**ADDIS ABABA UNIVERSITY**
**SCHOOL OF GRADUATE STUDIES**
**COLLEGE OF DEVELOPMENT STUDIES**
**WATER AND DEVELOPMENT PROGRAM**

# EXPLORING THE CHALLENGES OF RURAL WATER SUPPLY MANAGEMENT SYSTEMS: THE CASE OF GUTO GIDA DISTRICT IN EAST WOLLEGA ZONE OF OROMIA REGIONE, ETHIOPIA



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# Exploring the Challenges of Rural Water Supply Management Systems: The Case of Guto Gida District in East Wollega Zone of Oromia Region, Ethiopia



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## LIST OF ABBREVIATIONS

ADF African Development Fund

CM Community Management

CSA Central; Statistical Agency

DRA Demand Responsive Approach

FGD Focus Group Discussion

HHS Households

IWSC International Water Supply & Sanitation Centre

MDG Millennium Development Goals

MOFED Ministry of Finance and Economic Development

MoWR Ministry Of Water Resources

NGO Non Government Organization

O&M Operation and Maintenance

RWSN Rural Water Supply Network

WHO World Health Organization

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# ABSTRACT

*The study was conducted to explore* the challenges of rural water supply management *system in Guto Gida District, East Wollega zone. To this effect, an attempt was made to* assess the functionality of the existence water supply schemes of the district; *to* investigate the institutional supports for the district's schemes; *to* examine the management system of the district's schemes. *To this end, the necessary data for the study was gathered using questionnaire,* focus group discussion, key informant interview and personal observation. *During the study, schemes in the study area (Dune Kane and Gari kebele) were observed, and interview with five key informants and group discussions with three different groups (water and energy office of Guto Gida district, water committee and kebele representatives) were made. In addition, one hundred and seventy four sample households and sixty eight people at community level (water committee, kebele cabinets, women and youth associations) completed the questionnaires. For household survey, two kebeles (Dune Kane and Gari) were selected randomly and sample respondents were selected using systematic random sampling, and for questionnaire to be responded by people at community level, the respondents were selected purposefully. The data from both questionnaires were analyzed separately, but the data collected from key informant interview, focus group discussion and field observation were analyzed with cross reference of the questionnaires. In addition, the data collected through the aforementioned tools were analyzed quantitatively and qualitatively.*

*The findings from the study indicate that the major challenges for the rural water supply and management are poor service from existing schemes because of construction quality of the schemes, lack of protection, handling problem of beneficiaries and problem of budget allocation for schemes development and maintenance, giving emphasis to supply oriented approach by ignoring how to manage the existing schemes, unsafe drinking water from the schemes; lack of education or training for the community on how to manage or care for the schemes, number of beneficiaries of schemes and low capacity of the schemes, weak community management, no community involvement to select the type of technology to be installed, wasting much time at the water point to fetch water, no established water committee for most of the schemes, negligible water payment system because of lack of responsible body to organize, lack of man power with relevance of field of studies, logistic problem and poor communication among the district water and energy office, kebele representatives, water committees and the beneficiaries. At the end, some important conclusions and recommendations have been put based on the findings of the study.*

# CHAPTER ONE

# 1. INTRODUCTION

## 1.1. BACKGROUND OF THE STUDY

Water is the most critical natural resources to all human beings. It is an important catalyst necessary for speeding up sustainable socioeconomic system of every nation (Madulu, 2000). But its access has become a prominent issue on the international agenda in the recent years. Though one of the core elements of the Millennium Development Goals (MDG) is to improve access to sustainable, safe drinking water by the year 2015 (DFID, 2004), findings show that every year 1.8 million people die from diarrheal diseases, and 15% of child deaths under the age of 5 years in the developing countries are due to waterborne diseases (Jolly, 2003).

Since the controversy between the indispensability of water for human beings and poor accessibility of the water for more than a billion of people in our world was discussed many times by many researchers, various national and regional governments, local and international NGOs have been investing millions of capital every year in developing countries to reduce the problem through implementation of water supply projects (Prokopy, 2005). However, a solution which can significantly reduce the problem for the developing countries of the people, particularly rural areas have not yet satisfactorily provided. Some findings which indicate the reality can be evidenced. One is the finding of Rural Water Supply Network (RWSN) (2004b); it shows that more than 50% of hand pumps in Africa are not operational. Similarly, Ethiopia has the lowest safe water coverage in sub-Saharan Africa estimated at only 42% with a meager 31% rural coverage reported in 2008 (WSSCC, 2008). From the rural supplied schemes of the country, about 25% of the schemes have been reported as they are not functional (MoWR, 2006). Added to this, the majority of the population which is found at the rural parts of Ethiopia suffer from the service and depend on the traditional sources such as rivers, streams, ponds and unprotected springs for domestic purpose.

As the aforementioned findings show, constructing water supply systems alone would not eliminate all problems, especially in rural areas. The management system of the institutions with integration of the communities, the institutional supports given for the communities, the functionality of the existence schemes and other factors are important issues to be addressed

(Binder, 2008; Brikke and Bredero, 2003; Harvey and Reed, 2007; Moe and Rheingans, 2006). Hence, the researcher was very interested to conduct research exploring the challenges of rural water supply management systems of Guto Gida district.

## 1.2. STATEMENT OF THE PROBLEM

Water is inevitable from every activity of human beings; their livelihood to be improved, water is invaluable. In spite of the fact that, there are several challenges appear with the communities of most rural water supplies in sub-Saharan Africa (Harvey, P. & Reed, B., and 2004:63). Similarly, many findings show that the rural communities of our country are with the problem of water (Ahmed Abdi, 2013; Habtamu Addis, 2012; Misgina Gebrehiwot,2006; Tesfaye Demeke, 2011; Mezegibe Endashaw, 2011).

Abiot Addis (2010) conducted his research on 'A Comparative Study on the Performance of Rural Water Supply Schemes: The Case of DebatieWoreda, Benishangul Gumuz'. His findings show that poor community participation in the stage of planning, low level of women participation, weak performance of water committee and weak sense of ownership from the community. Ashenafi (2011) also studied his research on 'Evaluation of Rural Water Supply and Sanitation Project Planning Process from Sustainability Perspectives' focusing at Misrak Badawacho District in Hadiya Zone. The findings of the study reveal that water supply and sanitation project planning was fail because the practices did not consider including sustainability criteria in the holistic way; all the primary criteria in water and sanitation related decisions were not taken place in the district and the decision-making and planning process were poor. Additionally, Awoke (2010) studied the achievement and challenges of rural water supply and sanitation strategic plan implementation in Tole ana of South West Showa. From the study, he found that the water supply and sanitation developments were not satisfactory because of the limited financial, human and material resources capacity; less emphasis given for constructed water supply scheme's management and the scattered settlement pattern of the people. Moreover, the problems of rural water supply and the roles of community participation in LemoWoreda, Hadiya Zone were conducted by Tesfaye Demeke (2011). In his study, he observed problems such as absence of local technicians who are responsible for technical aspects of the schemes; absence of availability of spare parts for community as well as allocated budget for it; the problem of technology selection for rural water supply schemes development; lack of transparency on financial management system; lack of ability and willingness to pay for the

services in some of the users beneficiaries; low capacity and skill for operation, maintenance, management and governance of rural water supply by water committees and communities; lack of community participation during the planning period; lack of working manuals, guidelines and incentives for water committees, and lack of awareness for sense of ownership, water management and governance at community level.

Although various researches had been done in the area of rural schemes, majority of the rural communities are still using schemes those not properly functioning and traditional water points. Hence, because of no study focused at Guto Gida district on the issues of rural water supply management systems, the researcher has targeted at assessing the main problems that are affecting the water supply schemes, institutional support and management systems of the district.

## 1.3. OBJECTIVES OF THE STUDY

### 1.3.1. General Objective

- To explore the challenges of rural water supply management system in the rural water supply schemes of Guto Gida district

### 1.3.2. Specific Objectives

- To assess the functionality of the existence water supply schemes of the district
- To investigate the institutional supports for the district's schemes
- To examine the management system of the district's schemes

## 1.4. RESEARCH QUESTIONS

### 1.4.1. Basic Research Questions

- How is the water supply management system of Guto Gida district?

### 1.4.2. Specific Research Questions

- What is the current status of schemes in rural communities of the study area?
- Do supplying agencies of rural communities are available in the study area?
- Are all the responsible stakeholders of the district's schemes implementing effective management system?

## 1.5. SIGNIFICANCE OF THE STUDY

The finding of the study will help in improving the problems of the rural community's water problems. The study also contributes reducing the problems of kebeles and district's rural schemes management systems. Additionally, researchers who want to conduct further research in the area could get as launch pad for their studies.

## 1.5. SCOPE AND LIMITATION OF THE STUDY

The study specifically focused on exploring the challenges of rural water supply schemes and management systems. The area of the study was limited to rural areas in Guto Gida district of East Wollega zone. It did not include water supply schemes in other districts of the zone because of the problems observed in the district by the researcher during his living in the district with the community. Added to this, the researcher was convinced to deeply work on the problems of specific area with the effective management of the limited time and finance.

# CHAPTER TWO

# LITERATURE REVIEW

## 2. RURAL WATER SUPPLY AND M ANAGEMENT SYSTEM

Water supply has an important role to improve the community's social and economic status. However, various researches show that rural water supply areas, particularly sub-Saharan Africa countries, face challenges of drinking water. The main reasons for the problems include ineffective management systems, insufficient institutional support and less-functionality of the schemes (Brikke and Bredero, 2003; Moe and Rheingans, 2006; Binder, 2008). The problem will only be solved by adopting a holistic approach to planning and implementation rather than focusing on one issue (Niyi et.al, 2007).

### 2.1. RURAL WATER SUPPLY

As the definition from Wikipedia, the free encyclopedia shows, water supply is the provision of water by public utilities, commercial organizations, community endeavors or by individuals, usually via a system of pumps and pipes.

#### 2.1.1. Approaches to Rural Water Supply (RWS)

##### 2.1.1.1. Supply Oriented Approach

Since 1970's, there was a consensus that governments and donors should alleviate poverty in rural areas through providing basic needs such as drinking water, which was largely free at least in capital costs. This approach is now labeled as supply driven (Kleemieer, 1995). The basic needs/supply driven approach has been adopted for its own elements that were taken to expand water services in the developing nations. The first elements is that donors and governments provide the minimum level of improved water services such as hand pumps, to as many people as possible with available funds. The second one was to build up the capacity of government agencies to appraise, implement and manage schemes. And the third one was providing subsidies to rural water supply (Kleemeier, 1995). The assumptions behind the basic needs/supply driven (approach towards rural water supply refers to the idea that provision of clean water would contribute to economic growth; government agencies should subsidize water services. But, these assumptions were challenged, and the approach was found to be not helpful to gain many achievements because of the following three problems. The first problem was that given the high population growth rates, the strategy of the basic

needs approach to water supply would not reduce the number of people without access to safe water supply with reasonable time period. Secondly, the funds needed to achieve universal coverage by 2000 E.C have proved to be very far from being a reality. Thirdly, in too many cases, schemes were not sustainable (Briscoe and David F, 1998).

Role for project planning, implementation, cost recovery, operation and maintenance and water supply schemes ownership are poorly defined and less communicated with the beneficiaries. Although communities are usually expected to provide a share of costs (mainly through in kind contributions), it is often unclear how the level of contribution has been determined and/or about the purpose of contributions. Furthermore, implementing agencies frequently assumes that communities will somehow "manage" their facilities but do not help to build their capacity or commitment to do so (Briscoe J. and David F, 1998:10-11).

#### 2.1.1.2. Demand Responsive Approach (DRA)

In recent years DRA has become a widely accepted conceptual tool that has been put into practice by many national governments and NGO's implementing partners; the development and dissemination of DRA has been heavily supported by the World Bank. The DRA framework is predicted on strong community management and everything that goes with it: internal capacity, decision making powers and the ability to articulate needs. The key characteristics of DRA can be summarized as: community members informed choices about: whether to participate in the project, technology and service level option based on willingness to pay (based on the principle that more expensive systems cost more); when and how their services are operated and maintained. Government plays a facilitating role, sets clear national policies and strategies, encourages broad stakeholders consultation and facilities, capacity building and learning and enabling environment is created for the participation of a wide range of providers of goods, services and technical assistance to communities, including the private sector, and non-government organizations, and adequate flow of information is provided to the community; and procedures are adopted for facilitating collective action decisions within the community. The increasing adoption of DRA as an approach to planning and executing RWS has consequences for efforts at sealing up. As an approach based explicitly on demand, DRA, will by its very definition, exclude those who cannot easily articulate this demand or who are unable to contribute towards and improved service or who simply do not want the service. The execution of these groups under DRA has significant

implications for achieving the maximum coverage targets for sculling up especially, because in most instances it is the poorer and less able communities that will be excluded.

As evidenced in various literatures, DRA clearly become a leading concept in the implementation of RWS, but the researcher wanted to make an assignment to assess the effective implementation of the approach at Guto Gida district.

### 2.1.2. The Functionality of the Rural Water Supply Schemes

Among installed hand pumps in Africa from 20% to 70% of them are not functioning (UNICEF Zambia 2007). Even where rural water supply systems are developed, many are not functioning properly (Brikke and Bredero, 2003; Moe and Rheingans, 2006; RWSN, 2012). About 25% of rural water supply schemes have been reported non-functional at the national level at the end of 2006 (MoWR, 2006). However, according to MOFED (2006) about 30% of the schemes were mal-functioning at national level for the same year.

To secure continuously functioning of the rural water supply schemes, water supply agencies are expected to support the communities with repairs, training and monitoring (IWSC 1993:4). Therefore, the researcher intended to explore the functionality of the schemes and whether the water supply agency of Guto Gida district has been assisting the community with repairs, training and monitoring of the schemes.

## 2.2. RURAL WATER MANAGEMENT SYSTEM

Management for rural water supply schemes is very essential, but evidence show that water supply officials and designers give too little consideration to the management phase of water-supply schemes and to the development of appropriate administrative devices for their smooth operation (WHO Monograph Series No.42,1959:227). Good management of a water system, whether large or small, embraces a number of functions (Ibid: 227):

(1) Provision and maintenance of adequate facilities;
(2) Good and smooth operation;
(3) Provision of a satisfying service to consumers;
(4) Efficient maintenance;
(5) Establishment of sound fiscal methods;
(6) Development of equitable water rates;

(7) Efficient organizational structure and procedures;

(8) Development of technical and financial plans for future expansion;

(9) Supervision of personnel; and

(10) Control of equipment and supplies.

As WHO Monograph Series No.42(1959:227) states, the management phase of water supply can be divided into two parts : the first part, administration, deals with organization, records, finances, personnel, and supplies; the second part, operation and maintenance, is concerned with the conveyance and delivery of safe water from source to consumers. Both are important and interdependent and must be co-ordinate to effect a unified and well-integrated procedure. Another significant aspect of management is timing. Good management anticipates rather than follows needs, and maintains alertness in reviewing and revising operations and procedures as appropriate.

## 2.3. MANAGEMENT APPROACHES TO RURAL WATER SUPPLY

Proper management of a source water supply is an important part of operations and management of a public water system. According to Roark et al (1993: 1), there are different management models of rural water supply ranging from highly centrally systems managed by the government agencies, to grass root community managed systems, owned and operated by local communities.

### 2.3.1. Centralized System Approach

The first approaches used in providing water to rural communities were those that favoured highly centralized systems. In rural water supply, a centralized system is an approach that is dependent and directed by the central government for management, technical and financial support. It involves a public sector organization managing mobile teams, which report to the regional headquarters (Sami & Murray 1998: 14; Evans & Appleton 1993: 7). Communities were selected for assistance on the basis of an external determination of 'need', rather than the communities' 'demand' for services. Communities were not involved in the decision-making process about the management of the water supply facilities. The nature of service provided was also based on an external perception of 'affordability', rather than on the communities' desire or willingness to pay (Boydell 1999: 2). The centralized systems approach has proved to be ineffective in most of developing countries (RSU 1999: 20).

### 2.3.2. Community Management Approach

The second approach that has been tried in rural water supply is community management of rural water supply facilities. Community management approaches did not come spontaneously from, nor do they exist in a vacuum. They have a long history of trial and error in the rural water supply sector, especially with the failure of centralized management approaches. Community management is now entering its second decade in the rural water supply sector (IWSC 2003: 1). It is aimed at strengthening the capacities and willingness of the community to take ownership and responsibility of managing their water supply systems, after the implementing agency has left the community (Moriarty & Schouten 2003: 2).

Community management is not the same with community participation. Community participation is a component of community management, and it refers to the involvement of the local population in decision-making, concerning projects that have been designed for their benefit (White 1981: 3; Mumba in DWA 1994: 1; Swanepoel 1997: 4). Community management can only be effective if adequate capacity building to operate and maintain the water supply facilities is given to local communities. To develop this capacity, high priority should be given to training of the local people (McCommon&Yahalem 1990: 7; Sami & Murray 1998: 14; Brikke 1993: 6; Umgeni Water 1993: 47).

Although community management is now widely accepted, it is by no means free from the problem. Despite strong investment in capacity building in many projects, a significant number of systems still run into problems. Widespread evidence suggests that after a number of years of operation (less in some cases), many rural systems will face a variety of problems and obstacles if they are to maintain services, even under the CM approach (Lockwood, 2004:10). As Lockwood discusses, two sets of factors that can lead to problems for community-managed RWS identified:

i. **Limitations within the community:** community dynamics, political or social conflict, failure to generate sufficient tariff revenue, lack of preventative maintenance, lack of cohesion and lack of capacity (technical, managerial, financial etc).
ii. **Constraints external to the community:** poor designs, poor implementation, political interference in planning and resource allocation, lack of spare parts supply, lack of supportive policies and legislation and, very importantly, the lack of long

term support to help communities through major repairs, conflicts and other problems with extension and upgrading.

### 2.3.3. Partnership Approach

The third approach being advocated in the management of the rural water supply sector is the partnership approach. It is the rural water supply management system of shared responsibility in which both government agencies and communities share responsibilities in the management of rural water supply. It refers to a more equal and supportive relationship between the community and the external organization. It is being advocated for because it has been realized that although communities can take up a substantial share of responsibility, external support services are still required; and also because there is a limit to the responsibilities communities are able to take up (IWSC 1993: 33). Responsibilities that communities are able to take up depend on the organizational, financial and technical capacities of that community, which differ from community to community (IWSC 1993: 4). A partnership approach between government, communities, the private sector, NGOs and donors can provide a sustainable management structure whereby responsibilities are allocated to those institutions and individuals who are best suited to manage the risks of taking on those tasks (Harvey, Skinner & Reed 2002: 17). Communities require continued support from water supply agencies, be it government or non-government. Briscoe and de Ferranti (1988: 13) indicate that communities should not take up responsibilities for which they do not have the capacity to manage.

Hence, the researcher is planning to investigate the type of rural water supply approach currently getting practiced in Guto Gida district.

## 2.4. INSTITUTIONAL SUPPORT FOR RURAL SCHEMES

As already discussed, effective management of rural water schemes is very essential. If communities are to be considered as the managers of their water supply sources, then we should know what attitudes and potentials they have, and how they should be organized and supported. Lockwood (2004) explains that institutional support is a type of support which addresses the tasks and activities that the community cannot always be expected to fulfil. A recent discussion paper commissioned by the Bank Netherlands Water Partnership (BNWP) also refers to the issue of institutional support to RWS service provision (Davis and Liyer, 2002). The institutions that provide such services will vary according to

the specific roles and capacities of the different players in RWS in any one country, and will also depend on legal mandates and legislative frameworks. The range of organizations such as national, regional offices, district level, private sector operators, small companies, NGOs, associations of water committees and also possibly neighbouring areas will normally be involved in providing support to rural communities (Lockwood, 2004:13).

In practice, it is common to find a number of the above institutions working together to provide support to rural communities. For example, central government may devolve responsibility to local government or may delegate it to a group of NGOs or private sector operators. It is important to recognize that long-term support to communities relies on more than just institutions. It also requires certain mechanisms to be in place to allow these institutions to function properly. These include effective sector policy and legislation, regulation, clearly defined roles and responsibilities and financing mechanisms to support the framework itself, such as central budgetary support, cross-subsidies or user contributions (Schouten and Moriarty, 2003). Lockwood also discusses the main functions of institutional support mechanisms for community as follows:

**Technical Assistance:** providing advice and guidance on a range of topics in support of the CM structure, as well as providing independent advice in cases where some form of arbitration may be necessary.

**Training:** on-going training of relevant committee members in a variety of disciplines from physical operation and maintenance to bookkeeping and hygiene promotion; capacity building at the community level.

**Monitoring and Information Collection:** regular monitoring of system performance and feedback of information for remedial action.

**Coordination and Facilitation:** helping to establish linkages between community management structures and external entities, either from the state or private sector.

In general, the institutional support for rural community is very important, but it is the researcher's task to make it an assignment to investigate its practicality for Guto Gida district's community for their water supply schemes.

## 2.5. FACTORS AFFECTING RURAL WATER SUPPLY MANAGEMENT SYSTEM

### 2.5.1. Problem with Water Committees

Water committee is essential in strengthening and sustaining established water structures and service. It is also important to enable detailed monitoring and finding solutions to various problems confronting the proper functioning of the installed water infrastructures. The responsibility to manage water supply system should not be transferred onto the community structure that does not have the capacity to operate and maintain it (Musonda, 2004). For this reason, community management of water system usually relies on the formation of a water committee which is responsible for all management issues related to water supply in community (Harney & Reed 2006:4). That means water committee is responsible for all activities (management, operational technical and financial) of particular schemes, which cover a large area than a neighbourhood and possibly the whole community (Brikkee 2000).

Typical tasks of a water committee include: represent the community in contact with support agencies; coordination with other community institutions and decision making bodies; ensures efficient and effective overall management of system takes up assigned roles and tasks; ensure equity; organize contributions; organize effective O&M; ensure accurate financial management; promote hygiene or effective use of facilities, holds regular committee meetings; ensure good communication of all levels, provide information and feedback; and collects information (Brikke, 2000). The composition of a water committee varies according to its management and operational mandate. Generally, water committee is composed of a chairperson, secretary, treasurer and representatives of the users, with a balance between posts occupied by men and by women. In a case where by the community is directly responsible to technical O and M of the system, the committee also includes the operator and/or care taker (Brikke 2000). According to the same source and researcher experience, the water committee does not have legal status. This makes it vulnerable in situation with material, financial, contractual or legal problems. At the same it is also difficult to make water committee accountable for their financials embezzlement. Additionally, another finding shows that the water committee members have no experience on how to manage, facilitate the community, operating and maintenance of the water supply systems (Habtamu, 2012:31). So, the researcher needed to make about effectiveness of water committee at Guto Gida district as one of the investigation points.

### 2.5.2. Technical Factors

#### 2.5.2.1. Technology Selection

According to Musonda (2004), technology selection is crucial to sustainability of rural water supply schemes because the type of technology chosen affects O&M. If a community manages water supply system, the technology used needs to be the type that community care takers can maintain with the outside assistance. Also, technology must suit the existing locally available skills or skills that can be acquired by community members. Technology is considered suitable if it is socially acceptable, economically viable, technology effective, and environmentally sound. Communities should have a say in technology option. The technology option should not too technical and beyond the comprehension of community members. In this regard, according to Geleta et al (2002:20), socio-economic viability, social acceptability and appropriateness of technology influence the ability and willingness to manage the improved water supply systems. The use of appropriate technologies, which are low in cost, easy to maintain, simple to use, and readily available is one response to challenge of sustainability. Appropriate technologies are integral to the concept of village operation and maintenance (VLOM) which emerged in the water decade (Hayson 2006). The VLOM concept includes the development of hand pumps specifically, designed to be maintained by village care takers, but also extends into the institutional arrangements needed to ensure that skills, and tools and spare parts are available when needed (Arlosoroff et al 1987). As Habtamu (2012:36) discuses in his thesis findings, the community involvement in the process of selecting the technology is very less. The defect causes breakage of the spare parts and difficult for the community to operate and maintain the schemes.

#### 2.5.2.2. Availability of Tool kits and Technical Skills Needed for O and M

For VLOM hand pumps, there should be trained care takers those can undertake maintenance when needed. The care takers should be capable of doing preventive maintenance work, replacement of worn out parts, and maintain breakage. Therefore, in order to discharge those responsibilities, the care takers should have necessary trainings from the very beginning of scheme installation. Their performances also should be evaluated in continual bases. At the same time, the care takers should be provided with necessary tool kits those required for maintenance purposes. However, if necessary skills and tool kits

for community hand pump care takers were not provided, the sustainability of the schemes will be compromised (Arlosoroft et al 1987).

#### 2.5.2.3. Availability, Accessibility and Costs of Spare Parts

Hand pump installation is the most widespread solution for supplying water to millions of people in Africa's rural areas. However, at any given movement, average 30 percent of all potentially functional water supply schemes in Africa are not working. In some areas, 50 percent or more are non-functional, partly due to difficulties in obtaining spare parts (WSP 2006). The problem of spare parts for rural water schemes primarily attributed to lack of formal supply chain mechanism. Hence, lack of spare parts has been a major constraint in sustainability of water supplies and has been a recurring problem. In some cases, it has lead to the complete abandonment of the water supply system (Brikke et al 1995:30). If sustainability is to be achieved, it should be ensured that after appropriate technology is chosen, spare parts for that type of technology are made readily available (Musopnda 2004).

#### 2.5.2.4. Construction Quality of water Supply Schemes

From experience it is common for the failure of water supply schemes because of construction quality problems. Common construction quality problems that result in schemes-functionality are:

- Improper site selection due to poor and/or lack of feasibility study
- Partial penetration of an aquifer
- Poor casing arrangement
- Poor gravel packing and poor estimating of well yield.

Such kind of well completion problems eventually results in well dry up and as a result the schemes will be abandoned (Harney & Reed 2004).

### 2.5.3. Financial/Economic Factors

#### 2.5.3.1. Financial Ability to Meet the Cost of Operation and Maintenance

Budgeting sufficient funding for rural water supply systems is an important issue for rural water supply systems on operation and maintenance (O & M). It will be successful, if financing resources are available and frequent supports are provided (Binder, 2008). Nevertheless, failure to adequately cover costs of improved water supply services in developing countries has been identified as major constraints to achieving the goals of safe water supply for all on a sustainable basis. In recent years, increased community financing through user payment for service has been strongly promoted as a solution (Evans, 1992). In this regard, according to Getachew (2002), even small water supply systems require investment of operation and maintenance. These are often costly and thought to be beyond the financial capacity of community, however, experience shows that the communities are willing to shoulder portions of the investment costs and to pay for full O&M provided that they are in need of the service and appropriate community promotion exercise is being carried out. Although these are undoubted by some areas in some countries where poverty is extreme, the review of global situation reveals that most rural communities can afford to pay for improved water supply services provided that appropriate technology is used. The reason for this argument is that people in rural areas are already spending large amount of time and energy in water collection(Musonda, 2004). As far as payment for water supply service is concerned, Ethiopian water resources management policy (1999) promote that for rural water supply schemes partial cost recovery principle to be applied. That is user communities should cover some O and M costs. Such kind of payment is proposed to be effected through different tariff structures. The tariff structure that is adopted for rural water supply schemes that provide communicable services like hand pumps and public stand posts is flat rate tariff, in which all beneficiaries are expected to contribute equal amount either in cash or kind in fixed time interval (for instance, on monthly basis).

#### 2.5.3.2. Willingness and Ability to Pay for Services

Providing services which people can afford is a pre-condition for cost recovery (partial cost-recovery in rural water supply case in Ethiopia). Being able to pay for something and being willing to do so, however, do not always go hand in hand. From economists points of view demand is only real (or "effective") when it is accompanied by wiliness to pay, in

cash or kind, for goods or services offered. From this points of view, "willingness to pay" and "demand" essentially mean the same things (Evans 1992). In order to the communities meet the cost of O and M, community member is willing to pay for the services. Willingness to pay for the service is influenced by number of factors. For example, a community with a river and near-by is prepared to pay much less for a hand pump than a community with similar income who has to walk kilometers to fetch water.

#### 2.5.3.3. Financial Management System

In order to cover O and M costs and other important replacement costs, the collected money from user community should be managed properly and used for the intended purposes. Necessary training should be given for water committee for prudent financial management. Or else, there should exist transparent working and accountability mechanism in order to avoid miss-utilization and embezzlement of collected money (Davis and Brikke 1995).

# CHAPTER THREE

# 3. MATERIALS AND METHODOLOGY OF THE STUDY

## 3.1. OVERVIEW OF THE STUDY AREA

The study area called Guto Gida district is one of the ten districts in East Wollega zone. The zonal capital is Nekemte which is 328 kms at West of Addis Ababa, and Guto Gida district is found around the town. The current population of the district is 107,655 from which 54,806 male and 52,849 are females. The district is further divided into 23 kebeles for administration purpose,. The centre of the district is situated in Nekemte town where the district's administration and government structure is found. The district is bordered with WayuTuka, Gida Ayana and Leka-Dulacha districts. Concerning agro-climatic condition, 26% land mass of the district constitutes highland (dega); 46.74% is classified under mid-land (Woynadega), and 53.9% of the district is considered as lowland (Kola) agro-climatic zone. Average annual temperature is 31oC while the annual rainfall varies within 1300mm and 2700mm. Total land area of the district is 115,150 Hectar (Ha): 6509 Ha grazing land, 99,937 Ha farm land, 4240.7 Ha forest land, and 4463 are others. Furthermore, in the district there are 2 rural towns (Lugo and Ukke) which are served with electricity and water supply services at public level. With regard to educational facilities, there are 11 primary first cycle schools (1-4 grade) which serving a total of 11,926 students from which 6341 male and 5585 females; 24 (twenty four) primary second cycle schools (5-8 grade) which benefits a total of about 6700 students from which 3500 male and 3200 female students, and 2 of general secondary schools (9-10 grade) which holds 579 male students and 284 females. There is no preparatory school in the district.

Concerning health facilities, there are twenty-three schemes from which two are health centres with standard of 25,000 people, and the remaining twenty-one are health posts with standard of 5,000 people. There is no hospital in the district.

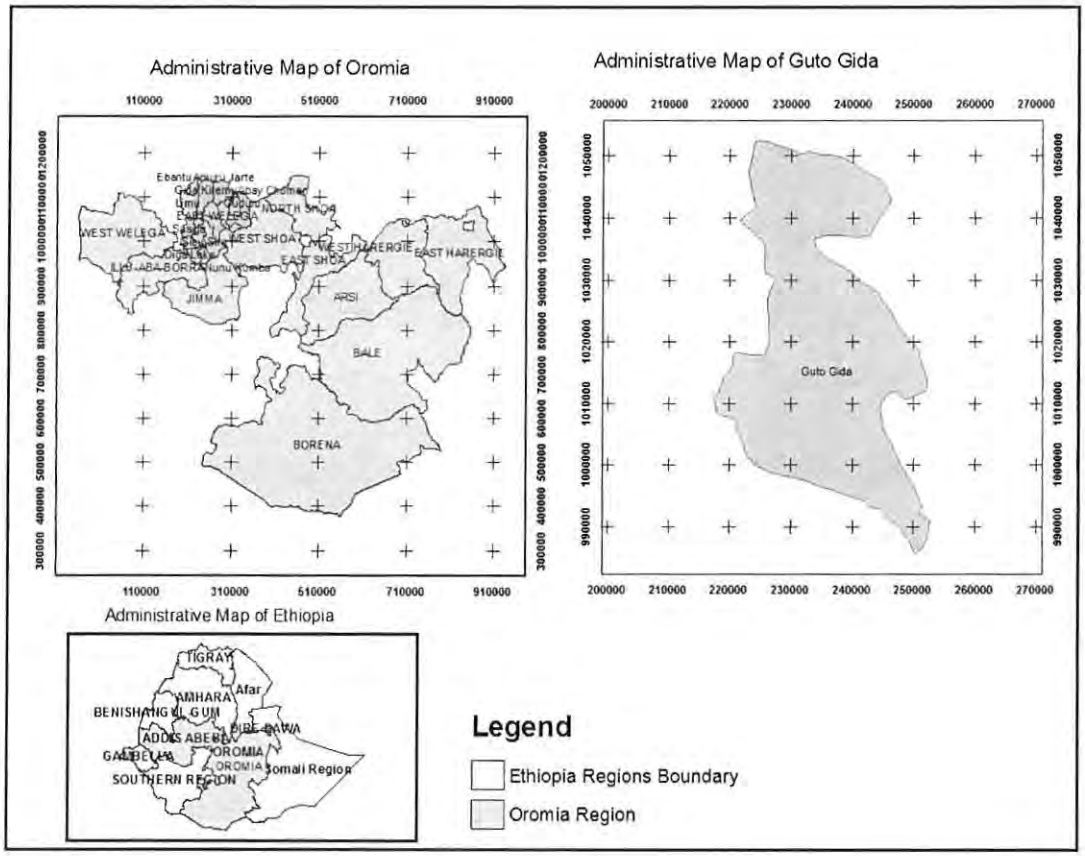


**Figure-1: Map of the Study Area (Guto Gida)**

### 3.2. DATA SOURCE AND TYPE

Most of the data for the study was from primary sources. The data was collected from 174 sample households (HHS), 68 people at community level (kebele representatives, women association and Youth association) and participants of focus group discussions (FGD) (District water and energy office staff, Water committees and kebele representatives). In addition, during the study, Key informant interview (KII) and personal observation was made by the researcher.

### 3.3. DATA COLLECTION INSTRUMENTS

Questionnaire, focus group discussion, key informant interview and personal observation were instruments that the researcher employed to collect data which helped to meet the research objectives.

### 3.3.1. Questionnaire

Closed and open ended questionnaires were prepared to generate the required information from the sample HHS and respondents at community level. Since the native language of the households and people at community level are Oromifa, the researcher translated the questionnaires prepared in English version to Promina so that the respondents could easily understand the questionnaire.

### 3.3.2. Focus Group Discussion (FGD)

Focus group discussion was employed to obtain information from the district water and energy office workers, water committees and kebele representatives. The primary data collected from HHS and the community were enriched by additional information which was gathered from focus group discussion, key informant interview and field observation.

### 3.3.3. Key informants interview (KII)

A key informant interview was particularly important in getting information related to the status, institutional support and management system of schemes. To obtain the views of key informant interviewees, point of discussions were prepared and information was collected.

### 3.3.4. Field Observation

The researcher observed the schemes and the community in the sampled kebeles (Dune Kane and Gari) to triangulate the data collected by using the other tools.

## 3.5. SAMPLING DESIGN

The target population of the study was all the households living in Guto Gida district from where sample households will be drawn. A combination of random and systematic sampling techniques was used to select sample rural kebeles and to draw sample household respondents for the questionnaire. On the other hand, purposive sampling was employed for respondents at community level (for questionnaire) and focus group discussants. Initially, two-sample kebeles were selected with random sampling. To this effect, the two kebeles, Gari and Dune Kane were proposed accordingly. And 174(one hundred and seventy four) households from the two sampled rural kebeles were drawn using systematic sampling. From 25 and 33 groups organized in Dune Kane and Gari kebele respectively, three $n^{th}$ number the respondents selected from each groups using the document available at the kebeles. On the other hand, the 68 (sixty eight) sample respondents for people at community level were

included from the eight member committee of (kabele cabinets, youth association and women association), and 10 members of water committee from each kebele were selected purposefully. In addition, water and energy office staff of district, water committees and kebele representatives was selected purposively for focus group discussions. Finally, to supplement the data obtained from aforementioned tools, observations were employed by the researcher.

### 3.6. METHOD OF DATA ANALYSIS

Descriptive statistics was used to analyze findings quantitatively and qualitatively. The data that was collected using questionnaire are intended to be analyzed by entering in to Statistical Package for Social Sciences (SPSS). In the kebeles, each respondent was codified with numbers, and after codifying the information from the questionnaires, template for entering data in the computer program was created. The codified data was then entered in the SPSS computer programs where frequencies and cross tabulations was computed during the analysis. On another hand, the data obtained from the same tool (questionnaire), but with different subjects (household and community level) was analyzed separately, and the remaining tools were analyzed and interpreted in relation with the questionnaires' results.

# CHAPTER FOUR

# 4. RESULTS AND DISCUSSION

As previously stated in chapter one, the main objective of this study was to explore the challenges of rural water supply management system in the rural area. To make the study feasible, the researcher focused at water supply schemes of Guto Gida district which is found in East Wollega zone. The data collected through the questionnaires from households and people at community level (water committees and kebele representatives) were tabulated and analyzed using percentage from SPSS output. Added to this, the data obtained using interview with key informants, focus group discussions (with water committee, kebele representatives and water and energy office workers of the district) were made cross check with the questionnaires'. Moreover, the data collected from personal observation by the researcher proved the overall information gathered by the aforementioned tools.

## 4.1. RESPONSES FROM HOUSEHOLD RESPONDENTS

To address the objectives of the study, data was collected from household respondents on three main issues: the functionality and non-functionality of schemes, institutional support for rural schemes and the management system of the schemes. With each issue, the information gathered from key informant interview, focus group discussion and personal observation are interrelated during discussion and analysis.

### 4.1.1. Functionality and Non-Functionality of Schemes

Though many schemes had been developed to solve rural communities' drinking water problems, only few of them are functioning properly. As an evidence, the finding of Rural Water Supply Network (RWSN, 2004b) shows that more than 50% of hand pumps in Africa are not operational. Added to this, from the rural supplied schemes of the country, about 25% of the schemes have been reported as they are not functional (MoWR, 2006). Under this heading, to assess the functionality of the existence water supply schemes and related issues, data obtained from households and community level respondents with the cross-reference of key informants' interview and focus group discussions have been discussed and interpreted.

#### 4.1.1.1. Sources of Drinking Water for Rural Communities

Communities in rural areas use various sources of water for drinking. Some of the sources have health risk for the beneficiaries, and others may not properly function. Thus, to identify the main sources that communities use for drinking, and to deduce the impact of the sources on the communities in the study area, data was collected and interpreted from the table below.

**Table-1: Respondents' Distributions on Community's Main Sources of Drinking Water**

| Item | Alternatives | Frequency | Per. (%) |
|---|---|---|---|
| **The main source of community's drinking water** | 1. Spring on spot | 46 | 26.4 |
| | 2 .Traditional/Hand dug well | 22 | 12.6 |
| | 3. Hand Pump | 56 | 32.2 |
| | 4. Shallow well | 8 | 4.6 |
| | 5. Deep well fitted with hand pump | 0 | 0 |
| | 6. Spring motorized | 0 | 0 |
| | 7. River/Stream | 42 | 24.2 |
| | **Total** | **174** | **100** |

As can be observed fromTable-1, 56(32.2%) and 46(26.4%) of the household respondents replied that the main sources of their drinking water are hand pump and spring on spot respectively. However, the table depicts that 42 (24.2%) of the community mainly use river or stream for drinking. Others 22(12.6%) of them use traditional hand dug well as the main sources for their drinking water. In addition, the group discussions made with the water committee and kebele representatives in both kebeles confirm the result. The water committees those participated in discussion informed that the communities those who live in Dune Kane kebele, Abonno village, near Belam river use the river for drinking. The water that is supplied for Nekemte town is also treated and the chemicals that used for treatment of the water are released to the river. Consequently, the community is suffering from health problem and many of the community's cattle died and children diseased by drinking the polluted water from the river. The reason for the community forced to use the polluted river is that they do not have alternative water point in the area. The finding implies that though the majority of the community of rural areas has various developed schemes such as spring on spot and hand pumps, there are some communities that use water from river/ stream and traditional well which are unsafe and exposes them to health risks. In relation to this, Kingo (2005) states that insufficient access to safe water is bad for health. Added to this, Desalegn Ramato (1999) stated that access to adequate and clean water will greatly contribute to improved health and productivity of the community.

#### 4.1.1.2. Status of Schemes and Alternative Water Sources

It has no argument that the aim of developing water schemes for rural communities is to provide them with safe drinking water. In the reverse, many of the schemes researched that they remain non-functional after they give service for only short period of time (Brikke and Bredero, 2003; Moe and Rheingans, 2006; RWSN, 2012). According to MOFED, 2006 about 30% of the schemes were mal-functioning at national level for the same year. Thus, the items in the table below aimed at obtaining some data from the households to identify the current status of the schemes and the alternative sources of the community in rural kebeles.

**Table-2: Distributions of Respondents about Current Status of Schemes and Community's Alternative Water Sources**

| Items | Alternatives | Frequency | Per. (%) |
|---|---|---|---|
| **1. Whether or not the water schemes properly functioning all the times** | 1. Yes | 33 | 19 |
| | 2. No | 141 | 81 |
| | **Total** | **174** | **100** |
| **2. The alternative water sources that the community uses when the water point stops functioning.** | 1. From the river/stream | 154 | 88.5 |
| | 2.From private | 20 | 11.5 |
| | **Total** | **174** | **100** |

As it could be observed from Table-2 of item 1, 141 (81%) of the household respondents reported that the water schemes are not properly functioning all the times. However, 33 (19%) of them responded that the schemes are properly functioning all the times. As the item 2 can be seen in the same table, 154(88.5%) of the households responded that they use rivers or streams when the schemes stop functioning. In contrast, 20 (11.5%) of the respondents reported that they use water from private when the schemes are non-functional. The key informant interviewees in both kebeles stated that the communities are not getting service from the schemes because the hand pumps could not pump out water. One reason for the problem that the key informant raised is that the depth of the scheme at which water can be sufficiently discharged is not well studied. During the dry season, the hand pumps stop functioning. Other reason they raised is that during installation, the installers shortened the casing pipe or the pipe element. As the result, the device could not reach the water level. The personal observation made by the researcher verified the reality. A hand pump situated in Dune Kane kebele, Gafare village served only five months after installation. After five months, it stopped functioning because the scheme was not deeply dug as the water can be sufficiently obtained. The personal observation made in the study area by the researcher substantiates the reality of the problem stated. The photograph of the scheme taken as

evidence is found in Dune Kane kebele, Gafare village. Similarly, what water committee pointed out in their discussions is that there are hand pumps and spring on spot which could not properly functioning because of lack of care. The researcher also observed the case as the main cause of the problem is that the schemes are damaged by animals and children. The scheme that is found in Gari kebele, Koromi village is found in Gari kebele in a village called Bonaya.

The finding implies that though the communities are provided with schemes, still they could not get satisfactory service from the schemes. And because of malfunctioning of the schemes, the communities are being obliged to use water sources that expose them to health risks. One can conclude that the schemes currently available in the study area are not properly functioning. One of the studies notes that to secure properly functioning of schemes for long period of time, working on improving rural communities' technical, financial and managerial aspects has great contribution (IWSC 1993).

### 4.1.2. Institutional Support for the Schemes

The life status of our rural communities could not potentially enough to cover all the financial cost of schemes development. For the matter, institutional or organizational support from various sources is a must, and; therefore, many agencies, be it government or NGO or private are funding for many water projects to reduce the drinking water problems of the rural societies. Thus, to identify the problems of rural communities related to the support of institutions for rural schemes development, data was collected and analyzed on different issues: the sources of support for rural schemes, training for the rural communities, water technician and maintenance for rural schemes under the following headings.

#### 4.1.2.1.Sources of Institutional Support

Various institutions such as government, NGO's, private sectors participate in improving rural communities' water schemes. One main reason of the external bodies supporting for the improvement of rural water supply is to address what the community cannot always be expected to fulfil (Lockwood, 2004). Hence, the table below focuses on analyzing the institution that contributed in developing water schemes.

**Table-3: Distributions of Respondents about Supports Provided for Water Schemes Development**

| Item | Alternatives | Frequency | Per. (%) |
|---|---|---|---|
| **Institutions or organizations involvement in assisting for the development of the water scheme** | 1. Government | 57 | 32.8 |
| | 2. Community | 31 | 17.8 |
| | 3. NGO | 48 | 27.6 |
| | 4. Private | 26 | 14.9 |
| | 5. I don't know | 12 | 6.9 |
| | 6. If other (mention)..... | - | - |
| | **Total** | **174** | **100** |

Regarding the data obtained from households' responses on the contribution of institutions for rural water schemes, as can be seen fromTable-3. 57 (32.8%) and 48 (27.6%) of the respondents reported that government and NGO respectively take significant part in developing rural water schemes. Added to this, some of the community organization, 31(17.8), and the private sectors 26 (14.9), also participated. On the other hand, 12 (6.9%) of the community could not identify which institution supplied the scheme in their village. The result from the responses in Table-3 shows various institutions supported in supplying rural water supply schemes, but the contribution of the government and NGOs are significant when we compare within the community and the private sectors'. The finding has relevance with what Lockwood states in his study. He discusses that the range of organizations such as national, regional offices, district level, private sector operators, small companies, NGOs, and also possibly neighbouring areas will normally be involved in providing support to rural communities (Lockwood, 2004). Similarly, other scholars note that institutional arrangements needed to ensure that skills, and tools and spare parts are available when needed (Arlosoroff et al, 1987).



The focus group discussions made with the staff of the district's water and energy office, the water committee and kebele representatives prove the finding. During their discussion, they pointed out that there are schemes developed by the support of the government as well as different NGO's. And during the construction of the schemes, the communities contribute by collecting some amount of money from each household, helping the installers with labour and providing materials such as stone, sand, wood. However, majority of the communities still could not get access to water from schemes. Most of the schemes constructed are closest to the town, Nekemte, and where there is access of transportation. The communities at remote

areas of the kebeles and place where motorcycle or car could not reach, the schemes not developed yet. The discussions made with the district's water and energy office show that still there are a lot of things expected from institutions (government organization, NGO's, private sectors) to improve the rural communities' drinking water problem. They declared that some of the major problems hindering the institution or the office to support the community with full potential are problem of logistic. The office has no car to work on the projects as necessarily; there is only one motorcycle for all projects in all 22 kebeles of the district. From the discussions and the results from the table, one can conclude that the institutional support that the rural community of the study area obtaining for water supply improvement is poor.

#### 4.1.2.2. Communities and their Involvement in Supporting the Schemes

Many studies show that the participation of community on schemes development is very important. The participations can be financial, material or on decision making issues. Under this specific sub-heading, the data was collected and analyzed on the community's contribution and kinds of contributions they make for rural water development.

**Table-4: Distributions of Respondents about communities' Contribution and Kinds of Contribution for Rural Water Supply Schemes**

| Items | Alternatives | Frequency | Per. (%) |
|---|---|---|---|
| **1.Contribution of community for the establishment of water schemes** | 1. Yes | 151 | 86.8 |
| | 2. No | 23 | 13.2 |
| | **Total** | **174** | **100** |
| **2.Alternatives that the community contributed for water scheme development** | 1. Contributing money only | 8 | 4.7 |
| | 2. Providing only materials such as wood, sand, stone | 15 | 8.6 |
| | 3. Participating with labour only | 11 | 6.3 |
| | 4.Contributing both money and materials | 32 | 18.3 |
| | 5.Contributing materials and labour | 35 | 20.1 |
| | 6.Contributing money, materials and labour | 73 | 42 |
| | 7. I never contributed all(money, materials &labour) | 0 | 0 |
| | **Total** | **174** | **100** |

As can be seen from Table-4 of item 1, substantial number of household respondents, that is, 151 (86.8%) of them participated in establishment of water schemes. Only few number, 23(13.2%), of the community do not take part in schemes development. One can conclude that the participation of the communities on rural water supply in the study area is high. It is better to note here what William says in his study. He argues that the community should never sit back and expect others to provide services for them; they must be ready to organize themselves for participation in the development of schemes (William, 2003).

The same table of item 2 depicts that 73 (42%) of the households contribute money, materials and labour for the establishment of water schemes. However, 35 (20.1%) of the respondents participated for the development of the schemes with materials and labour, and 32 (18.3%) of them take part with money and materials. The rests, 15 (8.6%), 11(6.3%) and 8(4.7%) of the households responded that they contributed materials, labour and money respectively. From the finding, we can conclude that the communities' contribution with money, materials and labour for rural scheme development is motivational. Similarly, Davis and Liyer state in their communal study which has relevance with this finding. They note that community can take part in scheme development by money, labour, material, equipment, or participation in project-related decision-making and discussion (Davis and Liyer, 2002).

#### 4.1.2.3. Training for Households

Training is important for households and at community level to reduce the gaps observed with the rural water supply and defects of management system for schemes. Thus, the item in the table below aimed at obtaining some data from households' responses about training given for the stakeholders.

**Table-5: Distributions of Respondents about training on drinking Water for Community**

| Item | Alternatives | Frequency | Per. (%) |
|---|---|---|---|
| **To identify whether or not the community obtain training on water.** | 1. Yes | 16 | 9.2 |
| | 2. No | 158 | 90.8 |
| | **Total** | **174** | **100** |

As can be seen from Table-5, only few number of household respondents 16(9.2%) replied as they took training on water; however, majority of them 158 (90.8%) responded that they did

not get training on water. Similarly, the data gathered from key informant interview and group discussions with water committee and kebele representatives indicate that no training given by any agency. One of the key informants in Gari kebele explained as a training given for water committee by NGO 13 years ago; after that no any training given for the water committee as well for the community. Additionally, the keble representatives declared that as training to be given on water for the community needs to be concerned by the water and energy office of the district. From the result, one can conclude that the community in the study area is not getting support on training from the institutions, be it government or non-government. It can be possible to note here what Lockwood states. He discusses that one of the main functions of institutional support mechanisms for community is training. Training is important for households and people at community level to build their capacity in a variety of disciplines from physical operation and maintenance to hygiene promotion (Lockwood, 2004). Similarly, another study states that water supply agencies are expected to support the communities with many aspects such as repairs, training and monitoring (IWSC 1993). Additionally, experience tells that communities need to be trained and be given the opportunity to develop their capacity for operation and maintenance (IRC, 1990).

#### 4.1.2.4. Availability of Water Scheme Technician

The presence of water technician in rural community is mandatory for schemes. When schemes fail to function, and if there is no a skilled person for maintenance, the community is at risk of getting clean water. Here under, to identify whether or not the technicians are available in the community, the data collected has been analyzed.

**Table-6: Distributions of Respondents about Availability of Water Technician in the Community**

| Item | Alternatives | Frequency | Per. (%) |
|---|---|---|---|
| **To identify whether the water technician is available in the community** | 1. Yes | 5 | 2.9 |
| | 2. No | 169 | 97.1 |
| | **Total** | **174** | **100** |

The data gathered from respondents in Table-6 above reveals that 169(97.1%) of the households reported that water technician is not available in the community. The group discussions made with the water committees and kebele representatives also confirm the data

obtained from household respondents. They stated that let alone technician from the community, they stay for about three months to one year without getting technician from the district's water office. Added to this, key informant interviewees explained that there are many schemes stopped functioning and partially functioning for many years because of lack of skilled person to maintain them. From the information presented in Table-6, one can conclude that lack of water technician in the study is one of the rural community's serious problems identified in rural water supply and management of the schemes. The finding of Tesfaye in his study for MA thesis also corroborates the result. He concluded that the absence of local technicians those who are responsible for technical aspects of the schemes is one of the rural community's drinking water problems (Tesfaye Demeke, 2011).

#### 4.1.2.5. Maintenance for the Water Schemes and Related Issues

Applying schemes for rural communities is efficient when the schemes provided are with effective management system. One of the issues that work as an indicator is the guarantee for the schemes with operation and maintenance. Without proper care for the rural water schemes with maintenance, a water facility will fail to provide the services for which they are intended. Hence, the table below gives discussions and presentation of data gathered on: maintenance that ever been made for the scheme; money/material contributed for maintenance cost; the time when breakage occurs, and reasons why maintenance for the scheme is not made.

**Table-7: Distributions of Respondents about Maintenance for the Water Scheme and Related Issues**

| Items | Alternatives | Frequency | Per. (%) |
|---|---|---|---|
| **1. To identify whether or not maintenance has ever been made for the scheme.** | 1.Yes | 25 | 14.4 |
| | 2. No | 149 | 85.6 |
| | **Total** | **174** | **100** |
| **2. To identify whether or not money/material is contributed for maintenance cost.** | 1.Yes | 31 | 17.8 |
| | 2. No | 143 | 82.2 |
| | **Total** | **174** | **100** |
| **3.Time gap between when** | 1. About 1-3 Weeks | 9 | 5.2 |
| | 2. About a Month | 7 | 4 |
| | 3. 2-4 Months | 8 | 4.6 |

| | | | |
|---|---|---|---|
| **the breakage of scheme occurs and time when maintenance occurs** | 4. 5-7 Months | 17 | 9.8 |
| | 5. About a Year | 28 | 16.1 |
| | 6. About 2-3 Years | 24 | 13.8 |
| | 7. No maintenance ever made | 81 | 46.5 |
| | **Total** | **174** | **100** |
| **4. To know why maintenance for the scheme is not made.** | 1. The scheme has no problem | 13 | 7.5 |
| | 2. We do have alternative schemes | 11 | 6.3 |
| | 3.We lacked technician | 91 | 52.3 |
| | 4. We lacked spare parts | 23 | 13.2 |
| | 5.We lacked money | 36 | 20.7 |
| | 6. If other…. | 0 | 0 |
| | **Total** | **174** | **100** |

The result of item 1 from Table-7 above depicts that majority, 149 (85.6%), of the household respondents replied that no maintenance made for the schemes in their kebeles. Only 25 (14.4%) of them responded as maintenance is made for the schemes. The discussions made with water committees and interviews made with key informants in both bekeles support the result. During the interview, one of the key informants stated that after they reported for the need of maintenance for the scheme in their village, the scheme remained without maintenance for about one year. After a year, when they raised the issue of maintenance, the previous year water and energy office workers are replaced by other new ones, and they recorded the problem as a new issue for further appointment by saying that the previous complaint does not concern them. Additionally, the personal observation made by the researcher also confirms that there are schemes that stop functioning without any maintenance since they once constructed (See Figure-2). One can conclude that the experiences of maintaining non-functional schemes in the rural community of the study area are almost none. That is, the action to be taken to manage the rural water schemes is poor.

**FIGURE-2: Non-functional scheme (found in Gari Kebele, Dinsa Shone village) because of lack of maintenance.**

As can be observed from Table-7 of item 2, 143 (82.2%) of the households responded that the community did not contribute money or materials for maintenance of the schemes. However, 31 (17.8%) of the households responded as they participated in schemes maintenance in their areas by contributing money or/and materials. The discussions made with water committees, kebele representatives and the district's water office workers also confirm the result obtained from households. They raised that the community contributed such as money, materials for schemes constructions and working with technicians during construction. Their discussion has relevance with the finding in Table-4. (Please see Table-4). The interview with the key informant persons reported that except during the construction of the schemes, no one asked the community to contribute for maintenance. The finding implies that majority of the communities did not take part in contributing money or/and materials for the maintenance of the schemes. This also infers that the approach that got practised for rural water supply is more of supply oriented which undermines the community management. As Binder notes, the community management of rural water supply systems on operation and maintenance is not successful if financing resources are not available and frequent supports are not provided (Binder, 2008).

Regarding the data obtained from households' responses (Table-7 of item 3) on gap between the duration of schemes got breakages and remained without maintenance, 28 (16.1%) of them replied that the schemes delayed for about one year without maintenance. Similarly, 24 (13.8%) of them responded that the schemes stayed for about 2-3 years without maintenance.

On the contrary, 81(46.5%) of them reported that maintenance has never been made for the schemes in their areas. From the finding, it is difficult to conclude by figuring out the gap between the times of schemes' breakage occur and the time maintenance made for the schemes in the study area. Rather, it is possible to conclude in such a way that the community is not familiar with schemes maintenance. The result has indirect relation with the findings in Table-6 and Table-7 of item 1. The observation made by the researcher himself also proved that there are many non-functional schemes observed without maintenance The non-functional hand pump that is found in Gari kebele, Dinsa Shone village, and the hand pump found in the same kebele, Makko area, near Mekane Iyesus church. The other non-functional hand pump observed in Dune Kane kebele, Lalisa village. All the three schemes remained without maintenance since constructed.

The item 4 in the Table-7 above reveals that 91 (52.3%) of the households responded that the schemes in their villages did not get maintenance because of no skilled or trained person for maintenance in the community, and 36 (20.7%) of the respondents reported that they could not make maintenance for the schemes because of finance or lack of money. On the other hand, 47(27%) of the households reported various reasons: there is no problem with their schemes; they do have alternative schemes and they could not find spare parts for maintenance. Others, 23 (13.2%) of the respondents replied as they face problem of getting spare parts for maintenance. The kebele representatives discussed that one of the main reason for no maintenance for the schemes is lack of technician in the area. The discussants of water and energy office of the district talked about the problem of budget for maintenance, but the discussions made with the water committee show that there is a case when the community contribute for the maintenance and couldn't get technician from the district. From the finding, we can conclude that the main reason for the schemes remain without maintenance is the lack of technicians.

### 4.1.3. Management System of the Rural Water Schemes

Many findings show that rural water supply problems are becoming severe because of the defects of management systems. For instance, some public institutions exercise centralized management system which is dependent on the central government for management, technical and financial support (Sami & Murray 1998: 14; Evans & Appleton 1993: 7). In such kind of management system, communities are not involved in the decision-making

process about the water issue. Another management system, which is called, community management approach, emerged with some limitations such as community dynamics, social conflict, and capacity problem with the community (Lockwood, 2004). The third and the latest approach that let the community share responsibility of managing the water with government agencies (Harvey, Skinner & Reed 2002). Here, the researcher is at the stage of analysis to identify whether or not the rural water management system at Guto Gida district is practically managed with both the communities and government.

#### 4.1.3.1. Size of Households and Amount of Water that Households Fetch

The size of households has an impact on water consumption of the family. Here under, the data gathered from the households has been discussed and presented.

**Table-8: Distributions of Respondents about Size of Households per Family and Amount of Water that Household Fetch per Day**

| Item | Alternatives | Frequency | Per. (%) |
|---|---|---|---|
| **1.The size of households in each family** | 1. 1-2 | 11 | 6.3 |
| | 2. 3-4 | 19 | 11 |
| | 3. 5-6 | 112 | 64.4 |
| | 4. 7-8 | 20 | 11.5 |
| | 5. 9-10 | 8 | 4.6 |
| | 6. More than 10 | 4 | 2.3 |
| | **Total** | **174** | **100** |
| **2.The amount of litters of water that each household fetch per day** | 1.5Lit | 7 | 4 |
| | 2. 10Lit | 16 | 9.2 |
| | 3. 15Lit | 18 | 10.3 |
| | 4. 20Lit | 28 | 16.1 |
| | 5. 25Lit | 33 | 19 |
| | 6. 40Lit | 63 | 36.2 |
| | 7. 60Lit | 9 | 5.2 |
| | 8. If other.... | - | - |
| | **Total** | **174** | **100** |

As can be seen from Table-8 of item 1, 112 (64.4%) of the households responded that the size of their families are five to six. The table also depicts that 20 (11.5%) and 19 (11%) of the respondents replied that the households' size is seven to eight and three to four respectively. From the finding, we can conclude that majority of the households family members are five-six.

The amount of litters of water that each household fetch per day is indicated that 63 (36.2) of the households fetch 40 litres of water per day. Others, 33(19%) and 28(16.1%), responded as they daily collect 25 litre and 20 litre respectively. As can be understood from the item 1 of the same table, the majority of the size of households is 5-6. This implies that the majority of the community in item 2 replied as they collect 40 litres per day. The result of item 2 shows that the majority of individuals' water consumption of the stakeholders is not more than eight litres. The amount of the water obtained contradicts with the amount of water consumption per day, per person, 15Litre for rural areas of our country. Similarly, according to the result shown in the Table-8, the respondents consume below the standard of WHO litter per day. Hence, it can be concluded that the community couldn't get sufficient water from the schemes they are using.

#### 4.1.3.2. Distance and Time for Water Collection

Another issue to be considered in supplying and managing rural water schemes is about the distance that the communities walk to reach the water point and the time consumed to fetch the water by waiting for a long time. For the matter, two items in the table below are designed to get some information about the issues.

**Table-9: Distributions of Respondents about Distance they walk and Time they wait for to fetch Water**

| Item | Alternatives | Frequency | Per. (%) |
|---|---|---|---|
| **1. Amount of time that the stakeholders consume to reach the water point** | 1. 2-3` | 5 | 2.9 |
| | 2. About 5` | 10 | 5.7 |
| | 3. About 10' | 56 | 32.2 |
| | 4.About 15` | 59 | 34 |
| | 5. About 20' | 14 | 8 |
| | 6. About 25-30` | 23 | 13.2 |
| | 7. More than 3o' | 7 | 4 |
| | **Total** | **174** | **100** |
| **2.Amount of time consumed to wait for collecting water** | 1. Less than 5' | 3 | 1.7 |
| | 2. 5-10' | 5 | 2.8 |
| | 3.10-15' | 13 | 7.5 |
| | 4.15-20' | 12 | 6.9 |
| | 5.20-25' | 8 | 4.6 |
| | 3. 30-45' | 57 | 32.7 |
| | 4. About 1hr | 59 | 34 |
| | 5. About 1-2hrs | 17 | 9.8 |
| | **Total** | **174** | **100** |

As could be observed from Table-9 of the first item, significant number of household respondents, 59(33.9%) and 56(32.2%), replied that the stakeholders walk distance of 10 and 15 minutes respectively to reach water points. On the other hand, 37(21.2%) of the households reported that they walk 20-30 minutes to reach the scheme, and some others, 15(8.6%), walk less than 10 minutes. Added to this, the data gathered through interview from key-informants, by group discussions from water committee and district water office staff, and from personal observation by the researcher prove that most of the schemes developed have no more than 10-15 minutes distance to reach. The finding shows that the distance that community walks to collect water from the water point is not as such problematic. The finding of the study conducted by African Development Fund may contradict with this result. It shows that women in rural areas, particularly in Africa, often travel long distances to collect water, accounting for two to six hours per day (ADF, 2005).

The second item under the same table (Table-9) shows that 57 (32.7%) and 59 (34%) of the household respondents replied that to fetch water they stay at the water points for about one hour and 30-45 minutes respectively. On the other hand, 17 (9.8%) of them responded that they stand for about 1 up to 2 hours to keep the turn to fetch water. The water committee during group discussion and the key informants during interview also informed that the stakeholders stay at the water point minimum for 45 minutes and maximum 2 hours. The key informant added that there is a case when the community go back to their home without water. They raised two reasons for the case: one reason is that because of the number of beneficiaries from the scheme is beyond its capacity; and the second reason is that the hand pump could not properly pump out the water because of lack of maintenance. One can conclude that the communities are facing serious challenges in waiting for a long time to fetch water. The finding of Well shows that walking long distance and consuming a lot of time to collect water has many impacts on the communities' lives (Well, 1998).

#### 4.1.3.3. Quality of Water from Scheme

Assessing the current quality status of the water that rural community is using for drinking is important. It helps to find out the status of management system of the rural schemes and to judge the community's health risk. Regarding the point, the data gathered on water quality

from the household respondents has been discussed and analyzed based on the statistics given in the table below.

**Table-10: Distributions of Respondents about Quality of Water that Community uses from the scheme**

| Item | Alternatives | Frequency | Per. (%) |
|---|---|---|---|
| **Quality of water that community uses from the scheme** | 1. Very Good | 4 | 2.3 |
| | 2. Good | 30 | 17.2 |
| | 3. Poor | 119 | 68.4 |
| | 4.Very Poor | 21 | 12.1 |
| | **Total** | **174** | **100** |

As can be seen from Table-10, 4 (2.3%) and 30 (17.2%) of the households responded 'Very Good' and 'Good' respectively about the quality of the water they are using. In the contrary, 119 (68.4%) and 21 (12.1%) of them responded as 'Poor' and 'Very Poor' respectively. That is, significant number of the respondents reported that the quality of the water is not good. The result of the survey is confirmed by the data gathered from the key informants interview and focus group discussions made with the water committees and kebele representatives. One of the group discussants of water committee stated that the spring on spot which developed on stream called 'Damitu' has health risk; the water sometimes has worms. They complain that they reported many times to the district's water office to get chemicals to add to the water, but still no solution given for the case. Another quality problem of the water is raised during interview. One of the key informant interviewees reported that the water that the community uses for drinking from hand pump has bad smell. The scheme is found in Dune Kane Kebele, Gafare village. The community requested chemicals from the district though it has not been given them still now. Similarly, during the group discussion with kebele representatives, they pointed out that one of the springs on spot in the kebele is becoming threat for the beneficiaries' health because the out lets/pipes/ are with mud and dirty things added around the scheme by children and animals. The finding implies that the quality of the water from the schemes is poor, and; therefore, it is problematic for the health of the community using water from the scheme. A study shows that spring on spot schemes are more exposed to contamination than hand pumps, so care should be taken to prevent contamination of water used for human consumption (Muthusi et.al., 2007).

#### 4.1.3.4. Discussions of Water Suppliers with Community

Many findings show that one of the defects during provision of drinking water for the rural community is ignoring to consult the community for whom the scheme is provided on where to situate and what type of technology to be used. Thus, the items in the table below aimed at gathering some data from the households' response whether or not the discussion is made between the supplying agency of the scheme and the community on where to construct and what type of technology to be preferred.

**Table-11: Distributions of Respondents about Discussions made with Community on Water Scheme**

| Items | Alternatives | Frequency | Per. (%) |
|---|---|---|---|
| **1. Discussion with the community where schemes to be developed before construction.** | 1. Yes | 141 | 81 |
| | 2. No | 33 | 19 |
| | **Total** | **174** | **100** |
| **2. Discussion with the community for technology options.** | 1. Yes | 10 | 5.7 |
| | 2. No | 164 | 94.3 |
| | **Total** | **174** | **100** |

As can be observed from Table-11 of item 1, majority of the households, 141 (81%), responded that the supplier agency discussed with the community where it is better to construct the scheme. Only 33 (19%) of them reported that they were not consulted where to construct the scheme. The focus group discussion and interview made with the targeted part of the two kebeles' community also strengthen the data gathered from the households. From the finding, we can conclude that the place where the water points have been constructed is almost based on the interest of the beneficiaries. The issue of community participation can be noted here with the evidence of scholars study. Liyer and Davis declare that participation of the communities on decision making has positive influence in improving rural supply (Liyer and Davis, 2002).

Regarding the options of technology to be provided for the community by the supplier agency, Only 10 (5.7%) of the respondents replied that the supplier agency has made discussion with the community to select the technology which is preferable to them. Nevertheless, significant number of the household respondents [164(94.3%)] reported that the community has not been given chance for which option of technology to use. Similarly, the information gathered from key informant interview and focus group discussion indicate that all the schemes provided by the government and NGO in the study area have been situated without the options of the technology to be preferred by the community. The result implies

that the effort made to involve the community for decision on which type of technology to be installed in the area is not strong. The finding also shows that the community is not taking part in decision making about the schemes. If so, the management system of the rural water supply is called centralized system approach which does not involve the communities in decision-making process of the water supply facilities (Sami & Murray 1998).

#### 4.1.3.5. Water Committee

Water committees are organization of community who manage water supply schemes in rural areas. The water committees are responsible for mobilizing community for material, labour and financial contributions, and including carrying out of operation and maintenance, protecting the schemes from children and domestic animals through fencing the schemes, fixing time of fetching, keeping its sanitation, sustaining the benefits of the water supply schemes after project completion and report to the district water office if there is any problems beyond their capacities or ability. Therefore, they organize and manage the schemes properly for sustainability of the schemes for long period of time. The table below focuses on the presentation of data gathered from households about water committee and related issues.

**Table-12: Distributions of Respondents about Water Committee and Related Issues**

| Items | Alternatives | Frequency | Per. (%) |
|---|---|---|---|
| **1. Presence of water committee in the kebele.** | 1. Yes | 60 | 34.5 |
| | 2.No | 98 | 56.3 |
| | 3.I don't know | 16 | 9.2 |
| | **Total** | **174** | **100** |
| **2. Participation of the community in selecting the water committee.** | 1.Yes | 54 | 90 |
| | 2. No | 6 | 10 |
| | **Total** | **60** | **100** |

As can be observed in Table-12 of item 1, 98 (56.3) of the households responded that there are no water committees in their areas. On the contrary, 60 (34.5%) of household respondents reported that there are water committees in their kebele. The table also depicts that 16 (9.2%) of the respondents replied as they do not have information whether or not the water committee is available in the community. From the result, one can conclude that the established number of committees currently available in the study area is insignificant. Here, it is better to relate the finding with Harney & Reed's. The formation of a water committee is important to create situation for the community to be responsible for all management issues related to water supply in areas (Harney & Reed, 2006). The personal observation made in

both kebeles verifies the result from households. Among 23 schemes observed in both kebeles, only six schemes identified as they consists of water committee(See Appendix-F-a and F-b).The challenge that the researcher faced to obtain water committee for group discussion is an implicit of the problem. This also shows that establishing water committee for rural communities of the study area is tough task to be done from now and then.

Item 2 of the same table shows that 54(90%) of the respondents replied as the community participated in selecting water committee. On the other hand, 6(10%) of the respondents reported that they did not participate in selecting the water committee. Though the report from Table-12 of item one show that the number of established committees is few, it is possible to conclude that, where water committees established, the participation of the communities in selecting the committees is high. The roles that expected from the water committee are discussed by Habtamu in his thesis work. The water committee members have no experience on how to manage and facilitate the community, operate and maintain the water supply systems (Habtamu Addis, 2012).

#### 4.1.3.6. Water Collection and Sex Issue

In the previous time, it was conventionally thought as the responsibility of collecting water is women. Under this sub-issue, data was collected and analyzed based of the statistics given in the table below to identify that the current participation of both males and females on collecting water.

**Table-13: Respondents about Responsibility for Fetching Water with both Sexes**

| Item | Alternatives | Frequency | Per. (%) |
|---|---|---|---|
| **The more responsible gender in the family for water collection** | 1. Male | 4 | 2.3 |
| | 2. Female | 96 | 55.2 |
| | 3. Both Sex | 74 | 42.5 |
| | **Total** | **174** | **100** |

As can be observed from Table-13, 96 (55.2%) of the households responded that females are more responsible for fetching water. Similarly, 74 (42.5%) of them replied that both genders are responsible for fetching water. Only 4(2.3%) of respondents replied that males are more responsible than females. The researcher himself made observation at various schemes when women and children are collecting water from the schemes.

The result implies that though the majority of females are still considered as they are more responsible for fetching water, the data from the table depicts that the participation of males in sharing the responsibility of collecting water is increasing. The previous studies show that females are quite responsible to collect the water (Habtamu Addis, 2012 and Tesfaye Demeke, 2011). That is, the current finding shows that the trained of sharing the job of water collection only for females is becoming reduced.

#### 4.1.3.7. Water Payment

If there is no system for water payment from the community, talking about operation and maintenance the schemes remain an ideal. In other saying, unless the beneficiaries are well managed to cover the operation and maintenance costs of schemes, the failure of water supply schemes or break down remains with no solution. To find out the problems on water payment and related issues in the study area, the data gathered was tabulated and discussed here under.

**Table-14: Distributions of Respondents about Water Payment and Related Issues**

| Item | Alternatives | Frequency | Per. (%) |
|---|---|---|---|
| **1.Current Participation of the community in paying for water** | 1. Yes | 42 | 24.1 |
| | 2. No | 132 | 75.9 |
| | **Total** | **174** | **100** |
| **2. Participation of community in deciding the amount of the payment** | 1. Yes | 37 | 88.1 |
| | 2. No | 5 | 11.9 |
| | **Total** | **42** | **100** |
| **3. Participation of community in selecting the money collector?** | 1. Yes | 38 | **90.5** |
| | 2. No | 4 | **9.5** |
| | **Total** | **42** | **100** |
| **4. Practice of getting receipt for water payment** | 1. Yes | 0 | 0 |
| | 2. No | 42 | 100 |
| | **Total** | **42** | **100** |
| **5. Awareness of the community about the purpose of paying for water** | 1. Yes | 31 | 73.8 |
| | 2. No | 11 | 26.2 |
| | **Total** | **42** | **100** |
| **6.Community's reason for not participating in payment for water** | 1. I have no trust from the money collector | 6 | 4.5 |
| | 2. I can't afford the amou payment decided | 19 | 14.4 |
| | 3. I was not asked to pay | 107 | 81.1 |
| | **Total** | **132** | **100** |
| **7. Willingness/interest of the community to pay for water** | 1. Yes | 170 | 97.7 |
| | 2. No | 4 | 2.3 |
| | **Total** | **174** | **100** |

As it could be observed from Table-14, the data gathered from households based on the item 1 shows that 132 (75.9%) of the communities are not participating on paying for water. Only 42 (24.1%) of the respondents replied as they are currently taking part in water payment. The information from interview and focus group discussions also confirm the results obtained from the households' survey. The informant interviewees said that the community contribute some amount of money when they are told for the scheme to be constructed. After the accomplishment of the construction of the scheme, the community did not make any contribution. The result implies that the participation of the community in terms of contributing money for the development of the schemes is poor. As far as payment for water supply service is concerned, Ethiopian water resources management policy (1999) promote that for rural water supply schemes partial cost recovery principle to be applied. That is user communities should cover some O and M costs. Many studies note that the importance of communities' involvement by contributing money for water case is many.

Table-14 of item 2 requests respondents (42) those who are currently participating in water payment as data obtained from item 1 shows. The data reveals that 37 (88.1%) of household respondents reported that as the community participated in deciding the amount of money for water payment. The rests, 5 (11.9%) of them responded as they did not take part in deciding the amount. The result indicates that the community, though insignificant in number, those who are paying for water has high involvement of deciding the amount of money for water payment. As the information from Table-14, item 3 points out, 38 (90.5%) of the households responded as the treasurer (money collector) is selected by the community. In the reverse, 4 (9.5%) of the respondents replied that the community did not take part in selecting the treasurer. The result depicts that the beneficiaries' participation in selecting a person that can be a treasurer is high. The data obtained from item 4 of the same table signify as all of, 42 (100%), the respondents replied as they were not given receipt for water payment they made. The result infers that the management of financial system in the study area has defect. The records made from key informant interview and focus group discussion also confirm the result.

Table-14 of item 5 above describes 31 (73.8%) of household respondents reported as they do have awareness about the purpose of paying for water. Nevertheless, 11 (26.2%) of them responded as they do not have awareness for the purpose of paying for water. One can conclude that the majority of the communities have awareness for what purpose they make payment for water.

Regarding the data gathered on item 6 of Table-14, 107(81.1%) of the respondents replied that they could not participate to pay money for water purpose because they were not asked to pay. On the other hand, 19 (14.4%) of them responded that they could not afford the amount of money decided to pay for water. Few number of other respondents reported that they are not paying water fee because they have no trust from the money collector. Here, the people working on water management at different levels should have facilitated the condition. During the group discussion with water office workers of the district, they raised that the financial responsibility for schemes' maintenance and operation is to be covered by the beneficiaries. On the contrary, the group discussants of water committees and key informant interviewees declared that as some of the community understands in other way. They think that the responsibility of working for operation and maintenance of the schemes has to be the government or the organization that previously supplied the schemes. The discussion implies that there is a gap between the managing bodies and the community's awareness for rural water supply and management system. From the data gathered, we can conclude that the communities' main reason for not contributing money for schemes development is because of the lack of responsible body to organize the community for the purpose of the contribution and the awareness of the community.

As can be understood from Table-14, item 7 reveals that 170 (97.7%) of the household respondents replied as they do have interest to pay for water concern. Inconsiderable number of respondents, 4 (2.3%), responded as they are not willing to pay for water purpose. The data obtained implies that there is no problem with the community to take part in rural water developments. If we make comparative analysis between the finding from item 1 and 7 of Table 14, the data may contradict each other. The statistics of practical involvement of the community in water payment is less than their willing to pay. The contradiction of the data can be resolved when the finding of item 6 in the same table is observed. That is less participation of the community in water payment is because of the management defects at different levels.

## 4.2. RESPONSES FROM PEOPLE AT COMMUNITY LEVEL

To make cross check and increase the reliability of the data obtained from households, the questionnaire employed for respondents at community level (water committees and kebele representatives, Women and Youth Associations) .The questionnaire has more or less similar content with the households. The data was collected from 68 respondents at community level from both kebeles: Dune Kane and Gari. In the analysis, the responses for each items of the questionnaire were tabulated using frequencies and percentage and discussion was made on them. Thus, the data obtained from the targeted respondents has been presented as follows.

### 4.2.1. Functionality and Non-Functionality of Schemes

Functionality of schemes at rural communities is meaningful when the stakeholders get water service from the schemes consistently. Under this subtopic, the data gathered from respondents on the current status of the schemes at study area has been discussed and analyzed by relating with previously discussed results from households, focus group discussants and key informant interviewees.

**Table-15: Distributions of Respondents about Availability, Functionality and Reasons for Non-Functionality of Schemes**

| Item | Alternatives | Frequency | Per.% |
|---|---|---|---|
| **1.Availability of water scheme in the community** | 1. Yes | 41 | 60.3 |
| | 2. No | 27 | 39.7 |
| | **Total** | **68** | **100** |
| **2.Functionality of schemes properly all the times** | 1. Yes | 16 | 23.5 |
| | 2. No | 52 | 76.5 |
| | **Total** | **68** | **100** |
| **3.Reasons for Non-Functioning of Schemes** | 1. Problem of construction quality of water Scheme | 22 | 32.3 |
| | 2. Misuse of the beneficiaries when fetching water | 19 | 28 |
| | 3. Lack of protection (fence) from animals and children? | 20 | 29.4 |
| | 4. Long service years | 7 | 10.3 |
| | 5.If others (mention) _____ | - | - |
| | **Total** | **68** | **100** |

As it can be seen from Table-15 of item 1, 41 (60.3%) of respondents at community level reported that as there are schemes in the kebeles. On the other hand, 27(39.7%) of them replied that there is no schemes developed in the area. Though majority of the respondents

replied as there are water points in their areas, the number of respondents that reported as there is no scheme in their kebeles is serious issue. The discussion made with some of the district's water and energy staff and water committees in the study area verify that the access of drinking water in study area is low because the budget allocated for schemes development is very low when compared with the population in the district. They pointed that every year the regional water bureau allocates about half of the district's request. For instance, this year, the office of the district planned for 1.5 million, but the regional bureau allowed only 240, 000 birr. On other side, they stated that the process of releasing the allocated budget lags the implementation of the project behind. On the contrary, some key informant interviewees complain the administration system of the district rather than the budget problem. One of them pointed out that even by contributing some financial cost for the installation of the scheme, there are some individuals whom took them two-three years to get chance and still on the process of construction. The data shows that there are more hard workings expected to address the needs of rural communities' access to drinking water. From the result, one can conclude that the drinking water coverage of the rural community is not as such satisfactory.

As item 2 can be seen in the same table, 52(76.5%) of the respondents replied that the schemes do not function properly all the times whereas 16(23.5%) of them reported as the schemes function properly. The data gathered from household survey has relevance with the result (See Table-2). Added to this, the interview made with key informant subjects reported as most of the schemes, especially hand pumps, stop functioning during the dry season, and some of them totally stopped functioning. The observation can validate the interviewees' report (See Photo-13 and 14). During the researcher's observation, from the 23 schemes observed in two kebeles of the study area, only 8 of the schemes identified as they properly functioning (See Appendix-B-a & B-b). We can conclude that the schemes found in the study area are not properly functioning because of problem of budget and weak system of management/ integration between the district's office and the community. The hand pumps that are found in Dune Kane kebele, the village called 'Lalisa' totally stopped functioning.

Regarding item 3 of Table-15 about the reasons for non-functional schemes, 22(32.3%), 20(29.4%) and 19(28%) of the community level respondents replied that the schemes are not properly functioning because of problem of construction quality, lack of protection and misuse of beneficiaries respectively. Others, 7(10.3%) of them reported as the schemes are non-functional because of long years service. The data recorded from key informant

interview show that there is a scheme installed and stopped functioning after five months of its construction. The researcher also assured the installation problem with some schemes raised by the interviewee (See Figure-3).. The district's water office workers reported that there is shortage of man power. They added that majority of the staff's field of studies not water related. The researcher himself proved that there are people working as water technician with Business Management field of study (See Appendix-E-a). Others assigned as a person in charge of water and energy office without having any background of water education (See Appendix-E-c & E-d). The water committees discussed that there are schemes became non-function because of lack of protection. After thieves took the fence of the scheme for fire wood and children damaged the spare parts, the community could not get service from the. From the finding, one can generalize that the major reasons for non-functional schemes are problem of construction quality of the schemes, lack of protection, and handling problem of beneficiaries.

***FIGURE* -3 (D/Kane kebele, Sorga, Gafare)**

Scheme observed at Figure-3 is not functioning because of installation problem.

### 4.2.2. Institutional Support for the Schemes

Under this subheading, data was collected and analyzed on various institutions that finance for schemes development for rural communities, maintenance made for schemes and maintenance related issues, and training conducted for the rural community on water.

#### 4.2.2.1. Institution that Financed Schemes

Various institutions such as government, NGO's, private sectors may participate in improving rural communities' drinking water service. Focusing on the issue, the collected data was analyzed and interpreted in the table below on the institutions that contributed in developing water schemes.

**Table-16: Distributions of Respondents about Identifying the Institution that Contributed in Developing Schemes**

| Items | Alternatives | Frequency | Per.% |
|---|---|---|---|
| **Financial supporter of schemes** | 1.Government | 29 | 42.65 |
| | 2.Community | 12 | 17.65 |
| | 3.NGO | 11 | 16.2 |
| | 4.Private | 13 | 19.1 |
| | 5.I don't know | 3 | 4.4 |
| | **Total** | **68** | **100** |

As it could be observed from Table-16, 29 (42.65%) of respondents at community level reported that the schemes are financed by the government. On the other hand, 12 (17.65%), 11 (16.2%) and 13 (19.1%) of them responded that the schemes are supported by community, NGO and private respectively. It can be concluded that the schemes that currently exist in the community are financed by various institutions though the government's contribution is the highest of all. The finding does not contradict with the one that obtained from households (See Table-3).

#### 4.2.2.2: Maintenance for Schemes

If the rural schemes developed for the community has no guarantee for maintenance and if the conditioned are not facilitated to solve problems of maintenance form the beneficiaries and the organizations, the possibility of delivering effective service of drinking water for the community remains ideal. To verify the problems identified during household survey, the data collected from respondents at community level was discussed here under.

**Table-17: Distributions of Respondents about schemes maintenance and related issues**

| Items | Alternatives | Frequency | Per.% |
|---|---|---|---|
| **1. Whether or not maintenance is made for the scheme** | 1. Yes | 15 | 22 |
| | 2.No | 53 | 78 |
| | **Total** | **68** | **100** |
| **2.From where technician may come to maintain the water points** | 1. Among community | 0 | 0 |
| | 2. From water office | 63 | 92.6 |
| | 3. From private | 5 | 7.4 |
| | 4. I don't know | - | - |
| | **Total** | **68** | **100** |
| **3.Maintenance cost is covered by** | 1. Community | 22 | 32.4 |
| | 2. District water office | 18 | 26.5 |
| | 3. Private | 16 | 23.5 |
| | 4. NGOs | 12 | 17.6 |
| | **Total** | **68** | **100** |
| **4. Days/weeks/months that scheme delayed without maintenance.** | 1.About 1-3 Weeks | 0 | 0 |
| | 2.About a Month | 0 | 0 |
| | 3.2-4 Months | 0 | 0 |
| | 4.5-7 Months | 0 | 0 |
| | 5.About a Year | 4 | 5.9 |
| | 6.About 2-3 Years | 6 | 8.8 |
| | 7. No maintenance ever | 58 | 85.3 |
| | **Total** | **68** | **100** |
| **5. Reasons for schemes without maintenance.** | 1. The scheme has no problem | 4 | 5.9 |
| | 2. We do have alternative | 0 | 0 |
| | 3. We couldn't get technician | 54 | 79.4 |
| | 4. We couldn't afford the | 10 | 14.7 |
| | **Total** | **68** | **100** |

As one can understand from Table-17 of item 1, 53 (78%), of the respondents at community level replied that no maintenance made for the schemes in their kebeles. However, 15 (22%) of them responded as maintenance is made for the schemes. From the result, the effort made to maintain schemes those not functioning is very weak. The result from household responses, focus group discussions with the water committees and kebele representatives substantiate the result (See Table-7). In addition, one of the key informant interviewees uttered that there is a scheme that is going to stop functioning because of lack of maintenance and protection. The personal observation made by the researcher himself also confirms the information. The scheme (spring on spot) that realizes the result is found in Gari kebele, 'Buko' village. One can conclude that the support being given for the community to maintain the schemes not functioning is poor.

As can be observed from Table-17 of item 2, 63 (92.6%) of the people at community level responded that the water technician comes from the district's water office, but only 5 (7.4%) of them reported as they get technician from private. The finding implies that there is shortage of water technician in the community (See Table-7).

Regarding the data obtained from people at community level on the source of maintenance covered, respondents of item 3, 22 (32.4%), 18 (26.5%) and 16(23.5%) them replied that the sources of maintenance cost is from community, district water office and the private respectively. The rests 12 (17.6%) responded that maintenance made is by NGOs. We can conclude that the schemes obtained maintenance is by various organizations.

As can be observed from item 4 of Table-17, 58 (85.3%) of people at community level responded that no maintenance ever made for the schemes since their construction. On the other hand, 6 (8.8%) of respondents reported that the schemes delayed without maintenance for about 2-3 years. The result shows that almost all schemes were not maintained. The discussion and interview result encourage the finding. Additionally, the personal observation made strengthen reality of the problem. Moreover, the finding in Table-7 supports the finding.

As it can be seen from item 5 of Table-17, 54 (79.4%) of the respondents replied that the schemes in the study area remained without maintenance because of lack of technician. On the other hand, 10 (14.7%) of the respondents reported that they could not maintain the schemes because the community could not afford the financial cost for maintenance. It is better to remind what Musonda notes; he states that the responsibility to manage water supply system should not be transferred onto the community structure that does not have the capacity to operate and maintain it (Musonda, 2004). We can conclude that the main reason of the schemes in study area remaining without maintenance is because of shortage of skilled person in the community. The data support the result obtained from household survey, focus group discussions and interview (See Table-6).

#### 4.2.2.3. Training for Society at Community Level

If the people at community level could not get training on schemes maintenance and management, expecting consistent water service from the schemes becomes an imaginary.

Thus, the item in the table below aimed at analyzing some data from people at community level on about training for the community.

**Table-18: Distributions of Respondents about Training on Water**

| Item | Alternatives | Frequency | Per.% |
|---|---|---|---|
| **Whether or not training is conducted for people at community level** | 1. Yes | 11 | 16.2 |
| | 2. No | 57 | 83.8 |
| | **Total** | **68** | **100** |

As can be seen from Table-18, 57(83.8%) of respondents at community level replied that they did not get training on water. Only 11 (16.2%) of them responded as they took training. The result shows building the capacity of the community on how to improve rural water schemes needs serious attention in the future. Similarly, the data gathered from households, key informant interview and group discussions with water committee and kebele representatives indicate that no training given by any institution (See Table-6). One of the key informant interviewee reported that the community lacks education of training on how to get clean water. He added that the health extension worker who assigned for Gari kebele did not make any effort to aware the community how to keep the sanitation of the drinking water. The report of the interviewee reminds us the other scholar finding; that is one of the problems of rural water supply system is lack of education on water supply and sanitation (Harvey and Reed, 2007).

### 4.2.3. Managing the Rural Schemes

In the process of providing the rural community with drinking water, the critical issue to be concerned is not only constructing wells or installing hand pumps or developing spring on spots but also managing or maintaining those systems or schemes is the critical keys to success. Accordingly, data was collected on rural schemes management and related issues under various sub issues.

#### 4.2.3.1. Discussions of Water Supplying Organizations with Community

Under this sub topic, the issue of community involvement in providing drinking water and the technology to be selected was discussed and analyzed in the table below.

**Table-19: Distributions of Respondents about Discussions made with Community on water scheme**

| Items | Alternatives | Frequency | Per.% |
|---|---|---|---|
| **1. Discussion with the community where schemes to be developed before construction.** | 1. Yes | 58 | 85.3 |
| | 2. No | 10 | 14.7 |
| | **Total** | **68** | **100** |
| **2. Discussion with the community for technology options.** | 1. Yes | 7 | 10.3 |
| | 2. No | 61 | 89.7 |
| | **Total** | **68** | **100** |

One can observe from Table-19 of item 1 that 58 (85.3%) of people at community level responded that the agency which supplied the schemes did make discussion with the community where the schemes to be constructed preferably. Nevertheless, 10(14.7%) of them reported that the institution did not consult them. It could be concluded in such a way that the participation of the rural communities in the study area is high. The data collected from households through questionnaire, focus group discussion and interview also corroborate the result (See Table-11). Concerning (Table-19, item 2) the options of technology to be provided for the community by the supplier agency, 61 (89.7%) of the respondents replied that the supplier agency did not make discussion with the community. Only 7 (10.3%) of the respondents reported that as the supplier agencies provided the optional technologies for the beneficiaries. Likewise, the information obtained from households, key informant interview and focus group discussion indicate that the interest of the community to prefer which technology to use is undermined. The group discussants of the district's water office stated that the type of technology preferred is proposed by the office rather than the community based on the site where a scheme is decided to be constructed. When they asked why they did not let the community participate preferring their interest of technology, we are not in a position to provide various technologies for preference, and also the community is not potentially educated to identify which technology is best for them by relating with various contexts. Thus, we can conclude that the participation of the community to select preferable technology for schemes developments is not experienced. Regarding the finding, it is important to relate it with what Geleta and his colleagues noted in their study. The management and improvement of rural water schemes can be influenced by appropriateness of technology to be selected with the context of the community and the environment (Geleta et al, 2002).

#### 4.2.3.2. Household Size and Sufficiency of Schemes for Households

The size of a family determines the amount of water to be consumed by the community, and the amount of water that the community obtaining also concerned whether or not it is sufficient. The table below focuses on the issues and make analysis.

**Table-20: Distributions of respondents on the number of households and sufficiency of schemes**

| Items | Alternatives | Frequency | Per.% |
|---|---|---|---|
| **1.Number of households using the water point** | 1. 20-30 | 6 | 8.8 |
| | 2. 30-40 | 3 | 4.4 |
| | 3. 40.50 | 12 | 17.65 |
| | 4. 50-60 | 11 | 16.2 |
| | 5. 70-80 | 9 | 13.2 |
| | 6. 80-100 | 12 | 17.65 |
| | 7. 100-150 | 15 | 22.1 |
| | **Total** | **68** | **100** |
| **2.Whether or not the water that community collects from schemes is sufficient** | 1.Yes | 9 | 13.2 |
| | 2.No | 59 | 86.8 |
| | **Total** | **68** | **100** |

Table-20 above indicates that 15 (22.1%) of the community level respondents responded that the number of beneficiaries of the schemes are from one hundred up to hundred fifty. On the other hand, 32 (47.05%) of them replied that from fifty up to one hundred number of stakeholders use schemes. The data shows that majority of schemes serve more than 50 households. The finding in Table- 8 indicates that the average size of each household is 5-6. On the other hand, the district of water and energy office designs by assuming that each scheme has a capacity to serve 250 beneficiaries. When we relate the finding of household size (which is 5-6) with the number of beneficiaries (which is more than 50 household) and the district's assumption number of beneficiaries (which is 250 beneficiaries), we can deduce that there is a shortage of drinking for the beneficiaries. From the result, we can conclude that the beneficiaries of rural communities are not getting sufficient water from the schemes. The interview with key informants and the focus group discussions with water committee and kebele representative also infer as majority of the schemes have no capacity to serve all beneficiaries sufficiently. As the researcher interviewed some of the beneficiaries those who were waiting for fetching water, they said that because of the number of users of the scheme, they keep queue for more than one hour (See Figure-18). On the other hand, another interviewee asserted that the problem of the scheme is not only the number of the beneficiaries but also the capacity of the scheme is reducing. They raised that there are occasions when the beneficiaries returned to home without water after waiting for such long

time because of the discharging power of the scheme highly reduced. Consequently, we can conclude that reducing of the capacity of the scheme is another serious problem for rural communities.

Regarding the data collected on sufficiency of water from schemes (Table-20, Item-2), 59 (86.8%) of the respondents reported that the schemes are not sufficient for the communities. Insignificant number of respondents, that is, 9 (13.2%) of them reported that they get water from schemes sufficiently. The data confirm the result obtained from item 1 of the same table. One can conclude that the schemes currently serving the rural community are not sufficient.

#### 4.2.3.3. Water Committee

The presence and activeness of water committee has impact in supplying drinking water for rural community. It is important to enable detailed monitoring and finding solutions to various problems confronting the proper functioning of the installed water infrastructures. Similarly, Brikke discusses that tasks of water committee is many: ensuring good communication of all levels, providing information and feedback for concerning bodies and collecting information (Brikke, 2000).

Hence, to identify the management problems of rural schemes related to water committee, data was collected and discussed in the table below.

**Table-21: Distributions of respondents about water committee and related issues**

| Item | Alternatives | Frequency | Per.% |
|---|---|---|---|
| **1. Presence of water committee in the kebele.** | 1. Yes | 24 | 35.3 |
| | 2. No | 35 | 51.5 |
| | 3.I don't know | 9 | 13.2 |
| | **Total** | **68** | **100** |
| **2.Participators in selecting water committee** | 1. Community | 13 | 54.2 |
| | 2. Kebele representatives | 6 | 25 |
| | 3. Woreda water office | 0 | 0 |
| | 4.Community elders | 5 | 20.8 |
| | 5. Others (identify) .... | - | - |
| | **Total** | **24** | **100** |
| **3.Involvement of female in water committee** | 1. Yes | 19 | 79.2 |
| | 2. No | 5 | 20.8 |
| | **Total** | **24** | **100** |
| **4.Proportionality of females' number with male as water committee** | 1. Yes | 13 | 54.2 |
| | 2. No | 11 | 45.8 |
| | **Total** | **24** | **100** |

As it could be observed in Table-21 of item 1, 35 (51.5%) of the kebele representatives and committees of women and youth associations responded that there are no water committees in their areas. On the contrary, 24 (35.3%) of the respondents reported that there are water committees in their kebeles. The table also show that 9 (13.2%) of the respondents replied that they do not have information whether or not the water committee is available in the community. The finding implies that establishing water committee in rural communities of the study area is undermined. The data that gathered from household respondents also verify the result (See Table-12).

From Table-21 of item 1, the response given for alternative 1 by the respondents who replied 'Yes' for the presence of water committees shows that 13 (54.2%) of them responded as the community took part in selecting the water committee. Others, 6 (25%) and (5%) of the people at community level reported as kebele representatives and community elders were involved in selecting the water committee. One of the key informant interviewee also said that the water committee currently working in his village was proposed by the community. One can conclude that the water committee established in the study area, though not satisfactory, the participation of the community in selecting the water committee is encouraging.

Item 3 of Table-21 illustrate that 19 (79%) of respondents at community level reported as there is participation of female being water committees. In the reverse, 5 (20.8%) of them replied that the females are excluded from water committee. The discussions conducted for water committee indicate that there are females working as member of water committee though their ratio is not equal with males. The kebele representatives' discussants sated that the participation of females as water committee is high. The result shows that the participation of females as water committee in rural communities where water committee established is good.

As can be seen from Table-21 of item 4, 13 (54.2%) of the respondents reported that the number of females as water committee is proportional with males. However, 11 (45.8%) of them responded as females' number in water committees is not proportional with males. During the group discussion, both the water committees raised that there are some water committee with balanced (two or three out of five water committee) genders and also there are some where the number of males in the committee dominates females (only one or none from five members of water committee). The kebele representatives during group dicussion

also added that even there is a committee consists of greater number of females. We can conclude that in rural communities of the study area where water committee established, the ratio of female participants with males as water committee is motivating. Furthermore, the major problems that the water committee mentioned during the discussion are: most of the water committee do not know what is expected from individuals' water committee; there is no clear description of job for each members of the committee; they do not know their responsibility who is chairperson or secretary or cashier; the kebele representatives and the district's water office do not give feedback to the problems of schemes that water committee report to them; no selection of water committee with the interval of years (the water committee those once selected when the scheme was established for about three to ten years are still considered as water committee) which has negative impact on water supply management because the committee may fed up with the responsibility of the job or they may be exposed to mismanagement of finance.

#### 4.2.3.4. Water Payment

**Table-22: Distributions of Respondents about Water Payment**

| Item | Alternatives | Frequency | Per% |
|---|---|---|---|
| **1.Practice of the community in paying for water** | 1. Yes | 18 | 26.5 |
| | 2. No | 50 | 73.5 |
| | **Total** | **68** | **100** |
| **2.The rank for the practice of the communities in paying for water purpose** | 1. Excellent | 8 | 48.5 |
| | 2. Very Good | 7 | 38.8 |
| | 3. Good | 3 | 16.7 |
| | 4. Poor | 0 | 0 |
| | 5.Very Poor | 0 | 0 |
| | **Total** | **18** | **100** |
| **3.Decision maker of the amount of water payment** | 1. Community | 16 | 88.8 |
| | 2.Water committee | 1 | 5.6 |
| | 3.Kebele administrative | 0 | 0 |
| | 4.District water agents | 1 | 5.6 |
| | **Total** | **18** | **100** |
| **4.Participants of selecting collector of water payment** | 1. Community | 17 | 94.4 |
| | 2. Water committee | 0 | 0 |
| | 3.Kebele representatives | 1 | 5.6 |
| | 4.District water agents | 0 | 0 |
| | **Total** | **18** | **100** |
| **5.Practice of giving receipt for stakeholders those pay for water** | 1. Yes | 0 | 0 |
| | 2. No | 18 | 100 |
| | **Total** | **18** | **100** |

As can be seen from Table-22, the data gathered from people at community level which is based on the item 1 shows that 50 (73.5%) of the communities are not participating on paying for water. Only 18 (26.5%) of the respondents replied as they are currently taking part in water payment. The data obtained from household respondents confirm the finding (See Table-14, Item 1). In addition, the analysis made from the information recorded by interview and focus group discussion also supports the results. One can conclude that the participation of the community in paying for water is poor. The problem of water payment in rural areas noted that as it is because of inadequate management (MoFED and UNDP, 2005):

As the item 1 of the Table-1 above shows, 18 (26.5%) of them are the practice of the community participating on water payment. Based on this data, the respondents (18) requested the following four items in the same table. The data gathered on item 2 in the above Table-22 illustrates as 8 (48.5%) and 7 (38.8%) of the people at community level responded 'Excellent' and 'Very Good' respectively by ranking the communities' participation in water payment. On the other hand, 3 (16.7%) of them replied as their practice of paying for water is 'Good'. From the data, we can conclude that the community in the study area is conscious in taking part in water payment. The third item in the same table reveals that 16 (88.8%) of the respondents reported that the amount of payment to be contributed for water purpose is decided by the community. The result implies the communities pay for water by their motivation. The table also informs about the participation of the community in selecting money collector or treasurer. As item 4 of the table depicts, 17 (94.4%) of the respondents replied as the communities are active participants in selecting collector of money for water payment. The statistics indicate that the trust of the community on the money collector is high since they participated in selecting the committee. The statistics from household respondents also confirm the finding (See Table-14, Item 3). Regarding the data collected on the practice of giving receipt for community for water payment they make, 18 (100%) of the people at community level responded that there is no any receipt given for payment of water that communities make. To conclude, the financial management for improving rural communities' drinking water is exposed to cheating or misusing of it. Similarly, the data from household respondents in Table-14, item 4 has relevance with the result.

# CHAPTER FIVE

# 5. CONCLUSIONS AND RECOMMENDATIONS

In this chapter, the conclusion and recommendations are provided based upon the findings.

## 5.1. CONCLUSION

The study depicted that the problems of schemes situated for rural communities, institutions that supposed to support the rural communities for improvement of water and the management system of the rural schemes. The drinking water coverage of the rural community is not as such satisfactory, and the schemes in the rural communities of the study area are not properly functioning because of construction quality of the schemes, lack of protection, handling problem of beneficiaries and low budget allocation for schemes. Additionally, the number of beneficiaries getting drinking water from the schemes is beyond the capacity of the schemes designed to serve, and some of the schemes remained below their capacity to serve the beneficiaries

Majority of the communities still could not get access to water from schemes. Most of the schemes constructed are closest to the town where there is access of transportation, but communities that far from the town and no transportation access are not getting institutional support. Another obstacle occurred not to give institutional support in terms of the government is that problem of logistic.

The institutional support that the rural communities have to obtain for water supply improvement is poor, and the experiences of maintaining non-functional schemes in the rural community of the study area are undermined mainly because of lack of water technician in the community. Community management is also weak to organize the communities and to let them take part in contributing money or/and materials for the maintenance of the schemes.

The community involvement on participation of the water projects where to construct the schemes is more of participatory, but the type of technology to be installed for the communities is preferred by the office rather than the community; the interest of the community to prefer which technology to use is undermined.

The community couldn't get sufficient water from the schemes they are using as the standard of WHO because of the number of beneficiaries are beyond the capacity of the schemes and the capacity of other schemes are below their potential to discharge due to design or installation problem.

The time that communities waste by waiting for a long time to fetch the water is highly disappointing the beneficiaries, and the quality of water that communities collect from schemes, the water from both the hand pumps and spring on spot may cause health problem to the beneficiaries.

Most of the schemes in rural communities have no established water committee. Among few number of schemes that identified as they consist of water committee, they do not have clear description of job for each members of the committee; they do not know their responsibility who is chairperson or secretary or cashier; the kebele representatives and the district's water office do not give feedback to the problems of schemes that water committee report to them; no selection of water committee with the interval of years (the water committee those once selected when the scheme was established for about three to ten years are still considered as water committee) which has negative impact on water supply management. Thus, the lack of water committee at most of rural schemes show that overall management system of schemes is failed to be efficient and effective.

Concerning the practise of payment for water in the study area, the practise of water payment is negligible because of lack of responsible body to organize and aware the communities for the purpose of the contribution. However, the schemes where there are cultures of water payment, the communities' participation in selecting a treasurer, deciding the amount of money to pay and getting awareness on the purpose of payment is high, but there is no system of giving receipt for the communities when they pay for water. Thus, the practice of the water payment and the payment system for rural schemes has management defect.

From the findings of the study, the constructed schemes have quality problem, lack of protection, handling problem and inadequate budget allocation for schemes construction and maintenance. The emphasis given to supply oriented approach by ignoring how to manage the existing schemes is also problematic. The unsafe drinking water from the schemes, lack

of education or training for the community on how to manage or care for the schemes are another hindrances. Additionally, the number of beneficiaries beyond the capacity of the schemes, low capacity of the schemes, weak community management, and poor community involvement to select the type of technology to be installed is highly concerned. Moreover, the beneficiaries wasting much time at the water point to fetch water, absence of established water committee for schemes, negligible water payment system because of lack of responsible body to organize, lack of man power with relevance of field of studies are also serious issues. Furthermore, logistic problem, poor communication among the district water and energy office, kebele representatives, water committees and the beneficiaries are another identified challenges. It can be concluded that the abovementioned points are major challenges for the rural water supply and management system of the study area.

## 5.2. RECOMMENDATIONS

In light of the data analyzed and conclusions drown; it is possible to generate some suggestions to improve rural water supply and management system. As a result of the findings obtained, the following recommendations are forwarded.

To reduce the health risks may occur from unsafe water sources, the district water and energy office should work on constructing schemes with the collaboration of communities and other supplying agencies. In addition, health extension workers have to educate the communities how to treat unsafe water.

In order to reduce the problems of functioning of currently existing rural schemes a, measures should be taken. One thing is that, facilities should be provided for maintenances. The other point is that, schemes should be protected from animals and children by fencing them. Added to this, communities or beneficiaries must be educated on how to properly use the water point.

For the beneficiaries those their number is beyond the discharging capacity of the schemes, additional schemes should be constructed, but for those schemes could not serve the number of beneficiaries expected, the case or problem of the scheme should be studied for maintenance.

The water and energy office of the district should identify the responsibility that the communities are able to or unable to shoulder. After identifying the communities' capacity, institutional support must be provided on the responsibility which is beyond their capacity such as training, designing and maintaining.

The problem of logistic occurred in the district can be solved with different options. One way of solving the problem is that the regional or federal water and energy office should concern the seriousness of the problem and fulfil the facilities. Secondly, the water and energy office of Guto Gida district ought to prepare a project that influences the supplier agencies to let them give due attention to the problem. The other option is that the water and energy office of Guto Gida district must make integration with other closest government or other sectors to work cooperatively on various projects in the district.

To secure the service that rural communities obtain from the schemes the supplying institution, be it government or NGO or private, should provide training for beneficiaries how they can maintain schemes when breakages occur, water technician should be assigned for the schemes.

In order to improve rural water supply management system, there should be responsible body from the district or at kebele level to organize the communities so that they can take part in contributing money or/and materials for schemes development.

Regarding the community involvement on the type of technology to be installed for the rural communities, the supplying institution has to work on communities' participation for type of technology selection in advance of installation. The principles of partnership approach or community management system should be experienced.

In order to solve the impact of time wastage on development, the managing bodies should schedule the time of collecting water from the scheme by grouping the beneficiaries with different time table, and or working on how to construct more schemes.

It is recommended that to improve the quality of water from schemes, chemicals must be added to the water that contain worms and smells bad, and the area of the water points should be fenced and cleaned.

Where there are no water committees, they must be established for each scheme to realize the community management of the schemes; for the schemes already exist with water committee, they should get training on the description of job for each members of the committee, and selection of water committee should be made with the fixed intervals.

Regarding the water payment, a task of awareness creation should be done on the purpose of paying for water. On the other hand, communities that paying for water must get receipt

Finally, the researcher believes that the challenges of water supply and management system in rural communities need more to be studied. For this reason, further research should be carried out to reduce the problem by improving the findings of the study.

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# APPENDICES

## APPENDIX-A-a: QUESTIONNAIRE FOR HOUSEHOLD SURVEY

### I. Functionality and Non-Functionality of Schemes

1. What is the main source of your drinking water?
   1. Spring on spot 2. Traditional/Hand dug well 3. Hand Pump 4. Shallow well 5.Deep well fitted with hand pump 6. Spring motorized 7. River/Stream
2. If your response to question number-1 is among the water schemes, is the water point functioning properly all the times? 1. Yes 2. No
3. If your response to the question number-2 is 'No', where do you get water when the water point stops functioning? 1. From the river/stream 2. From private 3. If other (mention)

### II. Institutional Support for the Schemes

4. If your response to question number-1 is from the first six alternatives, who supplied the water scheme?
   1. Government 2. NGO 3. Private 4. Community 5. I don't know 6. If other..
5. If your response to question number-1 is from the first three alternatives, did you make any contribution for the establishment of the water point? 1. Yes 2. No
6. If your response to question number '5' is 'Yes', what was your contribution?
   1. Contributing money only 2. Providing only materials such as wood, sand, stone
   3. Participating with labour only 4. Contributing both money and materials
   5. Contributing money, materials and labour 6. I never contributed all
7. Have you ever got any training on water? 1. Yes 2. No
8. Is there skilled person (technician) in the community to maintain the broken scheme? 1. Yes 2. No
9. Has maintenance ever been made for the scheme that you are using? 1. Yes 2. No
10. If your response to question number '9' is 'Yes', did you contribute money/material for the maintenance cost? 1. Yes 2. No
11. If your response to the question number '9' is 'Yes', how many days/weeks/months the scheme delayed without maintenance?
    1. About 1-3 weeks 2. About a month 3. 2-4 months 4. 5-7 months
    5. About a year 6. About 2-3 years 7. No maintenance ever made
12. If your response to question number '9' is 'No', why?
    1. The scheme has no problem 2. We do have alternative schemes
    3. We lacked technician 4. We lacked money 5. We lacked spare parts 6. If other....

**III. Management System of the Schemes**

13. What is the number of households in your family?

    1. 2-3 2. 4-5 3. 6-7 4. 8-9 5. 10 and above 6. If other....

14. How many litters of water you fetch from the scheme per day?

    1. 5Lit 2. 10Lit 3. 15Lit 4. 20Lit 5. 25Lit 6. 40Lit 7. 60Lit 8. If other...

15. How much time (minutes/hour) it takes you to reach the water point?

    1. 2-3` 2. About 5` 3. About 10` 4. About 15` 5. About 20`

    6. About 25-30' 7.Morethan30`

16. How much time you wait for fetching water?

1. Less than 5' 2. 5-10' 3. 10-15' 4. 15-20 5. 20-25' 6. 30-45' 7. About 1hr 8. About 1-2hrs

17. How do you evaluate the quality of the water scheme you are using?

    1. Very Good 2. Good 3. Poor 4. Very Poor

18. Did the provider of the scheme make discussion with you and the community about the scheme where to develop before construction? 1. Yes 2. No

19. Have you got discussions with options which technology to use? 1. Yes 2. No

20. Is there water committee in your kebele? 1. Yes 2. No. 3. I don't know

21. If your response to question number '20' is 'Yes', did you participate in selecting the water committee? 1. Yes 2. No.

22. Who is more responsible for water collection among your family?

    1. Male 2. Female 3. Both Gender

23. Are you participating in water payment? 1. Yes 2. No

24. If your response to question number '23' is 'Yes', have you participated in deciding the amount of the payment? 1. Yes 2. No

25. If your response to question number '23' is 'Yes', did you participate in selecting the money collector? 1. Yes 2. No

26. If your response to question number '23' is 'Yes', do you get a receipt for water payment you make? 1. Yes 2. No

27. If your response to question number '23' is 'Yes', do you know for what purpose you pay the money? 1. Yes 2. No

28. If your response to question number '23' is 'No', why you are not participating to pay the money?

    1. I have no trust from the money collector 2. I can't afford the amount of the payment decided

    3.I was not asked to pay 4. If other mention .....

29. Do you have an interest/ are your willing to pay money for water? 1. Yes 2. No

**APPENDIX-A-b: Bargaaffiiwan Namoota Gandicha Keessa Jiraataniin Guutamu**

**I. Functionality and Non-Functionality of Schemes/Tajaajiluuf Tajaajiluu Dhiisuu Bishaan Dhugatiif Misoome**

1. Maddi bishaan dhugatii inni bayinaan itti fayyadamaa jiratan kami?
   1.Burqaa Gabbisame 2. Boolla harkaan qotame 3. Boolla Paamphii qabu
   4. Boolla bishanii ol dhihoo mashiniin qotame 5. Boolla bishanii gadi fagoo mashiniin qotame 6. Madda bishanii irraa mootoraan bishan harkifamu 7. Laga / Galaana

2. Yo deebiin kee lak. 1 jala jiru keessaa kanneen warra bishaan dhugaatiif misooman ta'e, maddi bishaan dhugaatiif misoome yeroo hunda tajaajila sirrii kennaa jiraa?
   1. Eeyyee 2. Miti
3. Yo deebiin kee lak. 2 jala filannoo jiruu keessaa 'Miti' kan jedhu ta'e, bakkan isa bishaan dhugatii tajaajiluu dhaabee eessaa fayyadamta?
   1. Laga / Galaanarraa 2. Dhuunfaarraa 3. Kan biraan yo jiraate.....

**II. Institutional Support for the Schemes/Deggersa Misooma Bishaan Dhugaatiif Godhamu**

4. Yo deebiinkee lak.4 jala filannoo jiru keessaa 'Eeyyee' ta'e, eenyuudha isaan?
   1.Mootummaa 2. Dhaabbata Miti Mootummaa 3. Dhuunfaa 4 Adda baasee hinbeeku
   4. Kan biraan yo jiraate.....
5. Yo deebiin kee lak. 1 jala jiru keessaa kanneen warra bishaan dhugaatiif misooman ta'e, misooma bishaan dhugaatiif deggersa tassisteettaa? 1. Eeyyee 2. Miti
6. Yo deebiinkee lak. 5 jala filanoo jiruu 'Eeyyee ta'e, kan ati gumaachite maal ture?
   1. Deggersa qarshii yeroo ijaarsaa 2. Wantoota ijaarsaaf barbbachisan kan akka muka, ashawwaa, dhagaafaa dhiheessuu 3. Hojii humnaan irratti hirmaachuu (yeroo ijaarsaa)
   4. Deggersa qarshiifi meshaalee ijaarsaa 5.Deggersa qarshii, meeshaalee fi humnaan
   6. Homaa tokkoyuu hingumaachine

7. Dhimma bishaanii irratti leenjii fudhattee beektaa? 1. Eeyyee 2. Miti
8. Yeroo bishaanni dhugaatii misoome tajaajila dhaabu ogeessi suphuu danda'u naanoo kee jiraa? 1. Eeyyee 2. Miti
9. Bishaan misoomee tajaajila irraa argachaa jirtuuf suphiinsi geggeeffameefii beekaa?
   1. Eeyyee 2. Miti
10. Yo deebiinkee gaaffii lak 9 jala jiruu 'Eeyyee' ta'e, suphiinsaaf qarshii ykn meeshaa gumaachiteettaa? 1. Eeyyee 2. Miti
11. Yo deebiinkee gaaffii lak 9 jala jiruu 'Eeyyee' ta'e, hagamiif (guyyaa, torbee, ji'a) utuu hinsuphamin ture?
   1. Torban 3f 2. Ji'a 1f 3. Ji'a 2-4tti 4. Ji'a 5-7tti 5. Waggaa 1f
   6. Waggaa 2-3tti 7. Tasumaayyuu tajajilli suphiinsaa hintaasifamne
12. Yo deebiinkee gaaffii lak 9 jala jiruu 'Miti' ta'e, maaliif?
   1. Bishaann dhigaatiif misoometu rakkoo tokkoyyuu hinqabu
   2. Bishaan dhugaatii filannoo kan biraan qaba
   3. Ogeessa suphiinsa geggeessutu hinjiru
   4. Rakkoo qarshii qabna 5. Meeshaa jijjiirraaf oolutu hinjiru 6. Kan biraa yo jiraate...

**III. Bulchiinsa Misooma Bishaan Dhugaatii/Management System of the Schemes**

13. Baayyinni maatii keessanii meeqa?
    1 2-3 2. 4-5 3. 6-7 4. 8-9 5. 10 fi isaa ol 6. Kan biraa yo jiraate....
14. Guyyatti maatiidhaan bishaan liitira meeqa waraabbattu?
    1. 5Lit 2. 10Lit 3. 15Lit 4. 20Lit 5. 25Lit 6. 40Lit 7. 60Lit 8. Kan biraa yo jiraate...
15. Bishaan waraabbachuuf fageenya hagamii deemta?

    1. 2-3` 2. Gara 5` 3. Gara 10` 4. Gara 15` 5. Gara 20`
    6. Gara 25-30' 7. Gara 30` ol
16. Bishaan waraabbachuu dhaqxtee sa'a/daqiqa meeqa dhaabbattee eegda?
    1. Daq 5' gadi 2. 5-10' 3. 10-15' 4. 15-20 5. 20-25' 6. 30-45'
    7. Gara sa'a 1 ol 8. Gara sa'a 1-2
17. Bishaan dhugaatiif tajaajilamaa jirtu qulqullina isaa akkamittti madaalta?
    1. Baay'ee Gaarii 2. Gaarii 3. Gadi bu'aa 4. Baay'ee gadi bu'aa
18. Misooma bishaan dhugaatii warri geggeessan ijaarsa isaa dursaanii eessatti misoomuu akka qabu isiniif ummata mariisisaniiruu? 1. Eeyyee 2. Miti
19. Gosa takinoolojii fayyadamuun barbaachisu filannoo dhiheessuun isin mariisisaniiruu?
    1. Eeyyee 2. Miti
20. Naannookee koreen bishaanii jiruu? 1. Eeyyee 2. Miti
21. Yo deebiin lak. '15' jala filannoo jiruu 'Eeyyee' ta'e, koree bishaanii filuu keessatti hirmaatteettaa? 1. Eeyyee 2. Miti
22. Maatii keessan keessaa eenyutu caalmaatti bishaan dhugaatii waraabuutti itti gaafatamummaa qaba? 1. Dhiira 2. Dhalaa 3. Saalli lamaanuu walqixa
23. Kaffaltii bishaanii kaffalaa jirtaa? 1. Eeyyee 2. Miti
24. Yo deebiin lak. '23' jala filannoo jiruu 'Eeyyee' ta'e, gatii bishaan kaffalamuu murteessuu irratti hirmaatteettaa? 1. Eeyyee 2. Miti
25. Nama qarshii kaffaltii bishaanii walitti qabu filuu keessatti hirmaatteettaa?
    1. Eeyyee 2. Miti
26. Kaffaltii bishaanii raawatteef nagaheen siilaatamaa? 1. Eeyyee 2. Miti
27. Sababa maaliif akka kaffaltii bishaanii kaffaltu beektaa? 1. Eeyyee 2. Miti
28. Yo deebiin lak. '23' jala filannoo jiruu 'Miti' ta'e, maaliff kaaffaltii bishaanii irrati hinhirmaanne?
    1. Warra qarshii funaanu irraa amantaa hinqabu 2. Kaaffaltii murtaa'etu humnakoo oli
    3. Akkan kaaffaluuf hingaafatamne 4. Kan biraan yojiraate
29. Yo deebiin lak. '23' jala filannoo jiruu 'Eeyyee' ta'e, kaffaltii bishaanii akka kaffaltaniif murta'e ati kaffaluuf fedha guutuu qabdaa? 1. Eeyyee 2. Miti

**APPENDIX-B-a: QUESTIONNAIRE FOR RESPONDENTS AT COMMUNITY LEVEL**

**I. Functionality and Non-Functionality of Schemes**

1. Is there a water scheme in the community? 1. Yes 2. No
2. If your response to question number- '1' is 'Yes', are the schemes functioning properly all the times? 1. Yes 2. No
3. If your response to question number '2' is 'No', why the reason(s)?
   1. Problem of construction quality of water Scheme 2. Misuse of the beneficiaries when fetching water 3. Lack of protection (fence) from animals and children?
   4. Long service years 5. If others (mention).....

**II. Institutional Support for the Schemes**

4. Who financed for the establishment of the scheme?
   1. Government 2. Community 3. NGO 4. Private
   5. I don't know 6. If other (identify).....
5. Has maintenance ever been made for the scheme that community is using? 1. Yes 2. No
6. If your response to question number '5' is 'Yes', from where did the technician come to maintain the water points when it breaks?
   1. Among community 2. From water office 3. From private 4. I don't know 4. If other…
7. If your response to question number '5' is 'Yes', who covered the maintenance cost?
   1. Community 2. Woreda water office 3. Private 4. NGOs 4. Other……
8. If your response to the question number '5' is 'Yes', how many days/weeks/months the scheme delayed without maintenance?
   1. About 1-3 weeks 2. About a month 3. 3. 2-4 months
   4. 5-7 months 5. About a year 6. About 2-3 years 7. No maintenance ever made
9. If your response to question number '5' is 'No', why?
   1. The scheme has no problem 2.We do have alternative schemes
   1. We couldn't get technician 4. We couldn't afford the maintenance cost 5. If other….
10. Did you get any training on water? 1. Yes 2. No

**III. Management System of the Schemes**

11. Have the communities been consulted where to construct the schemes before the construction? 1. Yes 2. No
12. Have the communities been consulted which technology to use? 1. Yes 2. No
13. How many households use the water point?
    1. 20-30 2. 30-40 3. 40-50 4. 50-60 5. 70-80 6. 80-100 7. 100-150 8. If any…
14. Is the water you get from the water point **sufficient** to meet **your** needs for drinking?
    1. Yes 2. No
15. Is there a water committee in the community? Yes 2. No 3. I don't know
16. If your response to question number '15' is 'Yes', who participated in selecting them?
    1. Community 2. Kebele administration 3. Woreda water office 4. Others (identify) ….
17. If your response to question number '15' is 'Yes', is there female in water committee? Yes 2. No
18. If your response to question number '17' 'Yes', is the female's number proportional with male? 1. Yes 2. No
19. Are the communities paying for water? 1. Yes 2. No
20. If your response to question number '19' is 'Yes', how do you rank the practice of the communities in paying for water purpose?
    1. Excellent 2.Very Good 3.Good 4.Poor 5.Very Poor
21. If your response to question number '19' is 'Yes', who decided the amount of the payment?
    1. Community 2. Water committee 3. Kebele administrative
    4. District water agents 5. Others (identify)……
22. If your response to question number '19' is 'Yes', who selected the collector of the money?
    1. Community 2. Water committee 3. Kebele administrative 4. District water agents 5. Others (identify) _____
23. If your response to question number '19' is 'Yes', do the stakeholders get a receipt for water fee they pay? 1. Yes 2. No

**APPENDIX-B-b: Bargaaffii Namoota Tuuta adda addaa keessa Jiraniif Qophaa'e**

**J. Bishaan Dhugatiif Misoome Tajaajiluuf Tajaajiluu Dhiisuu isaa /Functionality and Non-Functionality of Schemes**

1. Bishaanni dhugaatiif tajaajilu kan misoome naannoo keessan jiraa?
   1. Eeyyee 2. Miti
2. Yo deebiin kee lak. 1 jala filannoo jiruu 'Eeyyee' ta'e, bishaanichi yeroo mara sirritti isin tajaajilaa jiraa? 1. Eeyyee 2. Miti
3. Yo deebiin kee lak. 2 jala filannoo jiruu 'Miti' ta'e, sababisaa maaliifi?
   1. Bakka sirrii hintaanetti waan misoomeef 2. Yeroo ijaarsi isaa geggeeffamu hanqina ogummaa irran kan ka'e 3. Kunuunsi bishaan misoomeef godhamu gadi bu'aa waan ta'ef 4. Kan biraan yo jiraate.....

**II. Institutional Support for the Schemes/ Deggersa Misooma Bishaan Dhugaatiif Godhamu**

4. Yo deebiin kee lak. 2 jala filannoo jiruu 'Miti' ta'e, waajjirri bishaanii atattamaan rakkinicha nihiikaa? 1. Eeyyee 2. Miti
5. Bishaan dhugaatii misoomee jiru eenyutu yeroo sana deggersa barbaachisu taasise?
   1.Hawaasa naannichaa 2. Waajjira bishaanii anaa kanaa 3. Dhaabbata mit-mootummaa 4. Dhaabbata dhuunfaa 5. Hawaasa naannichaa fi Waajjira bishaanii anaa kanaa 6. Hawaasa naannichaa fi dhaabbata mit-mootummaa waliin 7. Kan biraan yo jiraate.
6. Yeroo bishaanni dhuaggatiif misoome tajaajila dhaabu eenyutu suphiinsa isaatiif baasii barbbaachisu dhiheessa? 1. Waajjira bishaanii anaa kanaa 2. Hawaasa naannichaa 3. Dhaabbata mit-mootummaa 4. Kan biraan yo jiraate.....
7. Dhimma bishaanii irratti leenjii fudhattee beektaa? 1. Eeyyee 2. Miti
8. Yo deebiin kee lak. 7 jala filannoo jiruu 'Eeyyee' ta'e, leenjii akkamii fudhatte
   1. Akaamitti bishaan dhugaatii misoome akka kunuunsan
   2. Akkamitti bishaan dhugaatii misoome akka fayyadaman
   3. Akkamitti bishaan dhugaatii misoome akka suphan
   4. Akkamitti misooma bishaan dhugaatiif qarshii walitti qaban
   5. Kan biraan yo jiraate.....
9. Yeroo bishaanni dhuaggatiif misoome tajaajila dhaabu ogeessi suphu eessaa dhufa?
   1. Hawaasuma keessaa 2. Waajjira bishaanii irraa 3. Eessa akka dhufu hinbeeku

**III. Management System of the Schemes**

10. Bishaan misoome abbaa warraa meeqatu itti fayyadama jira? _____

11. Bishaan misoome irraa tajaajilli bishaan dhugattii argachaa jirtan gahaadhaa?

    1. Eeyyee 2. Miti

12. Bakka tajaajilli bishaan dhugaatii itti misoomuuf yaadametti ijaarsa calqabuun dursa hawaasi naannichaa maiisifameeraa? 1. Eeyyee 2. Miti

13. Gosa Tekinoolojii bishaan dhugaatiif ooluu qabu filannoon dhihaateefii hawaasi naannichaa mariisifameeraa? 1. Eeyyee 2. Miti

14. Bishaanni tajaajila dhugaatiif misoome yoo suphuun barbaachisutti meshaan (spare parts) gabaa dhiheenyaan jiru irraa argachuun nidandaa'amaa? 1. Eeyyee 2. Miti

15. Yo koreen bishaanii naannoo kee jira ta'e, isaaniin filuu eenyutu irratti hirmaate?

    1. Hawaasa naannichaa 2. Koree gandichaa

    3. Waajjira bishaanii aanichaa 4. Kan biraan yo jiraate.....

16. Koree bishaanii keessa shamarran jiruu? 1. Eeyyee 2. Miti

17. Yo deebiin kee lak. 16 jala filannoo jiruu 'Eeyyee' ta'e, lakkoofsa saala lamaanii madaalawaadhaa? 1. Eeyyee 2. Miti

18. Hawaasichi baasii misooma bishaaniif barbbaachisu ni raawwataa?

    1. Eeyyee 2. Miti

19. Yo deebiin kee lak. 18 jala filannoo jiruu 'Eeyyee' ta'e, sadarkaa akkamii laattaaf?

    1. Bayyee baayyee gaarii 2. Bayyee gaarii 3.Gaarii 4. Gadi bu'aa 5.Baayyee Gadi bu'aa

20. Yo deebiin kee lak. 18 jala filannoo jiruu 'Eeyyee' ta'e, kaffaltiin bishaanii hangam ta'uu akka qabu eenutu murteesse?

    1. Hawaasa itti fayyadamu 2. Koree bishaanii 3. Koree gandaa

    4. Waajjira bishaanii aanichaa 5. Kan biraan yo jiraate.....

21. Yo deebiin kee lak. 18 jala filannoo jiruu 'Eeyyee' ta'e, namoota kaffaltii bishaanii funaanuf kaawaman eenyutu file?

    1. Hawaasa itti fayyadamu 2. Koree bishaanii 3. Koree gandaa

    4. Waajjira bishaanii aanichaa 5. Kan biraan yo jiraate.....

22. Kaffaltiin bishaanii hawaasa irra fuudhamu maalirra akka oolu hubannaan nilaatamaafi?

    1. Eeyyee 2. Miti

23. Itti fayyadamtooti bishan misoomee kaffaltii raawwataniif nagaheen nilaatamaafii?

## APPENDIX-C: INTERVIEW WITH KEY INFORMANTS

### I. Functionality and Non-Functionality of Schemes

1. Does the community use water schemes? If so,

1.1. Are the points serving the community properly? If not, why do you think that the schemes are not functioning properly?

### II. Institutional Support for the Schemes

1.2. Is there a support provided for the community's water points' improvement? If so, what kind of support? From which institution/office?

1.3. Is there a contribution that the community made for the water points development? If so, what kinds of contributions?

1.4. Is there a support that the community expected to contribute, but fail to do it? If so, why?

1.5. Do you think that the support that expected from water office for water schemes development is successfully achieved? If not, why?

### III. Management System of the Schemes

1.6. Did the implementing agency make discussions with the community for where the water point has been developed before the construct?

1.7. Did the implementing agency make discussion with the community which type of technology to use?

1.8. Can the beneficiaries of the water point easily operate the technology?

1.9. Can the community handle the minor operation and maintenance of the scheme, when it breaks?

1.10. Do you think that the water point supplied is sufficient to meet the community's needs?

1.11. Do you actively participate in payment for water case? If not, why?

1.12. Do you trust the water payment collector? How the money collector is selected from the community?

1.13. Did you get the receipt for the payment you made?

1.14. Is there water committee in your area? How they are selected? Was it transparent?

1.15. Do you think that the participation of women as water committee is equal with the males?

1.16. Did the water committee made any discussion with community to solve the water problems of the area?

1.17. Did the kebele representatives made any discussion with community to solve the water problems of the area?

1.18. Did the district's water office workers made any discussion with community to solve the water problems of the area?

1.19. Did the district's administrative workers made any discussion with community to solve the water problems of the area?

2. What are the gaps you observed from the functionality and non-functionality of the schemes supports given from the institutions and communities to develop the schemes and management defects from the government offices?

3. What solution do you recommend in order to overcome the problems associated with the water supply management system?

## APPENDIX-D: FOCUS GROUP DISCUSSIONS

### A. Focus Group Discussions with Kebele Representatives and Water Committees

### I. Functionality and Non-Functionality of Schemes

1. Where does the community get water for drinking? If it is from a scheme,

1.1. What do you comment about the functionality of the scheme?

1.2. How do you evaluate the construction quality of the scheme?

### II. Institutional Support for the Schemes

1.3. Do the communities get technician for maintenance immediately after the breaks? If not, why?

1.4. Did you get any financial or training or technical support from government or non-government office/institution? What about the community?

1.5. Are you equipped/provided with necessary materials, manuals, and working guidelines from the concerned bodies?

1.6. Do you think that the support expected from both water office and the community for water schemes development is successfully achieved? If not, why?

### III. Management System of the Schemes

1.7. How many households are using a scheme?

1.8. Do you think that where the water point has been developed is at **fair distance** for the beneficiaries?

1.9. Is the water point sufficient to meet the community's needs? If not, why?

1.10. Do you think that the water from the scheme you use for drinking clean? Why?

1.11. Is there a problem with the beneficiaries how to operate the technology employed? If so, why?

1.12. Can you handle the minor operation and maintenance of the scheme, if it breaks?

1.13. Does the community actively participate in payment (willing to pay) for water case? If not, why?

1.14. How water payments/fees are collected from the community? How the money collector is selected? How about the receipt?

1.15. How do you evaluate the participation of women being as a water committee?

1.16. Do have regular time of discussions/meetings with community, district's water office and district's administrative office on water issues/problems?

1.17. Have you ever reported community's water problems to district's water and administrative offices to seek solutions?

1.18. How do evaluate the feedback (fast/delay) from the district's offices on your report?

2. What are the major problems you observed in the kebele in case of water issues?
3. What solution do you recommend in order to overcome the problems associated with the water supply management system?

**B. Focus Group Discussions with District's Water and Energy Office Workers**

**I. Functionality and Non-Functionality of Schemes**

1. Have the water points been provided for the communities If so,

1.1. Are the schemes serving the communities without problems or breakages? If there are problems with the functionality of the schemes, what are the causes of the problems?

**II. Institutional Support for the Schemes**

1.4. Did the office provide institutional support for the community or water committee on water issues? If so, what kind of trainings? If not, why?

1.5. Do you think that the man power/professionals in the staff can potentially solve water problems in the district?

1.6. Is there any project that delayed or failed because of absence of support that expected from the community or other institutions?

**III. Management System of the Schemes**

What are your criteria of developing the schemes at current place?

1.7. Did you make discussion with communities where to supply the scheme?

1.8. Do you think that currently the existing schemes are satisfying the community's water needs? If not, what are the obstacles that let the office not to satisfy the water needs of the community?

1.9. Does the water committee and kebele representative have strong communication with the office in providing report, progress or feedback with water problems occur communities?

1.10. Do you give immediate solutions to the water problems reported to your office from the community? If not, why the reasons?

1.11. Who is responsible body in selecting water committees, and what about the ratio of males and females in the committee?

1.12. What did you observe about water payment/fee from the community? How the amount of the payment/fee was decided and hoe the money collectors were nominated?

1.13. What do you comment about the integration between the community, water committee, kebele & woreda administrative and your office?

2. What are the major problems related to water you observed in the kebeles?
3. What solution do you recommend in order to overcome the problems associated with the water supply management system?

## APPENDIX-E

## GUTO GIDA WATER AND ENERGY OFFICE STAFF PROFILE (2003-2006)

### Appendix-E-a

| No. | Educational Status | Field of Study | Position | Gender | Year |
|---|---|---|---|---|---|
| 1 | BA | Rural Development | Person in Charge of the Office | M | 2006 |
| 2 | BA | Sociology | Vice in Charge of the Office | M | |
| 3 | BA | Sociology | Process Team Leader Minerals | M | |
| 4 | BA | Business Management | Water Technician-II | M | |
| 5 | BA | Accounting | Community Affair | F | |
| 6 | DIP | Accounting | Community Coordinator | F | |
| 7 | DIP | Accounting | Minerals Control Expertise-II | F | |
| 8 | DIP | Human Resource Management | Planning and Budget Expert | F | |
| 9 | DIP | ICT | Secretary | F | |
| 10 | DIP | Rural Water Supply & | Water Technician-III | F | |
| 11 | DIP | Electro Mechanical Technology | Electrician-III | M | |
| 12 | BA | Sociology | Surveyor | M | |
| 13 | DIP | Electro Mechanical Technology | Electrician-III | M | |
| 14 | BA | Sociology | Geologist-III | M | |

## Appendix-E-b

| No. | Educational Status | Field of Study | Position | Gender | Year |
|---|---|---|---|---|---|
| 1 | BA | SWEMM | Person in Charge of the Office | M | 2005 |
| 2 | BA | Electro Mechanical Technology | Vice in Charge of the Office | M | |
| 3 | DIP | Human Resource Management | Planning and Budget Expert | F | |
| 4 | DIP | RWSS | Team process leader of Water | M | |
| 5 | DIP | RWSS | Water Technician-IV | M | |
| 6 | DIP | RWSS | Water Technician-IV | M | |
| 7 | DIP | Mechanic | Mechanics | M | |
| 8 | DIP | Accounting | Income Monitoring Expert | M | |
| 9 | DIP | Accounting | Auditor | M | |
| 10 | 12 | Grade 12 Certificate | Team Process Leader of Minerals | M | |
| 11 | DIP | Accounting | Minerals Control Expert Water | F | |
| 12 | BA | SSI | Irrigation Expert | M | |
| 13 | DIP | SSI | Irrigation | M | |
| 14 | BA | Management | Monitoring and Evaluation of | M | |

## Appendix-E-c

| No. | Educational Status | Field of Study | Position | Gender | Year |
|---|---|---|---|---|---|
| 1 | BA | Sociology | Person in Charge of the Office | M | 2004 |
| 2 | BA | Business Management | Vice in Charge of the Office | M | |
| 3 | BA | Sociology | Planning and Budget Expert | F | |
| 4 | DIP | EMT | Electrician | M | |
| 5 | DIP | RWSS | Water Technician | F | |
| 6 | DIP | Accounting | Auditor | M | |
| 7 | DIP | RWSS | Electrician | M | |
| 8 | 10+2 | Accounting | Income Monitoring Expert | M | |
| 9 | DIP | Accounting | Expert | F | |
| 10 | DIP | Accounting | Income Generating Expert | F | |
| 11 | DIP | HRM | Gender Expert | F | |
| 12 | DIP | RWSS | Water Supply Expert | M | |
| 13 | DIP | SSID | Agriculture Management Expert | M | |
| 14 | DIP | SSID | Water Supply Expert | M | |
| 15 | DIP | EMT | Water Technician | M | |

## Appendix-E-d

| No. | Educational Status | Field of Study | Position | Gender | Year |
|---|---|---|---|---|---|
| 1 | BA | Sociology | Person in Charge of the Office | M | 2003 |
| 2 | DIP | Management | Vice in Charge of the Office | F | |
| 3 | 12+1 | Commerce | Secretary | F | |
| 4 | DIP | Accounting | Expert | F | |
| 5 | DIP | RWSS | Water Technician | M | |
| 6 | DIP | EMT | Minerals Control Process Team | M | |
| 7 | DIP | EMT | Plumber | M | |
| 8 | BA | Business Management | Irrigation Process Team Leader | M | |
| 9 | DIP | SSID | Expert | M | |
| 10 | BSc | SSID | Surveyor | M | |
| 11 | BSc | SSID | Surveyor | M | |
| 12 | DIP | RWSS | Water Supply Process Team Leader | M | |
| 13 | DIP | RWSS | Water Supply & Sanitation Expert | M | |
| 14 | DIP | HRM | Planning Process Team Leader | F | |
| 15 | 12 | Certificate | Minerals Control Process Team | M | |
| 16 | DIP | Accounting | Giving License for People Excavate Minerals | F | |
| 17 | DIP | Accounting | Irrigation Expert | F | |

# APPENDIX-F
# PERSONAL OBSERVATION CHECKLIST

## Appendix-F-a

**Schemes Observed in Dune Kane Kebele with their Type, Status, Supplier, Year of Construction and Presence of Water Committee**

| Kebele | Village | Site Name | Scheme Type | Current Status | | Constructed by | Year of Construction | Frequency of Main-tenance made | Presence of Water Committee |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Functional | Non-Functional | | | | |
| Dune Kane | Bonaya | Laga Waraba | Spring on Spot | | ✓ | Government | 1996 E.C. | 0 | x |
| | Gajo | Laga Bukitu | Spring on Spot | ✓ | | Government | 2005E.C. | 0 | X |
| | Gudatu | Dorra | Spring on Spot | | ✓ | NGO (Sinodos) | 1990 E.C. | 0 | ✓ |
| | Lalisa | L. P. School | Hand Pump | | ✓ | Government | 1980 E.C. | 0 | X |
| | Lalisa | D/Kane | Hand Pump | | | Government | 1996E.C. | 0 | ✓ |
| | Abono | Abono | Hand Pump | | ✓ | NGO (Hind) | 1996E.C. | 0 | X |
| | Abono | Taresa's Home | Hand Pump | | ✓ | Gov't + Private + Community | 2005E.C. | 0 | X |
| | Sorga | Gafare | Hand Pump | ✓ | | Gov't + Private + Community | 2004E.C. | 0 | X |
| | Sorga | Goter Area | Hand Pump | ✓ | | NGO (Hind) | 1996E.C. | 0 | ✓ |
| | Sorga | Mekane Iyesus | Hand Pump | ✓ | | NGO | 2005E.C. | 0 | X |

**APPENDIX-F-b**

**Schemes Observed in Gari Kebele with their Type, Status, Supplier, Year of Construction and Presence of Water Committee**

| Kebele | Village | Site Name | Scheme Type | Current Status | | Constructed by | Year of Construction | Frequency of Main-tenance made | Presence of Water Committee |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Functional | Non-Functional | | | | |
| Gari | Korkoro Dajaz | Burka Uke | Spring on Spot | ✓ | | Community | April, 2006 E.C. | 0 | X |
| | Mako | Mako M/Iyesus Church | Hand Pump | | ✓ | NGO | 1984E.C. | 0 | X |
| | Tola | Danja | Spring on Spot | | ✓ | Community +Gov't | 2001 E.C. | 0 | X |
| | Chala Gabel | Goshol | Spring on Spot | ✓ | | Government | 2000 E.C. | 0 | X |
| | Gari-02 | Koromi | Hand Pump | | ✓ | NGO (CVM) | 1993E.C. | 1 | X |
| | Gari-01 | Dinsa Shone | Hand Pump | | ✓ | NGO (CVM) | 1996E.C. | 0 | ✓ |
| | Gari-02 | Borta Yansa | Spring on Spot | | ✓ | NGO Sinodos) | 2006 E.C. | 0 | ✓ |
| | Gubos | Damitu | Spring on Spot | ✓ | | | | 0 | X |
| | Gari G-03 | | Spring on Spot | Partial | | Government | 2004E.C. | 0 | X |
| | Gari-Gare-2 | Magala | Spring on Spot | Partial | | Government | 2004E.C. | 0 | X |
| | Gari-Gare- | Magala | Hand Pump | | ✓ | Government | 2004E.C. | 0 | X |
| | Gari-Gare- | Gimbi | Hand Pump | | ✓ | Government | 2004E.C. | 0 | X |
| | Gari | Buko | Spring on Spot | ✓ | | Government | 1993E.C. | 0 | ✓ |