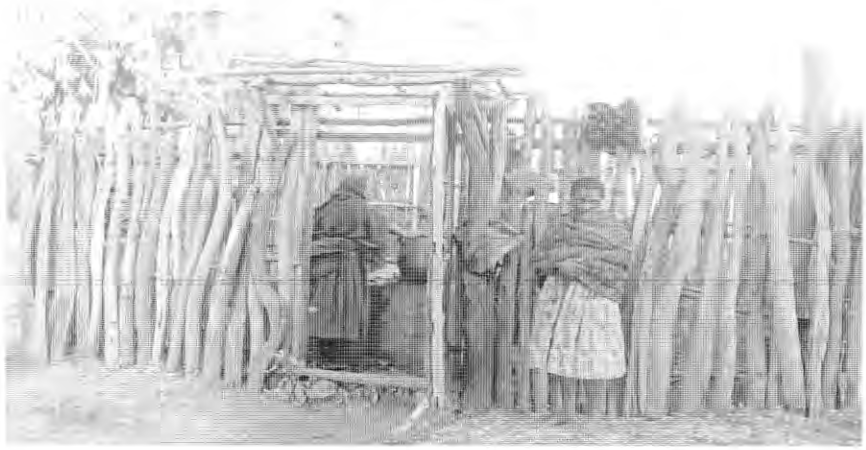
The data collected from the beneficiary HHs, available documents, FGD with the committee, direct observation indicate that the committee is performing its responsibilities and the community is managing the scheme as per the expectation.

1. The scheme is well fenced and locked, always there is one person assigned to open and lock the scheme according to the program. The person supervises and follows the fetching process from the start to the end.
2. The committee (convincing the community) prepare schedule/program for fetching water; 6:00 am to 11:00 am in the morning and 3:00 pm to 6:00 pm in the afternoon. Out of the schedule fetching water is forbidden and the scheme is locked.
3. According to the committee until now the committee able to manage two problems occurred at different time. In 2006 some part of the pump was broken and the committee report to the WOWRD for maintenance and the office maintain it. The other problem was in 2007 when mud enters to the scheme and the committee request the office for cleaning but the office insist that this is the responsibility of the community. Then the committee manage the problem by paying 800.00 birr for a person who clean the mud.
4. User HHs pays water fee/contribution, all sample respondents (100%) reply that they pay 0.25 cents/household/month. During FGD the committee members also confirm this. According to the committee at the beginning the contribution was one

birr/household/month. But later on with users complain it is reduced in to 0.25 cent/household/month, and until now they collected birr 1317.00. To increase the amount of the money, the committee arranged a mechanism by convincing the community that every month the committee distributes the money to some user HHs with 0.25 cents interest rate for 10.00 birr. At the end of the month the HHs bring back the money with the interest. Next month the committee distributes the money to other user households in the same way and it continues. In addition to this debt is allowed with interest rate of 0.50 cents from 10.00 birr. The problem in the financial aspect is that the financial record is weak, revenues and expenditures are not well recorded, no saving account, division of role is not implemented (the chair person may put money in his house, most committee members collect fee etc)

5. The area/surrounding of the scheme is clean.
6. The committee has monthly meeting with the community to collect water fee and to discuss on problems but there is no recorded minutes.
7. Though not fully fledged, the committee tried to develop bylaw stating about community participation, monthly contribution/water fee, penalties etc.

Always assigned person supervise the fetching



Source: researcher's field visit

Generally regarding the management about 70% of the respondents reply that the committee is performing good and 80% are satisfied with the scheme service. Consistent with this the water committee explain that the scheme is providing clean water to users. Taking the current situation

in to account, the experts judge that with some improvements the scheme can serve for 15 years as per the plan, and the situation is promising.

4.4 Kebele – Degasegnn

Gote – Ayatoch

Type of scheme – Developed Spring

The scheme was developed in 2005 by the WOWRD. SIDA provide the fund and the office plan and implement the project. The scheme takes about 60,000 Ethiopian birr; the community contributes in labor (digging the trench, transporting construction materials), collecting locally available materials and preparing and providing food for workers. The spring was expected to serve 77 HHs for at least 15 years with adequate and clean water (15litter/person/day). The location of the scheme is not good; it is found in a forest area that the community cannot easily see it and it is not suitable for women to fetch water.

According to the water committee the idea of improved water supply comes from experts in the WOWRD, it was a supply driven approach. Two experts with the kebele administration came to the village and collect the community and inform that the office has the plan to develop the spring. According to the water committee, even though the community accepts the idea, most of the people were not eager about the issue because shortage of water was not a serious problem for most of the people in the village at that time. 50% of the sample respondents reply that they did not have the demand for improved water supply at that time. Then the office facilitate establishment of a committee having 7 members (5 men and 2 women) to organize and mobilize the community during and after implementation. During implementation process the committee organizes people's participation particularly on laborious activities like digging the trench, transporting and looking after construction materials, preparing food for workers etc.

The scheme is located in bushy area and the system is broken

Source: researcher's field visit, 2010

At the beginning the scheme was planned to serve for 77 HHs with adequate and clean water but the plan was beyond the capacity of the scheme. The water committee explains that currently beneficiary HHs are not more than 40 i.e. almost half of the plan (51.9%) and the amount of water declines drastically after the scheme was developed (it was better before the construction). Even the 40 HHs are not getting adequate water, the scarcity of water is now worsen. Consistent with this all respondents (100%) replay that currently they do not get adequate water, in addition the water is not clean. The problem is not only shortage of water; sanitation/quality is also a crucial issue. When the scheme get damaged and broken the amount of water that comes through the pipe declines then people open different gates on the structure (like the manhole) and fetch water through it. Because of this different dirty materials enter to the water and the quality of water deteriorated. According to the water committee in any standard the situation before the construction of the scheme was better than now.

As to the management, the assumption was that the community can manage the scheme for long period at least for 15 years. According to the WOWRD, the following are some of the key responsibilities of the committee and the community:

1. Protecting the scheme by fencing, locking and assigning/employing guard.
2. Collect water fee/contribution adequate for operation and maintenance.
3. Maintain simple problems and report higher problems to the WOWRD.
4. Keep the surrounding of the scheme clean.
5. Meeting and discussion with beneficiaries.

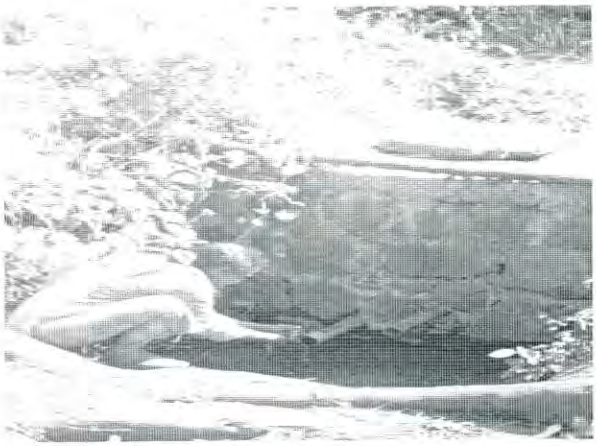
6. Prepare bylaw which govern the user community properly.

The data collected from the beneficiary HHs, available documents, FGD with the committee and direct observation indicate that the community unable to manage the scheme as expected and the committee is not performing its responsibilities.

1. The scheme is not protected at all; it is not fenced, no body look after it, everyone and everything can use the water. Moreover since the scheme is inside a forest area it is not suitable for villagers to look for while doing their business. As a result the scheme is under dangerous condition; the structures and pipes are broken and damaged that the water is flowing 24 hrs.
2. In the area water is a free resource, where everybody can use water without any kind of payment. Though 30% of the sample respondents believe in that users should cover operation and maintenance cost of the scheme, all reply that they are not paying water fee. Consistent with this the water committee explains that there is no water fee and any kind of contribution; they explain that they did not able to organize and convince the community and the WOWRD did not support them.
3. Though the pipes and the structure are broken and damaged since 2007, the committee cannot maintain it. Since the committee is weak it cannot organize and mobilize the community for maintenance. The water committee explains that the problem is beyond their capacity.
4. The surrounding of the scheme is not clean, it is very dirty.
5. The committee has no any kind of meeting with the community as well as among themselves. They explain that they are not doing anything; even most of them do not feel that they have responsibility to manage the scheme; they are using water as any user.
6. There is no any kind of bylaw, the scheme is just common property just like before the construction of the scheme.

Generally the committee is performing nothing well. About 60% of the sample respondents are not satisfied with the scheme service and all (100%) agree that the committee is weak in managing the scheme. The current situations indicate that the scheme fail to provide the intended service rather the problem of water supply is worsening.

Different waste materials enter in to the water



Source: researcher's field visit, 2010

4.5 Kebele – Lay Damot Yebereha

Gote – Amete Yohannes

Type of Scheme – Developed Spring

The spring was developed in 1998 by the WOWRD. SIDA provide the fund and the office plan and implement the project. According to the office the scheme takes 45,000 Ethiopian birr. The beneficiary community contributed in laborious activities like digging the trench, transporting construction materials, preparing and providing food for workers. The scheme was expected to serve for 82 HHs with clean and adequate water for at least 15 years.

The location of the scheme is not suitable; it is found in trees and bushy area and not suitable for women to fetch water. It is also far from the village; people cannot look for and see what happen on the scheme.

The planning and implementation process was supply driven. 70% of the sample respondents reply that before the construction of the scheme they did not have demand for clean water. Consistent with this the water committee members explain that the idea of developing improved water source comes from the woreda. Some group of people came, collects the people, and informs that they are going to improve the spring to provide clean water. Though the people accept the idea, at that time, the people were not aware of the issue and did not request for clean water. Then a committee consisting of 7 members (5 men and 2 women) was established with the responsibility of organizing the process.

During implementation, the water committee organized people's participation in laborious activities like digging the trench, helping artisans in construction, looking after materials, preparing food for workers etc. Since the construction was done before 10 years, the current staffs in the WOWRD do not know/do not have information about the process (experts who managed the process at that time left the office due to different reasons).

When the WOWRD plans to develop the spring, the expected number of beneficiary HHs were 82. According to the water committee currently only 60 HHs are using the scheme. In relation to adequacy of the water, 80% of the respondents replay that they do not get adequate water. The focus group discussants strengthen the idea that the capacity of the scheme is extremely poor to provide adequate water even for the 60 HHs. The amount of water is declining from time to time, it was better before the construction; at that time people did get more amount of water than now. The problem is not only declining of amount of water, but poor sanitation is also a serious problem. While women fetch water, mud and different waste materials get in to the water.

Most part of the scheme is damaged; the reservoir and the distribution point are completely damaged with in 4 or 5 years. Now only the water collection chamber (the spring/eye) is available. The situation deteriorated in all round. Since the current staffs in the WOWRD are recently employed, they do not know how the scheme was damaged. But the water committee members explain that the reservoir and distribution point crack immediately after construction. Since immediate maintenance was not taken, the crack widened by flood, animals and people stole the pipes other materials, through time disappeared totally.

The management aspect is the responsibility of the community. The assumption is that the community can manage the scheme for long period at least for 15 years through its representatives (the water committee). According to the WOWRD, the following are some of the key responsibilities of the committee and the community:

1. Protecting the scheme by fencing, locking and assigning/employing guard.
2. Collect water fee/contribution adequate for operation and maintenance.
3. Maintain simple problems and report higher problems to the WOWRD.
4. Keep the surrounding of the scheme clean.
5. Meeting and discussion with beneficiaries.
6. Prepare bylaw which govern the user community properly.

The data collected from the beneficiary HHs, experts, available documents, FGD with the committee and direct observation indicate that the community unable to manage the scheme as expected and the committee is not performing its responsibilities.

1. The scheme is not protected at all; it is not fenced, no body look after it, everyone can use the water. Moreover since the scheme is inside a forest area it is not suitable for villagers to look for while doing their business. As a result more or less the scheme is damaged within 4/5 years; the structures and pipes are broken and damaged that the water is flowing 24 hrs.
2. In the area water is a free resource, where everybody and everything can use any amount of water without any kind of payment. Though 40% of the sample respondents believe in that users should cover operation and maintenance costs of the scheme, all reply that they are not paying water fee. Consistent with this the water committee members explain that there is no water fee and they did not try to convince the community.
3. The pipes and the structure are broken and damaged since 2005. However the committee/community cannot maintain it. The committee did not organize and mobilize the community for maintenance; the problem is beyond their capacity, the scheme is changed in to traditional source.
4. The surrounding of the scheme is not clean, it is very dirty.
5. The committee has no any kind of meeting with the community as well as among themselves. They explain that they are not doing anything; even most of them do not feel that they have responsibility to manage the scheme; they are using water as any user.
6. There is no any kind of bylaw, the scheme is a common property just like before the construction of the scheme.

Generally the committee is performing very weak that 90% of the sample respondents agree that the committee is weak in managing the scheme and all of them are not satisfied with the scheme service. The current situations indicate that the scheme fail to provide the intended service rather the water problem is worsening.

4.6 Kebele – Amare Yewbesh

Gote – Armit

Type of Scheme – Developed Spring (Armit)

The spring was developed in 2004 by the WOWRD. SIDA provide the fund and the office plan and implement the project with about 50,000 Ethiopian birr. The community participates in digging the trench, looking after construction materials and collecting stone. The spring was expected to serve 180 HHs with adequate and clean water for at least 15 years. The spring is found on a plain area, near to the community. Therefore it is suitable to access easily, suitable to look what is going on around the scheme.

Two of the faucets are broken before months

Source: researcher's field visit

Shortage of clean and adequate water was a pressing problem in the area. About 100% of the respondents reply that they had a demand for improved water supply before the construction of the scheme, because their sources of water were unprotected small springs. Considering the problem, the WOWRD planned to develop the spring in 2004. A committee having six members (five men and one woman) was established before the construction started to organize and mobilize the community. According to the water committee the participation of the community was on laborious activities like digging the trench and transporting and looking after construction materials, the committee assigned few people every day for daily activities.

The expected number of beneficiary HHs was by far greater than the capacity of the spring. The plan of the WOWRD was 180 HHs to be served with adequate and clean water. But the water committee explains that currently on average 110 HHs are using the scheme; this is 61% of the

plan. Even 80% of the respondents reply that they do not get adequate water. According to the water committee the scheme cannot serve more than this number of HHs particularly during dry season most HHs do not get adequate water. The number of beneficiaries decreases during rainy season because some HHs fetch water from small seasonal springs.

After the completion of the scheme, the WOWRD handed over it to the community with the assumption that the community can manage the scheme properly for long period. The water committee is responsible to organize and mobilize the community to perform the following key responsibilities:

1. Protect the scheme from damage by fencing, locking and assigning/employing guard.
2. Maintain simple breakages/damages and report to WOWRD for serious problems.
3. Collect water fee/contribution adequate to operation and maintenance.
4. Keep the surrounding of the scheme clean.
5. Meeting and discussion with the beneficiary community.
6. Preparing bylaw that govern the user community

The information gathered from respondents (70%), experts, FGD, document review, and direct observation the committee is performing only few of its responsibilities and the community is not managing the scheme as expected.

1. The collection chamber is not fenced at all and the distribution point is fenced but it is very weak, the gate is always open. The committee explain that there is an employed guard with monthly salary of 70.00 birr/month to look after the scheme starting from 6:00 am to 6:00 pm and report to the committee when ever problems occurred, follow up and control the fetching, prohibit HHs that do not pay monthly fees etc. But practically the guard is not doing most of these responsibilities. A woman fetching water explained that once he opens the water from the gate valve most of the time the guard is not available around the scheme and he come back to lock it. The researcher also found him after repeated effort.
2. Regarding breakages and maintenance, 60% of the respondents reply that the distribution point gets some kind of breakage at least twice a year and it remains broken at least for one month. In line with this the water committee confirms that breakage of faucets and the gate valve occurred repeatedly and stays for months before maintenance. During the

field visit two faucets were broken and the committee explains that it has been 3 months. The problem is lack of money to buy spare parts and skilled man power to maintain. The committee explains that they cannot maintain it and though they report to the WOWRD they do not get any response. In addition to faucets, the gate valve is also broken for months which cause significant leakage water.

3. The beneficiary HHs pay water fee one birr/household/month. Regarding the water fee 50% of the respondents reply that the rate was fixed by both the community and the water committee but the rest 50% reply that the rate was fixed by the committee alone and 60% explain that the rate is not faire. But during FGD the water committee members explains that the rate was fixed by the community and the role of the committee was facilitation. The chairman of the committee explains that currently they have only 210.00 birr that will be payed to the guard but other members of the water committee do not know how much money they have.
4. The area/surrounding of the scheme is not very clean.
5. There is no any meeting among the water committee as well as with the beneficiary people. 70% of the respondents reply that they never have meeting with the committee and the rest 30% do not know whether or not there is meeting. The water committee confirms that they have no meeting among themselves and with the community
6. There is no written by law.

Since the gate-valve is broken there leakage

Source: researcher's field visit, 2010

Though the scheme is providing water to the community, the situation is not promising, the committee is performing poorly. Taking the current situation in to account, the experts judge that unless the situation is improved the scheme might not function more than 4-5 years.

4.7 Kebele – Gobata Aknana Akababiw

Gote – Sasi

Type of scheme – Developed Spring (Chiwye)

The scheme was developed in 2004 by the WOWRD. SIDA provide the fund and the office plan and implement the project. According to the office the scheme takes about 70,000 Ethiopian birr. The community contributed in supplying local materials like stone, labor to dig the trench, providing food for workers. The scheme is expected to serve for 84 HHs with clean and adequate water (15litters/person/day) for at least 15 years.

The scheme is found inside a forest area (shown below), very far from the village, unsuitable for the community; particularly women and children pass through the forest to fetch water. It is also very unsuitable to look after the scheme, no body see what ever happen around the scheme.

Location of the scheme

Source: researcher's field visit, 2010

According to the water committee the idea of developing improved water source comes from the experts in the WOWRD, it was supply driven approach. About 60% of the respondents reply that they did not have demand for improved water supply before the construction of the scheme. The community was not aware of clean water or it was not their primary need and did not request for it. During FGD the committee members explain that a group of experts came to the area and inform the people that they have planned to develop the spring and the community agreed with

the idea. But, according to the committee members, the community explained that the location of the spring is not suitable for women to fetch and to look for the scheme and recommend another option i.e. the development of a well on a nearby plain area. But, since the experts came with predetermined rigid plan, they didn't agree with the new idea and facilitate the election of water committee to organize and mobilize the community during and after construction.

Though the scheme was planned to serve 84 households, the water committee explains that currently about 100 HHs are using from the scheme, the plan is below the potential number of users. According to the focus group discussants the number of beneficiary HHs are beyond the capacity of the scheme which cause a serious scarcity of water. About 90% of the sample respondents reply that they do not get adequate water and 70% replay there is quality problem like bad smell and bad test. During FGD, The committee members also strengthen this idea. The amount of water was better before the construction of the scheme. The water declines significantly after the construction, more over bad smell and bad test are problems after construction. The problem is heightening both in terms of quantity and quality of water.

As to the management of the scheme the water committee is responsible to organize the management. The assumption is that the community can manage the scheme sustainably through the established committee. According to experts in the WOWRD, the following are some of the key responsibilities of the committee and the community:

1. Protecting the scheme by fencing, locking and assigning/employing guard.
2. Collect water fee/contribution adequate for operation and maintenance.
3. Maintain simple problems and report higher problems to the WOWRD.
4. Keep the surrounding of the scheme clean.
5. Meeting and discussion with the beneficiary community.
6. Prepare bylaw which govern the user community properly.

The data collected from the beneficiary HHs, experts, available documents, FGD with the committee, direct observation indicate that the committee is not performing its responsibilities and the community unable to manage the scheme as expected.

1. The scheme is not protected at all; it is not fenced, no body look after it, everyone can use the water. Moreover since the scheme is inside a forest area it is not suitable for villagers

to look after doing their business. As a result the scheme is under dangerous condition; the structures and pipes are broken and damaged that the water is flowing 24 hrs.

2. Though the pipes and the structure are broken and damaged since 2006, the committee cannot maintain it. Since the committee is weak, it cannot organize and mobilize the community for maintenance. The water committee explains that the problem is beyond their capacity.
3. In the area water is a free resource, where everybody can use water without any kind of payment. Though 60% of the sample respondents believe in that users should cover operation and maintenance cost of the scheme all (100%) reply that they are not paying water fee. Consistent with this the water committee explains that there is no water fee and any kind of contribution; they explain that they did not able to organize and convince the community and the WOWRD did not support them.
4. The surrounding of the scheme is not clean, it is very dirty. More over women explain that it is not suitable to fetch particularly for those women who are pregnant, child and old people.
5. The committee has no any kind of meeting with the community as well as among themselves. They explain that they are not doing anything; even most of them do not feel that they have responsibility to manage the scheme; they are using water as any user.
6. There is no any kind of bylaw, the scheme is a common property just like before the construction of the scheme.

Generally the committee is performing nothing well. About 90% of the sample respondents are not satisfied with the scheme service and all (100%) agree that the committee is not performing well. Taking the current situation in to account the scheme cannot function for 15 years. According to the judgment of experts in the WOWRD and the researcher the scheme may disappear within 2 or 3 years. The objective of providing the community with clean and adequate water is failed, and the problem is worsening in all rounds and the community switches back to fetch water from unimproved source.

The distribution point is non-functional and people fetch through the manhole

Source: researcher's field visit, 2010

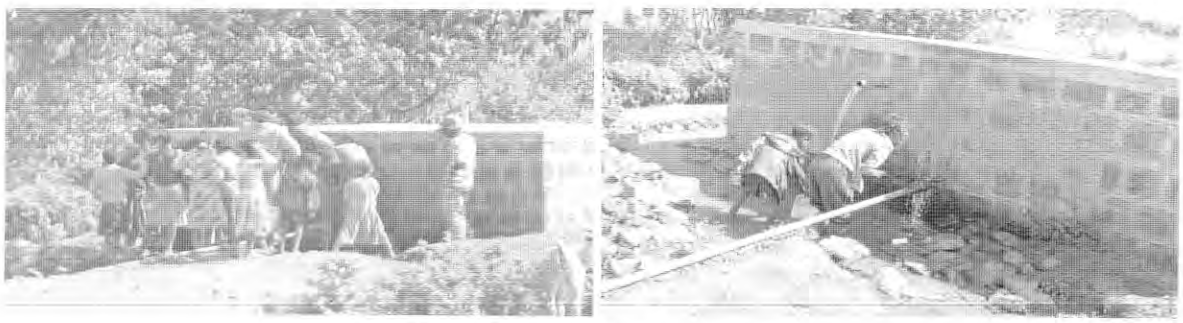
4.8 Kebele – Tisas Dar Imbuli

Gote -Zibebeb

Type of scheme – Developed Spring (Zibebeb)

The scheme was developed in 2004 by the Woreda Office of Water Resource Development (WOWRD). SIDA provide the fund and the office plan and implement the project. According to the office, the scheme takes about 80,000 Ethiopian birr. In addition the community contributes in labor and provision of local materials. The scheme was expected to serve for 75 HHs for at least 15 years with adequate and clean water supply i.e. provide 15litters of water/person/day (with major maintenance it can serve for additional years). Though the scheme is not very far away from the village, the site is not suitable to look after, and people cannot easily see what is going on around the scheme. Since the scheme is not around the village, children from a nearby school use water inappropriately and since the pipe is broken water flows always.

children using water inappropriately and because of pipe breakage water leak permanently



Source: researcher's filed visit, 2010

The planning and implementation process of the scheme was mainly supply driven. About 55.6% of the respondents reply that they did not have demand for water supply before the construction of the scheme. Consistent with this the water committee during FGD explains that the community did not have the request for improved water source. On the contrary a number of people oppose the project (the development of the scheme) because they use the spring for irrigation purpose. As a result the community was divided in to two groups supporting and opposing the scheme development. The difference between the two groups was serious to the extent that there was quarrel between people. But ignoring this serious problem, the WOWRD implement the project.

Though the scheme was planned to serve 75 households, according to the water committee currently beneficiary households are only 50. The capacity of the spring can serve additional HHs, but Because of the dispute many households still don't use water the scheme for domestic purpose. Rather those people who want the water for irrigation break the scheme repeatedly. Currently the pipes are broken, water cannot go to the distribution point and the water is flowing 24 hours.

As to the management of the scheme the water committee is responsible to organize the management. The assumption is that the community can manage the scheme sustainably through the established committee. According to experts in the WOWRD, the following are some of the key responsibilities of the committee and the community:

1. Protecting the scheme by fencing, locking and assigning/employing guard.
2. Maintain simple problems and report to WOWRD for serious problems.
3. Collect water fee/contribution adequate to operation and maintenance.
4. Keep the surrounding of the scheme clean.
5. Meeting and discussion with the beneficiary community.
6. Prepare bylaw

The data collected from the beneficiary HHs, experts, available documents, FGD with the committee, direct observation indicate that the committee is not performing its responsibilities and the community is not managing the scheme as expected.

1. The scheme is not protected at all; it is not fenced, no body look after it, everyone and everything use the water, people misuse the scheme etc. Moreover the site of the scheme is not suitable for villagers to look for while doing their business. As a result the scheme is under dangerous condition, pipes are broken and the water is flowing through broken pipes 24 hrs.
2. Though the pipes are broken since 2006, the committee cannot maintain it. Since the community is divided in to two groups, the community cannot organize the maintenance. Though the WOWRD maintain the scheme in 2005, the opposing group break the pipes immediately. According to the office unless the difference between the two groups is solved maintaining the scheme is useless. The water committee also explain that the problem is beyond their capacity.
3. In the area water is a free resource, where everybody can fetch any amount of water without any kind of payment. All sample respondents (100%) reply that they do not pay water fee and most of them about 90% do believe that water should be free. Consistent with this the water committee explain that there is no water fee or any kind of contribution; they explain that they did not able to organize and convince the community and the WOWRD did not support them.
4. The surrounding of the scheme is not clean. More over respondents say that it is not suitable to fetch particularly for those women who are pregnant and old.
5. The committee has no any kind of meeting with the community as well as among themselves. They explain that they are not doing anything; even most of them do not feel that they have responsibility to manage the scheme; they are using water as any user.
6. There is no bylaw, the scheme is a common property just like before the construction.

Water doesn't reach to the distribution point, as a result people fetch directly from the reservoir

Source: researcher's field visit, 2010

Generally the committee is performing nothing well. About 90% of the sample respondents are not satisfied with the scheme service and all (100%) agree that the committee is not performing well. Taking the current situation in to account, the scheme cannot function for 15 years. According to the experts, it might be damaged totally within 3 or 4 years and will turn in to unprotected source.

4.9 Kebele – Yewula

Gote – Siso

Type of Scheme – Shallow Well

The scheme was developed in 2008 by the WOWRD. UNICEF provides the fund and the office plan and implements the project with the cost of about 60,000.00 Ethiopian birr. The community participates in looking after materials, preparing/providing food for workers etc. It is expected to serve for 90 HHs with adequate and clean water at least for 20 years. The site of the well is not suitable to fetch water easily and for looking after it because it is in a bushy area.

Source: researcher's field visit

Shortage of clean and adequate water was a pressing problem in the area. About 91% of the respondents reply that they did have strong demand for clean water before the construction of the scheme. During dry season their source of water was Gedeb River and during rainy season small seasonal springs were main sources. To alleviate the problem, the Development Agent of the

kebele organized few elite people to request the WOWRD. Then the office accepts the request and plan to implement in 2008. With the request of the WOWRD, the people collect about 300.00 birr before the construction was started to show their commitment for future operation and maintenance. Then a committee consisting of 7 members (5men and 2women) was established to organize the implementation process and the future management. During construction the committee mobilize the community for laborious activities like looking after construction materials, preparing food and drink for workers. Every day 5-8 HHs were assigned to work with artesian and experts.

The expected number of beneficiary HHs was much greater than the capacity of the scheme. The plan of the WOWRD was to serve 90 HHs with adequate and clean water so that improving the socio-economic condition of the people. But according to the water committee currently the scheme is serving only 50 HHs i.e. this is 55.5% of the plan. The committee explains that even the 50 HHs do not get adequate water. 91% of the respondents confirm that there is shortage of water, particularly during dry season when the water declines significantly, every beneficiary HH cannot fetch more than 3insira/day.

As to the management, the expectation is that the community can manage for long period. According to the WOWRD, The water committee is responsible to organize and mobilize the community to manage the scheme with the following key responsibilities:

1. Protect the scheme from damage by fencing, locking and assigning/employing guard.
2. Maintain simple breakages/damages and report to WOWRD for serious problems.
3. Collect water fee/contribution adequate to operation and maintenance.
4. Keep the surrounding of the scheme clean.
5. Meeting and discussion with the beneficiary community.
6. Preparing bylaw that govern the user community

The data collected from the beneficiary HHs, experts, available documents, FGD with the committee, direct observation indicates that the committee is performing its responsibilities and the community is managing the scheme partially.

1. The scheme is well fenced and locked, the committee discussing with the community prepare schedule/program for fetching water (6:00 am to 11:00 am in the morning and 3:00 pm to 6:00 pm in the afternoon). Other than this program fetching water is forbidden

and the scheme is locked, always there is one person assigned to open and lock the scheme according to the program. The assigned person is also responsible to supervise and follow the fetching from the start to the end. But a woman fetching water explain that most of the time assigned women open the scheme and go to their personal business and come in the afternoon to lock it, during field visit the assigned woman was not available around the scheme.

2. Since the scheme was constructed in 2008, not yet broken. All respondents (100%) reply that the scheme never broken and the committee confirms that until now the scheme is safe/no breakage happen.
3. Every beneficiary HH pay monthly payment 0.50 cent/household/month, if not the HH cannot fetch water from the scheme. All respondents reply that they pay the fee regularly. The committee also explains that all user households pay the water fee regularly. At the beginning the committee decided that the monthly water fee to be 1.00birr/HH/month. But later on the people complain that the amount of money is high and recommend that it should be reduced in to 0.50 cent/HH/month. About 82% of the respondents reply that currently the fee is faire. Until Jan 2010 the committee collected about 740.00 Ethiopian birr. To increase the amount of the money, the community arranged a mechanism that at the beginning of each month the committee distributes the money to some people with 0.25 cents interest rate for 10.00 birr and at the end of the month the people bring the money with the interest. Next month the committee distributes the money to another group of beneficiary people in the same way and it continues. The problem in the financial aspect is that the financial record is weak, incomes and expenses are not well recorded, division of role is not identified (the chairperson put money in his house, committee members collect fee etc).
4. The area/surrounding of the scheme is clean.
5. To discuss on different issues and to collect the monthly fee the committee has monthly meeting with the community.
6. Though not full fledge they have a written bylaw explaining about monthly water fee, participation, penalties. The committee explain that the bylaw was prepared with the involvement of most beneficiary community but about 55.5% of the respondents reply that they do not know the bylaw.

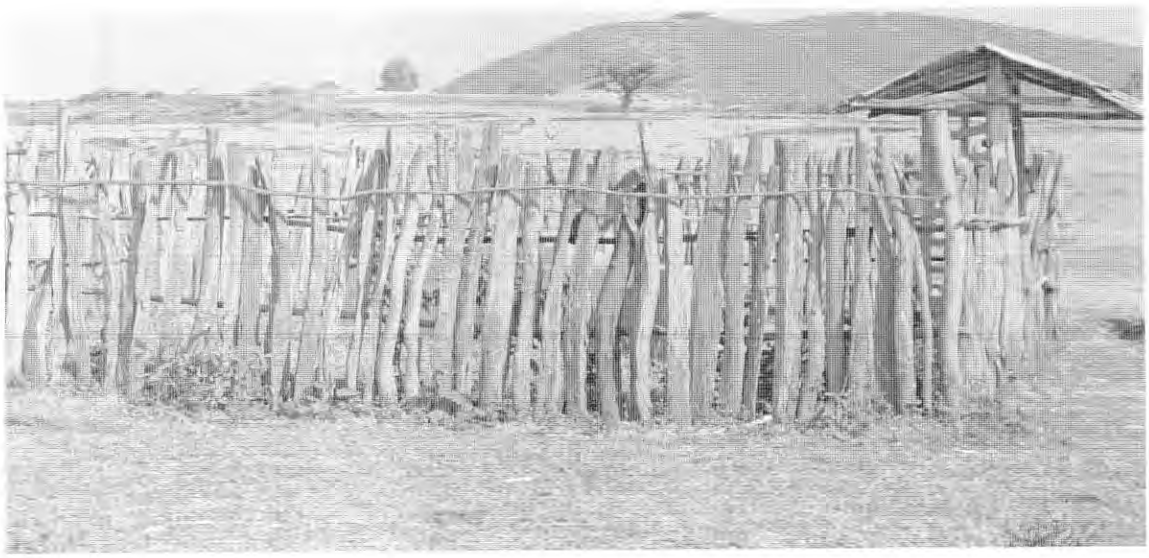
Generally the committee is performing well but many people 45.5% are not satisfied with the service of the scheme and about 54.5% reply that the committee is not performing its responsibilities properly. Taking the current situation in to account, the experts judge that with some improvements the scheme can serve for 20 years as per the plan, the situation is promising.

4.10 Kebele – Kerer

Gote – Debir

Type of Scheme – Shallow Well

The scheme was developed in 2008 by the WOWRD. UNICEF provides the fund and the office plan and implements the project. The scheme takes about 60,000 Ethiopian birr. The community contributes in labor (transporting construction materials, looking after materials), providing locally available materials (Sand and stone), and preparing food for workers. The scheme was expected to serve for 98 HHs with clean and adequate water for at least 20 years. The location is on a plain area, near to the village, suitable to fetch and to look after. The villagers can easily look what is going on around the scheme.



Source: researcher's field visit, 2010

According to the water committee the idea of developing improved water supply came from the community. In the area scarcity of clean and adequate water was a serious problem. Before the construction of the scheme, people fetch water from a long distance (during dry season from

Gezem River). 80% of sample respondents reply that they had demand for clean water supply before the construction of the scheme. Especially during dry season the problem was severe. Due to this serious problem the community through its representatives applied a request to the WOWRD for clean water supply. At the beginning of the construction the office facilitate the community to establish a committee consisting of 7 members (four men and three women) to organize and mobilize the community during after construction.

The scheme was planned to serve 98 HHs with adequate and clean water supply for at least 20 years. But according to the water committee currently only 65 HHs are using the scheme (66.3%), the capacity of the scheme can't allow more than this number of beneficiaries. Especially during dry season even the current beneficiary HHs do not get adequate water, most HHs fetch water from river for food preparation and cleaning purposes. More over during rainy season the water is not pure, sometimes the water is mixed with mud. About 40% of the respondents reply that they do not get adequate water and 66.7% reply there is quality problem. Though the scheme improves shortage of water to some extent, the problem is not completely solved. The community still suffers from scarcity of clean water.

When the scheme was handed over to the beneficiaries, the assumption was that the community can manage it properly through its representatives. According to the WOWRD, the following are some of the key responsibilities of the committee and the community:

1. Protecting the scheme by fencing, locking and assigning/employing guard.
2. Collect water fee/contribution adequate for operation and maintenance.
3. Maintain simple problems and report higher problems to the WOWRD.
4. Keep the surrounding of the scheme clean.
5. Meeting and discussion with the beneficiary community.
6. Prepare bylaw which govern the user community properly.

The data collected from sample beneficiary HHs, experts, available documents, FGD with the committee, direct observation indicate that the water committee and the management is not as strong as expected though it is performing some of its responsibilities.

1. The scheme is fenced and there is schedule/program for fetching water. The schedule is morning 3:00 am to 11:00 am and after noon 3:00 pm to 6:00 pm. Other than this schedule fetching water is forbidden and the pump is locked, a person is assigned every

day to open and lock the pump according to the program. Though the scheme is fenced, the door is not locked; there is no guard that can look for the scheme. As a result the scheme is exposed for damage.

2. In the area water is a free resource, where everybody can use water without any kind of payment. Though 60% of the sample respondents believe in that users should cover operation and maintenance cost of the scheme all (100%) reply that they are not paying water fee. Consistent with this the water committee explains that there is no water fee and any kind of contribution; they explain that they did not able to organize and convince the community and the WOWRD did not support them.
3. The surrounding of the scheme is clean.
4. The committee has no any kind of meeting with the community as well as among themselves. They explain that they are doing some activities only by discussing whenever the issue becomes important. Most of them do not feel that they have responsibility to manage the scheme; they are using water as any user.
5. There is no any kind of bylaw; the scheme is a common property.

The water committee and the management is not as strong as expected. About 80% of the sample respondents are not satisfied with the service of the scheme and 90% agree that the committee is not managing the scheme properly. Taking the current situation in to account and unless the weaknesses are improved, experts judge that the scheme cannot function for 20 years, according to them the scheme can serve at most 5-7 years. Therefore the situation is not as expected, it is not promising.

Generally the performance of most schemes is below the expected.

1. The sample schemes were planned to serve 939 HHs, but currently the schemes are serving only 575 HHs, that is 61% of the plan. Even these HHs are not getting adequate water (70% of the respondents do not get adequate water). But the WOWRD 2002 EC report indicated the schemes are serving 939 HHs as planned.

2. Most of the sample schemes are going to disappear before expected period of time. The schemes are expected to serve at least for 15-20 years but most schemes are going out of function within 5-6years.

3. Most schemes are not functioning properly, 80% are not fenced, the pipes are broken, the structure are cracked and collapsed but there are no maintenances, as a result leakage is a problem. Some of the schemes are changed in to unprotected traditional water sources. But all the schemes are reported as properly functioning by the WOWRD.

4. In 70% of the sample schemes, there is no water fee, water is a free resource as a result the committees do not have money for operation and maintenance.

5. About 70% of the water committees are not doing anything, 82.5% did not get any type of training, and they do not have the knowledge and capacity to manage the schemes.

The quantity and quality of water is worsening from time to time. In some areas the situation before the construction of the schemes was better than now.

CHAPTER FIVE

5. Assessment of Projects

5.1 Background Information of the Respondents

This section is concerned with the background information of the respondents. Detailed information of the respondents is presented below.

Since the information required in this study is about the family, respondents are either the father or the mother. Since children may not have adequate information about the family, they are not included in the study. More over since women are primarily responsible to shoulder the burden of water collection, whenever possible women are preferred over men. Taking this in to consideration women account the majority of the sample respondents. As indicated in the table below about 58% of the respondents were women and 42% were men.

For the purpose of simplicity the age of the respondents is categorized in to five age groups. As shown in table 5.1, 17% of the respondents are within the age group of 20-30, 26% within 31-40, 28% within 41-50, 23% within 51-60 and 6% are >60.

HH size is an important factor that determines the amount of water a family requires. Families with more number of family members require more amount of water. This in turn affects the total amount of water required at societal level. It is also said that family size affects HH's participation in the development processes. A family with more members might participate more particularly in laborious activities. As indicated in table 5.1 about 3% of the respondents have family size <=2, 35% have 3-4 family size, 44% have 5-6 family size, 17% have 7-8 family size, and 1% have >8 family size.

Table 5.1 Percentage distribution respondents by Sex, Age, and HH size

		Frequency	Percentage
I. Sex	Male	42	42%
	Female	58	58%
	Total	100	100%
II. Age category	20-30	17	17%
	31-40	26	26%
	41-50	28	28%
	51-60	23	23%
	>60	6	6%
	Total	100	100%
	Divorced	7	7%
	Widowed	15	15%
	Total	100	100%
III. HH size	<=2	3	3%
	3-4	35	35%
	5-6	44	44%
	7-8	17	17%
	>8	1	1%
	Total	100	100%

The research focuses on rural water supply. In rural areas the majority of the population engaged in agricultural activities. In line with this as shown in table 5.2, about 92% of the respondents were engaged in agriculture and the remaining 8% engaged in different activities like petty trade, daily labor, weaving and black smith.

It is assumed that educational status affect people's attitude towards demand and utilization of clean water. The more people are educated the more they want better quality of life. More over in rural areas, it is assumed that more educated farmers are closer to new and improved ideas than less/uneducated farmers. Therefore it is possible to say that more educated HHs need clean water supply more than uneducated HHs and therefore they may participate more in the

development process. As indicated in table 5.2, 58% of the respondent family heads were literate with different educational level and the rest 42% are illiterate.

Wealth status affects people's ability to pay for water service. If the water fee is high, poor people may be forced to use water from unimproved source and the improved source may be dominated by rich HHs. In addition wealth may also affect HHs participation. Rich people demand better quality of life like clean water supply; therefore they may participate more than poor HHs. In this study, the wealth status criteria used by the WOARD was used to identify wealth status of respondents. As indicated in table 5.2, 29% of the respondent HHs were rich, 48% were medium, 18% poor and 5% were the poorest of the poor.

Table 5.2 Percentage distribution of respondents by Occupation, Education and Wealth status

		Frequency	Percent
I. HH occupation	Agriculture	92	92%
	petty trade	2	2%
	Daily laborer	2	2%
	Other	4	4%
II. Educational level of the respondents	Illiterate	42	42%
	Only read and/or write	30	30%
	Grade 1-4	18	18%
	Grade 5 and above	10	10%
III. Wealth Status	Rich	29	29%
	Medium	48	48%
	Poor	18	18%
	The poorest of the poor	5	5%

5.2 Factors Affecting Performance Rural Water Supply Schemes in the Study Area

5.2.1 Community Factors

A. Demand for Clean Water Supply

As explained in the literature part, community demand for clean water supply should be the starting point. To develop a given water supply scheme, water should be a felt need of the community, moreover, the community should request for it. This is one of the most important factors that determines success or failure of projects. Demand driven approach need to be the principle in the provision of clean water supply service.

In some areas, the schemes were constructed while the majority of the communities not having the demand for clean water, even some group refused/opposed the construction. For example, when Ansila Debir and Zibebe are compared in relation with demand, they have a very huge gap. In Ansila Debir, about 90% of the respondents replay that they had strong demand. Consistent with this idea, the water committee members explain that water was a pressing problem of the community. Moreover, representatives of the community request the WOWRD to develop water scheme in the area. Moreover, with the request of the WOWRD, the community collected about 300.00 Ethiopian birr before the construction was started to show their commitment for future management of the scheme. And until now the scheme is performing well. On the other hand, in Zibebe, according to the water committee, a certain group of people strongly oppose the idea of developing the spring because they used the spring for irrigation purpose. But the WOWRD implement the project ignoring the opposition some group of people. Experts in the WOWRD confirm that at that time an expert who was also acting head of the office decide the scheme to implement. According to them, the problem in the area is out of their capacity to settle it. Currently the opposing people are damaging the scheme.

Therefore, construction of schemes without the demand of the community is one of the factors that contribute to the poor performance of some schemes. In some areas availability of fund and engineering suitability of location were the factors to develop schemes.

B. Community Participation

As Narayan (1995) explained, participation is the single most important factor contributing to long term functioning of a given project. Though other factors are fulfilled without the participation of the community water supply schemes cannot perform successfully. Moreover, the participation should be in all phases starting from the planning to managing. In relation to participation, respondents were asked whether or not they participate, level of their participation, and who participate more. As shown in table 5.3, 91% of the respondents participate in one of the activities, and 9% did not participate in any activity and the reason raised by many people is that they did not have information or they were not around at that time.

91% of participation seems a high degree of community participation but according to UNDP (1995) who participate, in which phases, and to what extent/degree/ are the most important questions in participation. As indicated in the table, most of the people participate in laborious activities like digging trench/HDW, transporting and looking after construction materials, etc. The number of respondents who participate in technical activities (like selecting the type of technology, location of the scheme, etc.) were only 25%. Even the extent/degree to which these people participate is under question. Supporting this, the discussants of the focus group discussion (FGD) explain that most of the time, the community participates in labor intensive activities. They elaborate that role of the committee was mobilizing the community for laborious activities. Experts in the WOWRD also confirm that the participation of the community in selecting type of technology and location of the scheme is insignificant, experts decide on the bases of technical and financial factors. For Successful rural water supply projects the target community should participate at all levels. In some areas like in Sase gote the community recommend a hand dug well near to the village but experts came with predetermined plan to develop the spring. In addition many schemes are located in unsuitable places to look after and to fetch easily. Because of failure to participate the community most projects fail to provide clean and adequate water for the community as expected. As shown in the table community participation in money i.e. users' financial contribution to capital cost of the scheme is zero, all respondents (100%) did not contribute money.

Table 5.3 Percentage Distribution of respondents by type of participation

Type of participation	Participate		Do not participate	
	Frequency	Percent	Frequency	Percent
In any activity	91	91%	9	9%
In labor activities	91	91%	9	9%
In technical activities	25	25%	75	75%
Money contribution for construction	0	0%	100	100%

Another crucial factor in community participation is who participate most. Women are responsible to fetch water but their participation is below 19%. On the other hand though men's participation in fetching water is only 1%, their participation is about 87.9%. Women are the primary users of domestic water supply and they are responsible to make water available at any situation. But in most water supply programs men are the dominant participants. Even when women are involved, their contribution is minimal. Implementing projects without the opinion and contribution of primary users leads to failure.

Table 5.4 Percentage distribution of HHs by responsibility to fetch water and participation

Responsible person to fetch water	Frequency	Percent	Commonly participated person in the family	Frequency	Percent
Mother and daughters	99	99%	Men	74	81.3%
Sons	1	1%	Women	11	12.1%
Father	0	0%	Men and women	6	6.6%
Total	100	100%	Total	91	100%

Participation can be affected by a number of factors. This is study attempts to identify if participation has strong relation with marital status, size of HHs, wealth status of HHs, educational level of HH heads (educational level of either the father or the mother), and demand for clean water. The study found that participation of a HH and marital status has relation. As

depicted in table 5.5, 94.9% of married HHs participate in one of the activities (5.1% did not participate in any activity), but among the widowed HH the level of participation was only 66.7% (33.3% did not participate in any activity, this is also confirmed by chi-square test (P value = 0.002).

Another factor that may affect household's participation is HH size. It is assumed that HHs with more number of family members can participate more than those HHs with less number of family members. But, as shown in the table, this study finds that HH size does not have significant relation with participation, this is also confirmed by chi-square test (P value = 0.85).

Wealth status of a HH is also a factor that may affect participation. Rich people want and can afford better quality of life. Usually in rural area few prominent and rich people mobilize the community for new ideas like provision of water supply, they also request and influence government officials for implementation. They participate either in labor or in idea. But in this study as shown in table 5.5 wealth status and participation doesn't have strong relation, the chi-square test with P =0.219 also confirm this.

Another factor that can affect household's participation in rural areas is educational status. Difference in education creates difference in awareness on different issues. The assumption is that the more people are literate, the more they demand quality life like clean water service. Therefore, literate HHs may participate more than illiterate HHs. In this study 98.3% of literate HHs participate at least in one activity where as the level of participation among illiterate HHs was 81%. In other words from the literate HHs only 1.7% did not participate but from the illiterate HHs about 19% did not participate in any activity, the chi – square test also confirm this with P value of 0.003. Therefore educational level affects people's participation.

Another important factor that may affect people's participation in rural water supply program is their demand for clean water. Any development activity that doesn't address the pressing demand of the target community will not attract the active participation of the community. On the other hand when ever an issue is real need, the community follows and participates actively. For example in Ansilala Debir where water was a pressing problem 100% of the respondents reply that they participate at least in one of the activities. On the other hand in Zibebeb where water supply was not primary need about 55.6% of the respondents reply that they did not

participate in any activity. Therefore demand is an important factor that crucially affects people's participation.

Table 5.5 Factors affecting participation of HHs

Factors	Participation			
	Participated		Not participated	
	Frequency	Percent	Frequency	Percent
I. Marital Status				
Married	74	94.9%	4	5.1%
Divorced	7	100.0%	0	.0%
Widowed	10	66.7%	5	33.3%
II. HH size				
<=2	3	100.0%	0	.0%
3-4	28	80.0%	7	20.0%
5-6	43	97.7%	1	2.3%
7-8	16	94.1%	1	5.9%
>8	1	100.0%	0	.0%
III. Wealth status				
Rich	29	100.0%	0	.0%
Medium	42	87.5%	6	12.5%
Poor	16	88.9%	2	11.1%
The poorest of the poor	4	80.0%	1	20.0%
IV. HH head education				
Literate	57	98.3%	1	1.7%
Illiterate	34	81.0%	8	19.0%
VI. Demand for clean water before the construction of the scheme				
Yes	62	92.5%	5	7.5%
No	29	87.9%	4	12.1%

C. Ownership

Communities' sense of ownership to a given development project is an important factor that significantly affect the sustainability of the project. Sense of ownership is a result of different factors like demand and participation. If people sense that the scheme is their own property, they will manage it properly and the scheme will function for long period of time. As shown in table 5.6 below, significant number of respondents, i.e. 39% do not feel that they are owners of the schemes, instead they reply that the government, other agencies or the water committee are owners of the schemes. On the other hand 61% of the respondents reply that the schemes are properties of the community.

Table 5.6 Percentage distribution of respondents by sense of ownership

Owner of the schemes	Freque	Perce	Responses for misuse	Freque	Perce
Beneficiary community	61	61%	I will report to the concerned body I will advise the person	60	60%
Other (government or implementing agency or the committee or I don't know)	39	39%	I will do nothing	40	40%
Total	100	100%	Total	100	100%

More over about 40% of the respondents reply that they will do nothing if they see someone misusing the scheme. This is a serious blow for the sector. Different factors may negatively affect people's sense of ownership. From the outset clean water supply may not be the primary needs of the community, the community may be excluded in the process (their need and opinion in selecting type of the scheme, location of the scheme may be ignored).

The focus group discussants confirm that most people do not feel that the schemes are their own property and most are not willing to contribute money for guard, to maintain and to fence the scheme. Experts in the WOWRD also confirm that most people feel that the government is owner of the schemes. Therefore low level of communities' sense of ownership is one of the causes for poor performance of the schemes.

D. Community Management

It is said that community management is the best way to achieve long term functioning of rural water supply schemes. The user communities should manage their own resource. Failure of community management resulted a number of schemes to fail at the end of IDWSSD.

To ensure that the community can manage the schemes properly, the community should participate right from the beginning to the end. Active participation must be there in all stages (identifying problems, analyzing the problems, identifying alternative solutions, planning and implementing the selected solution etc). In all these stages the communities' opinion and needs should be the major components of the process. Therefore people will feel that the project/scheme is their own. Moreover appropriate training, awareness creation, capacity building should be given to enable the community manage the schemes.

After completion the WOWRD hand over the schemes to the user communities to manage by themselves. To realize this, the office facilitates the establishment of water committees to organize and mobilize the community. In principle the committee should consists of 7 members (5men and 2 women) elected by the community. The assumption is that the committee can organize the community to manage the schemes with support from the WOWRD.

But out of the ten sample schemes, in seven schemes (70%) the community/committees were not able to manage the schemes as expected. This is confirmed by the water committee, experts in the WOWRD, and sample respondents. About 81% of respondents replied that the water committees are not managing the schemes properly. During focus group discussion and document review the management of most schemes was found very poor. In seven schemes (70%) there is no any bylaw; no guard; schemes are not fenced; there is no water fee or any contribution; there is no meeting and discussion among the committee members and with the community. The water committees are not doing anything and most parts of the scheme are broken/damaged.

Table 5.7 Water committee's management efficiency

Efficiency of water committees in managing schemes	Frequency	Percent
Efficient	18	18.9%
Not efficient	77	81.1%
Total	95	100%

During FGD most committee members raised that they have no the necessary training and knowledge to manage the schemes. 70% of the committee members did not get any training. According to them even though they repeatedly request the WOWRD there is no practical response. More over the office did not support them in many aspects other than treatment of water once in three or six months. Experts in the office admit most complains of the committees and the reasons they raise were lack of budget, transport, and man power.

5.2.2 Financial Factors

Financial issues are crucial to sustain rural water supply schemes for long period. Many schemes get out of function due to lack of fund for maintenances. Therefore, adequate source of fund for operation and maintenance is very important factor. In addition to adequate source of fund, the administration of the fund is also crucial. Therefore in this study financial factors like community contribution, adequacy of the contribution and management of the fund are addressed as follows.

A. Community Financial Contribution

Users' contribution in rural water supply is a crucial factor to sustain the services for long period. In this regard there are two types of users' financial contribution.

The first one is that beneficiary communities should contribute for capital costs that indicate the true future commitment of the community in revenue collection. This is to mean that if the target community contribute a certain amount of the capital cost of the scheme, they will contribute money for operation and maintenance after the completion of the scheme. In this regard 100% of the respondents reply that they did not contribute any money for capital cost.

Experts of the WOWRD describe that to create community sense of ownership and to address financial scarcity, communities' contribution for capital cost is crucial and they express that they have the plan to implement it gradually. But considering the current awareness level of the community this will take long time.

The second type of community financial contribution is that community contribution for operation and maintenance. This is an issue which is promoted by the government and NGOs. The user community should cover the full cost of operation and maintenance of the schemes.

This is promoted because governments cannot afford maintaining thousands of schemes all over the county. Therefore the community should at least contribute as much of the recurrent costs as possible otherwise sustainability cannot be guaranteed. The contribution can be in the form of water fee on a daily base or monthly base or in any other arrangements. From the sample respondents only 30% pay water fee, the rest 70% do not pay any payment i.e. water fee or contribution is implemented only in 3 schemes. Though The Water Resource Management Policy (1999) of Ethiopia says that users should cover the cost of operation and maintenance, in the remaining 7 schemes water is a free resource as many people say that water is a natural gift that people do not need to pay for it. As a result most schemes are out of function due to lack of fund for maintenance

B. Adequacy of the Fund

Another crucial financial factor is adequacy of the fund. In areas where community pay water fee, determining real cost of water/service is a real problem. In this regard the Ethiopian Water Resource Management Policy (1999) clearly states that rural water supply service tariff setting to be based on the objective of recovering operation and maintenance costs. Therefore the amount of money the community contributes should cover at least operation and maintenance costs of the scheme. The monthly contribution in the three schemes is 0.25 Ethiopian cents in Ansilala Debir, 0.50 cents in Siso and 1.00 Ethiopian birr in Armit. This is confirmed by the respondents as well as by the water committees. About the decision of the tariff, as depicted in table 5.8, 61.3% of the respondents replied that the community involved in the decision while the rest 38.3% reply that the tariff was fixed by the water committee. In this regard the water committees explain that the water tariff was fixed with the involvement of the community.

Table 5.8 Water Tariff Setting

Water tariff decision making body	Frequency	Percent
Beneficiary community	9	29%
Water committee	12	38.7%
Beneficiary community and water committee	10	32.3%
Total	31	100%

According to the water committees of Ansilala Debir and Siso schemes, the tariff was fixed two times. In both schemes at the beginning the tariff was 1.00 birr/month, but with the request of the community the tariff is reduced to 0.25 cents in Ansilala Debir and 0.50 cents in Siso. Respondents were asked about the amount of the current water tariff. About 71% respond that the current tariff is fair, 25.8 % respond that the tariff is not fair and it must decrease and 3.2% replay that they don't know. In relation to deciding the water fee rate, experts in the WOWRD explain that the community and the committees can fix without the intervention of the office.

The water committees explained that the amount is not adequate to cover operation and maintenance costs. To solve the problem in the two schemes (Ansilala Debir and Siso) the committee and the community create a mechanism to distribute the money to user peoples every month with interest rate of 0.25 cents from 10 birr. In this way they are increasing the amount of their money. Especially in Armit, there is serious scarcity of money, due to shortage of fund two faucets are not functioning for more than three months, the get valve has leakage, the fence is very weak, and sometimes they cannot pay salary for the guard.

C. Management of the Fund

Poor financial management is another problem in areas where the community pay water fee. Even when the community is willing to contribute, if there is no an efficient means to collect and manage the money it is meaningless. Currently only 30% (in three schemes) of the respondents are paying water fee, the rest 70% do not pay any kind of payment. This is the result of poor/weak system to collect money.

Table 5.9 Percentage distribution of respondents by water fee payment

Payment of water fee	Frequency	Percent
Pay	30	30%
Do not pay	70	70%
Total	100	100%

Poor management of collected funds is another problem. During focus group discussion most water committee members did not know how much money they have. Only two or three members know the balance. Moreover financial records were very poor i.e. there were no proper

records that express the amount of revenues, and expenses, expenses were written on pieces of papers and in the minds of individuals, an individual usually the chairperson may expend without discussion and minutes, water fees can be collected by any one of the committee members, in some cases (Armit) the guard collect water fee. In this regard 100% of the respondents reply that there is no one person who collects money permanently. Though there is an elected casher in each scheme, fee collection performed by others. The water committee members also confirm this that most members involve in fee collection because they believe that this is the responsibility of all members. Most of them do not understand their division of role for example chairpersons usually takes the responsibility of secretaries and cashers. Another problem in financial management is that most schemes do not have receipts for payers. As depicted in table 5.10, 66.7% of respondents do not receive receipt and 33.3% (in Armit Scheme) receive receipt intermittently. Consistent with this during FGD the water committees in Ansilala Debir and Siso explain that there is no receipt and they did not think of its importance. But the water committees in Armit explain that they give receipts to payer once in three months to save expense for receipt.

Table 5.10 Water Fee Receipts

Availability of receipts for water fee payment	Frequency	Percent
Always there is receipt	0	0%
Sometimes there is receipt	10	33.3%
There is no receipt at all	20	66.7%
Total	30	100%

Another problem in financial management is that the committees never present any financial and other reports to beneficiary communities as a result most users do not know the financial status of the schemes. The situation may cause people to be suspicious on the management of money. To identify this, sample respondents were asked if they know any incidence of misuse and as depicted in table 5.11, 64.5% reply that there is no misuse, 29% reply they don't know and 6.5% reply that there is misuse but they cannot/are not willing to express the misuse specifically.

Table 5.11 Misuse of collected money by water committees

Incidence of misuse	Frequency	Percent
There is misuse	2	6.5%
There is no misuse	20	64.5%
I don't know	9	29%
Total	31	100%

5.2.3 Technical Factors

Technical factors such as the type of technology, availability of spare parts, communities' skill of operation and maintenance, quality of construction etc have crucial impact on sustainability of rural water supply schemes. Because of technical problems a number of schemes are not functioning. Technical problems that contribute to the failure of schemes are discussed and presented below.

A. Type of Technology

Some scholars like Ricard et al, (2008) recommend that to solve problems associated with technical issues, it is necessary to involve the water entities in the choice of water supply systems and service level. The type of technology and service level should be accepted by the beneficiary communities, users have to be informed about the advantages and disadvantages of each type of scheme/technology and select according to their capacity and need. As explained in previous sections only 14% of the sample respondents participate in technical issues and only 6% participate in selecting scheme type (though the degree of their participation is under question) and the rest 94% did not participate. Consistent with this, the focus group discussants explained that the role of the community and the committee in selecting type of schemes/technology was insignificant. For example at Sase, the WOWRD came with the plan to develop the spring but the community recommend hand dug well. However the office implements its plan ignoring the communities' need and opinion. Currently the scheme is out of function. Experts in the office also explain that technical issues like type of scheme/technology are determined by experts.

B. Construction Quality

Construction quality is one of the technical factors that affect the performance of rural water supply schemes. Poor construction quality of schemes and the use of low quality materials may cause the scheme to fail to provide the expected service level for long period of time. Because of poor construction quality, structural collapse may occurred before the design period. Respondents were asked if they know any construction problem like use of low quality materials and weak construction. As depicted in table 5.12, about 63% respond that there was no problem, but 33% of said that there were construction problems like use of poor quality of ash mixed with soil, use of cements exposed for water and poor experts supervision of the local artisans who construct structures etc. Consistent with this idea the water committee members raise problems like poor sand and cement quality. Especially the water committees in Sase explain that the supervision of experts during construction was very poor and because of this problem artisans construct the basement on heap of soil. Then with in short period of time the soil eroded and water leak through it. In this regard experts in the WOWRD explain that in the past constructions were given to contractors and in many areas poor quality of constructions were serious problems. But currently activities like construction and producing cylinder are given to local artisans with close supervision of experts and the problem is reduced.

Table 5.12 Construction problem

Availability of construction problem	Frequency	Percent
There was problem	33	33%
There was no problem	63	63%
I don't know	4	4%
Total	100	100%

C. Operation and Maintenance

The most crucial factor among technical factors that greatly affect the performance of rural water supply schemes is operation and maintenance. The government or other implementing agencies cannot assure sustainability of schemes performing operation and maintenance activities by themselves. The government cannot afford maintaining thousands of schemes all over the

country. Therefore the best solution is that the beneficiary communities take the responsibility of operation and maintenance. But this requires skilled and well equipped technicians among the community. Therefore in each scheme two people are expected to train as care takers and perform the operation and maintenance.

In view of the above idea the water committees discuss that currently the community cannot perform operation and maintenance activities because there are no trained and equipped care takers. According to the committees in nine of the sample schemes (90%) care takers were not elected from the outset. They explain that the WOWRD told them to inform the office when ever problems occurred. Therefore even when faucets broken the committee report to the office. In one scheme two care takers were trained for five days, but after the training the care takers can not to maintain damages because they did not have adequate knowledge on how to maintain (the training was only theoretical) and they do not have the necessary toolkits.

In this regard experts in the woreda explain that in previously constructed schemes there are no care takers, but in recent years care takers selected and trained with the water committees. More over they have the plan to train two care takers from previously constructed schemes. But even recently constructed schemes do not have care takers. Practically the community is not doing anything in relation with operation and maintenance. The only maintenance performed by the community is that in Ansilala Debir the community clean the hand dug well from mud with a cost of 800.00 birr.

D. Spare parts

Availability of spare parts at local level is an important constituent that contributes sustainability of scheme. Without easy access to spare parts reliable water supply is impossible. The community should get spare parts easily at least at worda level. Otherwise to buy a simple spare part like a faucet form distant area is difficult for rural people because they cannot stay long out of their home and cannot afford the expense.

In this regard the water committees do not know where spare parts are available because it is the WOWRD that perform the operation and maintenance. Experts in the office explain that at woreda level there is no any type of spare parts. Spare parts are available in Debre Markos (Zonal level) or in Bahir Dar (regional level) or in Addis Ababa. Even in Debre Markos there is scarcity of spare parts. Therefore the main source for spare parts is Bahir Dar which is more than

200 KM from the woreda city. When spare parts are not available in Bahir Dar, they go to Addis Ababa which is more than 300 KM. Because of this problem maintenance of breakages takes weeks and months. Respondents were asked that how long schemes remain disrepair once they are broken. As depicted in table 5.13 about 70.9% respondents reply that the scheme remains disrepair for one month and more. About 41.7% reply that the scheme can remain disrepair for more than one year. Consistent with this, the water committees explain when the schemes get broken they wait for months for maintenance.

Table 5.13 Maintenance

Length of time that the schemes remain to disrepair once they are broken	Frequency	Percent
For one week and below	8	11.1%
For few weeks	13	18.1%
For one month	16	22.2%
For 2-5 months	4	5.6%
For 6-9 months	1	1.4%
For more than one year	30	41.7%
Total	72	100%

5.2.4 Environmental Factors

Environmental factors greatly impact the long term and good performance of water supply schemes. Reliable source of water can be affected by climate change, seasonal changes, land use and pollution due to various factors. The study tries to find out some problems related to environment which are affecting good performance of rural water supply schemes.

A. Quantity of Water

The objective of constructing rural water supply schemes is to provide clean and adequate water to the community so that improve the socio-economic condition of society. The UAP plans to provide safe and adequate water (15litters/person/day) for 98% of the rural population by 2012. In the study area the average family size is 5.02, therefore to say that a family gate adequate

water, on average they should get 75.3 liters/day (5.02*15). But on average a family gate about 62.48 liters/day or 12.44 liters/person/day, the figure shows that the community does not gate adequate water.

To elaborate more respondents were asked whether or not they gate adequate amount of water for domestic purposes from the schemes. As depicted in table 5.14, only 30% respond positively i.e. they gate adequate water. The remaining 70% of the respondents replay that they do not gate adequate water and they express that the water shortages is more severe during dry season.

Table 5.14 Adequacy of water from water supply schemes

Amount of water from schemes	Frequency	Percent
Adequate	30	30%
Not adequate	70	70%
Total	100	100%

In addition respondents were asked about the trend of the water quantity produced from the schemes. As shown in table 5.15, below only 2% of the respondents reply that the quantity of water is increasing and 23% replay that there is no change in the water quantity. But most respondents, 75%, reply that the amount of water produced from the schemes is decreasing from time to time.

Table 5.15 Trends of water quantity of the schemes over time

The trend in the quantity of water	Frequency	Percent
It is increasing	2	2%
It is decreasing	75	75%
There is no variation	23	23%
Total	100	100%

Consistent with the above idea discussants of the FGD explain that most of the time the community do not gate adequate water. Particularly during dry season, water shortage is crucial. To solve the problem the water committees able to convince the community that during shortage time any HH cannot fetch water more than 2 or 3 insira. More over the committees prepare

schedule for fetching (mostly 6:00 am to 11:00 am in the morning and 3:00 pm to 6:00 pm in the afternoon). But the WOWRD report that the community is getting adequate water.

Possible reasons for the declining of the amount of water include climate change, population growth, over estimation of schemes capacity by experts etc. Experts estimation indicate about 1089 HHs are using in the ten schemes. But the water committees explain that the number of actual users are 575 HHs this is 52.8% of the plan/expectation.

B. Quality of Water

Provision of quality water is one of the objectives of rural water supply program. In this case quality water mean that water protected from contamination, water free of bad smell, test and unusual color. In this regard respondents were asked if there is any quality problem. As indicated in table 5.16, the majority of respondents (65%) reply that there are different problems, 33% reply there is no quality problem and 2% respond that they don't know. The problems raised by most respondents are bad test and bad smell particularly during dry season. In addition sometimes the schemes produce worms. In some cases the man holes of the collection chambers and reservoirs are opened and exposed for contamination. The water committee members reinforce that the problem is significant. Though the WOWRD experts explain they treat the schemes with chlorine on monthly bases the water committees express that the water treatment has no fixed program, it might be once in six months or once in one year or no treatment at all. The surrounding of the schemes is not clean that may cause pollution of water.

Table 5.16 Quality of water from the schemes

Quality of water	Frequency	Percent
There is quality problem	65	65%
There is no quality problem	33	33%
I don't know	2	2%
Total	100	100%

5.2.5 Institutional Factors

All listed factors that affect performance of rural water supply schemes are affected by institutional factors. It is the most influential factor that its strength/weakness has a direct

influence on other factors. For this reason Davis, et al. (1993) describe that the institutional set up or organizational arrangements are considered to be a central factor in sustaining water supply facilities. Institutions at all levels should be strong enough to achieve the required objectives. Particularly lower level institutions with immediate responsible body to implement projects are crucial. In view of the above, the capacity of the WOWRD and level of institutional support to the water committees and communities in the study area are assessed and presented below.

I. Human Resource

Adequate manpower is the most important factor that coordinates available resources. Without the necessary human resource, it is difficult to achieve the expected objectives. In the current situation of rural water supply program, WOWRD plays the crucial role to attain sustainability of schemes. Therefore, the WOWRD should have the required number of manpower with the required qualification. According to the acting head of the office, the required number and qualification of man power is as follows.

Table 5.17 Man power of WOWRD

Positions	Required number of workers	Current number of workers	Required Educational level	Current workers' educational level
Head of the office	1	-	BA degree	-
Chief engineer	2	1	BSC degree	12+3
Co-engineer	2	1	Diploma	10+3
Electrician	1	1	Diploma	10+3
Pump attendant	2	-	Diploma	
Surveyor	1	-	Degree	
Mechanic	1	-	Diploma	
Water sanitation worker	1	1	BSC degree	10+3
Socio-economist	1	1	BA degree	BA degree
Work process owner	1	-	BA degree	-
Secretary	1	-	Diploma	-
Guard	3	3	Grade 6 & above	Grade 6 & above
Total	17	8		

Source: Amanuel WOWRD (2010)

As indicated in table 5.17, the required number of workers at the WOWRD is 17 but currently only 8 workers (47%) are available. When the educational level of existing staff is considered the required and the actual have significant gap. From the technical staff directly responsible to program implementation only three staffs (37.5) fulfill the required educational level. The data indicate that the WOWRD is below 50% in staff number as well as educational status. According to Ato Habtamu (acting head of the office) the most serious bottleneck of the office is absence of permanent head for the last four years. Frequently persons from the staff assigned on acting base. The reason that the worda administration and zonal water office raise is lack of person with the required educational background. Because of this reason the office has no representative in the worda cabinet to convince officials in different issues. As a result compared with other sectors in the woreda, the office is weak in budget, man power, and logistic allocation. This affects the performance of the office to follow- up and strengthen the community to maintain schemes.

II. Financial and Logistic Capacity

Financial and logistic capacity of an organization is also crucial to good performance. According to Ato Habtamu and other staff, the office get adequate fund from NGOs (like UNICEF and SIDA) for direct project costs. The problem is serious budget shortage for recurrent costs like perdiem and transport. Ato Habtamu explains that the staff should spend their time in the field implementing new projects, strengthening committees, mobilizing the community etc. But because of scarcity of budget for per diem and transport, the staff stays long in office; they are not motivated and willing to go to field. As indicated in table 5.18 the amount of budget allocated for administration cost is low mostly covering only salary.

Table 5.18 Budget of WOWRD

Year (EC)	Recurrent budget		Capital budget	Aid	Total Office budget	Woreda Total budget
	Salary	Others				
1998	57620	185,810	-	348,200	591,630	11,717,950
1999	90,706	4,119	-	344,201	439,026	7,301,308
2000	95,367	4179	-	100,000	199,546	17,647,886
2001	120,966	20,000	800,004	410,000	1,350,970	26,738,347
2002	87,381	31,320	-	1,900,000	1,208,701	32,056,764

Source: Woreda Plan and Finance Office (2010)

The logistic condition of the office is also not good. According to the acting head of the office (Ato Habtamu), the office has only one old motor bike to work in 24 rural kebeles (most of them are inaccessible), inadequate office arrangement are also crucial problems of the office. Because of these problems the office cannot strengthen the community to improve performance of the schemes.

B. Institutional Support

Support in planning, implementation, operation and maintenance is critical to ensure sustainability in rural water supply schemes. Follow up and support until the user community becomes self reliance is necessary in the following areas: training to the water committee and user community on different topics, financial management, accessibility and affordability of spare parts, operation and maintenance etc. Though the assumption is that the community should take over and manage schemes, it will be unrealistic to leave the schemes completely to the community and expect the schemes to be successful. But the result of the study indicates that the support from the WOWRD and other agencies is very minimal and below the expected.

In relation with training, the water committees explain that support from the office is extremely poor that cause most committees weak in their performance. In ten sample schemes there are 63 water committee members (45 men and 18 women). According to them, most water committees did not get any type of raining. Three committees in three schemes (Dimbuti, Siso and Armit) get training from two to five days on the management of schemes. Women committee members did not attained the training because the training was given far from their residence. Generally from 63 water committee members only eleven men (17.5%) get one round training. The rest 82.5% (52 water committee members) did not get any type of training. According to them, because of this they cannot manage the scheme as required i.e. they do not have the required skill. Even trained committees explain that the training was too short and inadequate to effectively mobilize and organize the community for successful management. In this regard experts in the WOWRD say that the office provides training to most committee members, but after the training most leave the committee. The office's 2002 (EC) second quarter report indicates that 20 water committees are strengthened, but all committees in the sample scheme explain that they did not get anything in the period. To the extent the office has no list of

committee members of each scheme in the woreda, some experts have some lists of name in pieces of papers.

In addition respondents were asked if they get training related with clean water. As depicted in table 5.19 only 34% reply they get some kind of training intermittently by health professionals. The rest 66% did not get any kind of training. This has negative impact on the communities' awareness and participation on management.

Table 5.19 Training about clean water

Availability of training	Frequency	Percent
Get training	34	34%
Did not get training	66	66%
Total	100	100%

Another area of support that the WOWRD is expected to provide to the water committees is in financial management including determining water fee rate, collecting water fee, managing the collected money etc. According to the focus group discussants, the office never follows and supports them in financial management and the problem is clearly reflected in their performance. In seven schemes (70%) there is no any kind of payment/contribution. In the three schemes where fee is collected, the financial management is very poor. Revenues and expenditures are not recorded properly; expenses are decided by one or two persons (usually by chair persons) without formal procedure, there is no any kind of receipts, there is no bank account instead chairpersons handle the money personally, many members of the committees do not know their balance, the committee do not present financial report to the community etc. In this regard experts in the WOWRD argue that because of lack of transport and budget they cannot address all water schemes, but they are trying to strengthen by monitoring and supervision. However there is no any evidence/document that the office is supporting the committee in financial management, the office doesn't know the financial status of any scheme.

Support in operation and maintenance is another area of support that the office is expected to provide to the committees. Operation and maintenance is normally the responsibility of the user communities. But in cases where the damage/maintenance is beyond the capacity of the

community, the office is expected to fill the gap. According to the office operation and maintenance activities are divided in to three categories.

Category I – Simple maintenance activities that include replacing faucets, get valves and some other simple maintenance. These maintenances are the responsibilities of the community. Here there are two assumptions. The first one is in each scheme two care takers elected from the community; get adequate skill/training, equipped with the necessary toolkits, so that they can handle simple maintenances. The second assumption is that the user community pay water fee or contribute money adequate for operation and maintenance. But practically both assumptions are poor in implementation. According to discussants of FGD in all schemes (100%) there are no care takers maintaining the schemes. In nine schemes no care taker elected and in one scheme (Dembuti) two care takers were elected and trained for five days. But after the training they did not able to maintain the scheme because they did not get adequate skill, the training was theoretical, they do not have necessary toolkits. The second assumption that the user community pay water fee is implemented only in three schemes i.e. 30% of the total. Even in these schemes the fee is not adequate to cover the cost of operation and maintenance. In the remaining schemes there is no any kind of water fee/contribution. As a result because of lack of simple maintenances many schemes are not functioning properly. Experts in the office explain that because of budget constraint care takers were not trained in many schemes but in the future they the plan to train in each schemes.

Category II – Medium maintenances are higher than simple maintenances which require more skill and money like pump replacement. It is the responsibility of both the WOWRD and the community i.e. the expense covered by share. But according to the experts practically the community cannot involve in this maintenance because they are not willing to contribute and cannot afford the expense. Therefore if there is no budget constraint the office covers the whole budget. However due to budget constraint for maintenance a number of schemes are out of function.

Category III – Higher maintenance activities which include reconstruction of collection chambers, reservoir etc. This is the responsibility of the WOWRD. Because of budget shortage the office implements such kind of maintenances in very few schemes when ever remaining budget is available from NGOs.

Generally a number of schemes are broken and not maintained because of lack of fund for maintenance. From ten sample schemes, eight (80%) need some kind of maintenances from simple to higher maintenance. This is due to poor operation and maintenance support of the WOWRD to the community/water committees.

Another problem in operation and maintenance is lack of spare parts. In this area the office is expected to make spare parts accessible and affordable in the area. The community should access spare parts in their vicinity. But spare parts are not available in the woreda at all. The office explain that spare parts are available either in Debre Markos (Zonal town), Bahir Dar (Regional city) or in Addis Ababa. For rural communities buying spare parts from these towns is difficult, they cannot afford in terms of expense as well as time. The office is not doing anything to make spare parts available in the woreda.

Generally the office focuses on constructing new schemes. Follow up, monitoring and strengthening completed schemes is not given attention. But to ensure long term functioning of schemes continuous support until the community becomes self reliance is a crucial factor.

CHAPTER SIX

6. Conclusion and Recommendation

6.1 Conclusion

Rural water supply is one of the development interventions that contribute to the improvement of the country as a whole. Particularly rural water supply has significant impact in the life of the rural community. By providing clean and adequate water to rural people it is possible to reduce the number of deaths, reduce cost of health service, reduce the burden on women and enable them to have extra time to engage in more productive activities, contribute for daughters' education by reducing their work burden etc. Therefore it contributes in creating productive man power to increase productivity. Generally rural water supply improves the socio-economic condition and quality of life in rural communities and in return it impacts in improving production and productivity at national level.

Towards achieving this goal the government and NGOs are investing millions of dollars every year. Hundreds and thousands of water supply schemes are being constructed in different parts of the country. The schemes are expected to provide clean and adequate water for the community.

This study focuses on assessing rural water supply schemes in Machakel woreeda, to what extent the schemes are providing the intended objective i.e. provision of clean and adequate water to the target community for long period; it also tries to identify factors that affect the good performance of the schemes.

The study reveals that the status of rural water supply schemes in the woreda is not good and the status of water supply is lower than what the WOWRD claims. This is because most schemes are not providing clean and adequate water as expected because of breakage and damage and many more schemes changed in to unprotected source and a number of people switch back to fetch water from unprotected sources.

The study also reveals that even functioning schemes are not serving the expected number of people. Actual capacity of the schemes is by far lower than the WOWRD claims. The office reports that the ten sample schemes are serving 939 households with adequate and clean water. But the water committees of the schemes explain that currently the user households are not more

than 575 household i.e. 61% of the expectation i.e beneficiary communities are not well defined. This shows that water supply coverage in rural areas of the woreda is below 48%. The expected number of beneficiary HHs of each scheme is not based on the adequate information of the schemes capacity, the number is not based on concrete information about the resources.

The study also found that most beneficiary HHs do not get adequate and safe water supply. Taking the WHO standard 20litters/person/day or MoWR UAP that target 15litters/person/day, per capita consumption of water in the study area is below the standard. Taking the current situation in to account, it is unlikely to achieve the plan to provide adequate water for 98% of the rural community by 2012. In return this will impact the objective of improving the socio-economic condition of the society by providing clean and adequate water supply.

The study found that many schemes are changing in to traditional sources. The expectation was to improve unprotected water sources in to protected and safe water source to the target community. But the schemes are going out of function within short period of time and becoming unprotected and unsafe. In some cases the problem is aggravated both in terms of quantity and quality.

A number of factors contribute to the poor performance of the schemes. One of the factors is that the WOWRD and NGOs sometimes follow supply driven approach to water supply programs. In some areas shortage of clean water supply was not a crucial problem or not a primary need but with the recommendation of experts the office constructed a number of schemes. In some cases the office developed schemes while some part of the community strongly opposing the idea. It seems the presence of budget and technical suitability are important factors to construct water supply schemes. Along with this problem poor community participation in the process of planning and technical aspects cause number of schemes failed to provide the required service. The community involvement restricted to laborious activities, having no voice and say in other important processes. More over significant number of people do not have the feeling of ownership.

Another crucial factor that cause rural water supply schemes fail to provide the required level of service is problems related to finance. The beneficiary community should contribute money/pay water fee to cover the costs of operation and maintenance. But the financial collection in the sample schemes is below the required level and in schemes where there is water fee the amount

is not adequate to cover the cost of operation and maintenance. Due to poor system there is no water fee in most sample schemes and water is a free resource. In schemes where water fee is collected the management of the fund is poor. As a result many schemes remain broken because of shortage of fund for operation and maintenance.

The study also revealed that community management is not successful. The expectation that the user community can manage schemes for long period is not realized. The WOWRD facilitate the establishment of water committees in each schemes to organize the community for managing the schemes. But in most cases the office let the committees without any training, follow-up and support, the committees have poor contact with the government, it seems the agreement/contract between the two is ended. Even the office doesn't have the list of water committees, doesn't know the number of committee members. As a result the committees don't have adequate knowledge and capacity to mobilize and organize the community.

The study also revealed that environmental degradation of water sheds is affecting the schemes.

6.2 Recommendations

To achieve the objective of rural water supply program in the study area, reversing the current situation is a must. The current challenges need to be solved and schemes be managed appropriately to provide the required level of service. Therefore, in light of major findings, the following recommendations are suggested.

- The government and other implementing agencies should construct rural water supply schemes up on strong request of the community. More over the community should show its commitment for future management by collecting money before the start of the scheme.
- The target community particularly women who are primary users of domestic water should participate in all phases of the program. Participation restricted to laborious activities doesn't bring the required achievement. Whenever participation is restricted to laborious activities the community doesn't internalize the project, doesn't develop sense of ownership, the needs and opinions of the community cannot be addressed/included in the project, rather the ideas and needs of experts dominate the program.

- Continuous and strong awareness training and education about clean water, how to manage communal properties should be given.
- Water committees should get continuous and appropriate training which enable them to manage the schemes properly.
- Legal status and authority should be given to water committees to exercise their by-law.
- In each scheme care takers should be elected, well trained and well equipped with the necessary toolkits.
- The WOWRD should be strengthened with adequate man power, budget and logistic.
- Each scheme must have clear project document that indicate scheme's capacity, design period, quality of water, etc based on concrete study.
- The WOWRD should strictly follow-up, monitor and evaluate each scheme at least once in six months.
- The role of the government in operation and maintenance should increase from the current status.
- The lowest government units (Kebele and woreda administrations) should have responsibility to the schemes.
- Rather than establishing new management structures, using existing structures such as Idirs may improve performance of schemes.
- On Zonal level there should be a Participatory Action Research unit which works on options of management, conflict resolution, and different water supply options such as household water supply and private sector delivery etc.

References

1. Aklilu. G. 2008. Factors Affecting Sustainability of Rural Water Supply & Sanitation Schemes in Basso Liboen Woreda, Amhara Region. Unpublished MA Thesis, AAU.

2. Bezabih. G. 2008. Assessment of problems to Sustainability of Rural Water Supply Schemes The Case of Menge Woreda (Benishangul Gumuz Regional State). Unpublished MA Thesis, AAU.

3. Carter. R.C & Rwamwanja.R. 2006: Functional Sustainability in Community Water & Sanitation: a Case Study from South – West Uganda.

4. CSA, Central Statistics Authority. Ethiopia. 2008. Summary & Statistical Report of the 2007 Population & Housing Census. Addis Ababa.

5. ____ 2004. Welfare Monitoring Survey: Analytical Report. Addis Ababa

6. Davis. J., Garvey. G. & Wood. M. 1993. Developing & Managing Community Water Supplies Oxfam Development Guidelines No.8 – 1993.

7. De Regt. J.P .2005. Water in Rural Communities. International Workshop on African Water Laws: Plural Legislative Framework for Rural Water Management in Africa. Johannesburg, South Africa.

8. Dessalegn. R. 1999. Water Resource Development in Ethiopia: Issues of Sustainability & Participation. Forum for Social Studies. Addis Ababa, June 1999.

9. Garriga.R.G & Foguet.A.P (undated). Sustainability Issues of MDG-Focused Programs in the Rural Water Sector.

10. Gleick. P. H. 1996. Basic Water Requirements for Human Activities: Meeting Basic Needs. Pacific Institution for Studies in Development, Environment, & Security, USA.

11. Harvey. P. 2008. Poverty Reduction Strategies: Opportunities & Threats for Sustainable Rural Water Service in Sub-Saharan Africa.

12. Haysom. A. 2006. A Study of the Factors Affecting Sustainability of Rural Water Supplies in Tanzania. MA Thesis, Cranfield University.

13. IRC, International Water & Sanitation Center.1989. Participation & Education in Community Water Supply & Sanitation Programs. Christine Van, The Hague, The Netherlands.

14. _____1985. Participation of Women in Water Supply & Sanitation: Roles & Realities Christine Van. The Hague, The Netherlands.

15. Lammerink. M .1998. Community Managed Rural Water Supply: experiences from Participatory Action Research in Kenya, Cameroon, Nepal, Pakistan, Guatemala and Colombia. Community Development Journal vol. 33 NO. 4 October 1998

16. Ministry of Finance & Economic Development (MoFED). 2006. Ethiopia: Building on Progress: A plan for Accelerated and Sustained Development to End Poverty (PASDEP).

17. Ministry of Water Resource (MoWR). 1999. Ethiopia Water Resource Management Policy.

18. ____ 2002. Water Sector Development Program 2002-2016. Executive Summary.

19. ____ 2003. National Water Supply & Sanitation Master Plan

20. ____ 2007. 2006/07 (1999 EC) Water Sector Development Report. Amharic Version.

21._____2009. 2007/08 (2000 EC) Water Sector Development Report. Amharic Version

22.____2009. World Water Day 2009, Magazine.

23. Misgina. G. 2006. An Assessment of Challenges of Sustainable Rural Water Supply: The Case of Ofla Woreda, Tigray Region. Unpublished MA Thesis, AAU

24. Musonda. K. 2004. Issues Regarding Sustainability of Rural Water Supply in Zambia. MA Thesis, University of South Africa.

25. Narayan. D. 1995. The Contribution of People's Participation: Evidence from 121 Rural Water Supply Projects.The World Bank, Washington D.C.

26. Research inspired Policy & Practice Learning in Ethiopia & the Nile region (RiPPLE). (2008). The Sustainability of water Supply Schemes: A Case Study in Alaba Special Woreda, Working Paper 5.Israel Deneke & Habtamu Abebe

27. Schouten.T. 2006. Scaling Up Community Management of Rural Water Supply mhtml:file://E:/WELL%20%20Resource%20Center%20Network%20for%20Water,%20s (Assessed 10/25/09)

28. Schouten.T & Moriarty.P. 2003. Community Water, Community Management: From System to Service in Rural Areas

29. UNDP-World Bank. 1998. Making Rural Water Supply Sustainable: Recommendations from a Global Study.

30. _____1995. Gender Issues Sourcebook for Water & Sanitation Projects. Wedny Wakeman-UNDP – World Bank Water & Sanitation Program.

31.___ 1979. Participation and Education in community water Supply & Sanitation Program: A Selected & annotated bibliography. WHO International Reference Center for Community Water Supply. Christine V.W. The Hague, The Netherlands.

32. World Bank.2004.Community Based & Driven Development: A critical Review. Volume 19. The World Bank Research Observer.

(Accessed 10/6/09)

33. Global Health Council 2008.The Link between Clean Water & Health. World Water Day 2008. file://E/Global%20Health%20Council%20-&20World%20Water20%Day%202008%20

(Accessed 9/24/09)

34. Harvey. P. & Reed. R.2007. Community-managed Water Supplies in Africa: Sustainable or Dispensable? Community Development Journal Volume 42, No3. Oxford University Press 2006

(Accessed 9/2009)

35. Hodgkin. J. 1994. The Sustainability of Donor Assisted Rural Water Supply Projects. http://usid.gov/pdf docs/PNABQ942.pdf (Accessed on 7/24/09)

36._____2007. Community Water Supply Management: History of Community Management. file://E/Community%20Water%20Supply%20Management%20History%20of20

(Accessed10/25/09)

37. Menegesha. A., Abera. K., & Mesgnaw. F. 2003. Sustainability of Drinking Water Supply Projects in Rural of Gondar, Ethiopia. http://www.cih.uib.no/jornal/EJHD/ejhdv17-no3/92mengesha (Accessed on 7/24/09)

38. UN Millennium Project.2004. Health, Dignity and Development. What will it take? An independent advisory body to the UN Secretary General. http://www.unmiliniumproject.org/. (Accessed 11/15/090)

39. UN .2006. The Millennium Development Goals Report http://mdgs.un.org/unsd/mdg/resources/static/products/progress2006/MDGReports2006.pdf

(Accessed 11/17/09).

40. WHO.2002. Water for Health: world Water Day 2001 File://E/Clean%20Water%20and20Health%20-%20News%20paer%20artcicle.htm.

(Accessed 9/24/09)

Annex 1

Ethiopian Water Coverage 2007/2008 (2000 E.C)

SN	Region	Water Coverage		
		Rural	Urban	Total
1	Addis Ababa	-	95	95
2	Tigray	56	72	59.1
3	Amhara	49	87.8	53.7
4	Oromia	55.2	97.9	61.1
5	SNNPR	63	72.1	63.6
6	Afar	53.1	77.4	55.4
7	Somali	32.9	61.6	37.9
8	Benishangul Gumuz	44.3	93.1	49.3
9	Hareri	41	27.5	32.5
10	Gambela	43.9	98.6	54.7
11	Dire Dawa	75.8	72	73
National		53.9	86.2	59.5

Source: MoWR (2008)

Annex 2

Sample schemes project description

Kebele	Site Name	Type of scheme	Status of schemes	Source of Fund	No. of Committee members	Construction Year (EC)	No. of Expected Beneficiary HHs	Actual User HHs
Yedefas	Lay Abebe	HDW	Functional	SIDA	7	1997	80	30
Amanuel Zuria	Dembuti	HDW	Functional	SIDA	7	1991	76	30
Ansilala	Debir	HDW	Functional	SIDA	7	1997	97	40
Degasegn n	Ayatoch	DSP	Functional	SIDA	7	1998	77	40
Lay Damot Yebereha	Amete Yohannes	DSP	Functional	SIDA	7	1991	82	60
Amare Yewobesh	Armit	DSP	Functional	SIDA	7	1997	180	110
Gobata Aknana Akababiw	Sasi	DSP	Functional	SIDA	7	1997	84	100
Tisas Dar Imbuli	Zibebeb	DSP	Functional	SIDA	7	1997	75	50
Yewula	Siso	SW	Functional	UNICEF	7	2001	90	50
Kerer	Debir	SW	Functional	UNICEF	7	2001	98	65

Source:WOWRD & Water Committee (2010)

Annex 3

Questionnaire code----------

Addis Ababa University College of Development Studies

Environment, Water & Development

Questionnaire for Household Survey

Objective of the questionnaire

The objective of the questionnaire is to generate relevant information on continued functioning of rural sustainability of rural water supply schemes in Machakel Woeda for educational purpose. Be sure that the information you provide will be kept confidential & it will use only for academic purpose. Your willingness to respond genuinely is very crucial for the success of the study. Therefore, you are kindly requested to answer all questions.

Thank you in advance

Direction for Interviewers

1. First introduce yourself
2. Inform the respondents the purpose of the questionnaire & get their consent
3. Inform the respondents that more than one answer for one question is possible & Circle/write accordingly
4. Circle/write only what the respondent answer
5. NGO is to mean Non-Governmental Organization

Name of Interviewer----------

Date of Interview----------

Name of Kbele---------- Gote/Village----------

PART I - Background Information

1. Respondent's name ---------- or family code----------
2. Sex 1) Male 2) Female
3. Age (in complete years) ----------
4. Marital status 1) Married 2) Single 3) Divorced 4) Widowed
5. Household size ----------
6. Household main occupation 1) Agriculture 2) Petty trade 3) Daily labor 4) Other specify----------
7. Household asset

Type of asset	Number
Cows	
Oxen	
Sheep/goat	
Equines (horse, donkey)	
Land size in gemed/kert	
Others, specify ---------- ----------	

8. Educational level

8.1 Respondent's educational level 1) Illiterate (unable to read & write) 2) Only read &/or write 3) Primary school (1-4 grade) 4) Primary school (5-8 grade) 5) Secondary school (9-12 grade) 6) Completed 7) other specify ----------

8.2 If the respondent is married, the spouse's educational level 1) Illiterate (unable to read & write) 2) Only read &/or write 3) Primary school (1-4 grade) 4) Primary school (5-8 grade) 5) Secondary school (9-12 grade) 6) Completed 7) Other specify ----------

PART II - Main Questions

I. Water Utilization & Current Status of the Scheme

1. Indicate your source of water for different domestic purposes

Purpose	Source of Water			
	During dry season		During rainy season	
	Improved source (like developed springs, hand dug wells etc)	Unimproved/traditional source (like unprotected springs, wells, rivers etc)	Improved source (like developed springs, hand dug wells etc)	Unimproved/traditional source (like unprotected springs, wells, rivers etc)
For drinking				
For food preparation				
For sanitation				
Others, specify--------- ----------				

2. If you use water from unimproved/traditional source, what are the reasons for not using only from improved source? 1) The scheme is non-functional 2) The water from the scheme is inadequate 3) Because of long waiting time 4) The scheme is very far from home 5) The water tariff is beyond my capacity 6) The water quality from the scheme is not good 7) Because there is no difference between using from improved and traditional source 8) Other, specify----------
3. Currently is the scheme functioning? 1) Yes 2) No
4. If your answer to question number 3 is 'No', how long it is? ----------
5. What are the reasons that the scheme get non-functional? 1) Because of technical problems 2) Poor management of water committee 3) Drought 4) Other specify---------- 5) I don't know
6. How do you describe the service of the scheme? 1) It is functioning properly 2) It is functioning intermittently 3) It is not functioning at all 4) Other specify ---------

7. How far is the water source from your home?

Source of water	Distance in hours (including waiting time)
Improved water source (improved spring, hand dug well, etc)	
Traditional water source (unimproved spring, well, river etc)	

8. In your family, who collect/fetch water mostly? 1) Father 2) Mother 3) Sons 4) Daughters 5) Other specify ----------

II. Community Factors

1. Which social service/institution is primarily needed in the village? 1) School 2) Water scheme 3) Health center 4) Road 5) Other, specify----------

2. Indicate your role/contribution in the process of the scheme development

Type of participation	Yes	No	Who participated in the family				
			husband	wife	sons	daughters	specify if any other ---------
Initiating/requesting need for improved water to concerned body							
Selecting the type of scheme/technology							
Selecting the site of the scheme							
Financial contribution for construction (indicate the amount ----------birr)							
Labor contribution (digging trench, transporting inputs etc)							
Local material provision (stone, sand, wood etc)							
If any other specify----------							

3. If you didn't participate/contribute at all, what was your reason?

1) I didn't have the information 2) I was not asked to participate

3) I was not willing to participate 4) I didn't able to participate because of health problem etc 5) If any other specify ----------

4. Who is the owner of the scheme? 1) Government 2) Implementing agency

3) Beneficiary community 4) Water committee 5) Other specify----------

5. What do you do if you see someone misusing the scheme (for example pumping water while there is no guard or out of schedule or pouring water carelessly)?

1) I will do nothing 2) I will report to the concerned body (the guard, the water committees, the kebele administrator) 3) I will advise the person 4) Other, specify ---

6. Who manage the scheme? 1) The keble administration 2) The water committee

3) The Woreda Water Office 4) NGO 5) There is no any concerned management body 6) Other, specify----------

7. If there is water committee, who elect the members? 1) The kebele administration

2) The community 2) The Wored Water Office 4) NGO 5) Other specify----

8. If your answer to question number 7 is 'the community', did you participate in the election? 1) Yes 2) No

9. If your answer to question number 8 is 'No', what was your reason? 1) I didn't have the information about the election 2) I didn't have interest on the election 3) I was prohibited to participate 4) Other, specify----------

10. Do you know the duties and responsibilities of the water committee? 1) Yes 2) No

11. If your answer to question number 10 is 'Yes', can you list some of the duties and responsibilities? 1) ----------2)----------

3)---------- 4)----------

12. Is the water committee managing the scheme efficiently? 1) Yes 2) No

13. If your answer to question number 12 is 'No' what are the weakness of the committee?

1) ---------- 2) ----------

3) ---------- 4) ----------

14. Are there people in the community that can manage the scheme more efficiently than the committee members? 1) Yes 2) No

15. Do you have bylaw? 1) Yes 2) No 3) I don't know

16. If your answer to question number 15 is 'Yes', did the community participate in the preparation of the bylaw? 1) Yes 2) No

17. Is there regular meeting program to discuss on problems and different issues? 1) Yes 2) No 3) I don't know

18. If your answer to question number 17 is 'Yes', what is the schedule? 1) Once a month 2) Every three months 3) Every six months 4) Once a year 5) Other, specify--------

III – Institutional Factors

1. Is there education/training about the benefits of improved water supply? 1) Yes 2) No

2. If your answer to question number 1 is 'Yes' what is the frequency of the training? 1) Once a week 2) Once a month 3) Once in three months 4) Once in six months 5) Once a year 6) Until now only once 7) I don't know

3. If there is training who provide the training? 1) Health professionals 2) Agricultural office staffs (Development workers) 3) Woreda water office staffs 4) Other specify----

4. What is the benefit of clean water? 1) Save labor 2) Save time 3) Improve health status 4) All 5) Other specify ---------- 6) I don't know

IV. Financial Factors

1. Is there water fee? 1) Yes 2) No

2. If your answer to question number 1 is 'Yes', how much it is?

3. Who set the water tariff? 1) The Beneficiary community 2) The water committee 3) Woreda office of water resource Devlopment 4) Kebele administration 5) NGO 6) Other specify---------- 7) I don't know

4. Do you think the tariff is fair? 1) Yes 2) No

5. If your answer to question number 4 is 'No', how much should it be? ----------

6. Do you pay water fee? 1) Yes 2) No

7. If your answer to question number 6 is 'No', what is your reason? 1) The payment is beyond my capacity 2) Water is a free natural gift that should not paid for 3) I am not asked to pay 4) I am afraid that it will be embezzled 5) Other, specify------

8. Is there any special contribution/payment other than water fee? 1) Yes 2) No

9. If your answer to question number 8 is 'Yes' how much is it? ----------

10. What is the purpose of the special contribution/payment? ----------

11. Who collect water fee? 1) Employed/assigned person 2) The water committee members 3) The kebele administration 4) The woreda water office 5) Other specify ---------- 6) I don't know

12. Do you receive receipt for water fee?
    1) Yes I always receive 2) Yes, but sometimes 3) Not at all

13. If your answer to question number 12 is 'Yes but some times' or 'Not at all' what is the reason that you don't receive receipt always? ----------

14. Who manage the collected money? 1) The water committee 2) The kebele administration 3) The woreda water office 4) Other, specify---------- 5) I don't know

15. Do you know any incidence of misappropriation of collected money? 1) Yes 2) No

16. If your answer to question number 15 is 'Yes' how much is it? ----------

17. Does the water committee present financial report to the community? 1) Yes 2) No

18. Select your opinion about operation and maintenance cost of water supply schemes?
    1) Beneficiary households should cover the cost
    2) The government/implementing agency should cover the cost
    4) Other, specify----------

V. Environmental Factors

1. How much water (in 'Ensira) do you need per day for your family? -------'Ensira'/day
2. Currently how much water do you fetch from the scheme per day? ---------'Ensira'/day
3. Do all beneficiary households get adequate water? 1) Yes 2) No
4. When do you face water shortage mostly? 1) During dry season 2) During rainy season
5. How do you evaluate the trend of the water quantity produced from the scheme over the last years? 1) There is no variation 2) It is increasing 3) It is decreasing
6. Does the water from the scheme have quality problem? 1) Yes 2) No
7. If your answer to question number 6 is 'Yes', what is the problem? 1) Bad smell 2) Bad test 3) Infected with different materials (worms, silt…) 4) Other, specify ------
8. Don't you use the water for some purposes because of the problem? 1) Yes 2) No
9. If your answer to question number 8 is 'Yes', what is that? 1) We don't use it for drinking 2) We don't use it for food preparation 3) We don't use it for sanitation 4) Other specify----------

VI. Technical Factors

1. Did ever the scheme get non-functional because of technical problems? 1) Yes 2) No

3. On average how frequently the scheme gets non-functional due to technical problems?
   1) It is always non-functional 2) Weekly 3) Monthly 4) Every three months
   5) Twice a year 6) Once a year 7) Never get non-functional
4. On average for how long the scheme remains disrepair once it is non-functional?
   1) For few days 2) for one week 3) For few weeks 4) For one month 5) For 2-5 months
   6) For six –nine months 7) For one year 8) For more than one year
5. Why do you think the scheme get non-functional? 1) Misuse by the beneficiary community 2) Poor quality of construction 3) Poor committee management
   6) Other specify---------- 7) I don't know
6. Did you know any problem during construction of the scheme like poor material quality or poor construction? 1) Yes 2) No

7. If your answer to question number 6 is 'Yes' what were the problems?
   1) ----------
   2) ----------
   3) ----------
   4) ----------
8. Is there any difficulties to operate and use the scheme? 1) Yes 2) No
9. If your answer to question number 8 is 'Yes' what are the problems?
   1) ----------
   2) ----------
   3) ----------
   4) ----------
10. Who maintain the scheme when it get technical problem?
    1) Elected and trained care takers from the community 2) Skilled and volunteer individuals in the community who have the skill 3) Professionals from the worda water office
    4) Other, specify---------- 5) I don't know

Annex 4

Check list for Focus Group Discussion with Water committees

Keble ---------- Gote/Village---------- Date----------

Number of committee members Male------ Female-------- Total---------

Number of discussants Male-------- Female---------- Total---------

1. Did the community/committee have voice & say in the development process of the scheme? (demands & needs of the community; been informed of the advantages & disadvantages, type & costs of the technology to be installed; choice of scheme type, decision making etc)
2. When, how, and who establish the water committee?
3. Did the committee get training? What type of training? For how long? Is it adequate? Do you need additional trainings?
4. Is the committee capable to manage the scheme?
5. Does the committee has periodic meeting (including with the community) to discuss on problems, present reports etc.?
6. How do you pass decisions? Do you have by-law that explains the rights & obligations of the beneficiaries & the committee? What measures do you take for any violation of the by-law?
7. Does the committee have any incentive or special benefit?
8. What supports do you get from & what relation do you have with the woreda water office, kebele administration, NGOs & other institutions?
9. Who is the legal owner of the scheme?
10. If there is water fee, who set the tariff? Do beneficiaries pay regularly? How & who collect the fee? Is there any other source of income?
11. On average how much money do you collect & spent monthly/yearly? Is there record? How much money do you have now? Where do you put the money? Is there auditing?
12. Is there any incidence of misuse of money? How much it is? What measures taken?
13. Is there any guard to look for the scheme?
14. How frequently, for how long & why the scheme gets non-functional?
15. Who carries repairs & maintenances? Are there trained people? Do they have adequate skill & toolkits? Are spare parts easily available? Are there women care takers?

16. What positions do women have in the committee? Do they discharge their responsibilities properly? Do they attained meetings regularly and participate actively in the discussions? Did women left the committee because of disagreement?
17. How do you evaluate the construction quality of the scheme?
18. Are beneficiary people satisfied with the service? Is there quality/quantity problem?
19. From your experience what are the major problems for long term functioning of the scheme?

Annex 5

Discussion Guide for Key Informants Interview with Experts in the Woreda Office of Water Resource Development

Date of interview----------

Name of interviewee---------- Position----------

1. What is the current status of water supply coverage in the woreda?
2. How does the office plan to construct water supply schemes? Who decide site selection, scheme types, technology, location of distribution points etc?
3. Is there any approved standard in rural water supply program? (in construction, type of technology, affordability, maintainability, level of service…)
4. Are the technologies the most appropriate in terms of affordability, availability, the level of service desired etc?
5. Do you have the project proposal of each scheme in the woreda?
6. What is the current status of the schemes?
7. How do you evaluate community involvement in general & women's involvement in particular?
8. Is there any guideline (any agreement) that clearly defines the responsibilities of the woreda water office, the community, NGOs, private sector?
9. Are spare parts readily available, accessible and affordable for the community?
10. Are there any private sectors who involve in provision of spare parts, operation and maintenance?
11. How do you hand over schemes to the community?
12. Who carries operation & maintenance activities?
13. Do you have regular monitoring & evaluation program?
14. Is there any work plan for extension activities including health education?
15. Do you think that the staff has the capacity (technical capacity, experience, educational level etc) required to complete their tasks?
16. What are the major problems of the office (man power, logistics, budget etc)?
17. What do you recommend to improve the performance of the sector in the woreda?

Annex 6

Checklist for Direct Observation

Keble---------- Gote/Village----------

Date of observation----------

1. Location/site of the scheme
   - Is it comfortable?
   - Is it accessible?
2. Status of the scheme
   - Is it functioning?
   - Is it protected?
   - The condition of the source, the reservoir, the distribution points, pipes, faucets, presence of leakage, etc
3. Presence of guard
4. How and who collect water fee? Use of receipt
5. Whether or not people fetch water from unprotected source
6. Number of people waiting for water
7. Sanitation of the surround
8. Quality of water
   - Smell
   - Test
   - Color
9. Presence of latrine at the uphill of the source?
10. Quantity of water
11. Is the scheme protected from flood? Is there diversion ditch?
12. The condition of the surrounding