



INDIRA GANDHI NATIONAL OPEN UNIVERSITY (IGNOU)

*ASSESSMENT OF R-WASH PROGRAM OBJECTIVES ACHIEVEMENT IN  
SHASHAMENE WOREDA: THE CASE STUDY OF THREE R-WASH  
INTERVENTION KEBELES*

By

**MESERET FUFA KACHERA**



Thesis submitted to Indira Gandhi National Open University (IGNOU) for  
Partial Fulfillment of the Requirement for the Degree of Master's of Arts in  
Rural Development (MARD)

**October 2014**

**Addis Ababa, Ethiopia**



INDIRA GANDHI NATIONAL OPEN UNIVERSITY (IGNOU)

ASSESSMENT OF R-WASH PROGRAM OBJECTIVES ACHIEVEMENT  
IN SHASHAMENE WOREDA: THE CASE STUDY OF THREE R-WASH  
INTERVENTION KEBELES

**By**

MESERET FUFA KACHERA

Enrolment N<sup>o</sup>: ID1051241

Thesis submitted to Indira Gandhi National Open University for Partial  
fulfillment of the Requirement for the Degree of Master's of Arts in Rural  
Development (MARD)

**October 2014**

**Addis Ababa, Ethiopia**

## **ABSTRACT**

*The overall purpose of this study is to assess objective achievements of R-WASH program in the program intervention kebeles of Shashamene Woreda, Oromia Regional State. The study begins with examining the historical development of the R-WASH program at global level and then describes how it came into being in the country, at national, regional and woreda level. In so doing it describes the main components of the R-WASH program and justifies its importance to alleviate rural poverty and at the same time to achieve the Millennium Development Goals (MDGS).*

*The research methods adopted to do the task were basically relied on analysis of primary data collected from 132 household respondents of the intervention kebeles coupled with focus group discussions (FGD) and face to face interviews conducted with relevant sectoral offices, respective kebele officials, and HEWs situated in each of the intervention Kebeles. This research method is also supported with the analysis of secondary data (literature review) and researcher's own personal observation of the local communities and households' dwellings, water supply schemes and sanitation facilities. Some pictures were taken to illustrate the situation and included in the main text.*

*The study findings revealed that potable water supply availed by the R-WASH program is generally inadequate to satisfy people's daily needs and consumptions. The inadequacy of potable water supply coupled with frequent breakdown of water supply schemes forced the households to collect water from unprotected sources to meet their daily needs. However, the findings of this study also established the views that water-borne disease prevailed in the communities prior to the implementation of this program considerably reduced. Data revealed that significant portion of the households living in communities under study owned various sanitation facilities including latrine and waste disposal pits and improved hygienic behaviors achieved since the onset of the R-WASH program. However, despite of such efforts, personal observation established the sustainability of the available facilities is still under question.*

*Finally, the study outlined some of the recommendations to overcome those obstacles and gaps in the implementation of the R-WASH program that hinder objective achievements.*

**Key Words:** *Rural Water supply, Sanitation and Hygiene*

## DECLARATION

I hereby declare that the dissertation entitled “*ASSESSMENT OF R-WASH PROGRAM OBJECTIVES ACHIEVEMENT IN SHASHAMENE WOREDA: THE CASE STUDY OF THREE R-WASH INTERVENTION KEBELES*” submitted by me in partial fulfillment of the award of the Degree of Master’s of Arts in Rural Development (MARD) to Indira Gandhi National Open University (IGNOU) New Delhi is my own original work and has not been submitted earlier either to IGNOU or to any other institution. I also declare that no chapter of this manuscript in whole or in part is lifted and incorporated in this report from any earlier work done by me or others.

Place: Addis Ababa

Name: MESERET FUFA KACHERA

Date: \_\_\_\_\_

Enrolment N<sup>o</sup>: **ID1051241**

Signature: \_\_\_\_\_

Address: Addis Ababa, Ethiopia

E-mail: [mfufa22@gmail.com](mailto:mfufa22@gmail.com)

Telephone: +251 911 728 022

## CERTIFICATE

This is to certify that Mr. MESERET FUFA KACHERA, student of MARD Indira Gandhi National Open University (IGNOU), was working under my supervision and guidance for his project for the course MRDP-001. His project work entitled “*ASSESSMENT OF R-WASH PROGRAM OBJECTIVES ACHIEVEMENT IN SHASHAMENE WOREDA: THE CASE STUDY OF THREE R-WASH INTERVENTION KEBELES*” which he is submitting in partial fulfillment for the requirement of Master’s of Arts in Rural Development is his genuine and original work

Place: Addis Ababa, Ethiopia

Name: Milkesa Wakjira (PhD)

Date: \_\_\_\_\_

Signature: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## **ACKNOWLEDGEMENT**

Many people have contributed to realize this research work to the status it is now. Even though it is impossible to mention names of all of the contributors, it is also at the same time immoral not to mention some of them who had bolded contribution.

First and for most, I would like to thank all of my respondents of Toga-Waransa, Qore-Borjota and Bulchana Danaba communities who took and sacrificed their golden time in responding to the questionnaires. Many thanks also go to Shashamene woreda Labour and Social Affairs and Health offices experts and Health Extension Workers for their dedicated support during data collection in those communities.

My Special words of thanks go to my Supervisor, Dr Milkesa Wakjira (PhD), not only for his constructive comments but also for his patience in responding to my limitless and unscheduled telephone callings. My supervisor's professional guidance and constructive comments right from the proposal status to the final draft along with his personal patience deserve an appreciation.

I would also like to thank my dear friends and fellow workers at Ministry of Mines with special thanks to Mrs. Enاتفenta Melaku and Mr. Samuel Gobena for their ideas, moral support and experience sharing throughout my study. I would like to extend my profound gratitude to my little brother, Asfaw, for his moral encouragement and helped me a lot in editing the final draft of the thesis document. So, I thank you all my dears!

Last but not least, my heartfelt thanks go to my wife, Almaz Desta, who shouldered the responsibility of caring for our two lovely daughters, Sifen and Fenet, when I was not at home. My lady's supports and encouragement in all affairs throughout my study were unquantifiable and unforgettable. I Love You, Almi!

**Meseret Fufa Kachera**

**Addis Ababa**

# TABLE OF CONTENT

<b>DECLARATION .....</b>	<b>IV</b>
<b>CERTIFICATE.....</b>	<b>V</b>
<b>ACKNOWLEDGEMENT .....</b>	<b>VI</b>
<b>TABLE OF CONTENT .....</b>	<b>VII</b>
<b>LIST OF TABLES.....</b>	<b>IX</b>
<b>LIST OF FIGURES.....</b>	<b>IX</b>
<b>LIST OF ACRONYMS .....</b>	<b>X</b>
<b>CHAPTER 1: INTRODUCTION .....</b>	<b>1</b>
<b>1.1 Background Information .....</b>	<b>1</b>
<b>1.2 Statement of the problem.....</b>	<b>2</b>
<b>1.3 Objectives of the study.....</b>	<b>3</b>
<b>1.4 Research Questions.....</b>	<b>4</b>
<b>1.5 Significance of the study .....</b>	<b>4</b>
<b>1.6 Scope of the study .....</b>	<b>5</b>
<b>1.7. Operational concepts .....</b>	<b>5</b>
<b>CHAPTER 2 LITERATURE REVIEW .....</b>	<b>6</b>
<b>2.1 Water Supply and Sanitation (WASH) Worldwide.....</b>	<b>6</b>
<b>2.2 Water supply Sources and Sanitation facilities Classifications .....</b>	<b>7</b>
<b>2.3 Water and Sanitation versus Development .....</b>	<b>8</b>
<b>2.4 The WASH Program in Ethiopia: An Overview.....</b>	<b>10</b>
<b>2.5 WASH Sector Progress and Plan.....</b>	<b>10</b>
<b>2.6 Oromia WASH situation Overview .....</b>	<b>11</b>

<b>CHAPTER 3 METHODOLOGY.....</b>	<b>14</b>
<b>3.1 Research Design.....</b>	<b>14</b>
<b>3.2 Population and Sample size .....</b>	<b>14</b>
<b>3.3 Data collection tools and techniques .....</b>	<b>15</b>
<b>3.4 Data processing and analysis .....</b>	<b>17</b>
<b>CHAPTER 4 DATA PRESENTATION AND ANALYSIS OF FINDINGS.....</b>	<b>19</b>
<b>4.1 Basic information on Household Respondents.....</b>	<b>19</b>
<b>4.2 Water Supply and its accessibility situation in the study area .....</b>	<b>23</b>
<b>4.3 Assessment of Sanitation facilities and Hygiene Practices in study area .....</b>	<b>30</b>
<b>4.4 Assessment of overall impacts of R-WASH Program in the Study .....</b>	<b>33</b>
<b>5. CONCLUSION AND RECOMMENDATION.....</b>	<b>37</b>
<b>5.1 Conclusion .....</b>	<b>37</b>
<b>5.2 Recommendations.....</b>	<b>40</b>
<b>RE FERENCES .....</b>	<b>41</b>
<b>APPENDICES.....</b>	<b>43</b>
<b>A. Questionnaire for households in the R-WASH intervention kebeles .....</b>	<b>43</b>
<b>B. Checklist for focus group discussion for households in the intervention kebeles .....</b>	<b>49</b>
<b>C. Interview schedule for health extension workers (HEWs) in the community .....</b>	<b>49</b>
<b>D: Interview schedule for woreda water and energy officers .....</b>	<b>50</b>



## LIST OF TABLES

Table	Description	Page
Table 2.1	Water and Sanitation Coverage by region	7
Table 2.2	Water supply and sanitation coverage in urban and rural by region (worldwide)	7
Table 2.3	Definitions of improved and unimproved water supply and sanitation facilities	8
Table 2.4	National sanitation and hygiene strategic action plan	11
Table 2.5	Population with potable water supply by zones	12
Table 3.1	Sampling Techniques for data generation	15
Table 4.1	Distribution of household respondents by Age and sex	19
Table 4.2	Distribution of household respondents by Educational level	20
Table 4-3	Distribution of Household respondents by their marital status	21
Table 4-4	Distribution of Household respondents by family size	21
Table 4-5	Distribution of Household Respondents by Main Occupation	22
Table 4-6	Distribution of Respondents by years lived in the villages	23
Table 4-7	Distribution of household respondents by water sources for drinking and other	24
Table 4-8	Distribution of household respondents by per capita water consumption	27
Table 4-9	Distribution of household respondents by time taken to fetch water from sources	27
Table 4-10	Distribution of household respondents by distances of water sources from residences	28
Table 4-11	Distribution of household respondents by water fetcher	29
Table 4-12	Distribution of responses by responsibility to operate & maintain water schemes	30

## LIST OF FIGURES

Figure 2-1	Shashamene woreda (indicated by green arrow) in West-Arsi Zone Administration	13
Figure 4-1	Water point constructed from extension of pipe line in <i>Toga-Waransa</i> community	25
Figure 4-2	Non-functional water supply schemes in the R-WASH intervention Kebeles	26
Figure 4-3	Latrine availability in the communities under study	31
Figure 4-4	Household latrine with and without hand washing facility	32
Figure 4-5	Solid and liquid waste management availability	33

## **LIST OF ACRONYMS**

CSA – Central Statistical Agency

FDRE – Federal Democratic Republic of Ethiopia

FGD – Focus Group Discussion

GTP – Growth and Transformation Plan

HEWs – Health Extension workers

JMP – Joint Monitoring Program

MDGs – Millennium Development Goals

MoH – Ministry of Health

MoE – Ministry of Education

MoWE – Ministry of Water Resource and Energy

MoU – Memorandum of understanding

NGOs – Non-governmental Organizations

OBOFED – Oromia Bureau of Finance and Economic Development

R – WASH – Rural Water Supply, Sanitation and Hygiene

UAP – Universal Access Program

UN – United Nations

UNDP – United Nations Development Program

UNICEF – United Nations Children’s Fund

WASHP – Water supply, Sanitation and Hygiene Program

WHO – World Health Organization

WSSCC – Water Supply and Sanitation Collaborative Council

WWC – World Water Council

# CHAPTER 1: INTRODUCTION

## 1.1 Background Information

Relatively speaking, Rural Water supply, Sanitation and Hygiene (R-WASH) program, as one of socio-economic development strategies, is a recent phenomenon in Ethiopia which is adopted mainly to achieve Millennium Development Goals (MDGs) set by UN (UN, 2000). Most studies would agree that access to a reliable and safe water supply for domestic use as well as for productive purposes and access to sanitation facilities along with good hygiene practices are crucial for livelihoods and well being of any community. Hence, it is believed that these have direct link with poverty eradication. It is also believed that the achievement of five out of eight MDGs is linked directly and indirectly with provision of water supply and sanitation facilities and promoting improved hygiene practices.

In September 2000, world leaders had approved the MDG with eight broad goals and eighteen targets. The Federal Government of Ethiopia is committed specifically to fulfilling target ten of the Millennium Development Goal 7 i.e. reducing by 50% the proportion of the population without access to water and sanitation by the year 2015, thereby improving the overall health and socio-economic condition and the quality of the life of the population, specially children and women.

In order to realize the objectives, the Government of Ethiopia took policy measures and has designed different strategies. The National Water Resource management Policy developed in 1999, the Ethiopian Water resource management Strategy (2001), the Sanitation and Hygiene Strategy (2005), the Water sector Development Program (2002-2016), the MDGs Need Assessment (2004) and the Universal Access Plan (UAP) developed for 2005-2012 are among the National guiding policy and strategy papers. Moreover line Ministries (i.e. Ministries of Water Resource, Health and Education) of the Federal democratic Republic of Ethiopia signed Memorandum of Understanding (MoU) for the integrated implementation modality of WASH program.

According to the Memorandum of Understanding document signed between Ministry of Water Resource, Ministry of Health and Ministry of Education of the Federal Democratic Republic of Ethiopia (MoU, 2006), the main premises for the adoption and commitment to jointly implement WASH program are mainly the following:

- Water and Sanitation coverage in Ethiopia is amongst the lowest in the world leading to high morbidity and mortality rates among the public in general and children, women and elderly in particular;

- It is the basic right of individual to have access to clean water supply and improved sanitary facilities including information regarding health and hygiene and its potential benefits in improving living conditions;
- Access to integrated WASH have clear benefits such as time and energy savings for women and young girls, with an increase in school enrollment for the latter when school WASH programs are established;
- From the standpoint of health and productivity benefits, improved water supply and sanitation are interdependent and complementary to each other and therefore WASH programs contribute significantly to the achievement of Plan for Accelerated and Sustained Development to End Poverty (PASDEP) and
- Health benefits from interventions of clean, adequate, safe water, improved sanitation and effective hygiene education are more cost effective when planned in a coordinated manner and more successful in reducing morbidity and mortality deriving from the water/wastes complex.

From above outlined premises one can generalize that R-WASH program is came into being in Ethiopia not only for the achievement of MDGs but also due to the contribution it has to the achievement of Sustained Development to End Poverty specially in rural areas. So, this situation laid foundation for implementation of the National WASH program in an integrated and coordinated manner at national level.

## **1.2 Statement of the problem**

Different sources reveal that great efforts have been put forth to increase the number of people access to safe water supply, adequate sanitation facilities and improved hygiene in rural Ethiopia since WASH program came into being as national priority to improve health status and eradicate poverty in rural areas. In other words the WASH program's overall objectives centre round poverty reduction and health improvement. The program also centers on promoting women empowerment and girl child school enrolment. In so doing it aims at achieving targets of Millennium development Goals (MDG) set by UN. Significant amount of financial resource is being mobilized from WASH program supporting international agencies/donors, government and local communities. The WASH program has been implemented with this amount though out all regions of the country (MoWE, 2013).

Oromia is the largest, in terms of both geographic area and population number, regional state in Federal Democratic republic of Ethiopia accounting for about 34.3 percent of the total areas of the country. Administratively, the region is divided into 18 administrative zones, 304 woredas out of

which 39 are towns structured with the level of woredas and 265 rural woredas (OBOFED, 2008). Shashamene woreda is one of rural woredas of the regional state targeted for implementation of WASH program since 2006 fiscal year to transform rural people living in selected communities. To this effect increasing responsibility has been given to *Woredas* through decentralization process to plan and manage the R- WASH program. Accordingly, Shashamene woreda prepared a five year R-WASH Strategic Plan that covers during 2006-2010.

The overall objective of rural Water Supply, Sanitation and Hygiene Program (R-WASHP), as stated in the R-WASH strategic plan of the woreda, is to develop the well-being of the rural community by improving health and reducing poverty through:

- Providing access to adequate, safe, affordable water and sanitation facilities;
- Building sustainable water and sanitation systems or facilities,
- Promoting hygiene practice through using water and sanitation and
- Capacity building for all players

Almost more than decade has elapsed since the program implementation started. However, no study has been conducted on study area to date to assess the objective achievement status of the program in spite of huge resource investment in this regard. Hence, it is sounding to conduct research to assess objectives achievements of the R-WASH program implemented so far in Shashamene woreda with special emphasis on selected intervention kebeles.

### **1.3 Objectives of the study**

The objectives of this study can be categorized into general and specific objectives:

#### **General Objective**

The overall objective of this study is to assess the R-WASH program objectives achievement status in Shashamene Woreda.

#### **Specific Objectives**

Specific Objectives of this particular study are:

- To assess whether there are adequate, affordable, and sustainable water supplies in the R-WASH intervention kebeles of the woreda,
- To examine integration level of water supply and hygiene practices in the intervention kebeles,
- To assess the knowledge and hygienic practice of the community,

- To analyze community participation, management and ownership level at different stage in the intervention kebeles,
- To assess the impact of the R-WASH program on women in general and school girls in particular in the intervention kebeles,
- To identify factors affecting sustainability of water supply systems, sanitation facilities and hygiene practices and
- To recommend future direction upon the findings of the study.

#### **1.4 Research Questions**

A number of research questions can be raised to be answered in this study. However, this study intends to answer the following research questions in particular:

1. Are there adequate, affordable and sustainable water supply, sanitation facilities and improved hygiene practices in the R-WASH intervention kebeles in the woreda?
2. What is the integration level of water supply, and hygiene practices in the woreda?
3. What is knowledge and hygienic practice status of the community at large?
4. Who is/are responsible body for operation and management of water supply schemes in the intervention Kebeles?
5. Does the program have any impact on women in general and on female children in particular?
6. What are those factors affecting the sustainability of water supply schemes and sanitation facilities in the intervention Kebeles?
7. What recommendations can be sited for further improvement to achieve predetermined objectives?

Hence, at the very beginning this research intended to answer all or most of the research questions listed above. Accordingly, almost all of these research questions examined and answered during the course of action.

#### **1.5 Significance of the study**

One of the rural development programs undertaken so far by the government of Ethiopia is the implementation of R-WASH Program. As it is stated above, Shashamene Woreda is one of rural woredas where R-WASH program has been conducted to improve the living conditions of the rural population through provision of potable water supply, sustainable sanitation facilities and improved hygiene practices. However, no study has been conducted to assess the objectives achievements of the program in this particular woreda.

Conducting this study has paramount importance for assessing the implementation of the program towards achieving its objectives. The primary beneficiaries of the study will be the woreda administration with respective line offices, government, national and international funding agencies and other stakeholders who, in one way or another, affect the objective achievements of the R-WASH program. Moreover, the findings of this study will contribute towards the body of knowledge and eventually serve as references for those working in strategic planners of the R-WASH program and pave way for future improvement for implementation of similar projects by government and Non Governmental Organization (NGO).

## **1.6 Scope of the study**

This study is limited to assess the objectives achievement of the R- WASH program with special emphasis on R-WASH intervention Kebeles of Shashemene woreda. In so doing, it will give special emphasis in identifying the impact of current water supply and sanitation situation on the social, economic and health situation of households and local institutions in the intervention kebeles.

## **1.7. Operational concepts**

In this study, various concepts can be used to explain a phenomenon. These concepts need clarifications and/or definitions with reference to issues they want to examine. Accordingly, the following concepts and variables are utilized to analyze the R-WASH situation in the study area. The following are the major ones:

Hygiene – is set of practices (such as hand washing at critical time) performed for the preservation of health

Kebele – The lowest administrative unit in Ethiopia which is almost equivalent with Panchayat Raj Institution (PRI) in India

Oromia – The largest (in terms of number of population and administrative Regional State in the Federal Democratic Republic of Ethiopia.

Rural water supply – Provision of potable water supply and facilities to areas outside urban centers

Sanitation – According to WHO, sanitation generally refers to the provision of facilities and services for the safe disposal of humane urine and feces.

Woreda – Medium level administrative unit, which almost equivalent to “District” in India.

Zone – Administrative structure which its jurisdiction found between Woreda (District in India) and Regional State in Federal Democratic Republic of Ethiopia. Hence, it serves as bridge between Regional State and Woreda having a number of Woredas under its jurisdiction.

## CHAPTER 2 LITERATURE REVIEW

### 2.1 Water Supply and Sanitation (WASH) Worldwide

Water is an essential resource for survival and to secure good health. But people around the globe face a problem of water scarcity. As the UNDP (2006) stated, currently 700 million people in 43 countries live with water scarcity, of these many are in sub-Saharan Africa which represents one quarter of the global population that faces water scarcity live in developing countries. This scarcity of water forced people around the world to use unsafe water for drinking and other domestic uses (WHO, 2009). In schools and in some public places, we are getting familiar with a slogan which states '*water is life*'. Of course, it is true without which any living things cannot exist, but it would have been better if the slogan is replaced by '*clean water is life*' because everyday many people are dying because of water borne and water related diseases. Thus, it is not only the availability of water that guarantees life but its quality matters (WHO, 2009).

Like water, sanitation is also a basic need and a way to ensure healthy populations. Though having access to improved sanitation is a basic need, it is registered that by the year 2004, 611 million people in urban and 2 billion people in rural area did not have access to improved sanitation (JMP, 2006). Parallel to water, lack of proper sanitation is a serious health risk and an affront to human dignity. Thus, as WHO (2011) stated people are forced to defecate in open fields, in rivers or near areas where children play and food is prepared because they do not have access to improved sanitation.

According to UNESCO (2006), every person needs 20 to 50 liter of potable water a day for their basic needs: drinking, cooking and cleaning, but more than one in six does not have access to such amount of potable water. Africa has the lowest total water supply coverage of any region, with only 62 percent of the population having access to improved water supply. The situation is worst in rural areas, where coverage is only 47 percent. According to the JMP (2010), around 2.6 billion people do not have access to basic sanitation; and as a result of poor access to basic sanitation 1.5 million peoples die each year. Many of these people live in south East Asia and sub-Saharan Africa. Sanitation coverage in Africa also is poor, only 60 percent of the total population in Africa has sanitation coverage, with coverage varying from 84 percent in urban areas to 45 percent in rural areas (JMP, 2010).



Table 2.1: Water and sanitation coverage by region

Region	Water supply (%)	Sanitation (%)
Africa	62	60
Asia	81	48
Latin America and Caribbean	85	78
Oceania	88	93
Europe	96	92
North America	100	100

Source: WHO/UNICEF/WSCC, 2000

As the table 2.1 shows the sanitation coverage of Africa is better than Asia, but it is not at stage to be called sufficient since 40 percent of the region population do not have access to sanitation. As we can easily understand from the table 2.1, the water supply coverage of Africa was the lowest in 2000. As we can easily notice from table 2.2 Africa has the lowest coverage of water supply both in urban and rural area and has low coverage of sanitation in urban and rural areas but better in sanitation coverage than Asia.

Table 2.2: Water supply and sanitation coverage in urban and rural by region

Region	Water supply (%)		Sanitation (%)	
	Urban	Rural	Urban	Rural
Africa	85	47	84	45
Asia	93	75	78	31
Latin America and Caribbean	93	62	87	49
Oceania	98	63	99	81
Europe	100	87	99	74
North America	100	100	100	100

Source: WHO & UNICEF, 2000

## 2.2 Water supply Sources and Sanitation facilities Classifications

Water for drinking purpose can be found from natural sources like surface water, ground water and rain water. Water from all these sources to use for household activities need treatment based up on their impurities. Though the treatment and the degree of cleanness of the water make the water safe

or unsafe to drink, WHO and UNICEF classified water sources as improved and unimproved based on their purity to drink. Table 2.3 elaborates about the improved and unimproved water sources.

Table 2.3: Definition of improved and unimproved water supply and sanitation facilities

Water supply		Sanitation Facilities	
Improved	Unimproved	Improved	Unimproved
Household connection	Unprotected well	Connection to public sewer	Services or bucket latrines
Public stand pipe	Unprotected spring	Connection to septic system	Public latrines
Boreholes	Vendor provided water	Pour flush latrine	Latrine with open pit
Protected dug wells	Bottled water	Simple pit latrine	
Protected spring	Tanker truck	Ventilated improved latrine	

Source: JMP, 2006

The question of accessing potable water and basic sanitation also touches sustainable development. The Millennium Development Goal 7 of target 7.C can be a simple case to see how important water is for sustainable development (UNDP, 2010). Therefore, any country without assuring access to potable water and basic sanitation cannot realize sustainable development. On the other hand, it is developing countries that are facing the problem of potable water and basic sanitation. Thus, availability of potable water is both a means to attain sustainable development and a symptom of development. That is why many developed countries do not have a problem of accessing potable water and basic sanitation as it exists in developing countries. In other words, poor accessibility of potable water and basic sanitation is both a cause and symptom for poverty. Therefore, access to potable water and basic sanitation and development are mutually dependent.

### **2.3 Water and Sanitation versus Development**

The inclusion of access to potable water and basic sanitation in the MDGs for sustainable development shows that water and sanitation are important development indicators. It is a fact that infrastructure development and socio-economic development are much related. Infrastructure development may include road construction, water and sanitation improvements, and irrigation development. Thus, having access to such services is considered as a precondition for economic development. Accordingly water and sanitation infrastructures also have impact on the economic, social and human development of a nation.

According to UNDP (2006) the water and sanitation crisis has a role of reducing income poverty. National governments are very aware of the expenditure needed to increase the access to improved water and sanitation but they are not curious about the economic costs of the negative consequences of unimproved water and sanitation. If the world population had access to safe drinking water and appropriate sanitation, the child mortality rate would be minimized. As a result of poor water and sanitation many people in the world are insecure; additionally potable water and basic sanitation is the easily preventable way of reducing child mortality. Access to clean water and sanitation is also a means to reduce health related costs, improving girl's education, and it also ensures a sense of human dignity. Generally, access to clean water and improved sanitation '*can make or break human development*' and it is a condition for all human development goals achievement.

According to Post note (2002) increasing access to water and sanitation is an input of development and poverty reduction, as it has major health benefits as well as associated social, economic and environmental benefits. Public health will be guaranteed if there is access to potable water and basic sanitation since the highest causes of illness and death in developing country is related to poor access to potable water and basic sanitation. As a result of this, illness and deaths reduce the productivity of the economy of a nation; poor sanitation has an adverse effect on the environment which in turn may affect the source of the economy like agriculture and tourism.

One of the major benefits of water and sanitation improvements is the time saving associated with better access. Time savings occur due to, for example, the relocation of a well or borehole to a site closer to user communities, the installation of piped water supply to households, closer access to latrines and shorter waiting times at public latrines. These time savings translate into either increased production, improved education levels or more leisure time (Hutton & Haller, 2004).

WHO figures asserted that improved water supply reduces diarrhea morbidity by 6 percent to 25 percent, and improved sanitation reduces morbidity by 32 percent (WHO cited in Omya Health care limited, 2009). Thus, the improvement on water supply and sanitation has a direct and concrete impact on health. As Hutton, G., et al, (2007) explain the occurrence of diarrheal diseases caused by unsafe drinking water and improper sanitation would be reduced if improvements were made in water and sanitation. Since diarrheal diseases are highly associated with unsafe drinking water and sanitation and poor hygiene, the improvements in water and sanitation would have a significant outcome.

## **2.4 The WASH Program in Ethiopia: An Overview**

Ethiopia's water and sanitation coverage is also the lowest in the world. The water supply coverage in the country is 22 percent, of which the rural coverage is only 11 percent in the baseline year for the Millennium Development Goals (MDGs). The sanitation coverage is 6 percent which the rural coverage is 4 percent (JMP, 2010). The country's low health status, high population growth, and low literacy rates bring to bear a heavy burden on the state to increase delivery for water, health, education and other social services. In comparison with the neighboring countries Ethiopia's water and sanitation coverage is even lower than its neighboring countries. For example, Kenya's water and sanitation coverage is much better than Ethiopia which is 62 and 48 percent respectively in the specified baseline year.

Though, as the data taken from UNICEF and WHO show most Sub-Saharan African countries have the lowest coverage of water and sanitation of any world region, Ethiopia's water supply and sanitation coverage is even the lowest (JMP, 2010). According to the World Bank (2010) 70 percent of the world's poor people live in rural areas. Thus, if development is to be achieved, attention should be given to rural water supplies and sanitation since any development activities address the poor. The 2010 updated estimate of JMP (2010) shows that rural Ethiopia has 8 percent access to basic sanitation and 26 percent have access to potable water in 2008 which shows an improvement from previous years. Of the total population of Ethiopia, 85 percent is estimated to live in rural areas, thus, the above data explains that only 26 percent from these 85 percent of population have access to potable water and basic sanitation.

## **2.5 WASH Sector Progress and Plan**

The government of the Federal Democratic Republic of Ethiopia (FDRE) has prepared a five year ambitious socio-economic development plan for the country which is believed to transform the country as a whole. This plan is called Growth and Transformation Plan (GTP). Improvement in water supply, sanitation and hygiene practice (WASH) is found to be one of the sectors that are given special emphasis. According to the GTP, rural water supply access coverage to be increased from 65.5% (baseline year at 2010) to 98% at 15 liters per person per day within the radius of 1.5 km at the end of 2015. With the same token, urban water supply access coverage is to be increased from 91.5% (baseline year) to 100% at 20 liters per person per day within the radius of 0.5km at the end of 2015. This will give rise to the overall national water supply coverage to be 98.5% in 2015 from 68.5% at GTP baseline year (FDRE, 2010).

With regard to sanitation and hygiene, the GTP included the Strategic Action Plan for the same, each of them having their specific targets to be achieved within the GTP period.

Table 2.4 National Sanitation and Hygiene Strategic Action Plan

No.	Indicators	Baseline year (2010)	2011 in %	2012 in %	2013 in %	2014 in %	2015 in %
1	Improved + unimproved	60	68	76	84	92	100
2	Improved sanitation	11.3	27.5	41.6	55.7	69.9	84
3	Hand washing with soap	7	21	35	49	63	77

Source: Abiy, 2013

## 2.6 Oromia WASH situation Overview

Although Oromia is repeatedly reported to be the regional state with high water resource potential for any kinds of development endeavors, developing these resources to provide potable water supply to its rural population found to be at its infant stage. Hence, the larger number of population use sources from unprotected sources such as spring, hand-dug wells, lakes, rivers, and harvested water in pools. Generally speaking, water supply systems and sanitation facilities are urban biased i.e. 90.2 percent of the total urban population are accessed to potable water supply while only 44.6 percent of rural population is served with potable water supply systems leaving the overall water supply coverage of the region to be only 50.9 percent in 2000 (baseline year for Millennium Development Goals) (BoFED, 2008). Potable water supply situation of the region in the specified year is shown in the following table.

Table 2.5 Population with Potable Water Supply by zones

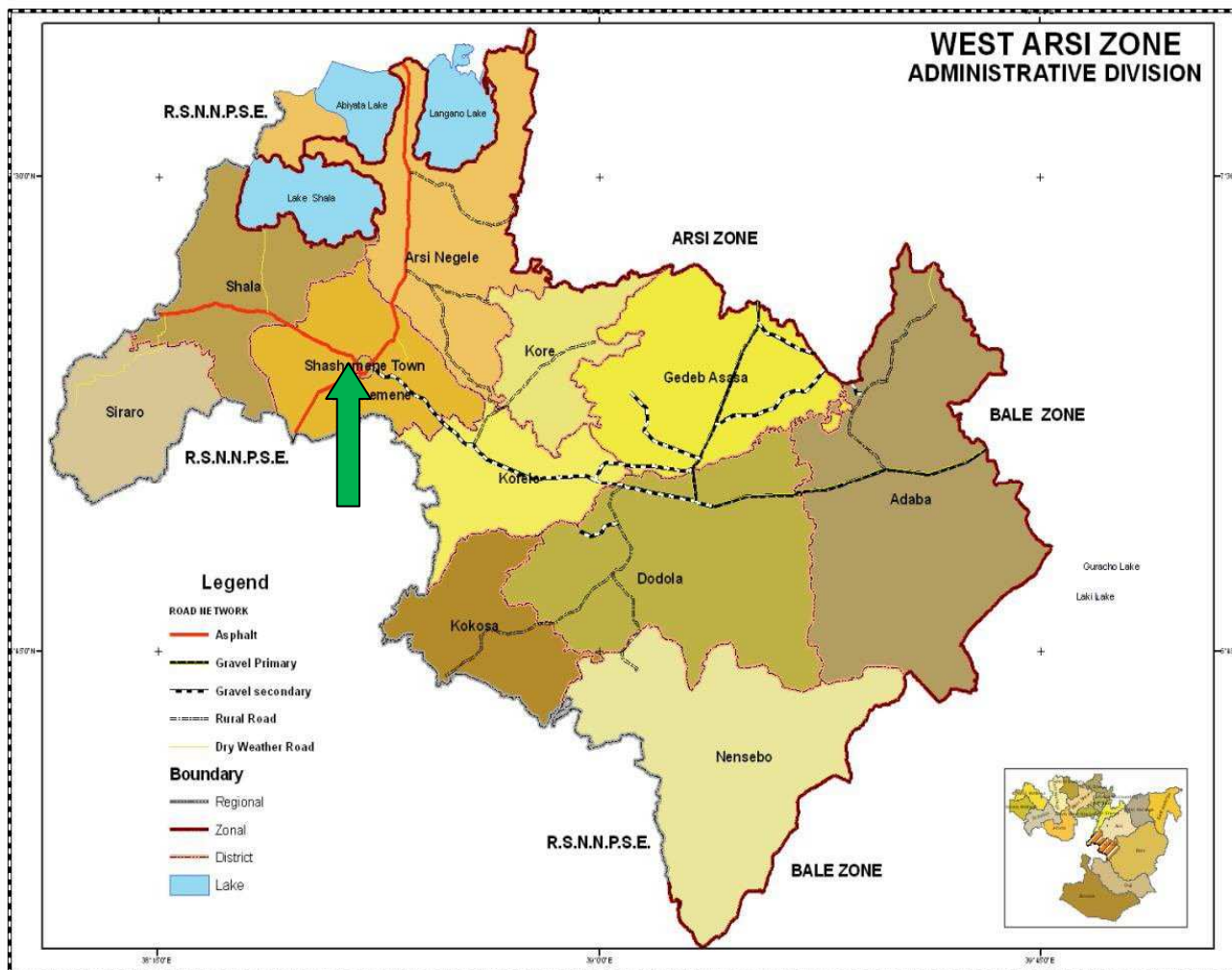
Oromia Zonal Administration	Urban population with potable water supply (%)	Rural population with potable water supply (%)	Total population served with potable water supply
Arsi	87.2	39.6	45.8
West Arsi	64.4	28.6	34.0
Bale	87.3	43.0	39.2
Borena	76.5	50.8	53.5
Guji	93.0	49.1	54.7
East Hararge	80.4	46.5	48.8
West Hararge	95.6	56.2	60.2
Illu Aba Bora	96.1	51.6	56.5
Jimma	93.6	36.1	43.3
East Shewa	94.4	62.1	74.4
North Shewa	96.6	49.4	54.0
West Shewa	96.1	36.9	43.0
South West Shewa	92.5	38.7	45.5
East Wellega	85.5	49.6	54.7
West Wellega	95.0	55.6	60.2
Horo Guduru Wellega	57.9	27.9	31.7
Kelam Wellega	72.9	42.7	45.8
Total	90.2	44.6	50.9

Source: OBOFED, 2008

According to table 3.3 above Potable water supply coverage of Oromia varies among zonal administration. Accordingly, East Shewa has the highest percentage (74%) of population who accessed to potable water supply while West-Arsi, where study area i.e. Shashamene woreda located and Horo- Guduru Wellega zones having the lowest (below 35%) population who actually accessed to potable water supply during the same year. The status of sanitation coverage of the Oromia region is found to be the lowest.

West Arsi zone, where Shashamene woreda located, is one of zonal administrative division in Oromia Regional State having twelve woredas under its jurisdiction.

Figure 2-1 Shashamene woreda (indicated by green arrow) in West-Arsi Zone Administrative Division



Source: OBOFED, 2008

According to R-WASH Strategic Plan (2006) of the woreda, the study area, Shashamene Woreda, is one of the 12 woredas found in West-Arsi zone with an estimated total population number of 267,064 in 2011. The woreda comprises 38 rural and 11 urban kebeles. Accordingly, 95.2 percent of the total population resides in rural areas while only 4.8 percent live in urban areas. The rural water supply coverage of the woreda during the baseline year (2005) was estimated to be 28.6 percent while its sanitation coverage was only 8.9 percent (Woreda R-WASH SP, 2006). Due to lower coverage of potable water supply and sanitation facilities, the most prevalent diseases recorded during the baseline year were intestinal parasite, diarrhea, gastritis, eye infection problems, skin infection and other skin diseases. All these health problems are diagnosed and analyzed to be lack of WASH. i.e. lacks of potable water supply, improved sanitation facilities.



## CHAPTER 3 METHODOLOGY

### 3.1 Research Design

Research design is a conceptual framework within which research would be conducted. Since this particular study intends to assess the objectives achievements against plan of the rural R-WASH program of the study area and finally to describe the existing situation of the population under study, this research followed descriptive research design. This is because descriptive research is concerned with the existing conditions or relationships, prevailing practices, current beliefs and attitudes as compared to past situation. Hence, this conceptual framework helps to assess objective achievements of the program and describe the existing situation of study area.

### 3.2 Population and Sample size

Shashamene woreda comprises 38 rural peasant associations (kebeles) out of which five were beneficiaries of R-WASH program during 2006-2011 fiscal years. These are said to be R-WASH intervention kebeles during the specified years. As the main objective of the study is to assess objectives achievement status of R-WASH program in the intervention kebeles with regard to potable drinking water supply, basic sanitation and general hygiene practice, three out of the five peasant associations (Kebeles) have been selected on a purposive basis. These are *Toga-Waransa*, *Qore-Borjota* and *Bulchana-Danaba*. The selection of these Kebeles is purposive because these are peasant associations where R-WASH program as a rural development program first started in the woreda. According to available information these three kebeles together have 1440 households with an estimated population number of not less than 8640 people with average family size of six persons in each household. Hence, the population for this study is 1440 households. Moreover, all health extension workers (HEWs) and school principals of the three kebeles were part of the population. Kebele officials from each of the R-WASH intervention kebeles were included in this study.

Due to time and finance constraints, sample must be drawn from the total population under study. Since the target population does not constitute a homogenous group, stratified random sampling technique was employed to identify the sample population. The target population is divided into five strata: the first stratum will be households (both male and female headed families); the second stratum is health extension workers in the kebeles; the third stratum is kebele officials from each of the intervention kebeles; the fourth stratum is school principals or their representatives and the final stratum is government officials from health and water offices of Shashamene woreda. It is generally agreed that to be representative of the population, sample size must not be less than 10 percent of the population. Hence, 132 households (52% women) were selected on the basis of



simple random system as representative, 44 households from each of the three intervention kebeles. In addition, 4 Health Extension Workers (HEWs), 5 kebele officials, 3 school principals, and Woreda health and water offices representatives were sample population of this study. Hence, total number of persons included in this study was 146 people. This can be represented in the following table.

Table 3.1 Sampling techniques for data generation

No.	Sample elements	Total Population	Sample population	% of the sample population	Sampling method used
1	Households in the intervention Kebeles	1440	132	9.2	Simple random
2	Health Extension Workers (HEWs)	6	4	66.7	Purposive
3	Kebele officials from three kebeles	6	5	83.3	Purposive
4	School principals or their representatives	3	3	100.0	Purposive
5	Woreda health office	1	1	100.0	Purposive
6	Woreda water and energy office	1	1	100.0	Purposive
Total		1457	146	10.0	Total sample

Source: Researcher Sampling Statistics, 2014

### 3.3 Data collection tools and techniques

Both quantitative and qualitative data were collected and used in this study since they have different contributing power to generate information to answer the research questions. These were generated from both primary and secondary data sources. Primary data were collected from households, health extension workers, school principals and officials and professionals from Woreda health and water and energy offices. Other relevant bodies were included for further generation of supportive information. Different data collection tools and techniques were employed for this research. To extract the required information needed for the study, four major data collection tools and techniques were employed in this study: questionnaires, scheduled interviews, focus group discussion, personal observation and secondary data or document review. Each of these data collection tools and techniques employed in this study are briefly discussed as follow.

### **a) Household questionnaire**

Prior to the collection of actual data on the sampled households, the researcher recruited three data collectors, one data collector from each of the three intervention kebeles, trained them on the ethics they should follow, how to approach the households and collect the required data. Special care was taken to make sure that data collectors themselves know the local culture and regional language (Oromiffaa) for smooth communication with households so that respondents do not face any difficulty in providing information.

Questionnaire was prepared, translated into local language (Oromiffaa) and administered to sampled households. It has four main sections: the first section focuses on the basic information and general background of the households; the second section of the questionnaire seeks information with regards to water supply and accessibility situation; the third section seeks information with regards to situation of sanitation facilities and hygiene practices in the study community and the final section of the questionnaire meant to assess socio-economic impacts of the R-WASH program in the intervention Kebeles. This questionnaire contains open-ended questions to make the sampled population express their ideas freely with regards to the program. As indicated in the table 3.1 above 132 households from three water points, who were selected on the basis of simple random sampling, were covered in this respondents' category. Hence, the researcher feels confident that the heterogeneity of the household respondents is ensured through such sampling method. During the data collection, the researcher has to walk long distance along with recruited data collectors for houses of respondents in the targeted kebeles are far located one from the other and respondents were exclusive speaker of Oromiffaa.

### **b) Interview Schedules**

Interview schedules are other important tools of data collection in research which most of the time best fit for respondents who are small in numbers and relatively skilled and professionals i.e better educated section of the sampled population. As far as this particular research is concerned, there are main actors who support in the supply of potable water, sanitation facilities, awareness creation on hygiene practices. Woreda health office and health extension workers, Woreda water and energy office and school officials are among these group who have direct contact with communities in providing them with water supply, basic sanitation facilities and creating awareness on better hygienic practices.

Accordingly, interview schedules were organized for school principals, kebele officials, health extension workers, and for professionals consulted from woreda health and water and energy offices. The researcher himself has addressed these groups of respondents using scheduled interviews that have been prepared to collect data on issues related to their specific duties and

responsibilities with regard to water supply, basic sanitation and hygiene practices. Four health extension workers, five kebele officials, three school principals, two from health and water and energy offices were covered under this respondents' category. Hence, fourteen respondents were involved in provision of information in this regard.

#### **c) Focus Group Discussion (FGD)**

Focus Group Discussion is other important data collection tool in research which can be employed to collect data through thorough and depth discussions by organized key informants formed on purposive sampling. Focus group discussions were arranged for female headed households and school girls in the community. The main reason for arranging this session was to collect data with regard to gender specific impact of the R- WASH program in the study area. FGD for female headed households and school girls were organized separately to minimize attitudinal differences of the two groups. Ten women and twelve girls were involved during the FGD sessions and information was obtained.

#### **d) Personal observation**

The researcher has used his own observation as an additional means to collect relevant data which helped him to have a general understanding of the area and how the community perceives their environment, to what extent is the community aware of the right to water, how poor access to potable water supply, inadequate basic sanitation facilities and poor hygiene practices affects the livelihood of the communities under study. Additionally, the researcher has observed the activities of the community which may reduce their vulnerability to water borne disease and negative impacts of poor sanitation and unsafe drinking water. Since observation comprises subjective judgment the researcher did not completely depend on the results of the observation in the empirical finding and analysis part of the study unless supported by the other data collected by other means.

#### **e) Document Review**

In addition to the primary data, the researcher has tried to collect secondary data from written documents available at woreda level, reports and publications on water supply and basic sanitation i.e. R-WASH situation of worldwide, continental, and national level to support primary data collected through questionnaire, interview schedules, FGD and personal observation.

### **3.4 Data processing and analysis**

Data collected through different data collection tools and techniques is edited, organized, and tabulated in a meaningful manner. Both descriptive and inferential statistics is used for data

analysis. Percentages and ratios are the most important part to analyze quantitative data. This is termed as descriptive statistics. Inferential statistics is also equally important for qualitative data collected from respondents through scheduled interviews and focus group discussions; the analysis of the data was carried out using Microsoft office Excel computer software. Then the result of the excel outcomes have been interpreted for the study. In general, qualitative and quantitative data is presented using tables, percentages, graphs, and it is also described in words when needed.

## CHAPTER 4 DATA PRESENTATION AND ANALYSIS OF FINDINGS

As it is described in the preceding chapter at least five types of data collection tools and techniques were employed to collect the required data for this study. Based on various information collected from the sample respondents some topics are discussed under broad headings of general backgrounds of the respondents, water use and accessibility, sanitation use and accessibility, the impacts of potable water and basic sanitation; and possible measures of recommendations given from the respondents.

### 4.1 Basic information on Household Respondents

Three out of the five peasant associations (Kebeles) have been selected on a purposive basis. These are *Toga-Waransa*, *Bulchana-Danaba* and *Qore-Borjota*. The first two intervention kebeles are located on the same route leading to Hawasa town and relatively nearer to Shashaamene town, Woreda capital. The selection of these Kebeles is purposive because these are kebeles where R-WASH program as a rural development program first started and they are also nearer to transportation facilities. From each kebele, 44 households were selected using simple and systematic random sampling methods. Hence, a total of 132 households were selected for primary data source of this study.

Table 4.1 Distribution of household respondents by Age and sex

Age Category	Frequency	Sex	
		Male	Female
15 – 24	14	8	6
25 – 34	26	12	14
35 – 44	43	19	24
45 – 54	30	12	18
55 – 64	18	11	7
65+	3	3	0
Total	132	63	69
%	100.0	47.7	52.3

Source: Researcher's own survey, 2014

With regard to age distribution, household respondents who are in their reproductive age (age category of 15-64) of both sex is calculated to be more than 97% indicating that household respondents were in their economically productive age. This is indicated in the table 4.1 above. This table also indicates that more than 52% of household respondents were women. They were

purposely included, by the researcher, in excess over their male counterpart for the main reason that according to principles of WASH, water and sanitation is business of women. In other words, it is women who shoulder the responsibility of fetching water from source and conduct cleaning activities so that it sound to include excessive women respondents in study of this kind. Therefore, this study seemed to give strong sense for more inclusion of women household respondents as source for primary data with regards to water supply, sanitation facilities and hygiene practices.

Table 4.2 Distribution of household respondents by Educational level

Educational level	Frequency	
	Total Response	Percent (%)
Illiterate	56	42.4
Read & write	52	39.4
Primary (1-8)	17	12.9
High school (9-12)	6	4.5
College level	1	0.8
Total	132	100.0

Source: Researcher's own survey, 2014

Educational status is considered to be one of the basic information obtained on household respondents. Accordingly, table 4-2 above indicates that more than 42% of the total household respondents found to be illiterate i.e. they never been to school and cannot read and write their names. The majority of the respondents who reported to be “Read and Write” themselves (39.4%) can be grouped under illiterate as they never been to school for formal education. According to the survey result only less than 13% had the opportunity to attend the primary school including both first and second primary school. Hence, only about 5% of the total household respondents were relatively literate for almost all of them graduated from high school. It is generally proved that education and poverty are highly inversely related and that being poor household prevents them from attending formal education. Consequently, illiterate people have less awareness to improve their health situation. Hence, education is a crucial factor for health improvement endeavors and poverty reduction. As the majority of respondents were female, it is proportional that the majority of respondents who reported to be illiterate are also female respondents.

Table 4-3 Distribution of Household respondents by their marital status

Marital Status	Frequency	
	Total No. responses	% (Percent)
Single	2	1.5
Married	110	83.3
Divorced	8	6.1
Widow	12	9.1
Total	132	100.0

Source: Researcher's own survey, 2014

Table 4-3 above indicates that the majority of household respondents (more than 83%) were in wed-lock having dependents who are either their own children or children with diseased family or supportable aged ancestors. Hence, respondents who were single, divorced and widowed together accounts only less than 17% of the total household sample population. Although 16.7% of the total household respondents surveyed to be single, divorced or widowed, the survey indicated that all found to have family size of more than two persons.

Table 4-4 Distribution of Household respondents by family size

Family Size	Frequency	
	Total Responses	% (Percent)
1	0	0
2 - 5	33	25.0
6 - 10	89	67.4
Above 10	10	7.6
Total	132	100.0

Source: Researcher's own survey, 2014

Table 4-4 illustrates that there is no household with only one person. The majority of respondents had family size between 6 and 10 constituting more than 67.4% of the total household respondents. Surprisingly, about 8% of the total sample population had more than ten family size. Households with large family size will definitely need large amount of water for their household consumption

either from protected or unprotected sources. Whatever source it is, this particular research reveals that the mother or girl family members had lion's share of fetching water from various sources.

Table 4-5 Distribution of Household Respondents by Main Occupation

Source of Income	Frequency	
	Total Responses	% (Percent)
Farmer	93	70.4
Farmer & Trading	28	21.2
Government Employee	2	1.5
Technical/casual	5	3.8
Daily Laborer	4	3.1
Total	132	100.0

Source: Researcher's own survey, 2014

The area under study is known by different agricultural practices coupled with some sort of petty trading activities as it is located near to the woreda capital, Shashamene town. Table 4-5 above indicates that the occupation of more than 70% of the total sample population found to be farmers earn their income from what they produce in a year. The major cereals grown in the woreda includes maize, wheat, *teff*, and barely. Shashamene woreda is also known by its production of stem foods such as potato which is main source of family food for more than five months a year. These farmers use traditional technology for farming which needs their full time and energy. They should wait for the rainy season to sow their seeds. Women and children are observed to be the active participants of agricultural activities. Significant portion of the respondents (21%) found to be practicing both farming and trading as source of income for the family under study. Petty trading such as selling some cereals, potato, vegetables and cultural consumable articles are practiced by family members included in this particular study their communities are located at adjacent to the woreda town.

However, the numbers of respondents who were reported to be government employee, daily laborer and casual workers /technical personnel/ were insignificant as compared to the rest and these occupations together constitute only 8.4% of the total respondents included in the survey. Kebele officials, plumbers, HEWs, carpenters, and other casual workers were among this group of the respondents.



## 4.2 Water Supply and its accessibility situation in the study area

Water supply and its accessibility is a major integral part of the R-WASH program for it is only when there is water supply that we talk about sanitation and hygiene practices. Hence, the availability of potable water supply is a pre-requisite for the rest of WASH component. In order to assess water supply and accessibility situation of the communities under study the researcher considered a number of issues and included them in the questionnaire that were distributed among the household respondents. Accordingly, number of years lived in the communities, sources of drinking and other water, average daily water consumption per households and person, average distances and time taken of water sources from families, responsibility share for water fetching, families' attitude towards water quality, sustainability status, operational and maintenance status of available water sources, owner of water schemes, women's share in managing water schemes, whether women's representation has been enough in water management and the like were main issues considered in assessing water supply and its accessibility situations in the study area. Some of these are presented in the following subsequent tables.

Table 4-6 Distribution of Respondents by years lived in the villages

Years lived	Frequency	
	Total Responses	% (Percent)
Less than two years	0	0
2 to 5 years	4	3.0
6 to 10 years	18	13.6
Life long	110	83.3
Total	132	99.9

Source: Researcher's own survey, 2014

Before discussing about situation of water supply and its accessibility the researcher interested in assessing respondents' years lived in the R-WASH intervention Kebeles. Accordingly, the majority of the household respondents (83%) were living since their birth. Table 4-6 also indicates that only 3% of the total household surveyed reported to be lived less than five years. Hence, household respondents were the right residents to be included in the survey. The table also reveals that significant number of household respondents (13.6%) lived between six to ten years. This group of respondents themselves was sufficient to provide information with regard to social and economic infrastructures availed in their communities.

Table 4-7 Distribution of household respondents by water sources for drinking and other purposes

Source of water	Frequency	
	Total Responses	% (Percent)
Pipe extension with distribution	72	54.5
Developed spring water	0	0
Hand dug-well fitted with hand pump	20	15.2
Unprotected source such as rivers	5	3.8
Mixed (protected and unprotected)	35	26.5
Total	132	100.0

Source: Researcher's own survey, 2014

One of the main objectives of R-WASH program is to provide improved and potable water supplies to the rural communities. Improved water supply schemes, as indicated in WASH program documents, includes pipe line with or without distribution, developed and well protected springs, hand-dug wells fitted with hand pump, shallow wells and boreholes fitted with hand pumps (motorized) and the like. As the study communities are located adjacent to Shashamene town, the water supply schemes options of the communities under study are extension of spring water (motorized) pipe lines from the nearby water-point.

Table 4-7 above indicates that more than half of the total respondents (54.5%) had water point constructed from extension of pipe line extended from Shashamene town water supply scheme. However, as indicated in the table, no household respondents were using developed spring as this was not technology option for the area. Significant portion of the household respondents (26%) reported that they were using both protected and unprotected sources such as rivers and ponds. This is case especially during break down of protected water supply schemes. Hand dug wells fitted with hand pump is found to be another water supply technology option for the communities under study. Household respondents residing in *Bulchana-Danaba* were among these communities using such technology options. This group constitutes about 15% of the total household respondents interviewed during the survey.

Figure 2 below is extension of water supply scheme (pipe line) extended from Shashamene town constructed with R-WASH project budget in *Toga-Waransa* locality (one of the intervention kebeles in the woreda) as the picture was taken by the researcher himself.

Figure 4-1 Water point constructed from extension of pipe line in *Toga-Waransa* community.



Source: Researcher's own survey, 2014

Figure 4-1 above shows that even though there has been provision of potable water supply extended from motorized spring water supply of Shashamene town, the water point observed during field visit has not been properly fenced and poorly managed. This situation will have adverse impact not only on sustainability of the water supply scheme but also on environmental sanitation and health of the community as water points of such conditions cause water borne diseases. This also reveals that community participation in the management of the water supply schemes is far lower. Information obtained from both interviews and focus group discussions with households and community leaders, respectively, indicate that children and women travel to the water sources on average two times a day to collect water from such deteriorated sources. Even though female children and women are the main actors, households usually use donkeys and hand carts to transport water.

Some of potable water supply schemes have already stopped giving services to the communities due to poor management of these schemes. The communities have not fully empowered to operate and manage at their disposal. According to the information, two schemes in the kebeles under R-WASH intervention have stopped giving services very recently for minor technical problems. In the meantime, the researcher observed that it is woreda water office personnel who operate and maintain these schemes. The following figure shows schemes that are non-functioning as observed in communities of *Toga-Waransa* and *Bulchana Danaba* intervention Kebeles.

Figure 4-2 Non-functional water supply schemes in the R-WASH intervention Kebeles



Source: Researcher's own survey, 2014

Interestingly, some of the water supply schemes visited included separate cattle troughs and clothes washing basins (See figure 4-2 above). However, it was observed during field visit that the facilities were not functioning due to frequent break-down of the facilities and shortage of water supply. It is during this time that households compelled to use water from unprotected sources and expose to various health problems.

Water collection frequencies per day and per capita water consumption in liters are another important indicator of assessing the availability and accessibility of water supply schemes in communities. It is generally true that the higher per capita consumption in liters by families the easily accessible and available water supply facilities in the communities. With the same token, the higher water collection frequencies by families, the greater availability and accessibility of water supply facilities in the communities. Household respondents reported that households usually collect water on average two times a day either from protected or unprotected sources. Table 4-8 below indicates that far greater portion of the household respondents replied that per capita consumption of water in liters is far below the standard set by World Health Organization (WHO). Average per capita water consumption of respondents estimated to be only about 8 liters a day, which was very low comparing with the amount recommended by WHO which is 15 liters per day per person in rural areas. Nearly three fourths (73%) of the total respondents consume less than 10 liters of water per day (Table 4-8). This situation approves that water supply and accessibility is not sufficient as compared to the minimum services level of 15 liters of R-WASH program and needs to be improved to the standard set by WHO and R-WASH program.

Table 4-8 Distribution of household respondents by per capita water consumption.

Daily consumption	Frequency	
	Total Responses	% (Percent)
Less than 5 liters	17	12.8
6 to 10 liters	96	72.7
10 to 15	11	8.3
15 -25 liters	8	6.1
25 and above liters	0	0
Total	132	99.9

Source: Researcher's own survey, 2014

Accessibility of water supply schemes can also be assessed on the basis of time taken to fetch water from the source. According to the survey about 40% of the total household respondents replied that it takes them an hour to fetch water from the source and this is taken as an average water collection for the majority of households. Whereas 3% of the total respondents reported 10 minutes to fetch water, this more than an hour for significant portion (approximately 39%) of the respondents to do the same including the time they wait in line. This is indicated in the table 4-9 below.

Table 4-9 Distribution of household respondents by time taken to fetch water from sources

Time taken	Frequency	
	Total Responses	% (Percent)
Less than 10 minutes	4	3.0
10 to 20 minutes	4	3.0
20 to 30 minutes	21	15.9
An hour	52	39.4
More than an hour	51	38.6
Total	132	99.9

Source: Researcher's own survey, 2014

The assessment of water supply and its accessibility is also carried out in terms distances of water supply from households of communities under study. The R-WASH program specifies that potable



water must be physically accessible within a reasonable distance from household. In rural areas, this is often interpreted as on average within 1.5 km. Table 4-10 below indicates that 50% of the total household respondents were living within distance of 1.5 km from water sources. This is the standard distance set by R-WASH program. Significant portion of the surveyed population (140%) were residing within the distances between 1.5 and 2 km from the water supply facilities. However, those who were living within more than 2 km distances from the water sources constitute approximately 2% indicating that this group does not meet the requirement of water accessibility set by the R-WASH program. Although average distances of improved water supply schemes is less than that of unprotected water sources, it was observed that those settled in remote and mountain areas claim there was no difference in distance between the former and the later one. However, it was also observed that respondents do believe the importance of developed water supply over unprotected one in terms its positive health and other socio-economic conditions of families.

Table 4-10 Distribution of household respondents by distances of water sources from residences

Distances from water sources	Frequency	
	Total Responses	% (Percent)
Less than 1 km	11	8.3
About 1.5 km	66	50.0
1.5 to 2 km	53	40.2
More than 2 km	2	1.5
Total	132	100.0

Source: Researcher's own survey, 2014

According to the survey findings frequent break down of potable water supply services usually forced households to collect water from unprotected water sources to meet their daily water need. But they should also walk for more than half an hour to collect water from these unprotected and unimproved sources. Whatever water sources they use, donkey, hand cart and jerry-cans are the most important asset for water transportation.

In traditional societies like Ethiopia women have triple responsibilities: reproduction, production and community management. They have lions share in family management. Hence, it is a customary that female members of a family are usually expected to collect water from sources.

Table 4-11 Distribution of household respondents by water fetcher

Usual Water fetcher among family members	Frequency	
	Total Responses	% (Percent)
Boys	14	10.5
Girls	74	56.1
Both Boys & Girls	22	16.7
Women/mothers	20	15.2
Fathers	2	1.5
Total	132	100.0

Source: Researcher's own survey, 2014

Table 4-11 above reveals that girl children were the most responsible members of household to collect water from sources. This constitutes more than 56% of the total household respondents. Significant number of respondents replied (15%) that mothers were also responsible to fetch water from different sources. Surprisingly, only less than 2% of household members found to be responsible to collect water for household consumption. This situation confirms that cultural influences and socio-economic status backwardness of female household members still prevail in the study area.

The availability and sustainability of protected and potable water supply in a given community can be analyzed on the basis of the existence of strong, dedicated and responsible body for operation and maintenance. To realize this objective, local community participation and capacity building therein is a crucial element of the R- WASH program. Active participation of women is demanded in this regard as water is said to be women's business. This is because the R-WASH recommends that community initiates, contributes, owns and manages water supply facilities. According to the program, participation extends from the points planning to long term management and ownership of WASH facilities. Hence, R-WASH program implementation follows a demand responsive approach whereby community members (beneficiaries) participate in selection of technologies and determining how services will be operated and managed. Table 4-12 below shows the responsible body to operate and manage available water supply schemes in the intervention kebeles.

Table 4-12 Distribution of responses by responsibility to operate & maintain water schemes

Responsible body for operation and maintenance	Frequency	
	Total Responses	% (Percent)
Water point committee /WASHCO/	0	0
Designated persons from households	42	31.8
Personnel from Woreda water office	74	56.0
No responsible person	13	9.8
Don't know	3	2.3
Total	132	100.0

Source: Researcher's own survey, 2014

As it is described in chapter three, household respondents were sampled from different communities of those intervention Kebeles on simple random and purposive sampling method. Table 4-12 above reveals that more than half of the total respondents (56%) confirmed that woreda water office personnel or their delegates are responsible to operate and maintain water supply schemes in the communities under study. Hence, delegates of the communities (Water point committee or WASHCO) were not the active participant in this regard indicating sustainability of schemes are under question.

### 4.3 Assessment of Sanitation facilities and Hygiene Practices in study area

The National Sanitation and Hygiene Strategy designed by Ministry of Health (MoH) of the Federal Democratic Republic of Ethiopia (FDRE) (2005) defined improved sanitation and hygiene as the process where people demand, develop and sustain a hygiene and healthy environment for themselves by erecting barriers to prevent the transmission of diseases, primarily from faecal contamination. Faecal contamination occurs when faeces are allowed to enter the living environment through people (particularly young children) defecating on the open ground either close to or even in the domestic compound or in fields where onward transmission occurs through fluids, fingers, flies and feet. According to the document improved sanitation and hygiene is about erecting physical and behavioral barriers to stop contamination.

In line with government's Sanitation and Hygiene strategy document, the R-WASH program also identifies those important physical and behavioral barriers. The first and perhaps the most important barrier is implementing a safe drinking water chain from collection through to storage and consumption. This is because of the fact that safe and adequate water supply is the



precondition for improved sanitation and hygiene. The other major physical and behavioral barriers include:

- Building and using a safe, durable, and sealed latrine for containing all faeces when around the compound;
- Burying faeces when out in the fields;
- Washing hands with soap (or a substitute) and water after defecation or after any potential contact with faeces;
- Washing hands with soap (or a substitute) before preparing and eating food;
- Keeping the environment clean by safely managing liquid and solid waste.

In conclusion, as described said previously, it is not only the right but also responsibility to have water supply, sanitation facilities and hygiene practices.

Based on the above description and concept of improved sanitation and hygiene the R-WASH intervention Kebeles were assessed in terms of the status of these facilities and improved behaviors. In addition to administering questionnaire to household respondents, focus group discussion with key informants of householders, Health Extension Workers (HEWs), school principal, woreda water and health office and researcher’s own personal observation were important methods of data collection in this case.

The assessment of sanitation facilities in communities under study can be begin with the availability of various kinds of improved latrine in and around the compounds of house hold respondents. Accordingly, the following figure indicates the proportion of household respondents who have and haven’t latrine in and around their compound. Responses were replied on the basis of ‘Yes’ and ‘No’.

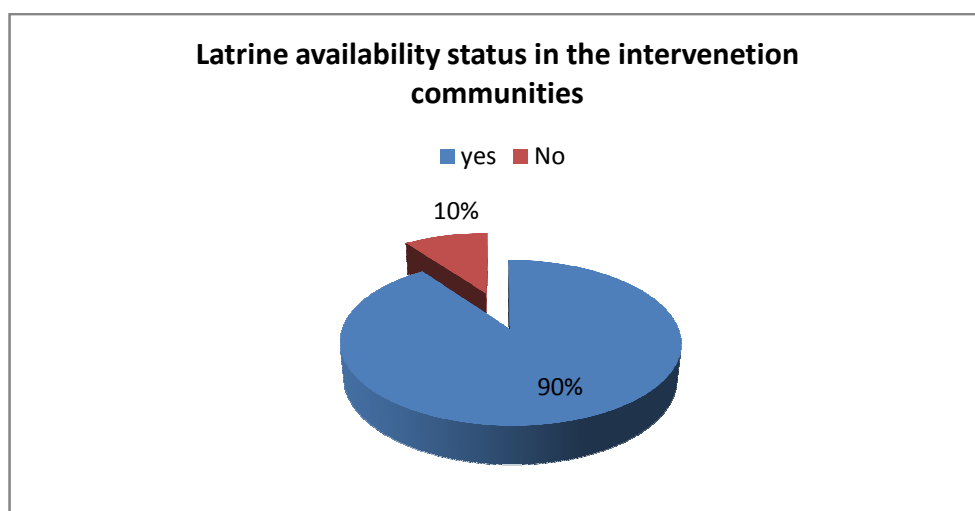


Figure 4-3 Latrine availability in the communities under study

The data collected from the sample population shows that greater portion 119 (90%) of the total household respondents had latrine either in or around their compound. Some of this group was sharing toilets with other households. It is proved that this achievement has been gained not only through R-WASH program alone but also by encouragements and efforts exerted by health extension program initiated by government. The researcher visually observed that some of the sanitation facilities are relatively in a good condition as compared to others. Pictures of some of household latrines observed during field visit are presented hereunder.

Figure 4-4 Household latrine with and without hand washing facility

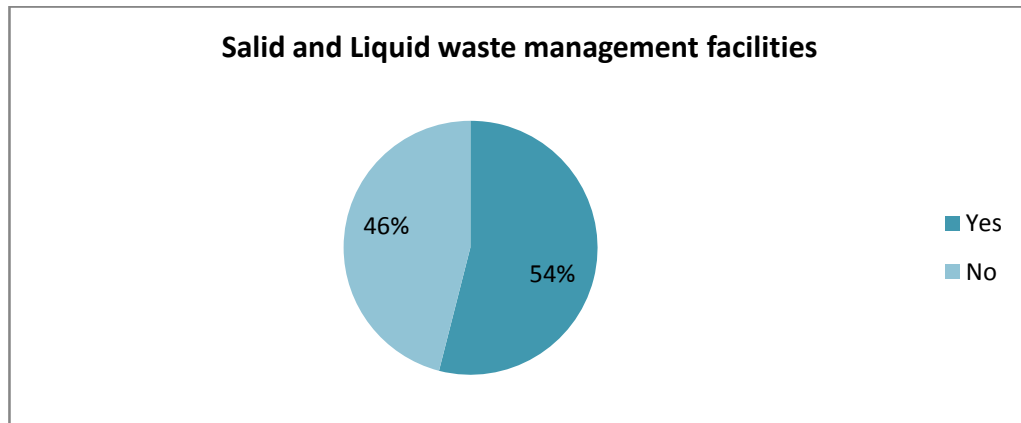


Source: Researcher's own survey, 2014

Whereas improved latrine located on the left side above had hand washing facilities with ventilation that household members use them after defecation, the unimproved household latrine located in the right side in the figure above had no hand washing facilities and poorly constructed and less protected. Some of such poorly constructed latrines were observed to be not in service. About 10% of the total respondents had no latrine at all in and around their compound due to various reasons. The first reasons have been lack of awareness and follow up by concerned community based health extension workers. They once had this facility but gradually deteriorated. Other respondents believe that they do not understand the importance of having latrine while they have sufficient places to defecate and therefore they consider latrine construction as wastage. Hence, they defecate in open air field, near river and in a place where far from their houses, although children do not go far from their compound. This condition will have adverse impact on community health and environmental sanitation.

Improving domestic liquid and solid waste management is considered to be important issue to be considered in the R-WASH intervention communities. Regarding the solid and liquid waste management practices of the household respondents, almost more than half (about 54%) of the household surveyed disposed their wastes (mostly garbage) on their back yard pit dug for this purposes. The rest of the sampled population (46%) still disposed their waste in the open field.

Figure 4-5 Solid and liquid waste management availability



Source: Researcher's own survey, 2014

However, personal observation revealed that some of the solid and liquid waste management pits were on the verge to stop giving services for lack of proper management and that some of these households had limited space to prepare other waste management in their compound. According to the survey, solid wastes were relatively well managed as compared to management system of liquid wastes. The researcher could observe that some households who live around water supply schemes wash their clothes near the water sources. In general, although majority household surveyed were supported by HEWs to have liquid and solid waste disposal pits, the majority were not using them right now for various reasons.

#### 4.4 Assessment of overall impacts of R-WASH Program in the Study

At normal condition an impact assessment study is undertaken to determine the significant or lasting long impacts on a community resulting from interventions such as R-WASH project targeting at provision of potable water supply schemes and improved sanitation facilities and hygiene practices. Good accessibility to potable water supply schemes, basic sanitation facilities and hygiene practices has many positive impacts on the community daily activities.

Though the positive impacts of good accessibility to potable water and basic sanitation is not debatable, the degree of understanding the positive and negative consequences attached to it may vary from person to person. In this study, many agreed with the negative consequences of the poor accessibility to potable water supply and basic sanitation; so the following social, economical, environmental and health impacts are some which were identified by the community members of the sample study site, *Toga-Waransa, Bulchana Danaba and Qore-Borjota Kebeles*. As we can easily notice the social impacts may have some relationship with the environmental, health and economic impacts and the reverse will also be true. Therefore, though each topic is discussed separately in the following paragraphs, they are not mutually exclusive.

In order to assess the social, health, and economic impacts of the R-WASH intervention kebeles, Focus Group Discussion (FGD), with community key members (such as women), HEWs, kebele officials, woreda education and health office staffs and researcher's personal observation were the most important methods and tools of data collection mechanism. Hence, the methodology for this impact assessment entails recording community views on their perceived significant impact resulting from the implementation of R-WASH project in the Kebeles. The researcher also used his own personal observations throughout the study communities to confirm perceived changes.

#### **4.4.1 Socio-economic impact**

Agriculture and to some extent petty trade were found to be the mainstay for the communities under study. Through focus group discussion (FGD) and face to face interview it was established that access to water supply and improved sanitation facilities and hygiene practices means that households themselves feel that they are comfortable after the onset of the R-WASH projects except when water supplies get broken and stop services. The burden on women and children is reduced and people have more time to engage in other socio-economic activities. The discussion established that with the implementation of the R-WASH project in the communities under study, improved water supply in particular directly impacted women allowing them to engage in more productive activities.

Data also revealed that participation and decision making power of women has, to some extent, been increased since the onset of the R-WASH project in the area. They became members of water management committee. However active participation of women could not be achieved due to various factors including frequent service breakdown. Interviews and FGD conducted with Kebele officials expressed that that one of the advantages of water facilities in the communities is that the former conflict and disputes over spring and other unprotected water sources either for their animal or their own consumption became less common as compared to before the implementation of the R-WASH program. Hence, social cohesion increased with this program. However, frequent service interruption sometimes affects such social cohesion when people went back to springs and rivers for consumption.

Another social impact of the program is that one primary school located in *Bulchana-Danaba* Kebele has been benefited from this project as it obtained water connection from the nearby water point in the community. Students from schools in intervention Kebeles are usually mobilized to participate in different hygiene training with regard to the importance of using improved sanitation facilities and hygiene practices including the importance of keeping their surroundings clean and safe.

#### **4.4.2 Health impact**

The discussion conducted with HEWS and other health professionals established that the number and incidence of diseases or illness that may be caused by dirty, untreated water has reduced considerably in the communities under study since the implementation of R-WASH program. However, the repeatedly breakdown and water facilities and inadequacy in quantity of the water sometimes interrupt health conditions of the communities under study. The data collected revealed that the number of reported diarrhea cases has decreased considerably since the onset of the R-WASH program except in the case of service interruption. In general, clean water means that the health of women improves which in turn increases the economic status of households. This is because collecting water took time, perhaps more than an hour this time saved can now be used to care for children, to cook, or to earn money from other activities.

According to the information obtained from HEWS and the community members themselves, improved sanitation facilities and hygiene practices has also been an important area for women and their right and role has improved considerably. Significant portion of households in the intervention kebeles had solid and waste disposal pits in their back yards and they actually using them. Some of household latrines had hand washing facilities. However, the inadequacy of water supply and frequent service interruption hindered a number of households from access to hand washing facilities.

#### **4.4.3 Environmental impact**

Ethiopian people entitled the right to live in clean environment. According to the FDRE (2005) Constitution Article 44/1/ stipulates that ‘all persons have the right to a clean and healthy environment.’ Despite what is stipulated in the Constitution significant portion of rural people do not have clean and healthy environment. In order to realize this constitutional right of the people the government has been trying to design various rural development programs, among which R-WASH program is one. Some secondary sources reviewed during literature review witnessed that remarkable positive environmental impacts being achieved so far in only limited places where R-WASH programs implemented.

Subsequent discussions with and face to face interview of HEWS and other relevant respondents established remarkable achievement in terms of improved environmental sanitation as a result of the implementation of the R-WASH program. According to the information, this was maintained through the construction of household latrine and liquid and waste disposal pits in and around their compound. However, personal observation disproved this view because constriction of latrine and waste disposal alone did not improve environmental sanitation. Wastewater around water supply

facilities had no drainage to properly manage wastewater around the facilities and this condition may have a potential for mosquito breeding and other problems therein. Researcher's own personal observation revealed that areas around water collection points are usually muddy and slippery creating another problem on water collecting women and children. This situation is aggravated by water transporting animals (mostly of donkeys) that come nearer to the tap since there were no fences and other protection for the facilities. Hence, this condition also adversely affected the environmental sanitation of the communities under study.

## **5. CONCLUSION AND RECOMMENDATION**

### **5.1 Conclusion**

Ethiopia is rural based country with more than 85% of the total population living in rural areas. Various rural development strategies have been exercised so far to improve and transform socio-economic conditions of rural people in Ethiopia. Rural Water supply, Sanitation and hygiene (R-WASH) has been one of one of socio-economic development strategies for rural areas adopted by the government of Ethiopia. The main reasons to adopt this program are the fact that it is one of tools for poverty reduction and through efforts to achieve this it also helps to achieve Millennium Development Goals (MDGs) set by United Nations (UN) in 2000. On the basis of the main R-WASH program framework, a number of projects have been designed and implemented so far in Ethiopia at all levels: national, regional, woreda and local levels. Hence, R-WASH has been adopted not only to eradicate poverty in rural areas but also to achieve MDGs, as the achievement of five out of eight MDGs are linked directly or indirectly to the implementation of R-WASH program.

The government of Ethiopia has been taking different policy measures and designed various sectoral strategies in line with the objectives achievement of MDGS and R-WASH program. The National Water Resource management Policy developed in 1999, the Ethiopian Water resource management Strategy (2001), the Sanitation and Hygiene Strategy (2005), the Water sector Development Program (2002-2016), the MDGs Need Assessment (2004) and the Universal Access Plan (UAP) developed for 2005-212 are among the National guiding policy and strategy papers. In order to ensure projects integration within R-WASH program three federal ministries have showed their commitment and eventually signed Memorandum of Understanding (MoU) in 2006. The federal Ministries that showed their commitment at national level include the then Ministry of Water Resources and Energy, Ministry of Health and Ministry of Education.

Oromia is the largest and most populated Regional State in the Federal Democratic Republic of Ethiopia which comprises more than 34 % of the total areas of the country and currently consists of 18 zonal and 304 woreda administrations. About 265 woredas are termed to be rural woredas in the region.

Shashamene woreda is one of those rural woredas of the Oromia regional state where R-WASH program has been taking place since 2006. Accordingly, Shashamene woreda administration prepared a five year R-WASH strategic plan that covers from 2006 to 2010. Almost more than a decade has elapsed since R-WASH program commenced in the woreda. Yet no study has been has been conducted to assess the objective achievement of the program. Hence the main purpose of



conducting this study is to assess the objective achievement of the R-WASH program in Shashamene woreda. Conducting this study has paramount importance. The primary beneficiary of this study is the Shashamene woreda administration itself and relevant sectoral offices. Stakeholders such as national and international funding organizations are also beneficiaries of the study outcome.

Reviewing available literature from secondary resources indicated that water is the most essential resources that everyone should be entitled to have it as it is necessary for human survival. However, significant portion of the world population still lacks this resource for various reasons. As the UNDP (2006) stated, currently 700 million people in 43 countries live with water scarcity, of these many are in sub-Saharan Africa which represents one quarter of the global population that faces water scarcity live in developing countries. Likewise, literatures revealed that sanitation is also a basic need and a way to ensure healthy populations. Though having access to improved sanitation is a basic need, it is registered that by the year 2004, 611 million people in urban and 2 billion people in rural area did not have access to improved sanitation. International organization such as UNDP, UNICEF, WHO, JMP, UNESCO and many other studied water supply and sanitation coverage worldwide and came up with their own findings depending on the objective of their respective area of emphasis. According to their findings, African is the most deprived continent in this regard. The research findings also revealed that there has been and is positive correlation between achieving objectives of WASH and development.

Shashamene Woreda, the study area, is administratively located in West-Arsi zonal administration (eastern part of the country) being one of the twelve rural woredas in the zone. It comprises 38 rural peasant associations (kebeles) out of which five were beneficiaries of R-WASH program during 2006-2011 fiscal years. As the main objective of the study is to assess objective achievement status of R-WASH program in the intervention kebeles with regard to potable drinking water supply, basic sanitation and general hygiene practice, three out of the five peasant associations (Kebeles) have been selected on a purposive basis. These are *Toga-Waransa*, *Qore-Borjota* and *Bulchana-Danaba*. About 10% of the total population considered to be the sample population. These were selected using stratified random sampling method after classifying the population into different strata.

Different data collection tools and techniques were employed for this research. To extract the required information needed for the study, four major data collection tools and techniques were employed: questionnaires, scheduled interviews, focus group discussion, personal observation and reviewing secondary sources. Collected data were edited, organized, and tabulated in a meaningful manner. Both descriptive and inferential statistics is used for data analysis. Percentages and ratios



are the most important part to analyze quantitative data. This is termed as descriptive statistics. Inferential statistics is also equally important for qualitative data collected from respondents through scheduled interviews and focus group discussions; the analysis of the data was carried out using Microsoft office Excel computer software.

By employing aforementioned tools and methods of data collection relevant data with regard to general background of the household respondents, water supply accessibility, and situation of improved sanitation facilities and hygiene practices were obtained.

The study findings revealed that more than half (approximately 55%) of the total household respondents surveyed for this purpose described they were using water supply facilities constructed by R-WASH program. The water supply schemes were constructed from the pipe line extended from Shashamene town as two of the intervention Kebeles are located almost adjacent to the town. The study finding also revealed that significant portion of the household surveyed were consuming water collected from both protected (developed) and unprotected sources. This was so because potable water supply is inadequate for all sorts of consumption and that sometimes schemes stop giving services in cases of breakdown; hence, households are usually forced to collect water from unprotected sources to fill gaps of their need.

The study finding also revealed that significant portion of the households living in communities under study owned various sanitation facilities including latrine and waste disposal pits and improved hygienic behaviors achieved since the onset of the R-WASH program. Awareness of people in this regard also raised and eventually started to practices. Hence it is evident that the program had some beneficial impacts in the lives of the people under study. However, personal observation established the sustainability of water supply and sanitation facilities is still under question and requires special consideration.

## 5.2 Recommendations

Based on the findings, the author would like to suggest some recommendations that he believes will improve the implementation and objective achievement of the R-WASH program.

1. It is recommended that active participation of community right from project initiation through implementation and management should be established to improve the objective achievement of the R-WASH program. Hence, projects should place stronger emphasis on empowering communities to fully own their own water supply schemes and improved sanitation facilities to avoid frequent service interruption;
2. Water supply and sanitation management is said to be women's business. Hence, their current passive participation has to be improved to the level of active participant if the objectives of R-WASH to be achieved;
3. Safe water handling in the household, such as hand washing and proper latrine use should be included in every safe water supply project. Otherwise water protection at source is not effective;
4. Although MoU signed by the MoWE, MoH and MoE provided foundation for the implementation of National WASH program in an integrated and coordinated manner, integration of water supply with hygiene and sanitation needs to be emphasized at woreda and kebele level;
5. Continued awareness raising in the community on water conservation, safe hygiene practices in relation to water storage as well as continued action in training households on safe sanitation practices is also recommended;
6. HEWs located in the intervention kebeles found to be an important asset for the realization of the R-WASH objectives. Hence, the government should work towards continued training and other capacity building of them;

## REFERENCES

Abiy Girma (2013) Water, Sanitation and Hygiene (WASH) in Ethiopia

[http://waterinstitute.unc.edu/files/2013\\_ethiopia/2013Ethiopia\\_04\\_Abiy.pdf](http://waterinstitute.unc.edu/files/2013_ethiopia/2013Ethiopia_04_Abiy.pdf) [Accessed 12 May 2014]

BOFED (2007) 'Socio-economic statistics'

[http://www.oromiabofed.org/images/stories/rstatistics/West\\_Arsi\\_Zone\\_Districts\\_Socio\\_Economic\\_Profile.pdf](http://www.oromiabofed.org/images/stories/rstatistics/West_Arsi_Zone_Districts_Socio_Economic_Profile.pdf) [Accessed 14 May 2014]

CSA (2008) 'Summary and statistical report of the 2007 population and housing census: Population size by age and sex.' <http://www.wsscc.org/topics/water/rural-water-supply> [Accessed 15 May 2014]

FDRE (1995) The Constitution of the Federal Democratic Republic of Ethiopia: Addis Ababa, Ethiopia

JMP (2006) Meeting the MDG water and sanitation target: the Urban and rural challenge of the decade.

[http://www.who.int/water\\_sanitation\\_health/monitoring/jmpfinal.pdf](http://www.who.int/water_sanitation_health/monitoring/jmpfinal.pdf)

[Accessed 20 May 2014]

JMP (2010) 'progress on sanitation and drinking water 2010 update'

[http://www.wssinfo.org/fileadmin/user\\_upload/resources/1278061137-JMP\\_report\\_2010\\_en.pdf](http://www.wssinfo.org/fileadmin/user_upload/resources/1278061137-JMP_report_2010_en.pdf) [Accessed 20 May 2014]

JMP (2011) Water sanitation and health; Report of the WHO/UNICEF joint monitoring programme: Progress on Sanitation and Drinking Water 2010 update

[http://www.who.int/water\\_sanitation\\_health/monitoring/key\\_terms/en/index.html](http://www.who.int/water_sanitation_health/monitoring/key_terms/en/index.html) [Accessed 27 May 2014]

MoH (2005) National Hygiene and Sanitation Strategy: Addis Ababa, Ethiopia

UN (2000) - The Millennium Development Goals (MDG) [http://www.sarpn.org/documents/d0001378/We-the-people\\_2005\\_MDG.pdf](http://www.sarpn.org/documents/d0001378/We-the-people_2005_MDG.pdf) [Accessed 10 May 2014]

UNDP (2006) 'Beyond scarcity: Power, poverty and the global water crisis' *Human*

*Development Report 2006* <http://hdr.undp.org/en/media/HDR06-complete.pdf>

[Accessed 7 September 2014]

UNDP (2010) 'Millennium Development Goals report 2010'

<http://www.un.org/millenniumgoals/environ.shtml> [Accessed 20 March 2014]

UNESCO (2006) 'World water assessment program: Meeting Basic needs'

[http://www.unesco.org/water/wwap/facts\\_figures/basic\\_needs.shtml](http://www.unesco.org/water/wwap/facts_figures/basic_needs.shtml) [Accessed 10 May 2014]

UNICEF and WHO (2006) Meeting the MDG Drinking water and sanitation

[http://www.who.int/water\\_sanitation\\_health/monitoring/jmpfinal.pdf](http://www.who.int/water_sanitation_health/monitoring/jmpfinal.pdf) [Accessed 14 May 2014]

- USAID (2008) 'External Program Evaluation on Water, Sanitation and Hygiene (WASH) in Ethiopia' available from
- WHO (2000) 'Health systems: improving performance.' Geneva, Switzerland  
[http://www.who.int/whr/2000/en/whr00\\_en.pdf](http://www.who.int/whr/2000/en/whr00_en.pdf) [Accessed 15 May 2014]
- WHO (2008) 'Access to improved drinking-water sources and to improved sanitation (percentage)' [http://www.who.int/whosis/indicators/compendium/2008/2wst\\_en/](http://www.who.int/whosis/indicators/compendium/2008/2wst_en/) [Accessed 10 May 2014]
- WHO/UNICEF/WSSCC (2000) 'Global Water Supply and Sanitation Assessment 2000 Report' [http://www.who.int/water\\_sanitation\\_health/monitoring/jmp2000.pdf](http://www.who.int/water_sanitation_health/monitoring/jmp2000.pdf) [Accessed 18 May 2014]
- World Bank (2005) 'Scaling up Support to Water Supply and Sanitation' <http://siteresources.worldbank.org/INTWAT/Resources/4602114-1203518899290/Ethiopia.pdf> [Accessed 18 May 2014]
- World Bank (2010) 'Agriculture and rural development' <http://data.worldbank.org/topic/agriculture-and-rural-development> [Accessed 15 May 2014]
- WSSCC (2011) 'Rural water supply' <http://www.wsscc.org/topics/water/rural-water-supply> [Accessed 10 May 2014]
- WWC (2009) 'Why a right to water is necessary?' <http://www.worldwatercouncil.org/index.php?id=1764> [Accessed 8 May 2014]

## APPENDICES

### A. Questionnaire for households in the R-WASH intervention kebeles

**Note:** I am conducting a research for the partial fulfillment of the Requirement for the Degree of Masters of Arts in Rural Development (MARD) at IGNOU postgraduate program, coordinated by SMUC. My research topic is “*Assessment of R-WASH Program Objectives Achievement in Shashamene Woreda: the case study of three R-WASH intervention Kebeles*”. I am collecting primary data for the same and therefore, you are one of my data source as your information is very important input for the study. So, I kindly request you to provide me with your answer. The information you give will be used only for academic purpose. I hope that you will answer these questions as honest and complete as possible. I would like to emphasize that any information you give will be kept secretly and will not be disclosed anybody.

Thank You in Advance!!

#### Part I: Household basic information

1. Sex of respondents Male \_\_\_\_\_ Female \_\_\_\_\_
2. Age of respondent (years) \_\_\_\_\_
3. Education levels of respondents
4. Total household members (family size)

Education level	Put (✓)
Illiterate	
Read & write	
Primary (1-8)	
High school (9-12)	
College level	
Other	

Family size	Put (✓)
1	
2 – 5	
6 – 10	
Above 10	
Other	

5. Marital Status

Marital Status	Put (✓)
Single	
Married	
Divorced	
Widowed/widower	
Others	

6. What is your main occupation?

Occupation	Put (✓)
Farmer	
Farmer + Trader	
Government office	
Daily laborer	
Other	

**Part II: Questions in relation to Water supply and Accessibility**

1. How long you lived in this Kebele? drinking

Years lived	Put (✓)
Less than 2 years	
2 - 5 years	
6 – 10 years	
More than 10 years	
Other	

2. What is your main source for water

Main source	Put (✓)
Piped water	
Developed spring water	
Hand dug well fitted with hand pump	
Unprotected pond	
River	
Other	

3. What is your main source of water used for other purpose other than drinking (e.g. for cooking, washing clothes, bathing, etc)

Main source	Put (✓)
Piped water	
Developed spring water	
Hand dug well fitted with hand pump	
Unprotected pond	
River	

4. What is your daily water consumption per person for all purposes (on average)?

Daily consumption	Put (✓)
Less than 5 liters	
6 – 10 liters	
10 - 15 liters	
15 liters and above	
Other	

5. Are you satisfied with the quantity of water you are using from current source? (Put✓)

Yes  No

6. How long it take to you to fetch water for your consumption?

Time takes	Put (✓)
Less than 10 minutes	
10 - 20 minutes	
20 - 30 minutes	
An hour	
More than an hour	

7. How far is your water source from your residence?

Distance	Put (✓)
Less than 1 km	
About 1.5 km	
2 – 5 km	
More than 5 Km	

8. Who, among family members, usually fetch water from water source?

Fetcher	Put (✓)
Boys	
Girls	
Both boys and Girls	
Women/Mother	
Father	

9. Do you mostly stand in line a long time at water source (water point)?

Yes  No

10. How do you evaluate the quality of your water and its color?

Quality	Put (✓)
Very good	
Good	
Fair	
Bad	
Don't know	

11. Do you pay for water? Yes  No

12. Who is/are responsible for Operation and Maintenance of your water scheme?

Responsible Person	Put (✓)
Water point committee (WASHCO)	
Designated person from households	
Woreda personnel	
No responsible person	
Other	



13. Who own your water scheme?

Owner of water scheme	Put (✓)
Woreda water office	
User community	
Other responsible person	
Other	

14. Is there any women specific responsibility in the community for water point management?

Responsibility of women	Put (✓)
Member of Water point committee (WASHCO)	
Water fee collector	
Operator	
No Responsibility	

15. Does the source of water help you reduce the long time misuse to fetch water?

Yes  No  Don't know

16. Are women members of WASHCO?

Yes  No  Don't know

17. Do you think representation of women is enough?

Yes  No  Don't know

18. Do you think representation of more women in water management is good?

Yes  No  Don't know

### **Part III Households sanitation and Hygiene situation Assessment**

1. Do have latrine/toilet facility in your compound?

Yes  No

2. If yes, what kind of toilet/latrine facility are you using?

Type of facility	Put (✓)
Improved ventilated pit latrine	
Pit latrine without ventilation	
Pit latrine with no cover	
Other	

3. Does your sanitation facility have hand washing facility (water and detergent)?

Yes  No

4. When is critical time to wash your hands?

Types of facility	Put (✓)
After using latrine	
Before handling food items	
After cleaning child feceaes	
Other	

5. If your answer to question number 1 is 'No', where do you defecate? \_\_\_\_\_

6. Do you have waste disposal pit? Yes  No

## Part IV Overall impact of water and sanitation facilities

1. What impact (positive and negative) does your water facility have?

a. Social impact

---



---



---



---

b. Health Impact

---



---



---



---

c. Economic impact

---



---

- 
- 
- d. Other \_\_\_\_\_
2. What impact (positive and negative) does your sanitation facility have?
    - a. Social impact
 

---



---



---



---
    - b. Health Impact
 

---



---



---



---
    - c. Economic impact
 

---



---



---



---
    - d. Other \_\_\_\_\_

**B. Checklist for focus group discussion for households in the intervention kebeles**

1. What are the basic achievements and problems in the community?
2. Do you think the current water and sanitation facilities situations are satisfactory to the community members?
3. What initiatives does the community take to sustain the availability of safe drinking water and sanitation?
4. What are the priority infrastructures in the community?
5. What is your opinion in the relationship of infrastructure and economic development?

**C. Interview schedule for health extension workers (HEWs) in the community**

1. Background: age, sex, education, etc.
2. Year of service in current kebele
3. Major activities of health extension worker in relation to water supply,

sanitation and hygiene

4. Is there any communicable disease in the community you are working in?
5. Are the diseases are related to unsafe drinking water and poor sanitation?
6. What role do you play to minimize the exposition of the community members to water borne diseases?
7. Do you believe that the training you have had allows you to address most problems you encounter at community level?
8. Do you contribute to creating awareness about using safe water and sanitation facilities?
9. Which types of diseases are the most prevalent – water-borne, water washed or water-related?
10. What are the perceived health problems because of poor water and sanitation?
11. What households groups are most susceptible to water-related diseases?

#### **D: Interview schedule for woreda water and energy officers**

1. Is there any basic problem in relation to water supply in the R-WASH intervention kebeles of the woreda?
2. Is there sufficient water for all community members at any time?
3. Is the water quality sufficient for drinking?
4. Is the water supply system technically sound and feasible for the needs in the community?
5. What initiatives does the community take to increase the availability of safe drinking water and sanitation?
6. Do you contribute to creating awareness about using safe water?
7. Are there NGOs working on water development activities?
8. What do you think are the main constraints to improving water supply and sanitation?
9. Are there competition and conflicts over water by the kebele inhabitants?
10. Have you recognized any problems caused by unsafe water consumption?
11. Do the government and NGOs attempt to promote public participation in water related development activities, and in what ways?
12. What are the major problems in relation to water supply
13. Your suggestions for improving water and sanitation, and thereby improving food security, health and overall standard of living.