

# **RURAL WATER SUPPLY AND ENVIRONMENTAL PROGRAMME (RWSEP) IN AMHARA REGIONAL STATE, ETHIOPIA**

## **A STUDY ON KNOWLEDGE, ATTITUDE AND PRACTICE (KAP) ON SANITATION AND HYGIENE**

## ACRONYMS

<b>ANRS:</b>	Amhara National Regional State
<b>ARI:</b>	Acute Respiratory Tract Infections
<b>CDF:</b>	Community Development Fund
<b>EFY:</b>	Ethiopian Fiscal Year
<b>EPA/CSE:</b>	Environmental Protection and Conservation Strategy Of Ethiopia
<b>FGD:</b>	Focus-Group Discussions
<b>HHs:</b>	Households
<b>IEC:</b>	Information, Education and Communication
<b>KAP:</b>	Knowledge, Attitudes and Practice
<b>MFA:</b>	Ministry Of Foreign Affairs of the Government of Finland
<b>MOH:</b>	Ministry Of Health
<b>NGOs:</b>	Non-Governmental Organizations
<b>O AND M:</b>	Operation and Maintenance
<b>ORS:</b>	Oral Dehydration Salt
<b>RWSEP:</b>	Rural Water Supply and Environmental Programme
<b>WATSAN:</b>	Water Supply and Sanitation
<b>WATSANCOS:</b>	Water Supply and Sanitation Committees
<b>WHO:</b>	World Health Organization
<b>UN:</b>	United Nation

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## EXECUTIVE SUMMARY

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The study has been carried out in 4 pre-selected RWSEP project-woredas, viz. Fogera (South Gondar zone), Hulet-lju Enessie (in East Gojjam zone), Ankesha (in Awi zone) and Degadamot woreda (in West Gojjam zone). The 5<sup>th</sup> study woreda is Mecha, in west Gojjam zone which is a non-project served but included as a control area for the purpose of comparison.

The general objective of this KAP Survey is to understand the existing water, sanitation and hygiene-related knowledge, attitude and practices of communities in the RWSEP-intervention woredas and see the impact of the RWSEP programme, in terms of water supply and sanitation awareness-creation as compared to the non-intervention (control) area, with recommendations for improvements.

Two sets of closed, open-ended and structured questionnaires were designed and prepared for data collection from households in the project-served kebeles/in woredas and also in the control woreda. The total number of Households to be surveyed in the selected 5 woredas was determined to be 1,305.

Key-informants in different bureaux, departments, offices, etc. (all sectoral stakeholders for the RWSEP programme: starting from the regional down to field workers at kebele levels) were interviewed by the consultants in soliciting information on specific components of the programme. In addition, WATSAN Committee members, development agents (DAs), contact women, gender-sensitization team members, school teachers and directors, etc. were interviewed so as to obtain the needed information. All in all, a total of 73 individuals /key-informants (9 females and 64 males) had been interviewed.

Information drawn from group-discussion was believed to compliment the data gathered by the structured questionnaires and for that purpose, Focus-group Discussion was the method used in this study on Knowledge, Attitude and Practice (KAP). Relevant issues/topics for the discussions were designed, prepared and written down prior to the study. The consultants used the topics as guides for the discussants during such sessions. A total of 5 focus-group discussion-sessions (1 in each study-woreda) were held for the entire survey.

The study consultants made visits to different schools, government woreda offices (Education, Health, water supply, etc.) and community water points, in order to have a general knowledge and to verify the information gathered through the employed survey methods and/from reviewed official documents on the RWSEP programme interventions.

This KAP survey has been conducted in 5 woredas, designated prior to the start of the survey, in 5 different zones of the ANRS. One of these woredas surveyed, Mecha, is not RWSEP project-served but used as a control woreda for comparison. In these surveyed 5 woredas, there is a total population of 1,255,124 and 182 kebeles (15 urban and 167 rural). Among the population, 50.3 % (630,961) are males and 49.7% (624,163) females.

In the 167 rural kebeles studied, there are 406 water points (protected water-sources) out of which 329 are hand-dug water wells, 2 deep wells/boreholes and 75 are protected springs. All the water points are constructed by the RWSEP programme, except the water points in the control woreda, Mecha. The total population benefiting from the 406 water points in the 5 woredas is 173,314.

Environmental sanitation and personal hygiene situations are alarmingly poor, especially in the rural settings. Availability of potable water supply and utilization of latrines are almost negligible and hardly enough.

Contamination of the water supply fetched from the water points is very highly possible from the unhygienic handling practices and usage by the rural population, since the majority of the people keep the dippers, used to take out water from the storage-containers (the clay pot/ Ensira which is culturally used to fetch water from the source and also to store water at homes) at any place on the dusty floors of houses.

Latrine availability and or latrine usage is at its rudimentary stage in all woredas, except Hulet Lju Enessie woreda.

The domestic waste disposal system in the rural set-up is another un-hygienic/unhealthy practices of the population.

Most residential houses of the rural people surveyed are earth floored, mud-plastered walls, with one room where domestic animals also dwell with the people.

According to these survey findings, there are some changes taking place in the improvement of the awareness, attitudes and practices of the rural population in the RWSEP project-served woredas. Nevertheless, such changes appear unsatisfactory in regard to personal hygiene (self-bathe; washing clothes and bathing small children, 2-3 years old); hand-washing practices; home treatment of diarrhoea; family planning; transmission and prevention of locally prevalent diseases such as malaria, HIV/AIDS etc. This situation necessitates greater effort investment in intensive and continuous IEC dissemination to the population, with regular follow-up, monitoring and evaluation activities.

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## 1. INTRODUCTION

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The health status of the population of Ethiopia is among the lowest in the world. About 250,000 children die before they reach 5 years of age due to diarrheal diseases associated with poor hygiene. Therefore adequate and safe water supply, sanitation and hygiene promotion are basic human needs to safeguard such problems. Among the ten top diseases in the study areas the ones more prevalent are Malaria, diarrhea, intestinal parasites, tuberculosis, HIV/AIDS and acute respiratory tract infections (ARI) which are among the leading causes of morbidity and mortality.

Occurrence at many of the health problems in developing countries are because of poor standards of housing, low level of sanitation and personal hygiene and ignorance of simple health practice (1)

Ethiopia is known to have almost all of the tropical diseases that are endemic and prevailing in the African continent; such diseases as bilharziasis, onchocerciasis (river-blindness), ancylostomiasis (hookworm), trachoma, skin infection and wounds, etc. Epidemics of meningococcal meningitis, shigellosis and other diarrhoeal diseases, typhoid fever, relapsing fever, hepatitis, etc. are frequent as well, Problems of affluence, accidents, poisoning.

The people's major problem in study areas especially in rural communities is scarcity of water supply and poor sanitation. The people in rural settings have lived with poverty; poor housing conditions; unsanitary environment; wrong beliefs; superstitions and rampant infectious diseases and malnutrition. Most people live in tukuls which are grass-thatched, mud-plastered walls, dusty floor, single-roomed and without windows. These all are potential factors for the ease transmission of communicable diseases including vector borne diseases and others which are preventable.

### 1.1 Back Ground Information of the Study Area

Amhara National Regional State (ANRS) is located in the North-western part of the country (Ethiopia) and covers a total area of about 170,752 square kilometers. It is the second largest federal state with a total population of **18.5** million, of which, 89% (about 16.5 million people) live in rural areas while the remaining 11% (about 2 million people) live in urban areas.

The study has been carried out in 4 pre-selected RWSEP project-woredas, viz. Fogera (South Gondar zone), Hulet-Iju Enessie (in East Gojjam zone), Ankesha (in Awi zone) and Degadamot woreda (in West Gojjam zone). The 5<sup>th</sup> study woreda is Mecha, in west Gojjam zone which is a non-project served but included as a control area for the purpose of comparison.



Mecha woreda was selected as a control woreda because there was no donor-assisted community development intervention, similar to RWSEP programme going on. Also, the woreda is located near Bahar Dar town and along the main highway to the other study woredas.

Currently, in the 5 woredas surveyed, the total number of schools existing are 222 and the total enrolled students are 200,086 (females are 89,282=44.7%) in about 144 (64.9%) schools (Refer Table 63 in Annex).

## **1.2 Statement of the Problem**

Sanitation development in Ethiopia is very limited and has not been accorded the attention and priority it deserves. The implications of poor sanitary situations, combined with high settlement density, extremely poor housing conditions and the low living-status have been and are posing threats for communicable diseases outbreaks.

According to the Ministry of health (MOH) in 1999, national sanitation is one of the lowest. It is estimated that only 26% of the total population, 71% of the urban and only 7% of the rural population have access to sanitary means of excreta disposal facilities. However, these coverage figures are misleading as they simply indicate the availability of latrine facilities to a certain proportion of a population at any given time without providing adequate information on: -

- i. How many of the facilities are functional;
- ii. How many of the latrines are properly used, not used and misused;
- iii. How many of the facilities are properly and routinely operated and maintained;
- iv. How many of the latrines have been replaced after use, etc.

In this connection it can be asserted the coverage figures do not represent the actual situation on the ground. Reliable data on sanitation-coverage is lacking. Extra efforts are required to assess and determine the status of the excreta disposal systems put-in-place.

Given the current coverage figures, the national shortfall of latrines is enormous and this scenario grows at about the same rate as the population. This means that sanitation implementation rates, the gap between need and provision/ availability are increasing at an alarming pace. In addition to the problem of the low-level sanitation – coverage, the lack of proper management of domestic, municipal and industrial wastes present environmental health hazards, particularly in the urban fringes.

The most important and most difficult part of sanitation-promotion activities is to ensure that the beneficiaries make use of the facilities. The provision/availability of latrine facilities should not be the final goal of any sanitation intervention. Availability is only a means to improve the health status of the beneficiaries, thereby improving the living conditions. This can be achieved only when the beneficiaries make proper use of the facilities. Increased latrine-coverage together with

improved hygiene behaviors can help break the faeco-oral cycle of infectious diseases. As sanitation is not only more latrines, it is of paramount importance to note that sanitation is introduction of new ways of life through education, behavioral change and personal hygiene practices.

The information on hygiene education in the country is scanty and yet more difficult to obtain as it requires a more systematic approach to establish measurement indicators similar to that of the physical structures of water supply and sanitation facilities. Nonetheless, reports from health facilities and other institutions involved denote that mainly health professionals provide hygiene education as part of the routine health service activities. It is given for individuals or for groups at different settings. The impacts from the hygiene education intervention-measures undertaken are not yet adequate to exact improvements in the health of beneficiary communities. This might have emanated from a variety of reasons including the low priority accorded to the service, inappropriate means of giving education, in availability of relevant and easily understandable hygiene-education promotional materials, very high illiteracy rate among the public, etc.

There are a number of governmental, non-governmental (NGOs), bilateral, multi-lateral organizations and UN Agencies that are directly or indirectly involved in the provision and promotion of water supply and sanitation to a large extent and hygiene education to a lesser degree. However, the level of their involvement in the provision and promotion of sanitation is by far and large nominal.

A better life and an improved standard of living are the fundamental aspirations of the 70% of humanity living in the poor countries, like Ethiopia. Socio-economic development is a means to achieve it. It is estimated that worldwide, 2 billion people live below the poverty-line. This situation is a fertile ground for political unrest. Hopelessness and despair also lead people to migrate to the industrialized /developed countries in search of a better future. For the poor, a better life first means satisfying the basic human needs, including access to jobs, food, clothing, health services, education, housing, running adequate and safe water supply, sewage, etc. Along with poverty, lack of public awareness of preventive and promotive health measures, poor personal hygiene, insanitary disposal of human and animal waste, lack of adequate and potable water supply, etc., there is always public health problems of huge proportions as they have detrimental effects on the growth and development of children of school-age. (6, 23 and 25).

According to the detailed information presented above, there has been a tremendous amount of work accomplished through the RWSEP programme implementation, since the time the programme was launched (September 1994). The major activities performed were provision of water points and demonstration latrines, dissemination of IEC and awareness-creation to enable the beneficiary communities acquire knowledge about the prevention of communicable diseases;

clean and potable water supply; sanitary disposal of human and animal excreta; personal and domestic hygiene; etc.

Through all these efforts put-in-place throughout the life of the RWSEP project, it is anticipated that the beneficiary communities have gained the necessary knowledge which would enable them to bring change in their cultural habits, behaviors, attitudes and practices which, in return, would help all of them to have better and healthy lives.

Having the above expectations in mind, this very Knowledge, Attitudes and Practices (KAP) survey has been planned to be conducted, for the second time, in order to assess the RWSEP-project-benefiting communities-acquired knowledge and the change in their cultural habits, attitudes and practices. The survey results are to be compared with that of communities outside and/RWSEP unserved woreda (control woreda).

### **1.3 Significance of the Study**

Every citizen has a right to a decent and a suitable living environment. However, large segments of the population in urban and rural areas throughout the world do not enjoy one or both of these fundamental needs. Therefore adequate and safe water, adequate and safe excreta disposal facilities and hygiene promotion activities are fundamental needs.

This study offers guidance to the communities on how they can identify and gather information about environmental factors affecting health in the areas where they live. It also offers a basis for the subsequent phases of upgrading process, the planning and implementation of activities.

Result of this study can be of great help to programme planners, professionals, and concerned government bodies in developing appropriate new strategies, modifying the existing ones, and/or appropriate recommended actions.

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## **2. OBJECTIVES**

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### **2.1 General Objectives**

The general objective of this KAP Survey is to understand the existing water, sanitation and hygiene-related knowledge, attitude and practices of communities in the RWSEP-intervention woredas and see the impact of the RWSEP programme, in terms of water supply and sanitation awareness-creation as compared to the non-intervention (control) area, with recommendations for improvements. The ultimate goal is to further develop the RWSEP sanitation (environmental health) strategy in accordance to the survey results and the given recommendations.

### **2.2 Specific Objectives**

- ? To know the current knowledge, attitudes and practices of household members in personal and domestic hygiene, sanitation and environmental health situations.
- ? To know the current knowledge, attitudes and practices of the school-communities in personal hygiene, sanitation and other environmental health aspects.
- ? To know the difference in sanitation and hygienic practices between the RWSEP-served woredas and non-RWSEP-served woreda, and
- ? To know the effect of RWSEP sanitation promotional tools and methods, and how to develop them in the future.

### **2.3 Scope of the study**

The woredas where the study is to be carried out have been already decided by the RWSEP programme head quarter at Bahar Dar town. These pre-selected 5 woredas for the study are:

- ✍ Hulet-lju Enessie woreda in East Gojjam zone
- ✍ Degadamot Woreda in West Gojjam zone
- ✍ Ankessha woreda in Awi zone
- ✍ Fogera woreda in South Gondor zone and
- ✍ Mecha woreda (control area) in West Gojjam zone

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### 3. LITREATURE REVIEW

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Access to sufficient safe water and to adequate sanitation and hygiene education for people in Ethiopia is a matter of great-and urgent-importance. Living in one of the worlds poorest countries, the Ethiopian population is also amongst the worst off in terms of water and sanitation. With estimates of only 24% having access to water and 12% to adequate sanitation (2), water related diseases are rife and child mortality is high. The extremely limited nature of the health services available compounds the severity of the situation.

The challenge facing all those working in the WATSAN sector in Ethiopia is vast. Yet progress is being made, particularly in improving access to water. There is widespread agreement that water supply has to be delivered in conjunction with appropriate community capacity building to enable people to manage their supply in a way that is sustainable and equitable (3). However the sector has often struggled to give equal emphasis to sanitation provision and hygiene promotion. In many cases this is evident in the slow rate of building appropriately designed latrines, but a wider issue is the challenge to ensure proper use of any latrine built, and to facilitate the type of education that can create a radical attitudinal shift to in the population as regards water and hygienic practices .After all, it is only when people change their attitude that they work to maintain their water supply and to protect the health and wellbeing of their community. Huge number of cases of helminthes infections and enteric diseases are occurring among children exposed to the grossly unsanitary conditions (4). House hold sites and near by open space contaminated with faecal matter, chemicals ad other wastes pose major health risks especially for the children playing on them.

As of sanitation millennium development goal of Ethiopia (2005) Ethiopia is one of the countries with the lowest sanitation and health, and the prevalence of other pressing needs are amongst the main reasons that attributed to low coverage figures. Safe drinking water, sanitation and hygienic practices are requirement for human health and for overall reductions in morbidities and mortality rates, especially among children. Studies of the impact of water and sanitation improvements on health have shown that sanitation and hygiene (mainly hand washing) are more significant than the provision of safe water in the reduction of diarrhoeal diseases, intestinal worm infestations, skin diseases and eye infections.

Water provision alone only impacts significantly on guinea worm. Research carried out by Esrey and Habicht (1986) and Esrey et al (1991) of the best 144 epidemiological studies around the world, showed that safer excreta disposal led to a reduction of childhood diarrhoea by up to 36%. Hygiene (mostly hand washing) brought a reduction in infant diarrhoea of 33%. Better sanitation also reduced other diseases such as schistosomiasis (77%), ascariasis (29%) and trachoma (27-50%).

Improving water quality alone produced limited reductions in childhood diarrhoea of up to 15-20% and a reduction in guinea worm of 78%. In addition, the severity of disease was often reduced to a greater extent than its incidence prevalence, indicating that better sanitation and hygiene reduces exposure to pathogens (10, 11).

As per the health and health related indicators of Ethiopian Fiscal Year 1995 under five-children mortality rate in Ethiopia is reported to be 117/1000 of which 20% of the death is caused by diarrhea

Water is one of the basic essentials for the existence of all living organisms, and early human settlements usually proliferated around the various sources of natural water, with the concentration of ever large population in the urban centers or rural communities, increasing human wastes are finding their way in to surface water and under ground water which resulted to the gross pollution of water. Human excreta are the principle source of pathogens carried by water which constitutes a major vehicle transmission of communicable diseases.

Clean, adequate and safe water supply and Sanitation are basic human needs as their interventions help to improve living conditions. Improvements in health can only be achieved when water supply, sanitation and hygiene are promoted/provided as a package. Safe water supply and sanitation are essential for life and as such, are rights and entitlements for all individuals, especially for poor people and their families who are most often the ones without these services.

As water is highly essential for life, water from contaminated sources can become detrimental to human life causing numerous diseases that result in high morbidity, mortality and/disability.

Disease transmission commonly occurs as a result of the unhygienic disposal of human and household waste combined with poor hygienic habits and practices. Water can be safe at the source, but may become contaminated during collection, transportation, storage, handling and use. A more significant health impact might be expected to emerge from a programme in which water supply development and proper excreta disposal interventions are combined with hygiene education so as to ensure that the available water is fully used hygienically and faecal contamination of the immediate environment is minimised.

Communicable diseases such as cholera killed thousands of people .one of the contributing factors for death and disability was the lack of water and its poor quality and quantity. People either have to walk long distances to get water or they have to wait for rationing .As a result the people only used it for purposes which they deemed of absolute necessity such as cooking, they rarely used it for washing their cloth, or their body. This situation is what exactly is to day here in Ethiopia.

It is clear that without adequate sanitation and proper hygiene measures, the prevention and control of **water-excreta-related diseases** will fail and do not produce the intended/expected

impact. Water, by its very nature, is a good vehicle and medium for the transmission of many diseases. Water-related diseases include those diseases which are carried by water or where water provides the vital link in their transmission. There are several ways of classifying water-related diseases:-one of these is based on the mode of transmission (Bradley 1977).

- A. **Water-borne diseases:** many diseases are known to spread through water supply and cause large outbreaks. This infection is water-borne where the pathogenic organisms are carried passively in the water. These diseases are also known as dirty-water diseases. Such diseases include dysentery, cholera, typhoid fever, etc.
- B. **Water-scarce or Water-washed:** This is when people have very little water due to shortage or because they have to travel long distances, this results in difficulties to keep personal hygiene, wash utensils, cloth etc. This problem will encourage skin infections. Improving personal hygiene may significantly reduce these diseases. The improvements often depend on increased availability of water supply; examples include eye infections (trachoma), scabies, etc.
- C. **Water-based diseases:** Some parasitic eggs or larvae are not directly infective to man but to specific invertebrates water animals such as snails and other crustaceans. They undergo development within this invertebrates (intermediate hosts) from which, after a period of days or weeks, further larvae mature and may be washed in to the water. These larvae are now infective to man. Man will be infected by drinking the infected water or contact with water. These include bilharziasis (schistosomiasis), dracunculiasis (guinea worm), etc.
- D. **Water-related insect vector-borne:** Mosquitoes breed in water bodies, other insects like the tsetse flies bite near water. People with out piped water systems may go near such water bodies to fetch, to bath and wash in which case infection may take place. Such diseases include malaria, yellow fever, onchocerciasis (river-blindness), etc.

The report from a study of the health impact of an integrated project comprising water supply (hand pumps) improved latrines and hygiene education in a rural area of Bangladesh showed that the project had a significant impact on child hood diarrheal disease and reduced the prevalence of Ascaris infection by more than one third in the intervention area.

**Sanitation**, which has become synonymous to only a latrine facility, is a very wide and complex issue. Many times, different groups have defined sanitation differently to suit to situations under which it is intended to be used. The Water supply and Sanitation Collaborative Council has defined Environmental Sanitation as: - "Interventions to reduce people's exposure to diseases by providing a clean environment in which to live, with measures to break the transmission-cycle of diseases. This usually includes proper disposal of or hygienic management of human and animal excreta, refuse, wastewater, storm water, the control of disease vectors and the provision of

washing facilities for personal and domestic hygiene. Environmental sanitation involves both behavior and facilities which must work together to create and sustain a hygienic environment.”

**Improved Sanitation** is far more than just latrine facility (physical structure) availability. Behavior change and personal hygiene are crucial elements of improved sanitation. Sanitation is dependent on the way people behave and practice hygiene. The best way to get this process started is through the integration of hygiene education in the sanitation programme.

To achieve health benefits from water supply and sanitation interventions, it is not sufficient to construct improved water sources and sanitation facilities. The facilities have to be properly utilized continuously by everybody in a safe way. Hygiene education becomes instrumental in the process of providing water supply and sanitation facilities as it promotes an optimum use of water supply and sanitation facilities and a care for their continuous functioning through proper operation and maintenance.

Latrines alone cannot improve health. Improved sanitation involves both the safe-handling of excreta and proper hygiene. Into to, the combined provision and promotion of water supply, sanitation and hygiene education are central to sustainable development. Their significance in achieving an overall goal of healthy society is enormous (6). Therefore Water and sanitation is the first barrier to prevent diseases and promote health. According to Dr. LEE Jong-wook, Director General of WHO, 2005, “Water and sanitation is one of the primary drivers of public health. I often refer to it as ‘Health 101’, which means that once we secure access to clean water and adequate sanitation facilities for all people, irrespective of all differences in their living conditions, a huge battle against all kinds of diseases will be won”.

WASH is a fundamental right and a basic ingredient of human dignity. WASH is a cornerstone of public health and social and economic wellbeing. The socio-economic benefits of improved WASH are acknowledged to be significant. Will be realized most by women and girls as they are the main carriers of water and caretakers of family health and hygiene.



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## 4. METHODOLOGY

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Prior to the commencement of the KAP survey in the 5 study-woredas, most relevant books and official RWSEP documents, mainly RWSEP Programme Document, **Phase III**; the Book on Health Education For Schools; Manual for overall sanitation and Hygiene Education Training for all Team members and School clubs in the RWSEP programme; Training and Working Manual for pump attendants; working manual for WATSAN committees; Contact Women Strategy for RWSEP project; training manual for WATSANCOs; the two Quarterly Magazines, **Aggar and Mikikir**; work guidelines on community Development Fund (CDF) for RWSEP Programme: study Results of the **Socio-economic Baseline Survey** and **Assessment of Household and School Water supply, Sanitation and Hygiene Status in Selected Woredas of East Gojjam and South Gondar Zones, Amhara Region**) were reviewed.

Other documents, related to health, such as the National Health Policy and Strategy; annual reports of the Ministry of Health; monographs on major communicable diseases; Environmental Protection and Conservation Strategy of Ethiopia (EPA/CSE) and also the National Policy on Water Resources Management were assessed.

In addition, pertinent secondary data were obtained from thorough assessment and review of medical records and reports of health facilities on the delivered routine health services, particularly Environmental Health (water supply, available latrines and their usage; waste disposal; housing conditions, etc.) and reports on control of diseases outbreaks.

### 4.1 USE of Household Survey Questionnaires

Two sets of closed, open-ended and structured questionnaires were designed and prepared for data collection from households in the project-served kebeles/in woredas and also in the control woreda.

The Questionnaires consisted seven sub-topics, viz. **General Information**; information on **Health Awareness, attitude and practice**; Information on **Housing**; information on **Community water supply**; **Water Usage/Handling** information; **Sanitation/Latrine Availability and Use** and information on **other Domestic Waste Disposal/Environmental Hygiene**. These questionnaires were translated from English to the local language, Amharic and utilized to gather the necessary information from the beneficiary rural communities at the household level and also households in the control woreda (non-project served woreda). The questionnaires were pre-tested and administered by data-collectors/enumerators, trained at each survey woreda.

The questions on family profile, degree of change in awareness, attitude and behavior towards health and disease prevention; personal and domestic hygiene practices; safe water supply; availability and proper use of latrine; condition of residential houses and other relevant queries

were administered across the randomly selected 1,305 households in the project-served 4 woredas and 1 non-project-served/control woreda.

## 4.2 Sample Size Determination

The total number of Households to be surveyed in the selected 5 woredas was already determined to be 1285, due to the short time allowed for the whole survey field work (only 1 month). To decide this minimum number of Households that should be analyzed to obtain results with reasonable accuracy, statistically designed procedure, used by Cochran (1977), was applied. According to Cochran, the formula that connects 'n' (=total sample size) with the desired degree of precision is:

$$n = \frac{N + NZ^2pq}{D^2(N-1) + Z^2pq}$$

Where n = Sample size total households

Z = value of Z that corresponds with 95% confidence interval and equals to 1.96

P = housing units proportion (Housing unit proportion: - 20% for each; 4 woredas and 50% for the control woreda).

q = 1-p=1-0.2 = 0.8 for 4 woredas and 0.5 for the control woreda

d = degree of accuracy (? = 0.05)

To illustrate how the formula is applied to determine the sample size of households to be surveyed in each survey –woreda, the following calculation is done as an example

### Sample population for Ankesha woreda

? Total Rural population----- = 219,994

? Latrine-coverage at end of EFY 1996----- = 18.17%

? Therefore, **People assumed to be in project area ----- = 219,994x0.1817 = 39,973**

? Therefore, **Total No. of Households (in average, 5 persons/Household) is**

$$= \frac{39,973}{5} = 7,995 \text{ Households (HHs) in Ankesha woreda}$$

? **To determine the sample size of Households to be surveyed in Ankesha woreda**

$$= \frac{7,995 (1.96)^2 \times 0.2 \times 0.8}{(0.05)^2 (7,995-1) + (1.96)^2 \times 0.2 \times 0.8} = \frac{7995 \times 0.615}{19.99 + 0.615}$$

$$= \frac{4916.93}{20.605} = 238.6 = 239 \text{ Households}$$

**Total Households to be surveyed in Ankesha Guagusa woreda are 239.**

This same calculation is applied for the rest of the survey woredas (the remaining 4 woredas).

#### 4.3 DATA Collection from Households

The households of 26 rural kebeles in the 5 study-woredas and each woreda's share were: -

No.	Name of Worda	No.of Kebeles	No. of Surveyed Households
1	Fogera	6	194
2	Hulet Iju Enessie	5	249
3	Mecha (control)	5	384
4	Ankesha Guagusa	5	241
5	Degadamot	5	237
<b>Total</b>		<b>26</b>	<b>1,305 Households</b>

Different enumerators were recruited and trained for 1½ days (including questionnaires pre-testing and exercise for trainees) at each study-woreda. The selection and training of enumerators were carried out, separately at each woreda (to avoid language/cultural problems) for locally available people (enumerators) with educational status of grade 12 complete and/above. Totally, there were 43 enumerators for all 5 woredas and among them, 42% were females.

#### 4.4 Data Editing, Cleaning and Analysis

After the Household data collection, data editing and cleaning were performed. A computer-programme expert did, then, the encoding and analyses processes using the data-base management software, SPSS.

The KAP survey results were based, mainly, on the compiled and analyzed data gathered through use of Household Questionnaires administered to 1,305 households in rural project-areas. The results thus obtained are, as much as possible, compared with the results of the previous baseline KAP study and with the findings in the non-project-served (control) woreda.

#### 4.5 KEY-informants Interviews

Key-informants in different bureaux, departments, offices, etc. (all sectoral stakeholders for the RWSEP programme: starting from the regional down to field workers at kebele levels) were interviewed by the consultants in soliciting information on specific components of the programme. In addition, WATSAN Committee members, development agents (DAs), contact women, gender-sensitization team members, school teachers and directors, etc. were interviewed so as to obtain the needed information. All in all, a total **of 73 individuals /key-informants (9 females and 64 males) had been interviewed.**

#### 4.6 FOCUS-group Discussions

Information drawn from group-discussion was believed to compliment the data gathered by the structured questionnaires and for that purpose, Focus-group Discussion was the method used in this study on Knowledge, Attitude and Practice (KAP). Relevant issues/topics for the discussions were designed, prepared and written down prior to the study. The consultants used the topics as guides for the discussants during such sessions. A total of 5 focus-group discussion-sessions (1 in each study-woreda) were held for the entire survey.

#### 4.7 Site-Visits and Direct Observations

The study consultants made visits to different schools, government woreda offices (Education, Health, water supply, etc.) and community water points, in order to have a general knowledge and to verify the information gathered through the employed survey methods and/from reviewed official documents on the RWSEP programme interventions.

During the school visits, direct observations were made on: -

- Type of school buildings; classroom space; windows for day light and ventilation; furniture (benches, tables, Chairs); etc.
- Availability of school latrines (separate for males and females), cleanliness and proper usage; hand washing facilities; etc.
- Availability of water supply for the schools
- Availability of play-ground and school garden
- Cleanliness of school compound, waste disposal methods, etc.

From the woreda government offices, relevant statistical data (Ten-top diseases, school enrollment and current problems of schools; schools which did not have water supply and latrines, and the safe water supply coverage of the rural woreda population) were gathered. The enumerators did also direct observations and inspection of household latrines, when families claimed to have their own latrines during the interviews.

Also, very important pieces of information obtained through the **focus-group discussions (FGD)** are incorporated and/reported along with all the other study findings. Such important findings from the FGD are as summarized below.

- Major socio-economic problems in the study woredas are: high rate of illiteracy; backwardness; very low socio-economic status; poverty; shortage of farm and pasture lands; lack of safe water supply; soil infertility is becoming a common problem unless fertilizers are used; fertilizer is too expensive; scarcity of fire wood; lack of all-weather roads and bridges within woredas; problem of public transportation;

- Many kinds of communicable diseases affect the people; malaria, bloody diarrhea, relapsing fever and typhoid fever occur in epidemics; there is shortage of drugs in government health units; drugs in private pharmacies/rural drug vendors shops are too expensive;
- Poor school buildings; shortage of qualified school teachers; lack of school furniture, books; school laboratories and equipment; etc.
- Mecha woreda population strongly wish that the RWSEP programme will come to the woreda and assist the rural people like the other woredas in the ANRS.

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## 5. RESULT AND DISCUSSION

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This section tries to present the study results, put-in-place by detailed qualitative data on the current water supply, Sanitation, hygiene and environment protection related knowledge, attitudes, behavioral changes and practices of households and school communities inside the RWSEP programme-served 4 woredas. The findings from the programme-intervention 4 woredas are compared with that of the non-intervention woreda, Mecha woreda, in West-Gojjam zone and also with the previous KAP survey results.

Water and sanitation is one of the critical problems in developing and underdeveloped nations of the world. Ethiopia and particularly Amhara region is with no exception to that. Therefore this survey result will tell us the significance of NGOS like RWSEP in bringing behavioral changes in water supply and sanitation. It is known to all that about 80% of the diseases like diarrhea, dysentery, typhoid and others are caused due to poor water quality and human contamination through human excreta.

### 5.1 The Surveyed Woredas, Number of Kebeles, population, Type of Protected Water supply sources and the Beneficiaries

In the surveyed 5 woredas, there are 167 rural and 15 urban Kebeles (total=182) in which there is a total population of 1, 255, 124. Among this population, there are 630, 961 (50.3%) males and 624,163 (49.7%) females; the rural population makes 92% (1,154,742) of the whole population in the 5 woredas.

In the 167 rural kebeles of the surveyed woredas, there are 406 protected water supply sources (water points) in which 331 are water wells (2 deep well and the rest, hand-dug wells) and 75 are protected springs. The population benefiting from these water points is 173,314 (15.0% of the total rural population in the 5 woredas). There are also 15 water points (14 wells and 1 spring, in Hulet Iju Enessie woreda) serving 13 schools and 2 clinics. **Table 1** below, summarizes the gathered data about the studied woredas, in relation to the population size, water points and the beneficiary population. All the water points are constructed by the RWSEP programme, except the water points in the control, Mecha woreda.

**Table 1: The Surveyed Woredas, Population By Sex, Type of Protected Watersupply Sources & the Beneficiary Population in EFY 1996 (G.C. 2004)**

## **5.2 Number of Schools, Grade-levels with /without water points and Latrines and the school community (students and teachers) in surveyed Woredas**

It is a fact that schools are roads to the attainment of freedom from illiteracy and gain knowledge plus skills which will enable development to take place for those and by those walking on such roads. Schooling is an instrument to sharpen the brain and to mould the future generation into a healthy and better life through hard work to achieve better socio-economic development for the society.

Unfortunately, such important institutions in the ANRS have very many problems, other than the inavailability of latrines and safe water supply for all schools. Examples of such currently existing school problems comprise the following.

- Most elementary schools are community-built from local materials:-wooden walls, mud-plastered, earth/dust floored which is favourable for fleas breeding
- Too crowded class-rooms
- Lack of proper school benches, chairs, tables and other furniture.
- Shortage/lack of text books

Adequate school building provides protection against exposure to agents and vectors of communicable disease(s) through safe and adequate water supply, sanitary excreta disposal, disposal of solid waste and drainage of surface water, personal and domestic hygiene, structural safeguards against disease(s) transmission and an improved standard of living. (Refer **Table 64** in Annex)

## **5.3 Endemic Diseases in Surveyed Woredas**

Currently prevailing diseases in the five surveyed woredas are similar communicable/infectious diseases as revealed by the gathered morbidity and mortality data from each woreda health office. Such diseases like: -

- malaria
- acute respiratory T. infections (ARI)
- diarrhoea (all types)
- intestinal parasites (all types)
- infection of the eye (e.g. trachoma)

are among the Ten-top diseases diagnosed and reported by the health facilities of each woreda. See **Table 2a - 2e** below.



**Table 2: Ten Top Diseases**





As of secondary data from surveyed woredas Malaria is the greatest prevalent disease in the four woredas. It is only Hulet Iju Enessie which reported less malaria cases, 5.8% and 27.6% of the total Ten-top diseases in EFY 1995 and 1996, respectively. Fogera woreda has reported 34,520 malaria cases in EFY 1995 and 11, 280 cases in EFY 1996. Degadamot Woreda reported 8.6%, 36.7% and 32.0% of the total Ten-top diseases in EFY 1995, 1996 and 1997, respectively. Ankesha Guagusa woreda reported 32.8% (14, 328 cases) in EFY 1995, 49,373 malaria cases in EFY 1996 and 37.1% (16,843 cases) in EFY 1997 and Mecha woreda reported 53.4%; 52.8% and 46.6% of the total Ten – top diseases in each respective year.

## **5.4 Demographic Characteristics**

### **5.4.1 SURVEYED HOUSEHOLDS**

A total of 1,305 (households) have been surveyed in the 4 zones (viz. South Gondar, East and West Gojjam and Awi zones). The surveyed households were identified by the names of the heads of households and in the majority of the cases where there were married couples (75.2%), the names of the husbands were used to identify the survey households; in households where un-married women were the heads, their names were also used for survey-household identifications.

Regardless of the households identification by husbands' names, all survey questionnaires were administered to the wives (any other adult female caretakers for the households) who were always present at home during the very survey. In households where husbands were also found at home during the survey, both wives and husbands, together, responded to the enumerators administering the survey questionnaires. Households, in which there were no wives (any adult female household-care takers), were not planned (ahead of the start) to be surveyed but to be replaced. Luckily, such instance did not occur during the whole survey.

The presence of husbands during the households visits encouraged the wives to be at ease, relaxed and without fear/suspensions of the interviewers. The husbands also supplemented their wives responses and gave additional information about items under their jurisdictions (e.g. construction of latrines, water points, etc.). All the data, thus obtained, were analysed by using the heads of households (husbands), and not by wives (female households-caretakers), as presented below.

Out of 1,305 persons (heads of households) surveyed in the 4 zones (S. Gondar, East and West Gojjam and Awi), 5 woredas and 26 PA Kebeles, 80.7% (1,053) were males and 19.3% (252) were single females. The fact that the proportion of males is higher than females is also true, without exception, in each zone and woreda. See **Table 1** in the annex. Looking at the age-group distributions of the respondents, the majority were in the age-group 35-44 years (29.7%) and 25-

34 years (25.2%); 45-54 years (20.5%); 60 and above years (16.0%); 17-24 years (4.4%) and 55-59 years (4.2%).

In the highest age-group (60 and above years), there were 209 respondents (16.0% of the total 1,305) out of which the majority were in Hulet Iju Enessie Woreda (19.7% = 49), Degadamot Woreda (46=19.4%) and from Ankesha Guagusa woreda (37=15.4%). The remaining two woredas have the least number of elderly people (Mecha woreda 13.8% and Fogera woreda 12.4%).

#### **5.4.2 MARITAL STATUS**

In regard to the marital status of the sample population surveyed, the information presented in **Table 2** (Annex) shows that married persons comprise the most important category in all woredas/zones. In Mecha woreda, 79.4%; Hulet Iju Enessie woreda 80.3%; Fogera woreda 77.3%; Degadamot woreda 70.5% and in Ankesha Guagusa woreda 66.4% are married. The next category in all woredas is the **single** ones with a percentage of 11.0 out of the total respondents (1,305).

#### **5.4.3 OCCUPATION**

The percentage distribution of the surveyed sample of households by occupation and woreda is presented in **Table 2, annex**. The majority of the population in all 5 woredas is farmers. The proportion of farmers in each woreda is 92.3% in Fogera woreda; 96.8% in Hulet Iju Enessie; 92.5% Ankesha Guagusa; 97.9% Degadamot and 95.3% in Mecha woreda. The minorities of the respondents are merchants, civil servants and laborers and their proportion figures are 2.0%, 1.1% and 0.5%, respectively. There are more merchants in Fogera (5.7%) and in Ankesha Guagusa (2.9%) woredas than in the remaining 3 woredas.

#### **5.4.4 EDUCATIONAL BACKGROUND OF RESPONDENTS BY WOREDA**

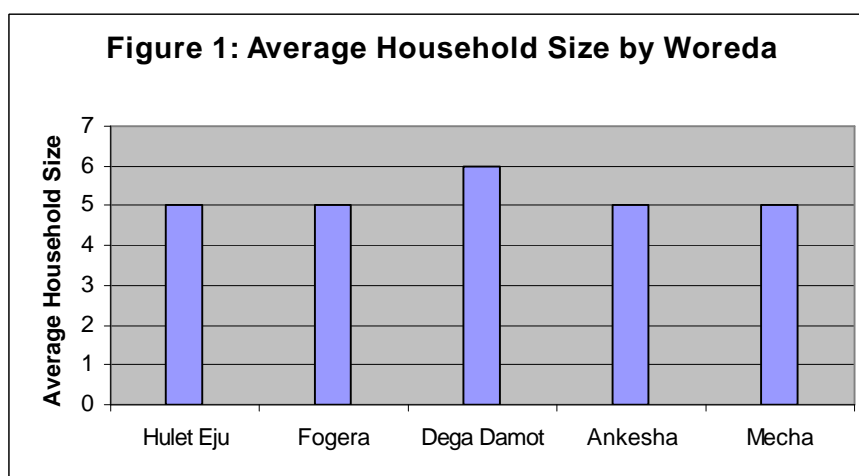
Among the sampled population surveyed, the majority of the people in all 5 woredas are illiterate. As shown in **Table 3** (annex), the proportion of illiterates is 53.6% in Fogera woreda; 64.7% in Hulet Iju Enessie; 52.7% in Degadamot; 63.1% in Ankesha Guagusa and 70.1% in Mecha woreda. The literate people (i.e people who can read and write and with grade 5 and above educational background) are 46.4% in Fogera; 35.3% in Hulet Iju Enessie; 47.3% in Degadamot; 36.9% in Ankesha Guagusa and 30.1% in Mecha woreda. More people are literates in Degadamot and Fogera woredas than in the remaining 3 woredas.

#### 5.4.5 FAMILY SIZE OF HOUSEHOLDS BY WOREDA

**Table 3: Average Family size of Households by Woreda**

Woreda	Households Surveyed	Total Family Members	Average Family size
Fogera	194	1271	5
Hulet Iju	249	894	5
Ankesha	241	1358	6
Degadamot	237	1191	5
Mecha	384	1953	5
<b>Total</b>	<b>1,305</b>	<b>6667</b>	<b>5</b>

See also **Table 4**, annex, Family size (persons/household).



#### 5.4.6 INFORMATION ON HEALTH AWARENESS, ATTITUDES AND PRACTICE

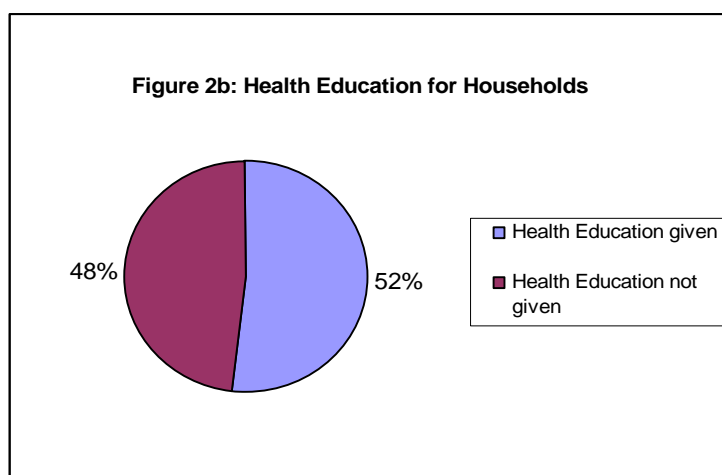
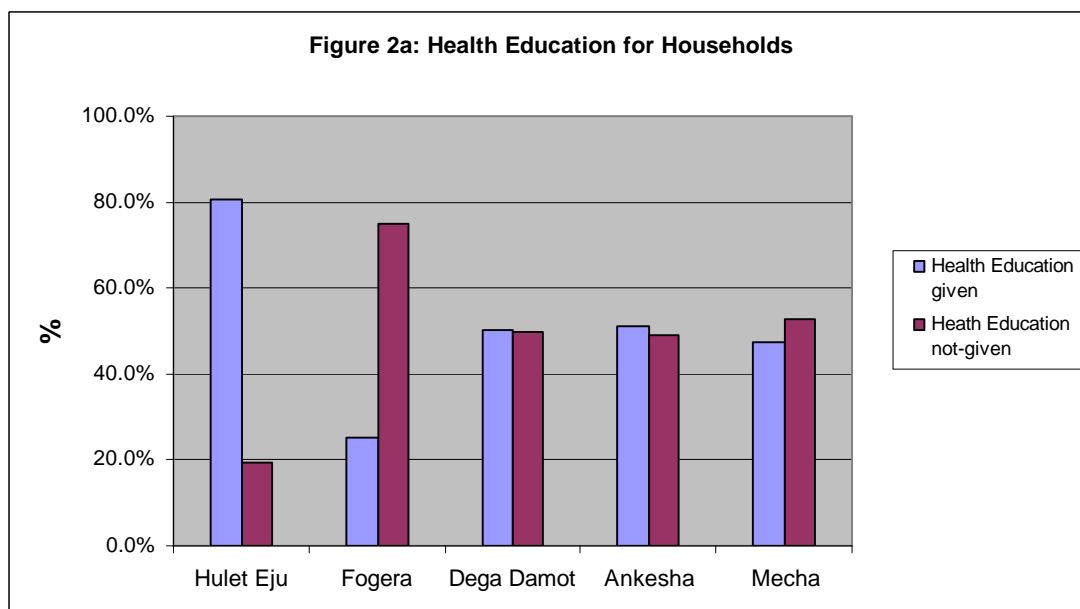
##### 5.4.6.1 Households which have received Health Education

Health education encourages community in defining problems and solutions related to water and sanitation and disease control. It is to help the community to analyze its own beliefs and practices and then decides what needs to be changed. Therefore for the Question, “**Have you ever been given health education?**” 80.7% of the households surveyed in Hulet Iju Enessie woreda have claimed to have received health education. The least number of households that have been given health education are in Fogera woreda, only 25.3% (49 households out of 194 surveyed in the woreda), see **Table 4** below. From the total of 1,305 heads of household surveyed, 48.4 % (631 households) of the respondents have confirmed that they have never received any health education at all.

**Table 4: Percentage Distribution of Households by whether they are given Health Education by Woreda**

Woreda	Whether Health Education is Given For Households				All Total	
	Yes, Given		Not Given			
	No.	%	No.	%	No.	%
Fogera	49	25.3	145	74.7	194	14.9
Hulet Iju	201	80.7	48	19.3	249	19.1
Degadamot	119	50.2	118	49.8	237	18.2
Ankesha	123	51.0	118	49.0	241	18.5
Mecha	182	47.6	202	52.6	384	29.4
All total	674	51.6	631	48.4	1,305	100

In the control woreda (Mecha), 47.6% (182 households) of the surveyed households (384) have confirmed to have received health education. From the total of 1,305 households surveyed in the 5 study woredas, 674 households (51.6%) have been given health education



#### 5.4.6.2 Type of the Health Education for communities

The type of the Health education rendered to the 674 households is detailed in the table below.

**Table 5: Respondents by Type of Health Education they received and Woreda**

Type of Health Education Given	Woreda											
	Hulet Eju		Fogera		Dega Damot		Ankesha		Total		Mecha	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Prevention of AIDS	22	10.9	9	18.4	60	50.4	21	17.1	112	22.8	16	8.8
Prevention of Malaria	45	22.4	7	14.3	11	9.2	9	7.3	72	14.6	62	34.1
Prevention of AIDS and Malaria	84	41.8	10	20.4	21	17.6	61	49.6	176	35.8	71	39.0
Personal Hygiene and related topics	44	21.9	10	20.4	26	21.8	32	26.0	112	22.8	32	17.6
Communicable diseases	3	1.5	6	12.2	1	0.8			10	2.0		
Environment Protection	1	0.5	4	8.2					5	1.0		
Laterine use	2	1.0							2	0.4		
All of the above			3	6.1					3	0.6	1	0.5
<b>Total</b>	<b>201</b>	<b>100.0</b>	<b>49</b>	<b>100.0</b>	<b>119</b>	<b>100.0</b>	<b>123</b>	<b>100.0</b>	<b>492</b>	<b>100.0</b>	<b>182</b>	<b>100.0</b>

Among the types of Health education given, it is only 176 households (35.8%) in the four woredas and 71 households (39.0%) in Mecha woreda which have received IEC on the prevention of HIV/AIDS and malaria, as it can be seen on **Table 5** above. The next IEC topics rendered to the households, in sequence, are: -

- : personal hygiene and related topics, 22.8% in four woreds and 17.6% in Mecha
- : prevention of malaria, 14.6% in four woreds and 34.1% in Mecha
- : prevention of HIV/AIDS, 22.8% in four woreds and 8.8% in Mecha
- : about communicable diseases, only 2.0% in four woreds and none in Mecha received it.
- : It is only 3 households (0.6%) in four woreds and 1 household in Mecha that received all of the IEC types listed in the table.

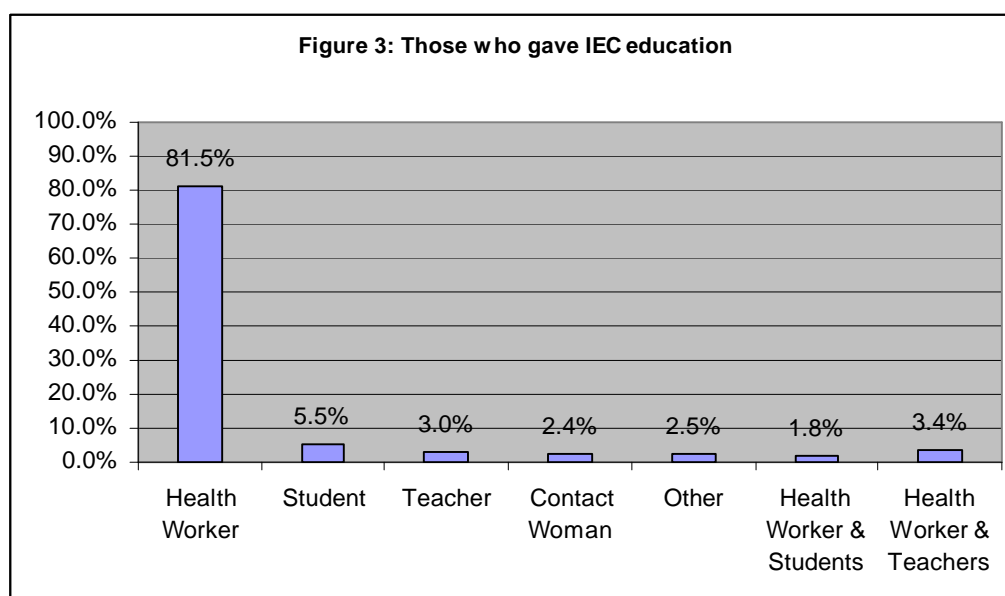
These survey results revealed that effort has been put to the health education (IEC) component by the field workers (health professionals, DAs and others assigned to disseminate IEC) promoting the RWSEP programme implementation. The listed items of health education are all very important and should have been rendered repeatedly to the rural communities served by the RWSEP project. Therefore what is important to the foregoing discussion is the idea of intervention. Organized health education activity is based on the desire to intervene in the process of development and behavioral pattern that is linked to increased risks for illness, injury, disability or health.



#### 5.4.6.3 From Whom the Surveyed Households received the Health Education

**Table 6: Number of Respondents by Whom IEC was given to them and Woreda**

Who gave you the health education?	Woreda											
	Hulet Eju		Fogera		Dega Damot		Ankesha		Total		Mecha	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Health Worker	177	88.1	34	69.4	119	100.0	102	82.9	432	87.8	124	68.1
Student			1	2.0			2	1.6	3	0.6	34	18.7
Teacher	3	1.5	4	8.2			9	7.3	16	3.3	4	2.2
Contact Woman	3	1.5	1	2.0			5	4.1	9	1.8		
Others			5	10.2			2	1.6	7	1.4	10	5.5
Health Worker and Students	1	0.5					1	0.8	2	0.4	10	5.5
Health Worker and Teachers	17	8.5	4	8.2			2	1.6	23	4.7		
<b>Total</b>	<b>201</b>	<b>100.0</b>	<b>49</b>	<b>100.0</b>	<b>119</b>	<b>100.0</b>	<b>123</b>	<b>100.0</b>	<b>492</b>	<b>100.0</b>	<b>182</b>	<b>100.0</b>



From the total of 674 households which have claimed to have received health education, about 87.8% in the four woredas and 68.1% in Mecha have said that **health workers gave the IEC**. Other important persons in the dissemination of health education were **students and school teachers**, as shown on **Table 6** above. **The contact women's role** in rendering health education to households is **only 1.3%**.

#### 5.4.6.4 Hand washing practices of Households

Safe drinking water, sanitation and hygienic practices are known for over all reductions in morbidity and mortality rates, especially among children, for this about 32% of diarrhea is reduced through hand washing practices.

Hands could be kept clean always when washed with soap other wise with available materials like ash with water; this is because of faeces have millions of germs that you cannot see or smell, this germs can transferred from your hands to mouth and make people to sick. Therefore washing hands regularly, before cooking or handling food, after going to the toilet or latrine, this all greatly reduces the spread of diseases (10).

Households asked when they necessarily **must have to wash their hands**, 68.4% of the total 1,305 households surveyed answered '**in the morning after waking up from their sleeping**'; 40.7% of them, '**before and after meals and feeding my child**'; 23.1%, '**before starting food preparation**'; only 12.5% answered, '**after toilet use**' and 4.1% replied '**after disposing child's stool**'. Although the 5 listed opinions for hand washing are all obligatory hygienic practices, the respondents which answered '**all items**' are very insignificant: 0.5%, and these are 6 heads of households (1 from Hulet Iju Enessie, 3 from Fogera and 2 from Ankesha woreda). These study results are presented in **Table 7** below and in **Table 5a – 5e** in the annex.

**Table 7: Percentage Distribution of respondents by when they should wash their Hands and by woreda**

No.	When must you have To wash your hands?	Hulet Iju Enessie	Fogera	Degadamot	Ankesha Guagusa	Mecha	All Total
1)	In the morning after waking up from sleep	81.1	67.0	84.0	56.4	58.6	<b>68.4</b>
2)	Before starting food preparation	39.4	33.5	24.5	28.6	-	<b>23.1</b>
3)	Before and after meals and feeding the child	55.8	42.3	58.6	41.1	18.5	<b>40.7</b>
4)	After toilet use	15.3	13.4	11.8	8.3	13.3	<b>12.5</b>
5)	After disposing child's stool	7.6	5.2	3.0	2.5	3.1	<b>4.1</b>
6)	All of the above	0.4	1.5	-	0.8	-	<b>0.5%</b>

**Source:** Study Results

#### 5.4.6.5 Frequency of Self-bathe, Child (< 3yrs. old) bathe and Clothe Washing

For the Questions, “**How often** do you **take bathe**, **bathe your child** (< 3 yrs. of age) and **Wash your Clothes?**”, the responses obtained from the 1,305 heads of households surveyed are summarized like the following and also presented in **Tables 6-8** in the annex.

No.	Frequency	Responses in percentages		
		Self-bathe	Child Bathe	Clothe washing
1)	Every Day		48.1	-
2)	Once Per Week	44.1	16.7	46.8
3)	Twice Per Week	7.0	21.7	5.5
4)	Once Per 2 Weeks	11.5	11.0	22.7
5)	Once in more than 2 weeks	24.6	2.4	25.0
6)	Once per month	12.8	-	-
<b>Total</b>		<b>100%</b>	<b>100%</b>	<b>100%</b>

**Source:** Study Results

Along with self-bathe, children bathe and clothe washing activities, the common **detergents/cleaning materials utilized** by the surveyed households are summarized (in percentages) below and, also, detailed by worded in **Tables 9-12** in the annex.

Detergents Used	Hand Washing	Self-bathe	Washing Clothes	Washing Utensils
Soap	37.5	81.4	60.3	36.7
Endod	0.8	1.8	20.7	2.8
Only Water	61.2	16.6	18.5	33.3
Ash/Sand/Soil	0.4	0.2	0.5	15.2
Unspecified	-	-	-	12.2
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

#### 5.4.6.6 Knowledge of Reasons why Respondents take bathe, bathe their small Children and Wash their Clothes.

For the question “**why do you have to bathe yourself, wash your small children and wash your clothes?**” administered to the heads of households, their responses are summarized in the annex, **Tables 13-15**.

**Reasons** given for **self – bathe** by most respondents are, **personal hygiene**, 58.7%; **to protect one from diseases**, 31.2%; **to avoid bad odour from the body**, 7.5%; **to refresh the body**, 1.6% and for **body building**, 1.0%.

Reasons for washing clothes are, **for personal hygiene**, 66.4%; for **the protection of health**, 25.1% and **to avoid bad smelling/odour of the body**, 8.6%.

For the question, why they have to **bathe their small** children, the majority answered **to keep them clean**, 34.6%; to **protect one from diseases**, 32.7%; to **build children's body**, 23.8%; to **avoid having bad body odour**, 5.2% and to **refresh the body**, 3.7%.

#### **5.4.6.7 Introduction of weaning Food for Infants**

Weaning food for new born babies are introduced, by most parents in the surveyed 5 woredas, when the babies are **6 months old**, 53.8% of the 1,305 respondents; **at the age of 1 year** of babies, 36.7% and **after 1½ years of age** of babies, 9.5%. These findings are presented by woreda in **Table 16**, annex. Although most parents start weaning food for their babies at the **WHO recommended child's age of 6 months**, the rest of the parents (46.2%) introducing infants-weaning food at 1 year/above age will cause malnutrition and related diseases to their children, as the breast milk alone cannot be enough to prevent such diseases later.

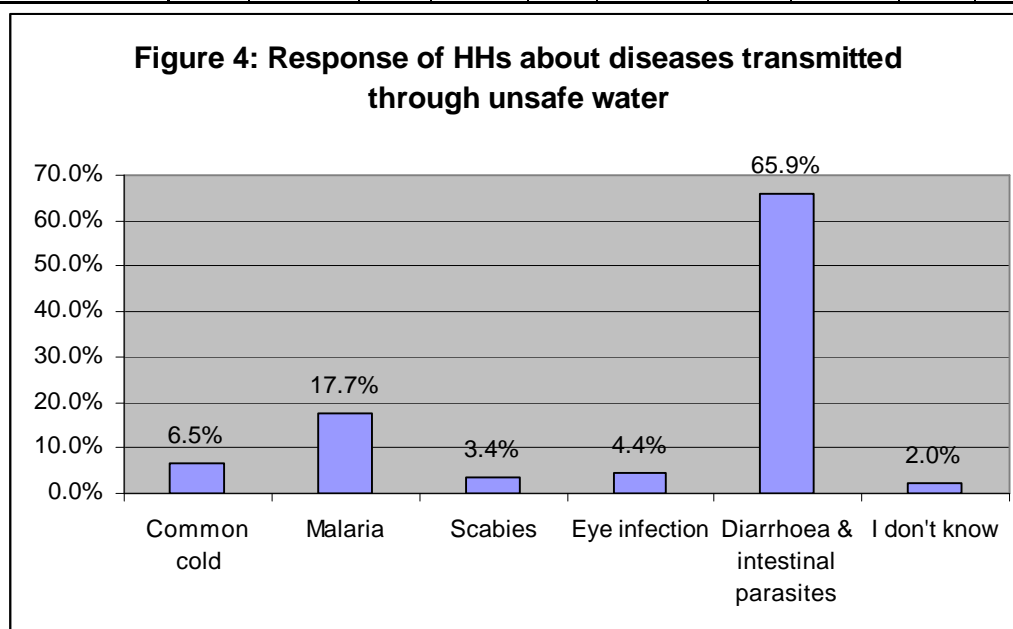
#### **5.4.6.8 Knowledge about Diseases which may be transmitted through Unclean and Unsafe Water supply**

Lack of safe and adequate toilet facilities and potable water supply in a community produces significant out breaks of enteric disease and leads to problems of irregularity and in wide spread illness and health problems from ascaris, hookworm and other helminthes infestations (12). In areas with poor quality residential area insufficient water supplies, poor water quality, overcrowding, inadequate garbage disposal, and infestation by flies are common to have adverse effects on health, contributing directly to high rates of diseases related to poor sanitation such as diarrhoea, especially among children (14, 15).

From the assessment of the knowledge of the 1,305 household respondents about **what diseases may be transmitted through the consumption of un-clean and unsafe water supply** (from water sources such as rivers, brooks, streams, lakes/pot ands, shallow and open wells, etc.), 65.9% (860 respondents) have said that **intestinal parasites and diarrhoea**; 17.7% (231 of them) have said, **malaria**; 6.5% (85 of them) said, **common cold**; 4.4% (58 of them) have said, **Infection of the eye**; 3.4% (45 of them) said, **scabies** and 2.0% (26 of them) have said, **don't know**. The result is presented in detail on **Table 8**, below.

**Table 8: Respondents' Knowledge about diseases which may be transmitted through unsafe water supply by Woreda**

What diseases are transmitted through unsafe water?	Woreda											
	Hulet Eju		Fogera		Dega Damot		Ankesha		Total		Mecha	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Common cold	3	1.2	9	4.6	5	2.1	24	10.0	41	4.5	44	11.5
Malaria	55	22.1	59	30.4	7	3.0	75	31.1	196	21.3	35	9.1
Scabies	2	0.8	9	4.6	9	3.8	11	4.6	31	3.4	14	3.6
Eye infection	14	5.6	6	3.1	10	4.2	9	3.7	39	4.2	19	4.9
Diarrhoea and intestinal parasites	173	69.5	111	57.2	186	78.5	121	50.2	591	64.2	269	70.1
Don't know	2	0.8			20	8.4	1	0.4	23	2.5	3	0.8
<b>Total</b>	<b>249</b>	<b>100.0</b>	<b>194</b>	<b>100.0</b>	<b>237</b>	<b>100.0</b>	<b>241</b>	<b>100.0</b>	<b>921</b>	<b>100.0</b>	<b>384</b>	<b>100.0</b>



#### 5.4.6.9 Knowledge about how small children develop Diarrhoea

Studies in Africa have shown that diarrhea disease rates are relatively high where flies are numerous and have access to human waste and subsequently high where flies are numerous and have access to human waste and subsequently to human food (13). It is obvious that the hygienic disposal of human excreta is of the utmost importance to the health of all communities. Indeed, the correct disposal of excreta is one of the most effective measures which any community can undertake to prevent disease. The sanitary disposal of human wastes will help to control all those infectious diseases which are caused by pathogens excreted by people in their faces or urine, as well as those which are transmitted by insects such as cockroaches, flies and some mosquitoes, which may breed in excreta or polluted water and hence children are the more victims in unsanitary environment.

From this study results, it has been known that 83. 3% (1,087 respondents) of the interviewed household heads have said that small children develop diarrhoea **through ingestion of contaminated food, water, earth**, etc.; 10.3% (135 respondents) have said that **diarrhoea** is a **common/normal illness for small children** ; 3.6% (47 of them) have said, through **evil eyes** and the remaining 2.8% (36 of them) said, **don't know**. See the table below.

**Table 9: Knowledge of Respondents about how children get Diarrhoea, by Woreda**

How children get diarrhoea?	Woreda											
	Hulet Eju		Fogera		Dega Damot		Ankesha		Total		Mecha	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Through ingestion of contaminated food/water/earth	203	81.5	134	69.1	209	88.2	210	87.1	756	82.1	331	86.2
Through evil eye	6	2.4	9	4.6	5	2.1	3	1.2	23	2.5	24	6.3
It is a normal disease for small children	35	14.1	46	23.7	9	3.8	21	8.7	111	12.1	24	6.3
Don't know	5	2.0	5	2.6	14	5.9	7	2.9%	31	3.4	5	1.3
<b>Total</b>	<b>249</b>	<b>100.0</b>	<b>194</b>	<b>100.0</b>	<b>237</b>	<b>100.0</b>	<b>241</b>	<b>100.0</b>	<b>921</b>	<b>100.0</b>	<b>384</b>	<b>100.0</b>

#### 5.4.6.10 What parents do when Their Children (<2yrs. age) Develop Diarrhoea

At times of diarrhoeal illness of small children (<2yr. of age), the cultural practices/what measures the parents take are shown on **Table 10**, underneath. It shows that very few parents practise **home-treatment of diarrhoea**, i.e. **continuing breast milk, feeding liquid diet; giving oral rehydration salt (ORS) solution after every diarrhoeal stool** (bowl motion) or vomits; give more **soup or gruel; never stop feeding the child**; etc.

**Table 10: Measures taken by Respondents when children have diarrhoea, by Woreda**

What is done when children get diarrhoea?	Woreda											
	Hulet Eju		Fogera		Dega Damot		Ankesha		Total		Mecha	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Take them to traditional healer	15	6.0	7	3.6	74	31.2	12	5.0	108	11.7	51	13.
Stop feeding them	1	0.4	4	2.1	2	0.8	2	0.8	9	1.0	5	1.
Continue feeding breast milk and liquid diet			2	1.0	4	1.7	16	6.6	22	2.4	3	0.
Take them to modern health facility	233	93.6	181	93.3	157	66.2	211	87.6	782	84.9	325	84.
<b>Total</b>	<b>249</b>	<b>100.0</b>	<b>194</b>	<b>100.0</b>	<b>237</b>	<b>100.0</b>	<b>241</b>	<b>100.0</b>	<b>921</b>	<b>100.0</b>	<b>384</b>	<b>100.</b>

#### 5.4.6.11 Use of Oral Dehydration Salt (ORS)

As it can be seen on **Table 17** in the annex, the respondents **who know ORS sachet** are 739 (56.6%) out of the 1,305 households interviewed. Of these respondents who know ORS, 552 (74.7%) of them also know that **ORS is used** for the **treatment of children's diarrhoea**. There are also respondents who have given incorrect practices by saying that they give ORS solution for their children **after breast feeding** (62 respondents = 8.4%) and **after feeding solid food** (72 respondents = 9.7%).

#### 5.4.6.12 Knowledge about Children's Vaccination

Through the question, '**What reasons do you know that vaccinations for infants are very necessary?**', administered to the household heads, the responses obtained are: **vaccination of infants/children protects from communicable diseases** (72.9%=951 respondents); **infants grow fast** (17.1%= 223 respondents); **infants sleep well and do not disturb their parents** (1.2% = 16 respondents) and the **Don't knows** are 115 (8.8%) respondents. These findings are presented in detail and by woreda on **Table 19**, annex. From the 951 respondents who have said that vaccinations protect children from communicable diseases, 860 (90.4%) respondents have confirmed that their eligible children have been vaccinated, see **Table 20**, annex

#### 5.4.6.13 Respondents' knowledge About Family Planning

Regarding the **respondents' knowledge about Family Planning**, it is only 736 (56.4%) respondents who have claimed to know about it (see **Table 21**, annex).

Family Planning is a serious felt-need in the Amhara National Regional State (ANRS) and also, it is an important issue in the National Population Policy. Therefore, very intensive and much IEC work has to be continuously done in the promotion and provision of family planning services to the population.

#### 5.4.6.14 Respondents' knowledge about malaria transmission

Malaria is a serious public health problem in all 5 study woredas. It is a number one disease among the **Ten-top diseases diagnosed by the health units** in each woreda, except in Hulet Iju Enessie woreda where malaria is number 6 (see **Tables 2a-2e**). The lowland and the temperate climate areas are mainly malarious. The climate has changed world wide and malaria is becoming prevalent even in areas with altitudes of about 2,400 meters above sea-level.

With the creation of water bodies (dams, ponds, lakes, reservoirs, irrigation canals, etc.), the prevalence of malaria will certainly worsen and its transmission may take place throughout the

year without interruption, causing high morbidities and mortalities among the population, as it did in the region 3-5 years ago.

Through un-interrupted intensive dissemination of IEC, this killer disease should be known, how it is transmitted, its prevention and treatment measures by all sectors of the population in the region. Unfortunately, it is only 33.7% (440 respondents), out of the 1,305 rural community members surveyed in the 5 woredas, who answered the **correct mode of malaria transmission**, from **malaria-mosquito bites**. Again, the malaria prevention methods/measures which the same people know is only **control malaria-mosquito breeding places** (59.3% = 774 respondents) out of the 4 correct options given. See **Tables 22 and 23**, annex.

#### **5.4.6.15 The human Immuno-deficiency virus Infection (HIV/AIDS)**

HIV/AIDS is also becoming a serious health problem of the population in the region, as explained on the previous pages (**see Table 63, j6 in Annex**). From the assessment of the knowledge of the household-head respondents about **what HIV/AIDS is**, the **transmission** and **prevention of the disease**, the responses are;

- 1,043 respondents (79.9%) claim that they know about the disease, HIV/AIDS.
- As the mode of HIV-Transmission 679 respondents (65.1%) Answered, 'have only one-to-one sexual-contact'.

Out of the **4 correct preventive measures** listed in the questionnaires

- Only 269 respondents (25.8%), out of the total of 1,043 respondents who said that they know what HIV/AIDS is, mentioned all of the 3 preventive measures against HIV/AIDS which is transmitted through sexual contact, viz, **have one-to-one sexual contact, use condoms, abstinence from sex and not having sex at all**, see **Tables 24, 25 and 26**, annex.

#### **5.4.6.16 Use of health facilities**

At times of any illness in any family member, the majority of the respondents, 93.6% (1222 respondents) have said that they take the sick to modern health facility for help/ treatment. When these responses are compared by woreda, the highest is in Mecha where 98.7% (379 respondents) claim to use the modern health facility; then, 96.8% (241 respondents) in Hulet Iju Enessie woreda; 96.7% in Ankesha Guagusa; 90.7% in Degadamot and the least is in Fogera woreda, 79.4%.

The distance of the nearest health facility from the respondents' residences is said to be ½ an hour to 1 hour walk for the majority of respondents, 902 (69.1%); 12.0% (157 respondents) say



that the distance is 1 ½ hours walk; 11.0 % (144 respondents) say about 2 hours walking distance. The longest distance is more than 2 hours walk for 82 respondents (6.3%) in which most of them are in Mecha woreda (40 respondents=10.4%). **Tables 27 and 28**, in the annex, presents these findings by woreda. This variation in distances of health facilities illustrates the uneven distribution of health facilities which is an example of the existing situation in Ethiopia.

#### 5.4.6.17 Body Lice Transmit Diseases To Humans

Among vectors body lice is one which is known to transmit diseases like louse borne typhus fever and louse borne relapsing fever. Typhus or RF involves the transmission by the louse of an infectious agent, the reckettsia.Typhus as it is common health problem in Ethiopia the target group is the rural people and the disadvantaged city dwellers that live in overcrowded slums or shelters.

For the household questionnaire administered to the rural communities in 5 study woredas, '**Do you know that body lice transmit diseases to humans?**', the respondents who claimed that they know are 853 (65.4%) out of the total 1,305 study subjects. These findings, in respect to woreda, are:

- in Mecha woreda, 324 (84.4%) respondents claimed to know that body lice transmit diseases to humans;
- in Fogera woreda, 130 (67.0%) respondents Know the same;
- in Hulet iju Enessie woreda, 149(59.8) respondents
- in Ankesha Guagusa woreda, 136(56.4) respondents and
- in Degadamot woreda,114 (48.1%)respondents have also claimed that lice transmit diseases to human beings.

By administration of the questionnaire to the study population, '**how do you get rid of body lice?**', **actions/practices** of the rural communities are :

- through **washing clothes with hot water**, 947(72.6%)respondents
- **exposing clothes to sunlight**, 151(11.6%)respondents
- **using insecticides spray**, 129(9.9%) respondents and
- by **changing dresses frequently**, 34(2.6%)respondents out of the total 1,305 studied subjects in the 5 woredas.

All these findings are detailed by woreda on **Tables 29 and 30** in the annex.

#### 5.4.7 INFORMATION ON HOUSING CONDITIONS

Every family and individual has a basic right to a decent home and a suitable living environment. However; large segments of the population in urban and rural areas through out the world do not enjoy one or both of these fundamental needs. Therefore house condition must be considered within the context of and relative to the total environment in which it is situated, together within the structure, supplies facilities and services, and conditions of occupancy (14).

Housing condition is related with health; the structure, location facilities, environment and uses of human shelter have a strong impact on the state of mental, physical and social well being(16).

Along with the administration of the household questionnaires, the conditions of the residential houses of the rural communities have been assessed in relation to the **type of house, availability and number of rooms, whether there are windows, a separate place or kitchen for cooking, sleeping place and whether domestic animals are kept inside the house with the people.**

**5.4.7.1 The results found are: - 757(58.0%) of the respondents have houses which are with corrugated iron roofs, mud-plastered wooden walls and earth floor;** the next higher groups are 521(39.9%) respondents which have **houses (tukuls) with grass-thatched roofs, mud-plastered wooden walls and earth floor**, see Table 31 in the annex. The nature of floors in surveyed houses are made of mud-plastered ,wooden walls and with no windows which can permit the entry and breeding of bed bugs and mosquitoes; and transmit vector borne diseases and cracked walls of mud or wooden houses create favorable conditions for the breeding of vectors(17).

**5.4.7.2** Regarding **the number of rooms** in each house, 672 (51.5%) respondents have **houses with only one room**; 420 (32.2%) respondents have houses with two rooms and 139 (14.5%) respondents have **three and above roomed houses**. These findings are presented in Table 32, annex.

Overcrowding, particularly in conjunction with poverty and inadequate facilities, has been known to increase the transmission rates of such communicable diseases as tuberculosis, pneumonia, bronchitis and gastrointestinal infections, meningococcal, meningitis, influenza, the common cold and cause accident hazards, increase the risk of infections and cause mental stress(18).

**5.4.7.3 A sign of unhealthy housing conditions** is the **inavailability of windows** for the rural houses/tukuls in which there is a lot of smoke from cow-dung, fire wood or crop-residue, when there is cooking food inside the houses. In this survey, it is only 491 houses (37.6%) which have windows. About 764 (58.5%) houses do not have windows as shown on Table 33 annex. The condition causes an indoor air pollution and therefore a house with out proper ventilation will magnify air borne infections such as acute respiratory infections, pneumonia and tuberculosis.

**5.4.7.4** Concerning the availability of separate rooms/places for cooking **in the residential houses, it is only 551 (42.2%) houses which have separate places/kitchens for food cooking; 730(55.9%) houses don't have kitchens and cooking is carried out inside the same living rooms** (Table 34, annex).

The experiences of living environment in rural communities of developing countries is within the same class room which is functioning for dinning, living sleeping and shared with domestic animals, equipments, and mainly there is no separate room for cooking. This all increases the hazards for people living inside the house especially mothers and children who spend more time inside the house are more risked.

**5.4.7.5 Domestic animals** are kept in the **same house** where people live in 308(23.6%) respondents' houses; animals are kept in **separate places** or **rooms** in 969 (74.3) respondents' houses (**Table 35, annex**).

#### **5.4.7.6 Sanitation of inside houses and their compounds**

By observing whether the **inside of houses/ tukuls** and **the compounds are kept clean**, it has been found that only 467 (35.8%) respondents' inside-houses and their compounds are kept clean; both the inside of houses and the compounds are **not kept clean** in cases of 499 (38.2%) respondents; i.e. inside-houses there is dust, rubbish, spider-web and soot on walls and roofs; in the compound, there is refuse, children's and animal faeces scattered allover. See **Table 36, annex**.

#### **5.4.7.7 Respondents' sleeping places in the House**

In many poor rural communities, house holds may have less area of interior space per person and beds are often shared (11). Crowding makes irritations and interruptions inevitable, causing personal clashes which can grow into the deep seated repressed bitterness that are conceded to importance in some mental diseases (11)

The respondents, 564(43.3% of the 1,305 surveyed) have claimed that their **sleeping places** in their houses are **the ground and Medeb** (a plat form, traditionally made of earth and mud on the ground); 681 (52.2%) respondents **use beds for sleeping** (**Table 37, annex**).

#### **5.4.7.8 How household utensils are kept/stored by woreda**

About 618 (47.4%) of the total 1,305 surveyed) respondents **put their household utensils hanging on walls**; 448 (34.3%) respondents **put their utensils on the floor/everywhere** and 183 (14.0%) respondents **put their utensils on shelves** (**Table 38, annex**).

Many of the food borne, water borne diseases, whether bacterial, parasitic, or chemical in nature, originate from the sources of cultivation or processing of food or through contact of utensils and equipments via diseases causing agents.

#### 5.4.7.9 Cooking places of respondents by woreda

A total of 1,259 (96.5%) respondents have said that they **cook food on the traditional and open-fire places** and those who cook food on **improved, fire-wood-saving stoves** are only 44(3.4%) out of the 1,305 household heads surveyed (see **table 39**, annex).

#### 5.4.7.10 Information on the community Drinking Water supply Main Sources

Water among many other uses play an important roles in the evolution of humans and other ecological communities .Since all biological life is dependent on water, it must be obtained at intervals by all plants and animals, so that life develops around this needs. In general relationship between water and health is well established .A study showed a precise relationship of diseases (cholera) to water.

**5.4.7.11** Among the 1,305 households surveyed, a total of 487 (37.3%) households get their drinking water supply from protected water sources (water points), like: -protected springs used by 206 (15.8%) households; protected hand-dug wells used by 246 (18.8%) respondents and Boreholes used by 35 (2.7%) households. The remaining households, 792 (60.7%) get their drinking water supply from unprotected sources such as rivers, un-protected springs/hand-dug wells and ponds/lakes. These findings are shown on Table 11, below.

**Table 11: Total Number of Respondents by Main Source of Drinking Water and Woreda**

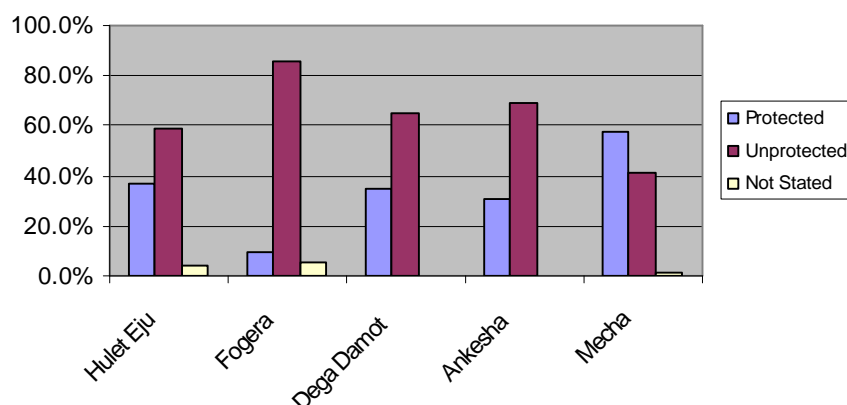
Main Source of Drinking Water	Woreda											
	Hulet Eju		Fogera		Dega Damot		Ankesha		Total		Mecha	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Protected Source												
Protected spring	19	7.6	4	2.1	38	16.0	64	26.6	125	13.6	81	21.1
Protected water well	70	28.1	14	7.2	37	15.6	11	4.6	132	14.3	114	29.7
Borehole	3	1.2			7	3.0			10	1.1	25	6.5
Unprotected Source												
River	119	47.8	116	59.8	73	30.8	41	17.0	349	37.9	74	19.3
Unprotected water well	19	7.6	12	6.2			1	0.4	32	3.5	24	6.3
Unprotected spring	1	0.4	38	19.6	82	34.6	124	51.5	245	26.6	35	9.1
Pond/lake	8	3.2							8	0.9	25	6.5
Not Stated	10	4.0	10	5.2					20	2.2	6	1.6
<b>Total</b>	<b>249</b>	<b>100.0</b>	<b>194</b>	<b>100.0</b>	<b>237</b>	<b>100.0</b>	<b>241</b>	<b>100.0</b>	<b>921</b>	<b>100.0</b>	<b>384</b>	<b>100.0</b>

**Summary of Table 11**

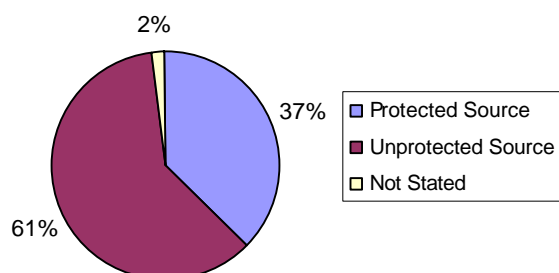
Percentage Distribution of respondents by their Present Main Domestic Water supply Sources and Woreda

	Woreda	Protected Source (Water Points)		Un-protected Source		All Total	
		No.	%	No.	%	No.	%
1	Hulet Iju Enessie	92	36.9%	147	59.0%	239	96.0
2	Fogera	18	9.3%	166	85.6%	284	96.6
3	Degadamot	82	34.6%	155	65.4%	237	100
4	Ankesha	75	31.1%	166	68.9%	241	100
	<b>Total</b>	<b>267</b>	<b>29.0%</b>	<b>634</b>	<b>68.8%</b>	<b>601</b>	<b>97.8</b>
5	Mecha	220	57.3%	158	41.1%	378	98.4

**Figure 5a: Distribution of respondents based on their source of water supply**



**Figure 5b: Distribution of respondents based on their source of water supply**



As it is seen on the tables above (**Table 11 and its summary**) the current main-water supply sources for the households in Mecha (control) woreda are: -

- ✍ rivers for 74 (19.3%) households
- ✍ unprotected springs for 35 (9.1%) households
- ✍ Protected springs for 81 (21.1%)
- ✍ unprotected hand-dug water wells for 24 (6.3%) households
- ✍ protected hand-dug water wells for 114 (29.7%) households
- ✍ boreholes (deep water wells) for 25 (6.5%) households and
- ✍ ponds/lakes for 25 (6.5%) households

It is 57.3% (220 households) of the 384 households surveyed in the worda which get their current water supply from the protected sources (water points), specifically, 81 (21.1%) respondents get water supply from protected springs; 114 (29.7%) respondents from protected hand-dug water wells and 25 households (6.5 %) get it from deep wells (boreholes).

The safe water supply coverage of Mecha woreda is 12.7%. The whole woreda population, in EFY 1997, is 326,478, out of which 304,173 (93.2%) is rural. There are only 30 protected water wells (28 hand-dug wells and 2 deep wells) and 4 protected springs for the entire woreda population.

The hand-dug water wells are 6 to 18 meters deep and the 2 boreholes are found in Wotet-abay village (depth=63 meters) and in Birakat village (depth=70 meters).

In Merawi town (capital of Mecha woreda), there is only one protected spring for the whole town population which is 22,000 in EFY 1997. Of this population, about 13,000 get their watersupply from this protected spring while the remaining 9,000 people get watersupply from only unprotected sources.

The water pressure in this spring is said to be so low that the collection chamber fails to be filled. The spring water is pumped to a reservoir by a diesel generator-driven electric pump and the water amount is very small and not enough for the 13,000 population. Watersupply shortage is a very critical problem in Merawi town. Worse than the shortage is that the spring water, through repeated laboratory tests, is labeled un-safe for human consumption, and yet the town municipality still manages the watersupply administration. The municipality owns the spring and collects water fees from the users at the rate of 2.00 to 3.00 birr per 15 – 41m<sup>3</sup> of water consumed.

Mecha woreda people are aware of the most useful assistance that RWSEP programme is rendering to rural communities in some woredas of the region. The officials and the people strongly desire that Mecha woreda be included by the RWSEP project so that the community will

get assistance in the provision of adequate and safe watersupply, awareness in sanitation, environmental protection and other community development measures being undertaken by the RWSEP programme.

The highest numbers of households benefiting from protected water sources (water points) are found in Hulet Ijun Enssie woreda, they are 92 households (36.9%) and the least number of households are in Fogera woreda, since only 18 households (9.3) get their water supply from water points. In Degadamot woreda, 82 respondents (34.6%) also get water from water points and in Ankesha Guagusa woreda, 74 households (30.7%) get from water points.

#### **5.4.7.12 Availability of Private-owned Hand-dug water Wells and the Water Usage**

In all 5 woredas surveyed, 245 (18.8%) households have affirmed that they have, of their own, unprotected hand-dug water wells in their compounds. In respect to distribution of the hand-dug water wells by woreda, 90 wells are in Mecha; 76 in Hulet Iju Enessie; 41 in Fogera; 31 in Degadamot and only 7 wells in Ankesha Guagusa woreda.

The 245 household respondents, who own unprotected hand-dug wells, use the water from such wells for garden irrigation, 101 (41.2%) of them; for drinking, 52 (21.2%) respondents; for washing clothes and home utensils, 48 (19.6%) and 25 respondents (10.2%) use the water for all purposes mentioned, i.e. irrigation, for drinking and washing utensils and clothes. These findings are presented detailed by woreda on **Tables 40and41**, annex.

#### **5.4.8 DISTANCE OF THE PRESENTLY USED WATER POINTS**

To assess the walking-distance to and from water supply sources, the study households were asked how much time (in minutes/hours) they spend to fetch their water supply from the currently used water points and also from their previous water sources (mostly unprotected sources). The study results are presented on **Table 12** below.

If people have very little water ether because of shortage or because they have to travel long distances, it may be impossible to maintain reasonable personal hygiene, wash utensils, cloth etc. Such unclear situations will encourage skin infections; and will be easier for intestinal infections to spread from one person to the other on dirty hands or fingers. The longer distances for fetching water will bring stress and physical attack from insects and vermin.

As it can be seen on the table, 450 (92.4%) respondents take a maximum time of 30 minutes to fetch water from the water points they are currently using, while 414 (85.0%) respondents have said that the same length of time was taken to fetch water from the previous water sources. For 28 (5.7%) respondents, a maximum of 1 hour time length was required to fetch water from the

water points, while the same length of time was taken by 59 (12.1%) respondents to get their water supply from the earlier sources.

The longest time taken to fetch water from the water points is 2 hours whereas for the earlier sources, the time is more than 2 hours and the respondents are only 4 households (0.8%). Although the difference in distance between the water points currently being used and the earlier water sources doesn't seem much, the RWSEP project intervention has reduced the distance of the water points for the users. On the other hand, the difference in distance is not very much because the users' earlier water-sources may have been protected by the project. See also **Table 42**, annex, which presents the time taken to fetch water supply from the protected sources (water points) presently used by woreda communities.

**Table 12: Time taken to fetch water from the Present and Previous water sources by Woreda**

Time taken to fetch Water Supply	Present Water Source		Earlier Water Source	
	No. of Households	%	No. of Households	%
1 - 30 min.	450	92.4	414	85.0
31 - 60 min.	28	5.7	59	12.1
61 - 90 min.	1	0.2	2	0.4
91 - 120 min.	7	1.4	7	1.4
More than 120 min.			4	0.8
Not Stated	1	0.2	1	0.2
<b>Total</b>	<b>487</b>	<b>100.0</b>	<b>487</b>	<b>100.0</b>

Source: Study Results

#### 5.4.8.1 Water supply shortage from Water Points

From the 487 households which are presently using water points (protected water supply sources), only 94 (19.3%) of them have faced water shortage from the water points, might be due to failure of the water source or break-down of pumps, pipes, etc. or long queues.

During such occasions, the **alternative watersupply sources** for those 94 households who have **faced the water shortage** from water points are reported to be:-

- rivers for the majority, 51 (54.3%) households.
- un-protected springs, 29 (30.9%) households
- private-owned, hand-dug water wells, 13 (13.8%) households.

The detailed study findings are presented by woreda on **Table 43 and 44** in the annex.



#### **5.4.8.2 Agents who have constructed the Water Points**

The 487 Households which currently are using water points (protected water supply sources) have confirmed that the stakeholders which jointly have constructed the water points are

- : the ANRS government, 33.5%
- : NGO (non –government agent), 18.9%
- : Individuals, 2.9%
- : the government and RWSEP, 43.7%

The beneficiary Community contributed cash, 1 to 5 birr per person, labor and locally available building materials (sand, stones, etc.) for the construction.

**Table 62** in the annex details these findings by woreda.

**5.4.8.3 The responsible body for the operation and maintenance (O and M)** of the water points, as told by the heads of the households are mainly the established Water supply and Sanitation Committees (WATSANCO). Each water point has one WATSANCO whose members are community-elected and comprise of chairman, secretary and cashier. There are also 2 women members assigned in the committee.

#### **5.4.8.4 The Water Fee from the water Point Users**

The water fee is birr 1 to 10 per year per household: and for those who cannot afford, the contribution is in labour or in some cases, watersupply given for free.

### **5.4.9 INFORMATION ON WATERSUPPLY HANDLING AND USE**

#### **5.4.9.1 Containers Used to Fetch and Store Watersupply**

The most common water container used to fetch watersupply from the source (by 83.0% of the 1,305 respondents) and also for watersupply storage at home (by 93.0%) is the traditional clay pot, locally called **Ensira**. The other water container, nowadays, is the plastic jerrican which is recently introduced into the country, as a whole. A standard Ensira has 20 litres volume and a plastic jerrican has also 20 litres volume, but these containers can be of different volumes, say 5 litres to 60 litres volume of Jerrican/ clay pot/ Ensira. The large volume Ensira is called “Gan” and it is used mostly for water storage and/preparation of local drinks, like tella and/teji . See **Tables 45 (a) and 45 (b)** in the annex for detailed findings by woreda.

#### **5.4.9.2 How water is taken from the source into the container and out of the storage container for use**

Most households use dippers for both filling water-containers 925 Respondents = 70.9% and taking out water from storage containers for home use; 1,178 households (90.3%) out of the

1,305, use dippers to take out water from the containers which are used for storage at home. See **Table 46 (a) and 46 (b)**, annex.

The majority of the population keeps their dippers, after use, everywhere on the floors of houses; on the top of the clay pot (Ensira) and on uncovered shelves. This wrong practice of unhygienic handling of the dippers will certainly induce the water pollution and contamination in the houses, though the water is fetched from the protected water sources (water points). See **Table 46 (c)**, annex.

#### **5.4.9.3 Family Members who fetch water from the source and Household Daily Water Consumption**

Traditionally the collection of watersupply from the source used to be the sole responsibility of wives and or female family members in the household (daughters, maids, etc.). The findings from this study also confirm the same, as in most of the cases, wives have the responsibility to fetch watersupply for the family from the water-sources as detailed in **Table 47**, annex. Besides, wives and girls also fetch water in 27.4% of households in the 4 woredas and 22.1% in Mecha woreda.

**5.4.9.4** The following **Table 13** presents the percentage Distribution of Respondents by the Amount of Water used per day by Woreda. **Table 48** in the annex shows the daily water consumption per household in each woreda.

**Table 13: Percentage Distribution of Households by Water amount used per day by woreda**

Amount of water used per day ( in litres)	Woreda					Total
	Hulet Eju	Fogera	Dega Damot	Ankesha	Mecha	
	%	%	%	%	%	%
5 –10	18.9	25.8	23.2	29.5	28.9	25.6
11 – 15	12.4	12.4	3.4	9.5	18.0	11.9
16 – 20	22.5	49.5	55.3	45.2	26.3	37.8
21 – 25	1.2	2.1	7.2	4.1	4.9	4.1
26 – 30	26.1	9.3	9.7	10.0	18.5	15.4
31 and above	18.9	1.0	1.3	1.7	3.4	5.3

Although it is very difficult to estimate the Daily water consumption per person in each household, the frequency of water fetching and the amount of water (in litres) collected during each trip was calculated for most households. These findings are presented on the above table (**Table 13**) and also on **Table 48** in the annex.

#### 5.4.9.5 How Turbid and Dirty Water is Made Clean by Woreda

As shown on **Table 49**, in the annex, 328 respondents (35.6%) clean the turbid and dirty water by sedimentation (letting it settle); 236 (25.6%) respondent clean such water by filtering through garments/clothing materials; 263 (28.6%) respondents do not clean it and 72 (7.8%) respondents clean the water by **boiling**. Equivalent figures for Mecha are 53.4% (205 respondents), 44.5% (171 respondents), 0.5% (2HHs) and 0.3% (1HH) respectively.

#### 5.4.9.6 Respondents' bathing and clothe washing places

For the question 'where do your family members bathe and wash clothes, the responses of the 1,305 study families consisted of the following:

? <b>Take bathe</b> at home	= 851 (65.2%) respondents
? <b>Take bathe</b> at unprotected water sources (mostly rivers)	= 371 (28.4%) respondents
? <b>Take bathe</b> at Public bathe area	= 68 (5.2%) respondents
? <b>Wash clothes</b> at unprotected sources (rivers)	= 824 (63.1%) respondents
? <b>Wash clothes</b> at home	= 233 (17.9%) respondents
? <b>Wash clothes</b> near the protected water source	= 226 (17.3%) respondents

The detailed findings by Woreda are all presented on **Table 50 and 51** in the annex.

#### 5.4.9.7 Places where Domestic Animals are watered

The study families have confirmed that their domestic animals are watered at places such as:-

- ? rivers and/lakes = 983 (82.6%) respondents/1,305 surveyed
- ? home = 93(7.8%) respondents out of 1,305 surveyed.
- ? protected water sources (may be there is water trough constructed nearby the water point for watering animals = 91(7.6%) respondents and
- ? Un-specified water-sources = 23(1.9%) respondents. See **Table 52** in the annex for these findings, detailed by woreda.

#### 5.4.10 ASSESSMENT OF THE SANITATION AND OTHER ENVIRONMENTAL HEALTH SITUATIONS

Sanitation is a key element in the human development process as of safe water supply. Without access to hygienic sanitation and safe water supply, people are subject to many faecal-borne diseases.

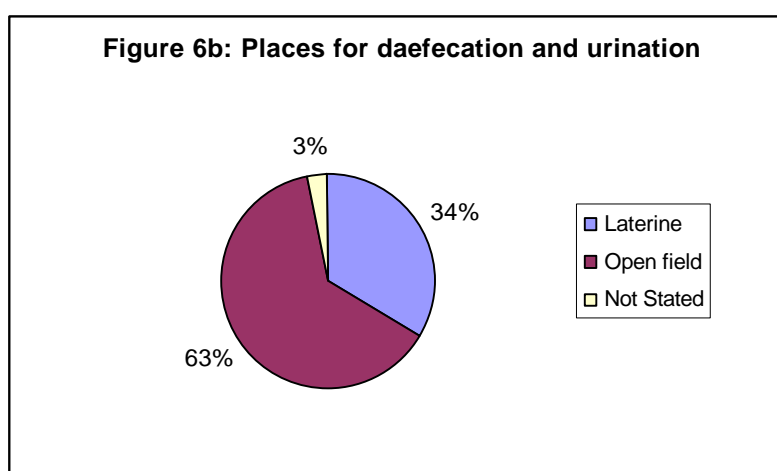
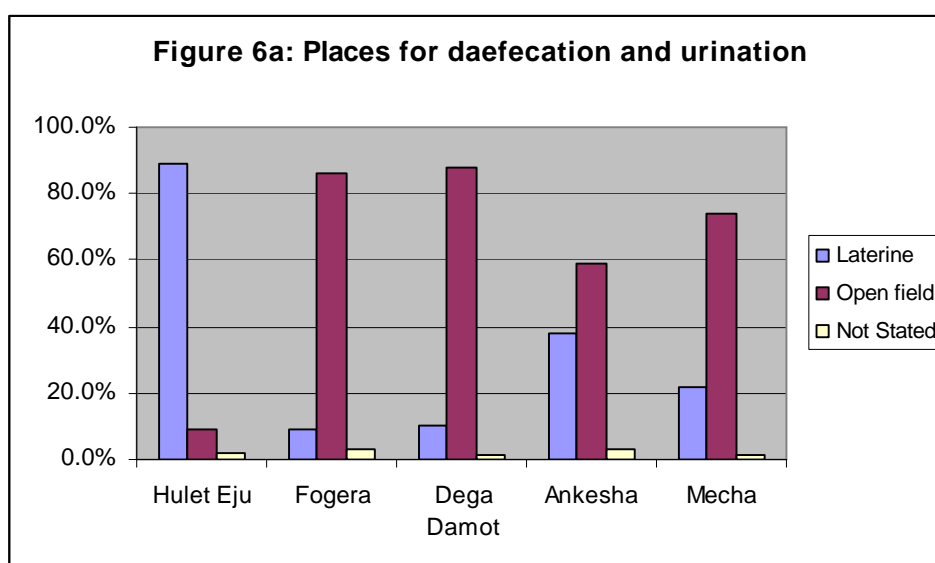
From the assessment of the Sanitation and other environmental health situations, particularly, the **availability, proper use and management of latrines; disposal of household refuse and liquid waste** of communities in the five woredas designated for this KAP survey; the survey findings are presented in sequence as the following.

#### 5.4.10.1 Latrine Availability and Usage

- For 826(63.3%) respondents' places for defecation and urination are open-fields
- For 439 (33.6%) respondents, latrines are used. In Hulet Iju woreda, 222 (89.2%) respondents use latrines.
- Open-field daefecation/Urination is more common in Degadamot and Fogera Woredas than in the control woreda, Mecha. See **Table 14** under here.

**Table 14: Availability and use of latrines by Woreda**

Places for daefecation and urination	Woreda										Mecha	
	Hulet Eju		Fogera		Dega Damot		Ankesha		Total			
	No.	%	No.	%	No.	%	No .	%	No.	%	No.	%
Latrine	222	89.2	17	8.8	25	10.5	91	37.8	355	38.5	84	21.9
Open field	22	8.8	167	86.1	209	88.2	143	59.3	541	58.7	285	74.2
Not Stated	5	2.0	10	3.1	3	1.3	7	2.9	25	2.7	15	1.3
Total	249	100.0	194	100.0	237	100.0	241	100.0	921	100.0	384	100.0



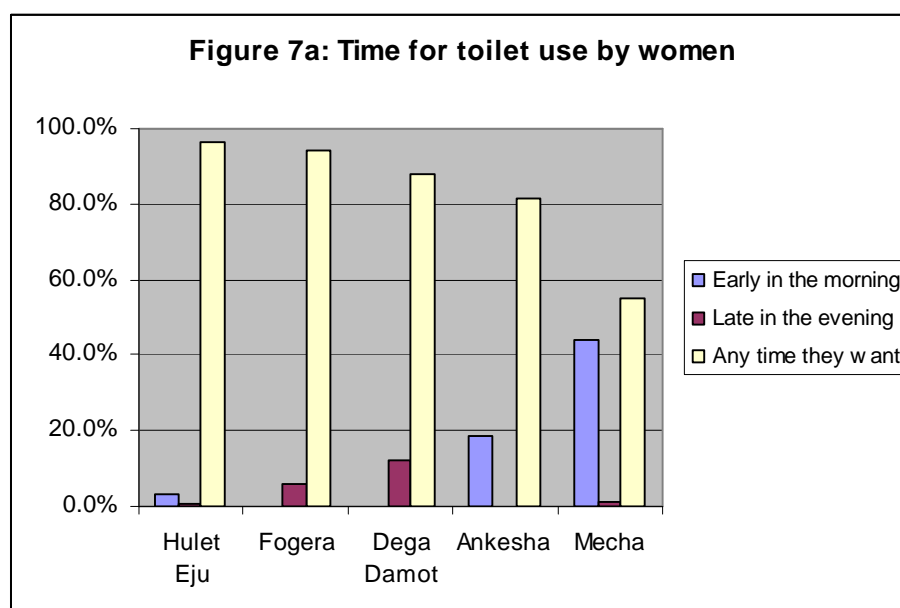
#### 5.4.10.2 The Time When Women Use the Latrine

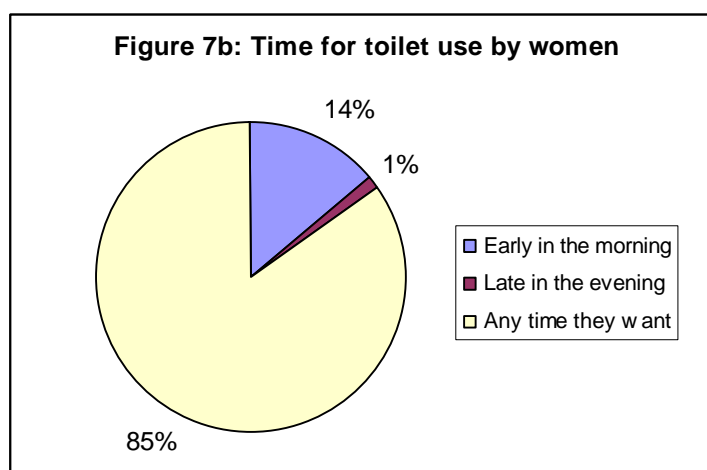
In the ANRS, the traditionally accepted norm for women to use the latrine used to be only **early in the morning** and **late in the evening**. Nowadays, this cultural practice seems dying off as revealed from the study findings from the 439 households which have latrines. In 372 (84.7%) households, it is confirmed that women have the freedom to use latrines at any time they want (whenever they have the urge). The distribution of these findings by woreda is: - the highest number of households which have admitted that women use latrine whenever they have the need are from Hulet Iju Ensessie woreda, 214 households (96.4%) out of the 222 household that have latrines in the same woreda; in Mecha woreda, the highest percentage of households (54.8%) claim that women are free to sue latrines at any time. The cultural problem is still existing in RWSEP project un-served woreda, Mecha as shown on **Table 15** below.

**Table 15: Respondents by Toilet Utilization of Women and Woreda**

Time for Toilet use by women	Woreda											
	Hulet Eju		Fogera		Dega Damot		Ankesha		Total		Mecha	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Early in the morning	7	3.2					17	18.7	24	6.8	37	44.0
Late in the evening	1	0.5	1	5.9	3	12.0			5	1.4	1	1.2
Any time they want	214	96.4	16	94.1	22	88.0	74	81.3	326	91.8	46	54.8
Total	222	100.0	17	100.0	25	100.0	91	100.0	355	100.0	84	100.0

Source: Study Results





#### 5.4.10.3 Where small children (2-3years old) Defecate and Urinate

Children's faces are more likely to contain disease pathogens, so the disposal of children's faces is especially important in disease transmission. **Table 53**, in the annex, shows that small children, age 2-3 years, are made use any place nearby the house to daefecate and urinate in 191 (43.5%) households out of 439 households which have latrines; 158 (36.0%) households let such small children use the floor inside the houses and 68 (15.5%) households use leaves for the children to daefecate on. The used leaves are then thrown with the stools into the latrines. When these results are distributed between woredas and compared, greater number of households are in the control woreda, Mecha, where 55 (65.5%) households use any place nearby the residential houses for small children to daefecate/urinate; the next woredas where households use the same kind of places are Degadamot, 60.0%; Fogera 52.9%; Anksha, 52.7% and the least are in Hulet Iju, 28.8%.

#### 5.4.10.4 How Latrines are always kept clean

Through the administration of the questionnaire, 'how do you always keep the latrine clean?' to those 439 heads of households in the 5 study woredas who have latrines of their own, the following results have been obtained.

- 238(54.2%) respondents clean the latrine by sweeping with brooms.
- 116 (26.4%) respondents don't clean the latrines and yet they claim that the latrines are always clean.
- 75 (17.1%) respondents clean their latrines by sweeping and washing with water

See **Table 54** in the annex for the detailed findings in each study woreda.

#### 5.4.10.5 Findings from Visits and Inspections of Latrines

All the latrines of the 439 households have been visited and observed for status in their cleanliness; whether the latrines have lids/covers; whether there is a superstructure for privacy and shelter from the sun and rain, i.e wall and roof as superstructure; whether the latrines are built with cement concrete slabs (San Plats) and whether there are hand-washing facilities nearby the latrines. The findings obtained are that: -

- (1) **Cleanliness:** - 64.7% (284 latrines) are found clean  
34.2% (150 “ ) are found unclean, **Table 55** in the annex.
  - (2) **Cover/Lid:** - Only 213 (48.5%) latrines have lids/covers  
211 (48.1%) latrines have no lids. See **Table 56**, in the annex.
  - (3) **Superstructure:** - 304 (69.2%) latrines have superstructures and 120 (27.3%) latrines do not have superstructures. See **Table 57(a)** in the annex.
  - (4) **San Plat:** - Only 39 (8.9%) latrines, out of the 439, have been built with San Plats; 394 (89.7%) latrines are not built with San Plats. This means that most of the latrines in the rural areas are built from local construction materials such as logs, earth, stones/pebbles, etc. In such cases, washing the latrines may be impossible for several reasons. See **Table 57(b)** in the annex.
6. **Hand-washing Facility:** - There are not Hand-washing facilities for 378 (86.1%) latrines and it is only 51 (11.6) latrines which have hand-washing facilities nearby. The detailed findings by woreda are shown on Table 58 in the annex.

#### 5.4.10.6 What the people Do When their Latrines are Completely Full

When the household's latrines are completely full and cannot be used any more, the next measures that the people take are: -

390 (88.8%) respondents have said that they will construct other latrines and 33 (7.5%) respondents, out of those 439 respondents who have latrines have said that they **will switch to using open-field** for defecation/urination. See these findings by woreda on **Table 59** in the annex.

#### 5.4.10.7 Disposal of Domestic Waste

**Tables 60 and 61** in the annex indicate the **places** where the study rural people **dispose** their **household refuse** and **liquid waste**, by woreda.

- 740 (56.7%) respondents, out of 1,305 households surveyed, **dispose their household refuse everywhere** in the **open-filled**; 331(25.4%) respondents make

**compost** out of the refuse; 143 (11.0%) respondents use **refuse pits that** they have; 54(4.1%) respondents **dump the refuse** in **natural depression** and 11(0.8%) respondents **burn the household refuse**. See **Table 60** in the annex.

- **The Liquid waste Disposal**
- 992 (76.0%) respondents **dispose** their households **liquid waste everywhere on the open-field**.
- 200 (15.3%) respondents use pits to dispose the household liquid waste and
- 75 (5.7%) respondents have **separate pits for liquid waste disposal**. The detailed findings of each woreda are presented on **Table 61** in the annex.

#### **5.4.10.8 Comparison of the Study Findings of the Previous and Present Studies.**

The **Previous Study**, “**Assessment of Household and School watersupply, Sanitation and Hygiene Status** in Selected woredas of East Gojjam and South Gonder Zones of Amhara Region, was conducted in the year, 2000. The **Present study, a study on knowledge, attitude and practice (KAP) on watersupply, Sanitation and Hygiene**, was conducted during the rainy season (Kiremit), July 2005. (Ref. No. 1).

Although the two studies are different in their study woredas, sample size of study households, etc., both are conducted in the same administrative region (ANRs), same zones and both have also **similar variables used** during surveys. Using some of the similar variables, a **comparison** of the **study findings** of these 2 studies has been attempted and the table, below, is intended to illustrate this.



**Table 16: Comparison of Results of the Previous and Present KAP Surveys in Amhara Regional State**



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## 6. CONCLUSION

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The Amhara National Regional State (ANRS), with a population of more than 18 million, is the 2<sup>nd</sup> most populated and widest region of Ethiopia. The people have lived neglected for many centuries despite the presence of high rates of illiteracy, wrong beliefs & superstitions; lack of on-land communication and transportation; poverty, poor housing conditions, insanitary environment and rampant infectious diseases and malnutrition. Most people live in grass-thatched-roofed tukuls, mud-plastered wooden walls, dusty floor, single-roomed and without windows. The majority people are bare-footed and wear unclean and rugged clothes.

This KAP survey has been conducted in 5 woredas, designated prior to the start of the survey, in 5 different zones of the ANRS. One of these woredas surveyed, Mecha, is not RWSEP project-served but used as a control woreda for comparison. In these surveyed 5 woredas, there is a total population of 1,255,124 and 182 kebeles (15 urban and 167 rural). Among the population, 50.3 % (630,961) are males and 49.7% (624,163) females.

In the 167 rural kebeles studied, there are 406 water points (protected water-sources) out of which 329 are hand-dug water wells, 2 deep wells/boreholes and 75 are protected springs. All the water points are constructed by the RWSEP programme, except the water points in the control woreda, Mecha. The total population benefiting from the 406 water points in the 5 woredas is 173,314.

Environmental sanitation and personal hygiene situations are alarmingly poor, especially in the rural settings. Availability of potable watersupply and utilization of latrines are almost negligible and hardly enough as the coverage rates in safe watersupply are only 36.9% in Hulet Iju Enessie; 9.3% in Fogera woreda; 34.6% in Degadamot and 31.1% in Ankesha Guagusa woreda. It seems that the best of all is in the control woreda, Mecha for it has a safe watersupply coverage rate of 57.3% and the water points source are protected springs (for 81 households), protected hand-dug water wells (for 114 households) and deep water wells (boreholes) for 25 households. But as stated above, the actual safe watersupply coverage of Mecha woreda is only 12.7%, according to the report from the woreda water supply office.

Contamination of the water supply fetched from the water points is very highly possible from the unhygienic handling practices and usage by the rural population, since the majority of the people keep the dippers, used to take out water from the storage-containers (the clay pot/ Ensira which is culturally used to fetch water from the source and also to store water at homes) at any place on the dusty floors of houses. It seems that the people's concern is only the availability of watersupply and not its safety. May be because of this reason that 31.4% (77 respondents) out of the 245 households which have private-owned and unprotected dug water wells, use the water for drinking & food cooking; 20.3% of the respondents use turbid and dirty water for the same

purpose without any treatment and 64 of the 94 respondents that have water points resort to unprotected water sources whenever there is water shortage from the water points.

In all 5 studied woredas, there are no mechanisms established for periodical laboratory examinations of water samples from the existing water points and for chlorination of the water points which are found to be contaminated and/unfit for human consumption. For that matter, the responsible body/office for this task is unknown in all woredas.

Latrine availability and or latrine usage is at its rudimentary stage in all woredas, except Hulet Iju Enessie woreda. Only 439 (33.6%) respondents, out of 1,305 surveyed, use latrines for defecation and urination and 826 (63.3%) respondents use the open-field. In Hulet Iju Enessie woreda, 222 (89.2%) households, out of the 249 surveyed, use latrines. Latrine availability and latrine use are much worse in Fogera and Degadamot woredas than in the control woreda, Mecha. In Fogera, only 17(8.8%) respondents; in Degadamot, 25 (10.5%) respondents and in Mecha woreda, 84 (21.9%) respondents out of the surveyed population in each woreda, use latrines.

Since most latrines of the rural population are built from local construction materials, such as logs, stones/pebbles, earth, etc., it is only 39 (8.9%) latrines, out of the total 439 available, which have cement concrete slabs (San Plats). For this reason, it is impossible to wash the latrines regularly and keep them clean always.

From visits and direct observations of the 439 latrines, it has been confirmed that 150 (34.2%) latrines are not kept clean; 213 (48.5%) latrines are without lids (covers) but with too many buzzing flies and 378 (86.1%) latrines do not have hand-washing facilities nearby the latrines.

The domestic waste disposal system in the rural set-up is another un-hygienic/unhealthy practices of the population, as 740 (56.7%) households dispose their domestic refuse in the open-field and 992 (76.0%) households, out of the 1,305 surveyed households, dispose the domestic liquid waste in the open-field.

Most residential houses of the rural people surveyed are earth floored, mud-plastered walls, with one room where domestic animals also dwell with the people. Only 491 (37.6%) houses, out of the 1,305 surveyed, have windows and 730 (55.9%) houses don't have separate rooms (kitchens) for cooking food. The food cooking place is still the traditional fire place and the newly introduced fire-wood-saving stove is used by only 44 (3.4%) households.

According to these survey findings, there are some changes taking place in the improvement of the awareness, attitudes and practices of the rural population in the RWSEP project-served woredas. Nevertheless, such changes appear unsatisfactory in regard to personal hygiene (self-

bathe; washing clothes and bathing small children, 2-3 years old); hand-washing practices; home treatment of diarrhoea; family planning; transmission and prevention of locally prevalent diseases such as malaria, HIV/AIDS. etc. This situation necessitates greater effort investment in intensive and continuous IEC dissemination to the population, with regular follow-up, monitoring and evaluation activities.

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## 7. RECOMMENDATION

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**7.1** The RWSEP Programme has become so popular and very much appreciated; not only by the beneficiary woreda population, but also by the non-programme served woreda population of the ANRS region (Mecha woreda population is an example).

Therefore, it is suggested that this RWSEP programme has to sustainably continue until it meets its planned objectives and entire coverage of the regional population, and if possible, also extend its assistance to other regions of the country. The experience in programme implementation is available by now; patience/endurance and resources investment are needed from all stakeholders and implementers in the field.

There are some reported problems, presently being experienced in the execution of the RWSEP programme, Phase III and these are: -

- ? delay of the budget (the 12% share of the ANRS government) release and transfer to woredas/ RWSEP programme co-ordinators / field workers implementing the programme, etc.
- ? too much task-responsibilities for one worker/ employee
- ? two bosses for one employee
- ? too many and frequent public meetings, called by different authorities (woreda administration, other government offices, kebeles, etc.) and these have been causes for irregular field-work (supervision, follow-up, monitoring, IEC dissemination/ agitation and so on).
- ? the per diem for field-workers, implementing the RWSEP programme, is reduced to half of the previous (Phases I and II) amount and sometimes, this is not paid at all.

The budget from the ANRS, allocated for per diem, car fuel, other transport expenses, etc., is usually released late and transferred towards the end of the country's Budget Year to the RWSEP project-served woredas / project coordinators / field-workers. Then, because of the short work-time left, most of this budget stays un-used and at the end of the Budget Year (30 Sene/4th July), the largest proportion of the money is sent back (accounted) to the regional bureau of finance. All these problems will, hopefully, be solved for the sake of the programme success and continuity.

The regional health bureau (RHB) is the righteous and legitimate institution which must be the owner and the leader in the implementation of the health-related activities of the RWSEP programme, as it has the necessary and qualified health professionals who can handle the creation of public health awareness among the community, also diagnose and treat diseases of the community.

The financial and technical assistance being continuously donated by the Ministry of Foreign Affairs of the government of Finland (MFA) is a golden opportunity for all beneficiaries and this assistance must be properly utilized for the welfare of the rural community. Having this assistance from the MFA of Finland, the ANRS health bureau, with its line-offices at woreda and kebele levels, must take the responsibility of leadership (stand on the fore-front) and vigorously act to bring about all the health-related inputs into the reality so that the rural poor will benefit.

**7.2** Actions that would assist in raising health consciousness of communities need to be correctly identified, designed and executed. Emphasis should be given to deploying front-line workers (health extension workers/professionals), with a reasonable knowledge of hygiene requirements and sanitation, who primarily deal with sensitisation and mobilization of communities. Such workers must be responsible for a manageable size of households (2 for each kebele) in project areas to allow frequent contact between the beneficiaries and the promoters, to say the least.

**7.3** It is very important that all those working in this area carefully understand that they are catalysts for change, but not subscribers/providers of services which beneficiaries do not appreciate and accept, because, in the final analysis, such activities are bound to fail. The promoters must operate with checklist of tasks at hand, similar to what the agriculture extension agents are operating. Promotional and teaching materials must be carefully identified, designed, pre-tested before application and used properly in a participatory manner (PHAST training).

The health IEC topics should consist of locally relevant health problems and National Health Policies and Strategies.

Pertinent subjects (topics) which may be relevant to the localities in the region and which must be dealt with for the IEC dissemination by field workers (trainers) and communities are:

- ? Communicable diseases:- types, mode of transmission, prevention and early treatment of such diseases as diarrhoeal diseases; malaria; STIs /HIV/AIDS; tuberculosis, intestinal parasites (hook worm, bilharziasis, anobeiasis, etc.); Relapsing fever; typhus; typhoid fever; hepatitis; eye infections (trachoma); etc.
- ? Home Treatment of watery diarrhoea in children < 5 years of age
- ? Availability and Proper Use of Latrines (Sanitation as a whole)
- ? Safe Drinking Watersupply and Hygienic handling until it is drunk or used for food preparation.
- ? Family Planning and The Population Policy of the Country.
- ? Immunisation for all infants and all women at their reproductive age (15-49 years).
- ? Personal Hygiene, bathing; clothe washing; hand washing practices and food hygiene.

- ? Balanced Diet Preparation from the locally produced cereals, legumes, milk, eggs, vegetables, etc.
- ? Protection of the environment, soil conservation, terracing and afforestation, etc.
- ? Construction of **Proper Houses** with **rooms, windows; separate rooms** (kitchens) for **cooking food**, separate rooms for **domestic animals**, etc.

**7.4** Working-manuals/guidelines and leaflets must be prepared, written and distributed to promoters, implementers, facilitators, artisans, watersupply and sanitation committees and beneficiaries.

**7.5** The integrated approach and development of water supply, sanitation and hygiene sector, as a package, are not only means for attaining improved health, but are also gestures and prerequisites for human dignity and national pride. This fact has to be understood and accepted by all those concerned: the regional administration; health, water supply, social service and development bureaux; local government officials, particularly the social development sector-line officials, like the woreda administration; health services, rural water supply and social service and development desks; municipalities and the beneficiary communities.

The woreda social-sector desk-workers are not only stakeholders/partners, but also must be prime implementers of such projects which they are employed for and made responsible to plan, guide and supervise the implementation and later, regularly follow-up, monitor and evaluate the implemented intervention projects.

These government officials must be happy to get the Finnish government's assistance which is enabling them to accomplish their tasks prescribed in their job-descriptions before employment. Whether there are incentives or not, these officials and other employed staff (specially, public health professionals) must be actively involved in such community development intervention projects as they are owners, responsible and accountable for the planning, implementing, regular follow-up, sustainable utilisation, monitoring and evaluation of the implemented projects.

In connection with this, it will be fundamentally important that wherever the MFA of the Finnish government desires to assist in such community development projects, they must organize workshops for the sector partners on inter-sectoral issues; obtain strong commitment, will, transparency and political support from the regional and local decision-makers; clearly spell-out roles and detailed/specific responsibilities with accountability of each sector and reach written consensus on the order of actions to be taken.

Nowadays, the social service and development line-sector desks of woredas have technical manpower/professionals like public health experts (Sanitarians), environmental health and hygiene experts, health-educators, water engineers, economists, geologists, sociologists, etc. All



these must be involved and given specific tasks and responsibilities with accountability in the project pre-planning; planning; implementation; post-project follow-up, monitoring and evaluation. These professionals can also draft different work guidelines, teaching-aid materials, rules and regulations for the beneficiary communities which will endorse and utilize during the operation of the project-implemented schemes.

Inter-sectoral collaboration between sector stakeholders/partners is very weak and not well-established. Working relationships, even between the bureau of water and health, are not adequately founded and each of them implement whatever they plan separately, though both offices agree in the principle of carrying out water supply, sanitation and hygiene services together, if an improvement in community health is to be achieved.

**7.6** For the Finnish government (MFA) health-related intervention project, **the best** and probably **the ideal project-target areas** are **elementary and Secondary Schools** in all project-intervention woredas. The teachers and students in such schools make-up controlled communities which are very easy for project promoters and implementers to handle. It is also easier to educate and mould the young and future generation into the right and healthy directions in life (better knowledge, attitudes, health habits and practices).

There are very many problems (public health-related and others) in almost all schools of the project 4 woredas and Mecha woreda; lack of water supply, latrines; over-crowded classrooms; etc.

The number of existing schools, number of students and teachers by sex are presented in **Table 64** in Annex, hoping that any organization may see the schools' problems and take action, if possible.

It is a blessed, genuine and noble job to assist and overcome such chronic and pressing problems of the future generation. What is provided by the project will be owned continuously, sustained and become unforgettable, inherited and practised by generations to come. Efforts in promotion and implementation of health-related intervention projects at schools are mostly successful in achieving pleasant and retainable results; as what is taught and practised during childhood is always unforgettable/retained to last for life. The project launching needs devotion, endurance and integrated planning/intervention.

The health education (IEC) part can be easily disseminated by using all school teaching-methods, like lectures; hand-outs; films; drama shows, debates; panel discussions; paper presentations; Parents' Day; village and/school clean-up campaigns; posters; personal hygiene inspections among students and soap rewarding for the best three in each class; availing vegetable gardens

in schools for demonstration to parents to grow vegetable which will supplement their food/diet, etc.

The teachers and students will, later, be responsible to teach the community and/their parents and bring about changes in the health of communities.

For school sanitation, VIP latrines (located separately for girls and boys) are recommended if the water-flushed types are impossible/expensive.

**7.7 Integrated and coordinated plan of action** (by governmental and non-governmental organisations) is of vital importance for all WASHE projects. This will help to avoid duplications, wastage of energy, time, financial and material resources and sustainability problems that may take place following the phasing-out of the project.

**7.8** The health-related intervention projects (particularly watersupply projects) have faced limitations in planning the appropriate designs of watersupply schemes and the lifetime of each component, prior to implementation; and because of that, the achievements are not as successful as they could have been, otherwise. Therefore, design criteria concerning regional standards; local conditions; chosen service-level of beneficiary communities; resources at hand; the useful lifetime or design life of each watersupply scheme component; the economic lifetime of equipment and the ease of replacing or expanding work must have been set and agreed upon by all concerned, prior to the launching of the projects.

In developing the watersupply design criteria, some of the recommended points to be considered are:

- a) **design year:** The design year to be adopted depends on the type of water supply scheme planned.
  - **for springs:** a design period of a minimum of 5 years is to be adopted. However, where source is not a limitation, springs are to be developed to satisfy, at least, the maximum day-demand of 10 years design period.
  - **water wells:** for hand-dug wells, a design period of 5 years is to be considered. In the RWSEP programme, the design year for springs is 15 years and for hand-dug water wells, it is 10 years.
- b) **population:** The household size is to be used as the base-line figure for the initial stage of design. However, further verification has to be done, prior to the actual project implementation. The design population is to be calculated using an average household-size of 6 and a constant population increase rate of 3% per

annum. The geometric progression calculation can be utilized to project the population size.

$$P_n = P(1+r/100)^n \text{ where } P_n = \text{population at the } n\text{th year}$$

$P$  = initial year

$r$  = rate of population Increase

$n$  = number of years.

c) **Service Level**

? Quantity: It is true that use of adequate quantity of water is even more important in preventing water and sanitation diseases than the quality of water used. Thus, the minimum per capita demand to be adopted should be at least 10 litres per capita per day. This per capita demand is assumed not to vary much for the first 5 years. With time, however, the community's awareness and acceptance of scheme benefits of a safe water supply scheme increase and the communities may demand for more water and better service level. About 15 litres per capita per day is thus to be adopted for systems with more than 5 years design period.

? Quality: Improved quality of water is to be provided, meeting the basic requirements of the **World Health Organization (WHO) standard of Drinking Watersupply Quality (see Ref. No. 31 WHO, Geneva, 1984).**

? **Accessibility:** Point sources, at a maximum of 30 minutes of walking-distance, are to be implemented and one point-source is to serve a maximum of 500 people. But in the RWSEP programme one point-source is to serve a maximum of 350 people and the Ministry of Water Resources recommends 400 people.

d) **Technology:** for a given drinking water supply and sanitation technology to be sustainable, it has, at least, to be simple, affordable, acceptable, technically feasible, reliable and adaptable to the available technical and organizational skills. Unlike urban supply in rural communities, the number of people to be served is not only small, but has a scattered settlement pattern, making pipe-distribution of water very costly. In such instances, the best option is to provide a point-source: a protected water well equipped with a hand-pump; a spring capping or rain water harvesting roof catchment or other type.

There must be construction of channel or ditch, about 10-15 meters uphill of spring-chamber to prevent entrance of rainwater into the spring chamber. An area of, at least, 50 meters upstream and 10 meters at each side must be

protected. There must also be construction of proper drainage system round the spring chamber. In case of hand-dug water wells, a minimum depth of the well has to be 7 meters and latrines must be located, at least, 40 meters downhill from the water well. Construction of water supply structures for sources having a yield less than 0.2 liters per second should be discouraged. (Ref. No. 28, Ethiopian Red Cross Society, May 2004)

**7.9 Chlorination of water supply sources:** Shock-Chlorination (one time chlorination) to make chlorine concentration 10-20 mg/l for at least 24 hours is recommended for disinfecting/cleaning the water wells and collection chambers. Also, there must be an arrangement for regular chlorination, once or twice a year depending on the results of laboratory examinations of water samples from the supply sources.

In all surveyed woredas, there is no body/office responsible for the regular check-up of the water safety from the water points which the rural people are using presently. After the completion of the water point construction, there has been no one concerned to take water samples from such water points for laboratory examination for water safety. There have been disputes and disagreement between the Health and Water bureaux/woreda offices, each one refusing to take the responsibility of the laboratory water sample examination for quality and safety. This problem has to be solved by the Regional Board for the RWSEP programme / ANRS government so that routine water samples are taken for laboratory examinations regularly and contaminated water points are to be chlorinated.

**7.10** It will be necessary to design for post-project arrangements for operation and maintenance of facilities and ensure availability of spare parts (for sustainability sake, repairable hand pumps, motor pumps, stock of spare parts, pipes fittings and small funds which will last for some years in the future, after the projects have phased out) and tools. For every waterpoint, fast-moving spare parts, tools and 2 trained plumbers must be available at the site/ waterpoint or kebele.

Although all these arrangements are planned to be included in the RWSEP programme implementation, they are not yet put-in-place, specifically at the sites of water points under the responsibilities of WATSANCOs and/ pump-attendants.

In order to get full community participation and avoid pre-set pressure, it is very important to budget for sufficient time for community acceptance

Strong community structures, such as water committees; operation and maintenance mechanics/technicians; water-tap attendants and community health educators (all selected from and by the beneficiary communities), have to be organised and trained on their specific tasks they

will be responsible and accountable. Written guidelines, rules and regulations on the O and M of schemes must be distributed to all of these persons. The trained water committee members must be responsible for administration, giving health education, collection of water fees, auditing, recording and reporting, follow-up, monitoring, evaluation, etc.

Building the capacity of beneficiary communities in the management, operation and maintenance of water supply and sanitation facilities is crucial for the continued functioning and use of the schemes. To ensure continuous functioning of facilities, it is of importance to:

- ? train local artisans in the operation and maintenance of pumps, pipes and other water supply and sanitation schemes.
- ? establish slab production (San Plats) cottage industries at community level, preferably as an income and cost-recovery scheme. Arrangements could be made for selling slabs for beneficiaries on installment basis at reasonable price.
- ? regular follow-up, monitoring and evaluation activities should be carefully designed and implemented regularly at all levels. Feedback is vital for effective implementation of suggested recommendations and comments of earlier visits.
- ? review meetings on regular basis with both implementers and beneficiaries should be organised and decisions documented for future references.
- ? incentive/disincentive mechanism should be introduced in project sites to encourage and motivate all those involved in the sector.
- ? health Status monitoring is vital and necessary for both project and the beneficiaries.

Communities receive the health promotional trainings and demonstrations, say, in sanitation; personal and food hygiene; safe water supply; etc. The people promise to apply what they have learnt, but very few practise and there will be nothing on the ground after the promoters and implementers have quit the community. Such people are very slow and resistant to new changes to occur easily and in a short time; and that is why the expected results of the implemented public health interventions may not be so many and rewarding.

In such kind of communities, public health interventions require huge resource-investment (manpower, time, finance, materials, etc.); patience; very long time for implementation; very close supervision and follow-up; monitoring and evaluation; hands-on training, community review meetings, enforceable rules and regulations, etc. Even with such efforts made, one has to foresee that the desired results may be minimal after a long period of project implementation.

Following the promotion and implementation of the public health-related interventions, there must be community-endorsed and strictly enforceable rules and regulations on handling, utilization and sustainability of the implemented projects so as to bring changes in the knowledge, attitudes,

behaviours and practices of the beneficiary communities. The communities have to learn, know and practise to live better and healthier lives.

They must be told that their cultural practices of **throwing “away”** all the things which they label as **“bad or dirty”** must be stopped / must not continue any longer. **Defecate away** (open-field); Clean children’s stool and throw it **away**; clean the house and throw the domestic waste **away**; collect the **animal waste** and **throw it away**; etc. are examples of common unhealthy attitudes and practices of communities, specially more, in rural areas and all of such practices must be band by the rules and regulations.

Most areas that used to be known by communities as **open-fields (away areas)** are nowadays occupied by others for many purposes, e.g. as residential areas; farm and pasture lands; school buildings; play grounds; watersupply sources; etc. So, the practice of throwing bad / dirty matter away (in to the open-fields) must be considered as a very serious crime committed against the health of the doers and others. Therefore, the word “away” must not only exist in the community conversations and practice, but also, if possible, must be deleted from their vocabularies. Those who practise “throw aways” must be punished by the rules and regulations established in their kebeles.

**7.11** The communities in all project sites have reported that there are always lack and shortage of drugs in all government health facilities, and they cannot buy the prescribed drugs in all government health facilities. Buying in private health facilities (clinics, drug stores, rural drug vendors’ shops) is always too expensive and unaffordable to most community members. So, the people have to resort to illegal drug importers (controbandists), quacks or village injectors, what the people call, “the village hakims/injectors”

Drugs from such sort of business people are either damaged, spoiled and/ expired or not genuine and sometimes dangerous to the users’ lives.

It is therefore the community’s prior felt-need and strong wish that the MFA of the government of Finland will assist and solve this problem by availing new pharmacies /drug stores, with revolving fund, at accessible sites, such as nearby health facilities; if possible, in woreda towns and or populated villages.

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