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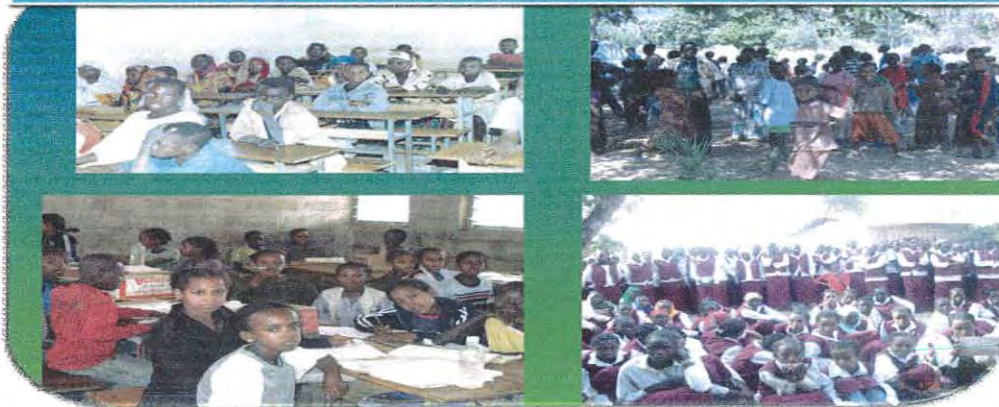
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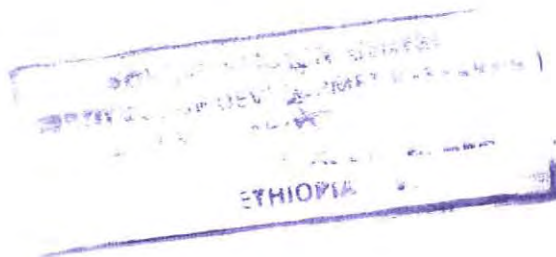


**Effectiveness of School Water Supply, Sanitation and Hygiene Program: In the case of
Assossa Woreda Primary Schools, BGRS, Ethiopia**

*A thesis submitted to College of Development Studies in partial fulfillment of the requirements
for the Degree of Masters in Environment and Development*

by: Habtamu Alemu Jano

Advisor: Feyera Senbeta (PhD)



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and Hygiene Program: In the case of Assossa
Woreda Primary Schools, BGRS, Ethiopia.***

By

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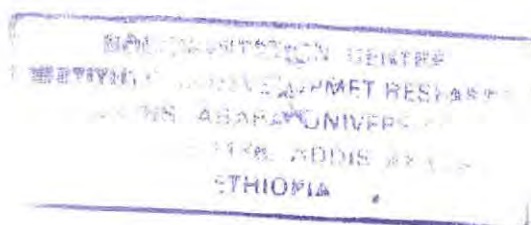
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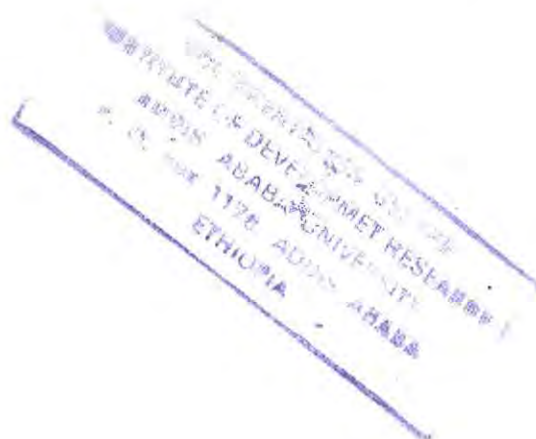
My families, and relatives, thank you for your encouragement and sharing my burdens.



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List of acronyms

AAU	Addis Ababa University
BGRS	Benishangul-Gumuz Regional State
BGRSEB	Benishangul Gumuz Regional State Education Bureau
BG	Benishangul Gumuz
BoFED	Bureau of Finance and Economic Development
BoE	Bureau of Education
BoH	Bureau of Health
BoWMR	Bureau of Water and Mineral Resource
CSA	Central Statistical Agency, Ethiopia
CLTS	Community Led Total Sanitation
GTP	Growth and Transformation Plan, Ethiopia
HEP	Health Extension Package
HEWs	Health Extension Workers
IRC	International Water and Sanitation Center
IWA	International Water Association
KETB	Kebele Education and Training Board
KII	Key Informant Interview
MoE	Ministry of Education, Ethiopia
MoFED	Ministry of Finance and Economic Development, Ethiopia
MoH	Ministry of Health, Ethiopia
MoMWR	Ministry of Mineral and Water Resources, Ethiopia
PTA	Parent Teacher Association
RiPPLE	Research-inspired Policy and Practice Learning in Ethiopia and the Nile Region
SPM	Strategic Planning and Management
SPSS	Statistical Package for Social Science
SSHE	School Sanitation and Hygiene Education
UAP	Universal Access Plan
UNHCR	United Nations Higher Commissioner for Refugees
UNICEF	United Nations Children's Fund
UPE	Universal Primary Education
WaSH	Water Supply, Sanitation and Hygiene
WHO	World Health Organization
WoFED	Woreda of Finance and Economic Development
WSS	Water Supply and Sanitation
X ²	Chi-Square Value

Operational definitions of terms

Access to water supply: Means that the opportunity or the right to use water. It is also concerned with the average distance of water point and the time required collecting the available water (WHO, 1971).

Effectiveness: refers to the implementation and achievement of intended results of the school WaSH program as per the required quantity, quality and standards.

Hygiene education: Part of the wider concept of health education which provides continuous and tailored information and understanding thereby bring about a serious attitudinal and behavioral changes, which brings the greatest health benefits and propose gradual improvements both in behavior and practice (BGRS-MoU, 2006).

Hygiene knowledge: hygiene facts which a student learns what to do in a given situation.

Institutional capacity: Institutions are responsible for planning, implementing and management of water supply projects, the capacity of the management to control the overall processes such as construction, operation and supervision of water supply (MoWR, 2002).

Integration of WaSH: the service of both water supply and sanitation linked with hygiene education.

Life-skills: the hygiene behaviors and skills that children learn at school and that they are likely to maintain in their life span.

Policy framework: This is the general description of objectives to grant the availability of water in sufficient quantities and qualities for different sectors on equitable and sustainable bases (MoWR, 1999).

Program: the package that contains the provision of safe and adequate water supply, provision of safe sanitary facilities and the promotion of improved hygiene behaviors.

School water supply, sanitation and hygiene education: refers to the combination of hardware and software components that are necessary to produce a healthy school environment and to develop or support safe hygiene skills and behaviors.

The hardware: components of school WaSH including provision of water, hand-washing and sanitary facilities which are safely usable by school community.

The software: activities enhancing favorable conditions at school and practices of school community members that help to prevent water and sanitation-related health problems.

Sanitation: the process for keeping the environment clean by safe disposal of human excreta (toilets) and hand washing.

Strategy of WaSH: the provision of safe water supply, adequate sanitation facilities and hygiene education as a package.

Abstract

School WaSH survey was carried out in the primary schools of Assossa woreda, BGRS, Ethiopia. It was intended to assess the situation and effectiveness of water supply and sanitation facilities in schools, hygiene awareness of teachers, hygiene knowledge and practice of students and outreaching families. The study employed multi-stage sampling method and accordingly, 16 schools were selected from the Woreda (35% of the schools) for facility situation analysis, and of which three schools were selected for in-depth study by drawing sampled students from grades 4th, 6th and 8th (10% from each grade). About 64 teachers (20% of teachers in all sampled schools) and 166 students (54.2% of girls) were considered for in-depth survey. Data were collected by questionnaire, interview, FGD and observation. The data were analyzed by employing statistical methods and software (SPSS) along with the chi-square test.

More than 56% of the schools did not have access to water within their compound. About 56.3% of the schools were not able to get water all of the times and 38% of the schools that were using their water for drinking purpose were getting their water mainly from unprotected sources. Almost all rural schools (68.7%) were using unprotected water sources ($p < 0.05$). Seventy five percent of the schools did not make any treatment to their water. The toilet student ratio was 1:98 and 1:101 for boys and girls respectively, which is above the limit of national standard. The schools did not have clean toilets (47%), and 33% of schools have toilets that were smelly to the extent that made their usage difficult. Only 18.4% of children were regularly using latrines for defecation. The main factors for irregular use of toilets were poor cleanness (53.7%) and long queue (55.1%). More than 62% of schools had no hand washing facilities. Nearly 41% of students were not washing their hands due to lack of water supplies in their schools, and only 21.7% of boys and 12% of girls were using school toilets regularly. More than 18% of students faced diarrhoea this year at least once and 15% of the cases were absent from school at least for one day due to the illness. Despite the difference in location (urban v rural), students had the same problem at all schools.

Hand washing behavior of students after defecation was poor. The absence of desired behaviors was steamed from lack of knowledge and facilities/resources to support learned behaviors. Almost all schools had no maintenance plan for their WSS facilities. Knowledge and attitude of students were significantly different across school localities (low in rural). At least 58.1%, 26% & 68.4% of students in Selamber, Hoha No. 4 and Nigat responded respectively that hands should be washed after defecation, and before eating foods and fruits ($p < 0.01$). There was a fragile and significantly varied knowledge & attitude of students among different grade levels towards the cleanness of clear water and critical times to wash hands.

More than 20% of the sampled students confirmed to eat less food when they caught with diarrhea ($p < 0.05$). Nearly 96% of students claimed to wash hands with no visible dirt and 31.8% of students said that clear water is always clean. More than 73% of teachers mentioned that they did not get any training on school WaSH. The level of attention given by schools and local government for school WaSH was low. Financial capacity, inter-sector and stakeholder cooperation and harmonization were also very weak. This study provides baseline information for future interventions and reveals future research areas in these schools for sanitation and hygiene education program. The results show that sanitation and hygiene conditions of the schools are in need of appropriate system, due attention and commitment to ensure effective school WaSH.

CHAPTER ONE

INTRODUCTION

1.1. Background and justification

Availability of safe water supply is essential to human existence. Clean and adequate water supply reduces the morbidity and mortality rates of a population. By the same token it increases the productive capacity of economically active population.

In many developing countries, the implementation of effective school water supply, sanitation and hygiene education has remained to be a challenge. It is difficult to maintain sanitation in a condition where more many young children in a school are sharing limited toilets. Children face these problems in many of the primary schools in the poorest countries (IRC, 2007a).

According to Snel (2003) over the last 50 years, the education systems of the developing countries have unable to effectively promote sanitation and hygiene programs in school. School systems in many countries have failed often good practices because of different reasons, for example, absent/inadequacy of WaSH facilities and poor hygiene promotion conditions in school. On the other hand, the growth of mass education has brought many millions of children into schools that would never been in earlier generations.

To improve these situations, the international community adopted the Millennium Development Goal (MDG) and committed to reduce by half the proportion of people living without sustainable access to safe water and basic sanitation by 2015. The Ethiopian government is also striving to enhance the sectors development including the improvement of safe water supply to the people (UAP, 2009).

In Ethiopia, the current five year (2003-2007 E.C) national Growth and Transformation Plan (GTP) would be expected to double the agricultural produces and the general economic growth by 14.9% growth on average. The GTP document envisages the attainment of the target raising the national portable water supply coverage from the current 66.2% to 98%, and reducing the number of non-functional rural portable water schemes from the current 20% to 10% (MoFED, 2011). The plan is supposed to improve the school water supply and sanitation conditions.

Today, however, inadequate water supply and sanitation conditions are remarkable high in many schools in Ethiopia (Andualem, 2010; MoH& UNICEF, 2007). Girls and boys are likely to be affected in different ways by inadequate water, sanitation and hygiene conditions; and this may contribute to unequal learning opportunities. Sometimes, girls and female teachers are more affected than boys because the lack of sanitary facilities means that they cannot attend school during menstruation (WHO, 2009b).

Schools, particularly those in rural areas, often completely lack drinking-water and sanitation and hand washing facilities. In areas where such facilities do exist, they are often inadequate both in quality and quantity. Schools with poor water supply, sanitation and hygiene promotion conditions are high-risk environments for children.

This study intended to evaluate the conditions of WaSH program in some selected primary schools in Asossa Woreda of BGRS so as to stimulate discussion and cooperation among the concerned regional government and non-government development partners, and contribute to the partners to commit, take their responsibility and extend the existing knowledge of the program for its effective implementation.

1.2. Statement of the problem

In Ethiopia, efforts to support the implementation of Universal Primary Education (UPE) policies normally focus on areas such as training and hiring more teachers, building new schools and classrooms, and purchasing textbooks and other teaching materials (MoE, 2005). Unfortunately, less consideration is given to the important contribution of clean and healthy school conditions towards better educational achievements.

These problems were also prevailed in the study area. The situation of effective WaSH implementation in the schools of BGRS is either poor or non-existent (Education Bureau Annual Report, 2009). Hygiene and sanitation is a low priority, both in the school curriculum and in school housekeeping and there is a marked inefficiency of school latrine in BGRS (Water Aid Ethiopia & UNICEF, 2005). To this effect, the region has planned the eight years strategic plan to realize the education of MDG by 2015.

The schools those having the water supply were not using the water supply properly and efficiently and under these conditions, these schools would become unsafe places where diseases transmitted.

Hindering factors for the desired level of hygiene practice/behavior were inadequacy/absence of facilities and poor hygiene knowledge of students, and the weak/absence of stakeholders' integration that could gear sound efforts to create appropriate enabling environment for the effectiveness of the school WaSH. Synchronized and harmonized management of the school WaSH among the concerned institutions/stakeholders was not observed in the area.

The attention given to school WaSH was very low. This blurred/hindered the responsibilities and commitments that should be undertaken by the stakeholders for the effectiveness of the program. Hence, sanitation and hygiene conditions of the schools primarily require due attention and commitment of stakeholders so as to realize a healthy school environment and then effective school WaSH.

1.3. Objective of the study

The main objective of this research is to assess the effectiveness of water supply, sanitation and hygiene program in the primary schools of Assosa Woreda, Benishangul-Gumuz Regional State.

The specific objectives are to:-

1. Study the adequacy and effective utilization of water supply, sanitation and hygiene facilities in primary schools;
2. Examine the condition of hygiene education in the schools, and evaluate the existence of effective hygiene knowledge, attitude and practices of the students in the schools;
3. Assess the existence and effectiveness of inter-sectoral collaboration among key concerned stakeholders (health, education & water institutions and concerned agencies) at different levels in the implementation of water supply, sanitation and hygiene in the schools;

1.4. Research questions

The main research questions include:-

- Are there adequate and effectively utilized WaSH facilities in primary schools?
- What is the status of hygiene education, hygiene knowledge and practices of the students in the schools? Is it sound and effective?
- Is there inter-sectoral collaboration among key concerned stakeholders (health, education, water institution and concerned agencies) at different levels in the implementation of WaSH at school level? Is it effective?

1.5. Significance of the research

The findings of this study would be of interest to policy makers for school improvement efforts, and to those donors who would be interested in supporting the regional education system in mitigating obstacles to healthy school environment.

It could stimulate discussion and cooperation among the regional government development sectors other than education system, guide the development of appropriate local improvement, and aid in decision making as school improvements takes place.

This study could extend the existing knowledge by addressing the underlying facts in school WaSH beyond generation of baseline data on the situations of the hardware and the software of the program. It could have substantive theoretical significance for practitioners and professionals and could contribute to scholarly researches, practices, educational interventions, policy making and a local community at large.

1.6. Scope and limitations of the study

1.6.1. Scope of the study

Effective links among different government sectors, the public sector, the private sector and local communities are essential. Local intersectoral bodies, such as village or district development committees, may be useful for joint planning, implementing and monitoring of improvements (WHO, 2009c).

Managing the various and interdependent aspects of water, sanitation and hygiene requires effective coordination of local stakeholders. The most appropriate body to provide coordination at local level will depend on the type of school and the degree of

involvement of the community, education authorities and local authorities, but this body should include parents, teachers and, where appropriate, schoolchildren.

This study, however, was mainly delimited to focus on school WaSH. To this effect, the study included education, health, water institutions at woreda and regional level. Families and schools are the main institutions that mould children.

However, families were excluded from this study because they had been frequently addressed by other studies unlike schools and it was assumed that children are representatives of their families and hence it was possible to reach to and address the community through them.

The research was bounded to primary schools because children at this level were more vulnerable to health risks that were caused by poor sanitation unlike those in higher classes because of behavioral, physiological and developmental factors. In addition, most of high schools are located in towns which have a relative access to such facilities.

The sampling grades were delimited between grades 4 and 8 to accommodate the understanding level and age factors of the students.

1.6.2. Limitations

Integrated-action-prone nature of school WaSH reduced the depth of the study and made its management challenging.

Gathering adequate and reliable primary data from target officials was a challenge due to field works or occupations with meetings and resulted in additional costs in terms of time and money to the researcher.

Lack and unavailability of sufficient WSS facilities in the schools diminished the effectiveness of observation technique to measure hygiene practices of students.

CHAPTER TWO

REVIEW OF LITERATURE

2.1. School WaSH reality at international and national levels

According to IWA (2004), access to safe and reliable drinking water is one of the most basic needs of human society and as such requires integrated approach, close cooperation and partnership between all stakeholders.

One in five people in developing world does not have access to safe drinking water and Sub-Saharan Africa has the lowest water supply and sanitation coverage of any region in the world (World Bank, 2004). Over 1.4 billion children between the ages of 5 and 14, approximately 87% of all children, live in developing countries. Children in this age group are 14 times more likely to die between their 5th and 14th birth days than their counterparts in industrialized countries (Burgers, 2000).

Approximately 443 million school days are lost each year due to water-related illnesses, making it a leading factor for school absenteeism in the developing world (WPI, 2007). That risk can be reduced enormously when children stay in a healthy environment and get used to practicing good hygiene both in and out of school (Lidonde, 2004).

Provision of safe and sufficient water supply and adequate sanitation services are indispensable components in the sustainable development of Ethiopia's urban and rural socio-economic well being. Over 70% of the contagious diseases in the country are water borne diseases (MoWR, 2001).

Most children in Ethiopian do not have adequate and safe access to potable water supplies or sanitation facilities, leaving children vulnerable to host of water and sanitation-related infectious diseases. Only 21% of the total children and less than 13% of the rural children were estimated to have access to potable water and less than 9% of the total children use latrines in Ethiopia (Daniel, 2003).

WaSH also has significant impact on education outcomes and the achievement of universal primary education. However, access to improved water and sanitation facilities does not, on its own, necessarily lead to improved health. Evidence shows that hand-washing with soap is the most effective WaSH intervention for reducing

diarrhoea, the second leading cause of death amongst children under five years old. Hand-washing with soap can reduce incidence of diarrhea by 44% (UNICEF, 2009).

There is a linear relationship between the growth of sanitation in the general population and that of schools. The less in the coverage and use of sanitation facilities among the general population in developing countries, the less these indicators are reflected in schools as well. In schools of India, where latrine coverage was 35% in a population, the coverage in primary schools was only 8% (MoH and UNICEF Ethiopia, 2007). Hence, the effectiveness of school WaSH can be considered as a reflection of and is dependent on the general WaSH program of a country.

Moreover, issues meriting attention in water supply sector in Ethiopia in general are characterized by service deficiency of physical infrastructure as well as by inadequate management capacity to handle policy and regulatory issues and to plan, operate and maintain the service (Assefa, 2006).

Ethiopia has among the lowest access rates to safe water and sanitation in the World. It is characterized by low coverage in rural areas and poor service in urban communities (World Bank, 2003). Conditions are even more critical if we bear in mind that access to safe water in our case does not mean access to adequate water.

In Ethiopia the average water coverage to clean and safe water supply is about 35.9% according to the report of Central Statistics Agency (2004) and about 68% according to the report of MoWMR(2011). Water supply coverage in BGRS is above 70% (BoWMR Report, 2011) and Sanitation coverage is 38% (BoH Report, 2011). The report of World Health Organization (WHO) shows that Ethiopia remains the least of all Sub-Saharan countries in access to clean water (WHO, 2000).

Lack of clarity as to roles and responsibilities, and lack of accountability of service providers to service users for operation and maintenance and implementation poses a significant challenge, particularly to increased sustainability. Regional government still plays a major role in decision making and even in scheme implementation and follow up, while decentralized offices at the Woreda level are under-staffed and under-resourced. Much of the policy and legislation relating to decentralization is new, and in the process of being applied. There remain considerable areas of ambiguity and lack of clarity in Ethiopia (Mulugeta, 2009).

and 26% in rural area) for improved water source coverage and 12% (29% in urban area and 8% in rural area) for improved sanitation coverage in 2008.

2.2. The school WaSH rational and approach to WaSH

WHO (2009) estimated that 88% of diarrhoeal disease is caused by unsafe water supply, and inadequate sanitation and hygiene. Children who have adequate water, sanitation and hygiene conditions at school are more able to integrate hygiene education into their daily lives, and can be effective messengers and agents for change in their families and the wider community (WHO, 2009).

Communities in which school-children are exposed to disease risk because of inadequate water supply, sanitation and hygiene at school are themselves more at risk. Families bear the burden of their children's illness due to bad conditions at school. The hygiene behaviors that children learn at school-made possible through a combination of hygiene education and suitable water, sanitation and hygiene-enabling facilities - are skills that they are likely to maintain as adults and pass on to their own children (WHO, 2009).

Community Led Total Sanitation (CLTS) has been adopted by the Ministry of Health of the Government of Ethiopia as the official approach to safe sanitation. CLTS is an approach used by extension workers to encourage people living in rural areas to adopt and practice safe sanitation practices in order to improve community and individual health through improving the way in which they practice good personal hygiene and safely dispose of human waste (Finn WaSH BG, 2010).

2.3. Impact of water and sanitation related disease

UNICEF and WHO has estimated the death burden related to water, sanitation and hygiene to be 8% in developing countries (WHO/UNICEF, 2008). It has been indicated that access to toilets alone can reduce child diarrheal deaths by over 30% and hand-washing by more than 40%. It was also estimated that the coverage in rural areas of Ethiopia was 42% in the case of improved water sources and that of only 10% in the case of improved sanitation (Annual Report of Finn WaSH BG, 2010).

The inadequate and in-sanitary disposal of infected human faeces leads to the contamination of the ground and of sources of water. The major communicable diseases whose incidence can be reduced by introduction of safe excreta disposal are

intestinal infections and helminth (worm) infestations, including cholera, typhoid and paratyphoid fever, dysentery and diarrhoea, hookworm, schistosomiasis and filariasis. In addition, poor sanitation also negatively impacts on people with HIV/Aids (Finn-WaSH BG-Guide/Manual, 2010). Young children are more vulnerable than any other age group to the ill effects of unsafe water, insufficient quantities of water, poor sanitation and lack of hygiene (UNICEF, 2006).

2.4. School water supply, sanitation, and hygiene education

The school WaSH programme can help education systems achieve their own goals. School WaSH can improve school facilities, improve hygiene education programmes and enrich the opportunities for personal growth among children by bringing life skills into the classroom (Snel, 2003).

2.4.1. Water supply and sanitation facilities

Construction of facilities: The technology is expected to be appropriate to the needs and preferences of the users and the design considers issues such as size, location, access, orientation, ease of use and cleaning, privacy, ventilation, geographical diversity, gender, ease of understanding, etc.

In view of the desired use and sustainability of the facilities, careful design and technology selection is required (WHO and UNICEF, 2009). It is important to consider the type of design, quality, quantity, and relative location of facilities and participation of stakeholders (IRC, 2007a).

Operation and maintenance: Responsibilities for operation and maintenance should be clearly defined, and appropriate skills provided. Maintenance, repair and replacement of facilities should be planned and budgeted for from the beginning of a programme, to improve facilities or build new ones. Some form of local income-generating system may be required if institutional funding is not certain (WHO, 2009).

Schools that put more emphasis on maintenance and repairs had better water supply in the toilet, more working water taps or points per child and cleaner toilets (IRC, 2007b). Technology should be chosen taking account of local capacities for maintenance and repair. It may be necessary in some cases to choose a lower level of

service, to avoid having essential equipment that cannot be repaired when it breaks down.

2.4.2. Educational and social aspects of school WaSH

The provision of WSS facilities need to be linked well with the software aspects of school WaSH that includes the activities that promote conditions at school and practices of school staff and children that help to prevent water and sanitation-related diseases. The software need to address the curriculum, gender issues, participation and coordination of concerned parties in planning and implementation WaSH at school level.

a) Hygiene education

Hygiene education should promote child focused learning methodologies for effective school WaSH. For effective child-centered life-skills hygiene education, the methods that are used should be activity based and joyful for children. The methods used should not only give the children the opportunity to learn by doing and experiencing but also the opportunity to learn at their own pace and in their own style. Good practices result from education that is practice oriented, and builds skills and attitudes as well as knowledge (IRC, 2005).

b) Gender sensitive

Usually an extra room should be added to girls' latrines to enable them to change their menstrual clothes in private. The absence of such rooms is the main reason why girls are absent from school during menstruation (Finn-WaSH BG, 2010). When undertaking planning and assessing the possible actors and roles in developing a school WaSH programme, it is important to consider gender issues (Snell, 2003; Lidonde, 2004).

c) Participation and coordination

In the school, participation in planning relates not only to planning construction, but also to maintenance, use and management. Those directly concerned are teachers, girl and boy students, school heads, parents, school management committee and parent committee. Health workers, other local government workers and members of NGOs and community-based organizations are also involved. Participation is important

because it can help ensure that facilities are used and maintained and new learning is acquired (Lidonde, 2004; IRC, 2007a).

The Management of the various and interdependent aspects of water, sanitation and hygiene at project/school level requires an effective coordination and collaboration of all concerned stakeholders at both regional and local levels either directly or indirectly as it nature requires it. The local level includes the local community, local government and local representatives of national authorities, as well as the school, with its children, staff and parents (Lidonde, 2004; WHO, 2009).

2.4.3. The favorable conditions for effective school WaSH

I. Institutional capacity

The effective implementation of schools WasSH requires support at all levels. The lack of support for implementation of new programmes is one of the most important factors causing failure (Mulugeta, 2009). The federal ministries are mainly responsible for formulation of policies and regulations, provision of technical support and rising of funds. Regional bureaus will do the same at the regional level, but with additional mandate to provide technical assistance to the Woredas and schools when needed.

Local institutions are very context-specific, but they need certain general qualities: demand responsiveness, a collaborative work ethic, some flexibility and resourcefulness in coping with unpredictable events, sufficient authority in the local community and among peer organizations, a framework of accountability for results, a capacity to take the long and broad view (Mulugeta, 2009).

II. Finance

Sufficient finances need to be secured for the implementation as well as the follow up of WaSH in Schools programmes. When developing budgets for WaSH in schools a number of issues have to be included (Snel, 2003) such as: development, production and distribution of life-skills hygiene education materials, capacity-building (training, orientation, study visits, etc.) of all stakeholders involved; personnel management costs at all levels; transportation cost for supervision and support from *Woreda* level to communities and schools; and the construction of sufficient water and sanitation facilities for sound WaSH integration.

Budgets that are allocated by central government departments for WaSH in Ethiopia are often difficult to access, and are frequently under spent or diverted for other local priorities. However, the financing system in Ethiopia has evolved in line with the policy of decentralization (WSS in Ethiopia-wikipedia, the free encyclopedia).

III. Political commitment

a) Roles and responsibilities

In Ethiopia, a memorandum of understanding (MoU) has been signed between Ministry of Health (MoH), Ministry of Water Resources (MoWR) and Ministry of Education (MoE) in 2006 on the implementation modality for integrated water supply, sanitation and hygiene education programmes. The MoU is to bring the main partners of the WaSH sector such as MoH, MoWR, and MoE together to facilitate their cooperation in joint planning, implementation and monitoring of water supply, sanitation and hygiene education in communities, schools, and health institutions.

Regional BoWR is responsible for development and provision of safe drinking water; and provide region specific standard designs for water supply schemes; and woreda water desk on its part is expected to develop and prove of safe drinking water in their respective woredas (MoU, 2006).

Regional BoH, on the other hand, is responsible to carryout studies on water and sanitation related diseases for actions on preventive health measures; and woreda health office is responsible to plan and implement sanitation and hygiene education interventions. The establishment of HEWs at kebele level by the government in Ethiopia is one positive example of political commitment to seriously address issues of water and sanitation at lower administrative levels (CCRDA, 2009/10).

The regional BoE on its part is given the responsibility for creating a healthy and safe learning environment within schools with the aim for school children to develop knowledge, attitude and skills for adoption of good hygiene behaviors and better health; and woreda education office is expected to create a healthy and safe learning environment within the schools with the aim for school children to develop knowledge, attitude and skills for adoption of good hygiene behaviours.

b) Policies and strategies

Political will and support is one of the most important requirements in school sanitation and hygiene education at all levels. Among the various stakeholders, the policymakers clearly have a crucial role in inspiring interest and providing the base for successful implementation of school WaSH programmes (Snel, 2003).

In 2001, Ethiopia adopted a water and sanitation strategy that called for more decentralized decision making, promoting the involvement of all stakeholders, increasing the levels of cost recovery as well as integrating WaSH promotion activities (WSS in Ethiopia-wikipedia, the free encyclopedia). In Ethiopia, the Water Supply and Sanitation UAP is the current guiding planning framework for WaSH. In the country, MoU that define the roles and responsibilities of the sector ministries as a strategy has been developed.

c) Inter-sectoral collaboration

When several groups and institutions are active in school WaSH, it becomes very important that they collaborate and coordinate their activities (IRC, 2007a). Inter-sectoral collaboration requires that national level work on guidelines, policy and appropriate legislation, focuses on increasing inter-sectoral collaboration between the various stakeholders (Snel, 2003). A fundamental principle of the Ethiopian WaSH programme is that the integrated delivery of water, sanitation and hygiene services can lead to major complementarities for all sectors (MoWR, 2009). This was the basis on which the MoU was signed.

2.5. Water supply and sanitation provision indicators and standards

Water for drinking, cooking, personal hygiene, cleaning and laundry should be safe for the purpose intended (WHO, 2009).

I. Amount of water available and its quality

Sufficient water should be available at all times for drinking, personal hygiene, food preparation, cleaning and laundry (UNICEF, 2009). The basic quantities of water required for all school-children and staff should not be less than 5 liters per person per day. Additional quantities of water required for conventional flushing toilets, pour-flush toilets and anal washing can be 10–20, 1.5–3 and 1–2 liters per person per day respectively.

The UN Higher Commissioner for Refugees (UNHCR) recommended a minimum of 15 liters of water supply per person per day. UNHCR further stipulates that 7 liters per person per day is the absolute minimum amount to survive.

Surface sources are, by definition, unsafe because of their potential for contamination with disease producing organisms. Even well water from inadequately protected wells is unsafe to drink. Chlorine concentration can be measured quite easily; however, the method requires someone with the appropriate skills and experience. This task again should be the responsibility of the organization supplying water.

II. Distance to water sources

In order to reduce the time and energy required for fetching water and to encourage the use of safe water sources the Sphere project states that water access points should be a maximum of 500 meters from every household and recommends that no more than 15 minutes is spent in waiting in queues at water access points. But according to the MoWRs and UAP (2009), the maximum conceptual radius from the residence of the beneficiary to the water point is assumed to be 1.5km.

III. Water facilities and access to water

Sufficient water-collection points and water-use facilities should be available in the school to allow convenient access to, and use of, water for drinking, personal hygiene, food preparation, cleaning and laundry. There should be a reliable drinking-water point accessible for staff and school-children, including those with disabilities, at all times. There should be a reliable water point, with soap or a suitable alternative that is available at all the critical points within the school, particularly in toilets and kitchens(UAP& MoWR;2009).

IV. Toilet provisions

For an effective school WaSH, sufficient, accessible, private, secure, clean and culturally appropriate toilets should be provided for school-children and staff. One toilet per 25 girls and one toilet plus one urinal per 50 boys is required. Distance to toilets should not be more than 30 m from all users. Male and female toilets should be completely separated. They should provide privacy and security. Toilets should be appropriate to local cultural and social conditions, age and gender appropriate and

accessible for children with disabilities or suffering from chronic diseases (UNICEF, 2009).

Toilets should be hygienic to use and easy to clean and have convenient hand-washing facilities close by. The provision need to promote hand washing with soap including personal, household and environmental sanitation with focus on behavior-centered hygiene and sanitation education/promotion in schools.

2.6. The conceptual framework

Schools are the most important learning settings for children and are central to life in the society. Schools can – and should – be stimulating environments for children. Schools can also influence communities through outreach activities, through their students, who are in touch with the whole community.

Gender-sensitivity is essential when implementing school sanitation and hygiene activities. Monitoring and evaluation tools in the school should be simple to use and should take very little time (IRC, 2007a).

Participation ensures project activities relevancy and sustainability. Communities should contribute in whichever way that they can to the acquisition of new sanitation facilities. NGOs and the private sector could also play a role. The participation and willingness of the schools, students, school management teams, and teachers to take part in the project are crucial.

Overall, the importance of School WaSH needs to be recognized at all levels, but it certainly needs to be supported and advocated by national and regional governments to ensure long-term sustainability. There is a need for a decentralization of resources (Vision 21, 2000). Resources should reach the intended beneficiaries in the amounts expected to make a difference. There is a need to decentralize resources further so that they can move from the woreda level to the kebele and school.

In this regard, the conceptual framework for this study intended that effective school WaSH program requires consideration of both software and hardware aspects. Hence, enabling conditions such as political support through designing appropriate policies and procedures, inter-sectoral coordination; institutional integration and participatory

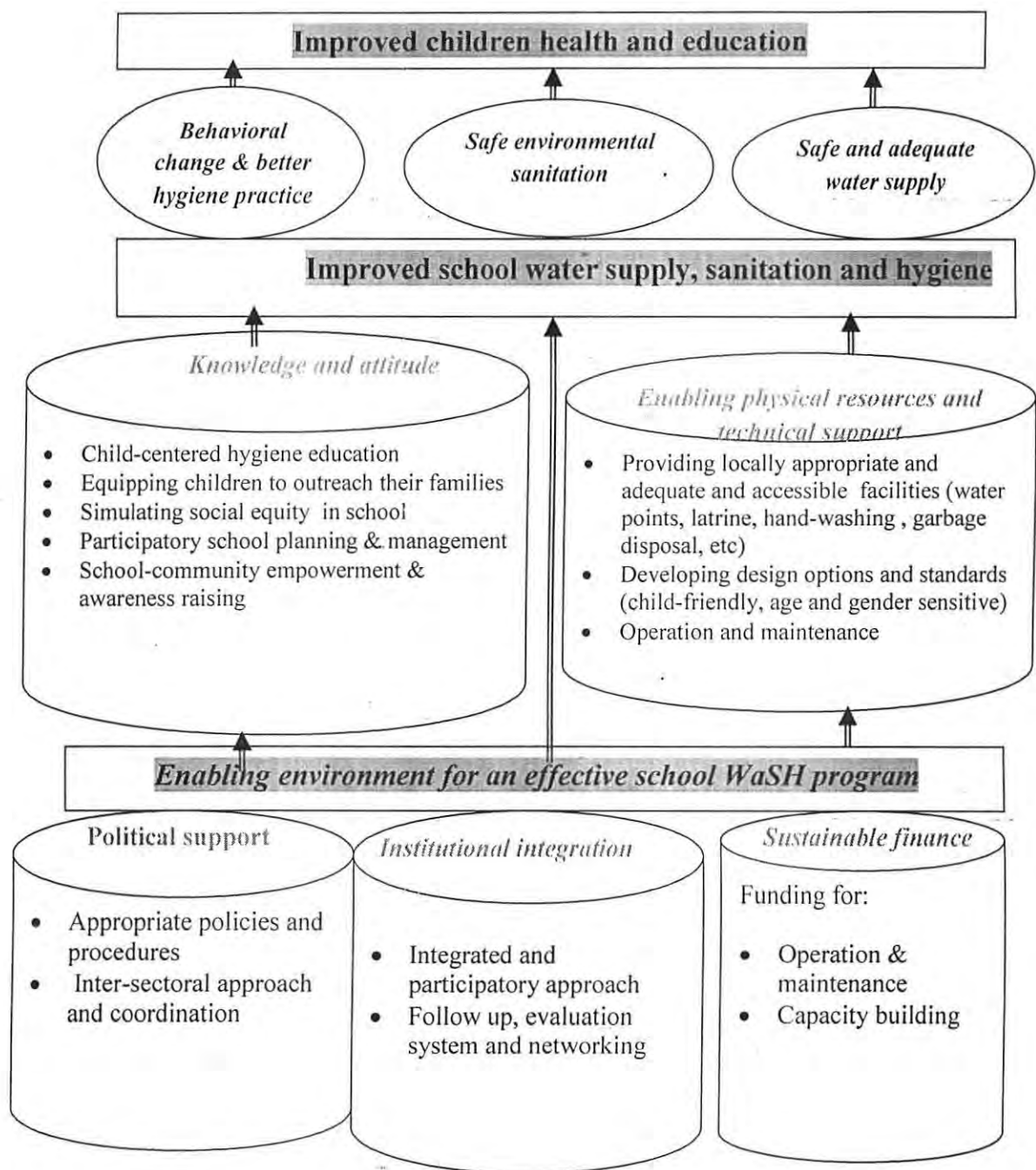
program management; and sustainable finance for the program components are very fundamental for the program effectiveness.

These enabling conditions then contribute to improved school water supply, sanitation and hygiene by developing and supporting activities, and providing appropriate physical resources and technical supports that can improve the knowledge and attitude of school community, especially students.

This improved school water supply, sanitation and hygiene, intern, result in improved children health and education through the promotion of better behavioral changes and hygiene practices, safe environmental sanitation, safe and adequate water supply.

Therefore, the main variable indicators used to evaluate the effectiveness of the program in the sampled schools with respect to the developed conceptual framework were:

- Drinking water supply: type of source, accessibility, safety provisions, functionality and adequateness;
- Latrine: type, accessibility, privacy for males and females, student to latrine ratio, cleanliness at the time of survey, etc;
- Solid waste management: storage, collection, and disposal options; class-room cleaning;
- Hygiene promotion: hygiene clubs presence and functionality, hygiene education in the school, teacher's training on hygiene and sanitation;
- Stakeholders' involvement and integration: hygiene education, support type.



Adapted from different sources (IRC, 2007a; Lidonde, 2004; MoH, 2005; Snel, 2003; and Andualem, 2010).

Figure 1: A theoretical framework for effective school WaSH

CHAPTER THREE

RESEARCH METHODOLOGY

3.1. Description of the study area

3.1.1. The region

Benishangul Gumuz regional state is one of the nine regional states established in 1994 by the constitution of Ethiopia that created a federal system. It is located in the western part of Ethiopia between 34° 10'N and 37° 40'E; and in the latitude 09° 17'N & 12° 06' N.

The total area of the region is approximately 50,380 square kilometers with altitude ranging from 580 to 2731 meters above sea level. About 75% of the region is low land, 24% is semi-high land and 1% is high land. The region consists of 474 kebeles in 20 woredas which are structured under three administrative zones and two special woredas. The capital city of the region is Assosa, located at a distance of 659 km in West of Addis Ababa (BoFED, 2010).

Based on the census of 2007, total population of the region is 670,847. About 85.4% of the total population is rural residents and the 14.6% are Urban. The population density of the region is estimated to 13.72 persons/km², and the annual growth rate is 3%. The major ethnic groups living in the region are the Berta (26.68%), Gumuz (21.74%), Shinasha (7.82%), Mao (1.96%) and Komo (0.99%) and others (40.82%). The average household size is 4.7 (CSA, 2007). Religion wise, Islam constitutes 44.1%; Orthodox Christian 34.8%, Traditional beliefs 13.1%, and Protestant 5.9% (SPM, BoARD, 2006).

Raining season is from April/May up to October/November with an average annual rain fall that ranges from 800 mm to 2000 mm. Economic activities are largely dominated by substance traditional agriculture. The temperature ranges from 20° C - 35° C (highest) to 12° C – 20° C (lowest).

In spite of abundant water resources, safe drinking water is in a short supply. In the region it is only the capital city that has a pipe water supply system, and few others wereda towns have motorized water supply schemes with two or more public taps.

The largest proportion of the rural water supply schemes are hand dug wells with hand pumps followed by shallow wells and developed springs (BoARD, SPM, 2009).

About 44.1% of the total population have access to potable water from hand dug wells, medium deep, deep wells and developed spring. The supply is much better in urban areas (66.16 %) than rural areas (40.13). However, most of the region's water supply is mainly through traditional dug wells and to some extent to boreholes (BoWMR, 2010).

In 2001, there are 27 pre-primary schools, 297 ABE centers, 365 primary (grades 1-8) and 38 secondary school, one teachers' training college and two technical and vocational educations and training colleges. The gross enrolment ratio (GER) at pre-primary level is 112.9%.

With a total enrolment population of 152,546 (86,223 male & 66,323 female) in primary school, the GER at the level in the same year has reached 97% (85.3% for female & 108.5% for male). The net enrolment ratio at primary school is 75.6%. In the primary school of the region, there are 3,567 teachers (male 2, 451, female 1,116) of which 1,904 are diplomas and above (BoE Annual Abstract, 2002 E.C).

3.1.2. The woreda

Assosa woreda is one of the twenty woredas of the region. It has a population number of about 87,366, out of which 43,190 are females (CSA, 2007). It has area of about 22,300km², and 78 kebele administrative structures.

Geographically, the topography of the woreda ranges between 1,272m and 1,573m above sea level. In terms of climate the woreda is almost categorized under lowland. The temperature varies between 14 and 35 °C. The livelihood activity of the Woreda is dominated by subsistent agriculture where maize and sorghum are the most dominant crops.

Currently, there are 41 government primary, five private primary and five government secondary schools in the Woreda. In the woreda, total enrolment population is 25,236 in primary school (male 12,966 & female 12,270). In the primary school, there are 612 teachers (male 373, female 239) of which 431 are diplomas and above (Woreda Annual Report, 2003 E.C).

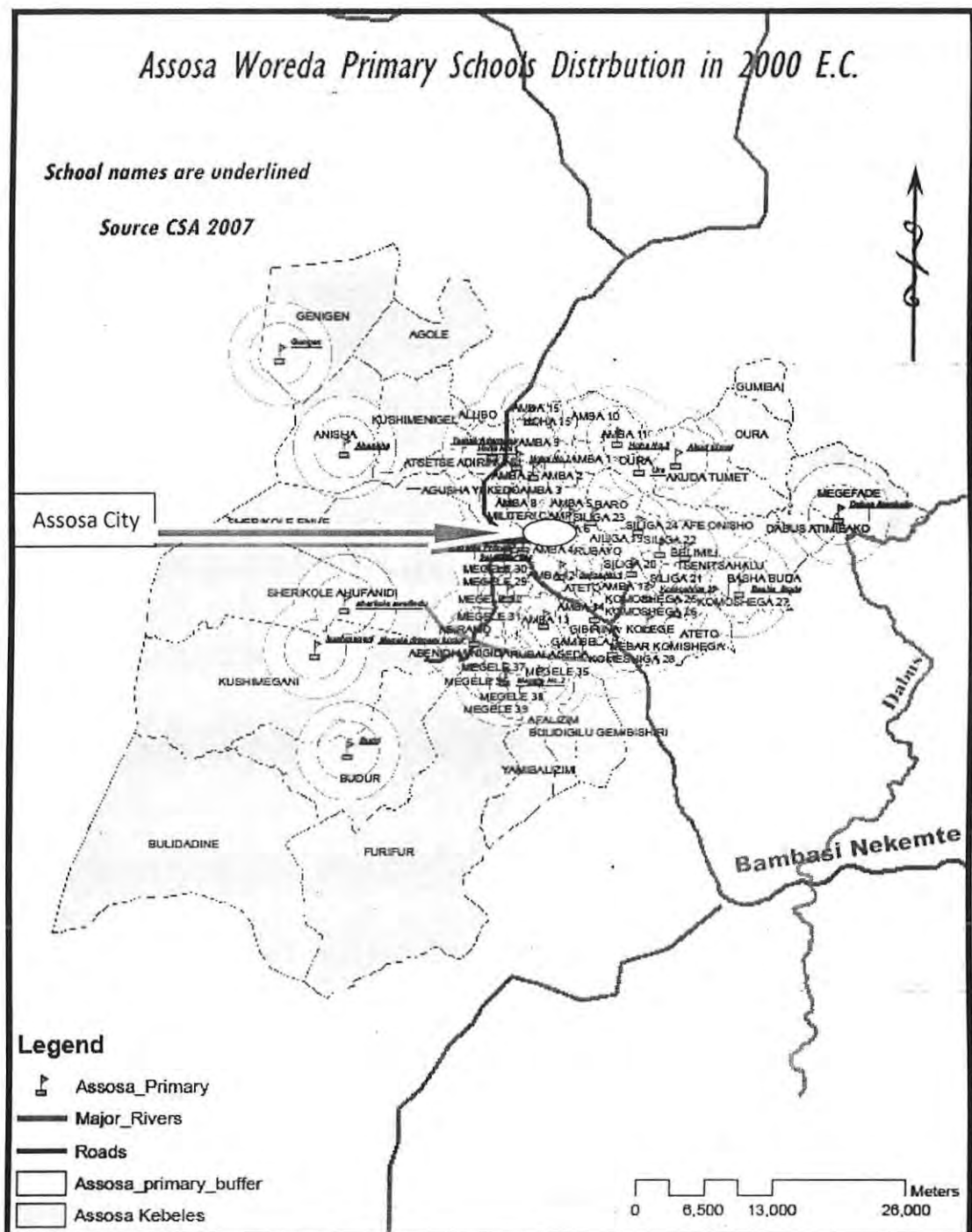


Figure 2: Administrative map of the study area

3.2. Research design

The study employed both qualitative and quantitative approach, and the data generated from different sources was triangulated for its consistency and accuracy.

3.2.1. Data sources and types

The data sources were both primary and secondary. Informants for the collection of primary data were school children, teachers, directors, health extension workers, PTAs, regional and woreda education, health, water and finance institution heads/senior experts, and some of the existing agency program coordinators. The secondary data collected included the review of documents produced by national, regional and woreda health, water and education institutions, and concerned agencies. Books, Journals and prior research works on the area was investigated and utilized.

3.2.2. Sampling unit

The sampling units were schools in the woreda and individuals (teachers and students) at schools level. From selected school samples, sample teachers were drawn for WaSH situation analysis and the analysis of hygiene practices of students and teachers' awareness of hygiene education. From the sampled schools, students were again sampled for the analysis of hygiene practices of students. In this case the number of schools from which sample students were drawn was small unlike those schools which were sampled to represent the schools.

3.2.3. Sample size

Rationale for deciding the sample size is based on factors like homogeneity of population, cost and shortage of time. To this effect, the total sample size of the study was purposively limited to 35% for school, 20% for school teachers and 10% for students for the selected grade levels.

3.2.4. Sampling procedures

I. Sampling of schools and teachers

The WSS facilities of schools were assessed in purposively sampled primary schools of the woreda. About 16 primary schools of the woreda were sampled for this purpose. The school teachers were sampled in purposively sampled primary schools

for analysis of both WSS facilities of schools and the hygiene practices of students and teachers' awareness of hygiene. About 64 teachers of the sampled primary school were also purposively sampled for this purpose.

II. Sampling of students

For this study, three schools, two from urban and one from rural were selected. The sampling population focused on the grade level of 1-8 students as the target education level was primary formal school. The sampling of students was done by stratifying the children in their respective grades (1-4, 5-6, & 7-8).

To this effect, grade four, six and eight were purposively selected, for grade four was the highest grade in the first cycle of primary education in Ethiopian education system, and it was presumed that students under grade four could be too young to give the required information correctly. With the same token, grade eight was the highest grade in the second cycle of primary education of the country. At this stage, older children of a primary school were found and there is a high probability of getting students at their puberty stage and hence suit the study.

Grade six was in the mid- way between grades four and eight. It enabled to see if there were any changes and progress in hygiene behavior of students from grade four to eight. The students in each grade in selected school were stratified based on their sex and then simple random proportional to the target population size was employed. About 166 students in the three selected schools were sampled by employing simple random sampling (Table 1).

Table 1: Summary of number of students sampled at grade levels

School	Students at grade level						Total sampled
	4th		6th		8th		
	Total	Sampled	Total	Sampled	Total	Sampled	
<i>Selamber(Urban)</i>	300	30	372	36	284	30	96
<i>Hoha No.4(Rural)</i>	117	12	230	23	145	16	51
<i>Nigat(Urban)</i>	46	6	60	7	46	6	19
Total	463	48	662	66	475	52	166

(Source: School records and computed by the author, 2011)

3.3. Data collection instruments

Data about the existing WSS facilities in the selected schools were collected by questionnaire. The questionnaire was mailed to all sampled schools and was filled by school directors. Another two different questionnaires were administrated to school teachers for situation analysis of the hygiene practices of students and teachers' awareness of school hygiene. The questionnaire for students was translated in to 'Amharic' language. Observation was used to triangulate the WSS facilities and the hygiene practice/behavior of students.

KII was carried out with education, health, water & finance bureaus at regional levels, to collect data about their degree of collaboration, program planning, budget allocation, capacity building, follow up and evaluation of WaSH in the schools. Additionally, two health extension workers of WaSH program and two NGOs were used for data collection.

FGD was held among seven PTA members to address the challenges to school WaSH implementation in the schools, facility operation and maintenance, budget and teaching materials availability, and institutional coordination. Focus group discussion was also held among students to collect data on the hygiene knowledge and practice of students in the selected schools.

To triangulate the primary data with secondary data, educational abstracts, statistics, maps, annual reports, policy documents & guidelines, and annual & strategic planning documents were collected from concerned organizations and websites.

3.4. Data analysis

The data analysis was undertaken by categorizing the information in to qualitative and quantitative. The qualitative data was analyzed and described by using the developed analytical framework and the quantitative data was analyzed by employing statistical methods and test such as frequency distribution and chi-square test by using SPSS software. The information obtained from analysis in both approach was cross-checked and hence interpreted.

CHAPTER FOUR

RESULT AND DISCUSSION

4.1. Characteristics of the sampled population

The sampled population of the study was composed of schools, teachers and school-children. A total of 16 schools, 64 school teachers and 166 school-children were surveyed.

4.1.1. Schools

The sampled schools were hosting 12,549 students and 337 teachers (195 male and 142 female). The teacher student ratio was found to be 1:37.(see annex 12). Majority of the schools (68.8%) are working a half day, and the remaining three and two schools were working in two shifts (in the morning and in the afternoon) and day long, respectively. Of the 16 sampled schools, two schools (Ruhama and Nigat) were from the private schools and the remaining 14 schools were from government schools.

The schools were composed of different grade levels. Fourteen -out of -16 schools (87.5%) have a grade level of 1-8th; one school (Hoha No.5) was 1-6th; and one school (Benishangul) was 1-7th grade level. The majority of the sampled schools (68.8 %) were found in rural areas, where as the remaining were from urban town.

4.1.2. School -teacher

School teachers were sampled from all the sampled schools. From the sampled schools, 20% of teachers in each school were sampled. A total of 64 teachers (44 male and 20 female) were sampled (see annex 13). In this case, 49 (76.6%) natural science teachers and 15 (23.4%) social science teachers were sampled (Table 2).

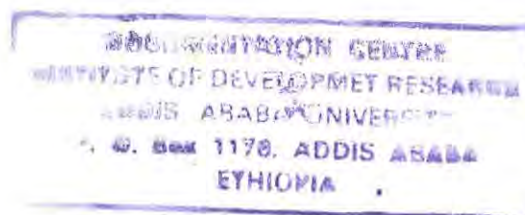


Table 2: Sampled teachers with their area of teaching in study area

Course	No. of response	Percent of response
Basic Integrated science	12	18.8
Biology	10	15.6
Chemistry	7	10.9
Physics	4	6.3
Mathematics	8	12.5
Environmental science	8	12.5
Social science	15	23.4
Total	64	100.0

(Source: Computed from surveyed data, 2011)

4.1.3. School- children

School children were sampled from three schools, two from government and one from private. A total of 166 school-children were sampled from Selamber (urban), Hoha No.4 (rural) and Nigat (urban) (Table 1).

Grade distribution: The students were sampled from purposively selected grade levels- 4th, 6th and 8th in the three schools. Accordingly, 48 students (28.9%) from 4th grade, 66 students (39.8%) from 6th grade, and 52 students (31.3%) from 8th grade were surveyed (see Figure 3).

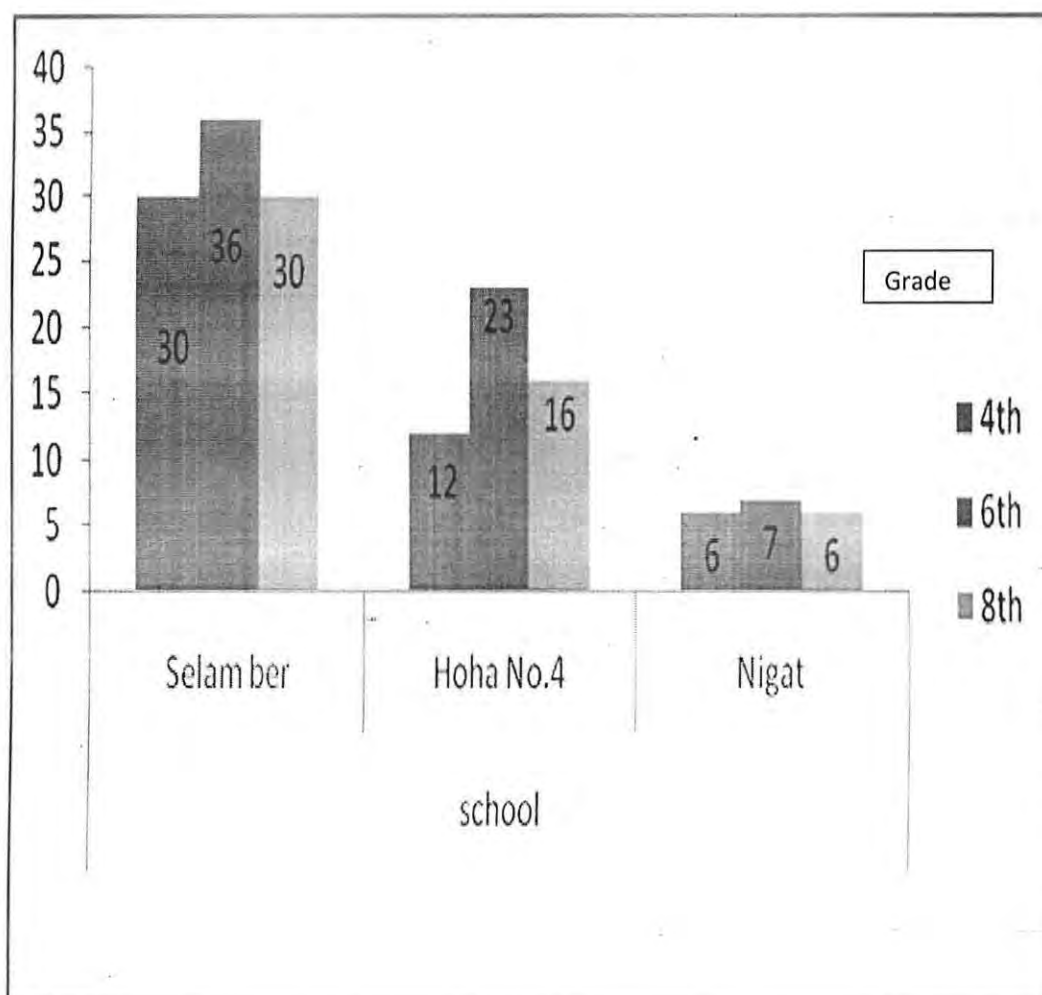


Figure 3: Distribution of sampled students by grade within their respective schools

(Source: Computed from survey data, 2011).

Age distribution: The majority of the sampled school- children were in the age range of 12-13 and 14-16 years (31.8% and 39.2%, respectively). The age range between 9-11 years accounted for 17.6%. With increased grade level, the dominant age range tended to raise to the next higher range expect for the age range above 16 years (Table 3) and hence, the dominant age ranges from grade 4th, 6th and 8th were 9-11 , 12-13 and 14-16 years, respectively. It normally coincides with the expected age groups and grade levels of the students in the country.

Table 3: Distribution of sampled students by age within their respective grades

Grade level	Age of respondent			
	9-11	12-13	14-16	Above 16
4 th	23	12	4	3
6 th	3	27	24	4
8 th	0	8	30	10
Total	26	47	58	17

(Source: Computed from survey data, 2011)

Sex distribution: The sex composition of the sampled school-children was overweighed by female students 90 (54.2%) due to the large proportion of female students relative to boys; and the remaining 76 (45.8%) was male students.

4.2. Water supply and sanitation facilities status

The provision of portable school drinking water, latrine/toilets, hand washing facilities and preservation and effectiveness of those facilities were the main focus areas of the hardware component of the survey.

4.2.1. Portable drinking water supplies

Drinking water supplies in schools need to meet the required quality and quantity standards. The quality and quantity of water could be affected at its source, transportation and consumption/utilization stages.

a) Quality of school water

The quality of school water depends on the type of the water source. The schools in this study were getting water from protected and unprotected sources. Some schools were collecting water from more than one source of both or one of the categories. The majority of the sampled schools (62.6%) were using unprotected stream running water and tradition wells.

This was true especially for rural schools and those getting water from protected sources (31.3%) included these served from town piped water supply (Table 4).

Table 4: Types of water supply sources for sampled schools in the study area

Type of water supply source	No. of school	Percent
Well with pump	4	25.0
Well (rope and bucket)	1	6.3
Spring (protected)	1	6.3
Surface water (river, lake, and pond)	5	31.3
Pipeline	5	31.3
Total	16	100.0

(Source: Computed from survey data, 2011)

This figure is very similar to the result of MoH and UNICEF (2007) and Anduaalem (2010). Unprotected sources of water are naturally more exposed to factors that could negatively affect the water quality. About 62.5% of schools reported that they were not confidential for safeness and cleanness of water they use in their schools.

Almost all rural schools (68.7%) were using unprotected water and this had direct association with the location of school being urban or rural ($p < 0.05$) (see annex 14). Improved water source is to mean only to the type of water scheme and its vulnerability to external contaminants.

The main water uses in the schools include drinking (46.2%) and cleaning classroom (30.8%). On the other hand, no schools that used water for hand washing and cleaning toilets, and this result is very similar to the result of on- site observation, FGD with PTAs and KII with students, and health extension workers. Nearly 38% of the schools, that were using their water for drinking purpose were mainly getting water from unprotected sources ($p < 0.05$) (annex 15).

As it is illustrated in Table 5, the survey of students showed that 66% of them were using the school water source for drinking. There were also 336 of cases that students use school water for drinking, classroom & toilet cleaning, and gardening and hand-washing. This result is very similar with school directors' response to the same question.

Table 5: Water uses by students in sampled schools in the study area

Water Use	Responses		No. of cases
	No. of respondent	Percent	
Drinking	80	66	123
Classroom cleaning	16	13.2	59
Gardening	8	6.7	51
Latrine/toilet cleaning	3	2.5	46
Hand washing	14	11.6	57
Total	121	100.0	336

(Source: Computed from survey data, 2011)

Around 77% of students were certain about the cleanness of the school water and more than 21% of them were not sure about it. Despite the type and quality of water source, 45.5% of the schools mentioned that the school drinking water was served in hand cups. With the absent of a such good hand- washing conditions and detergent, drinking water in hand-cups could not be safe for human health.

About 75% of the school indicated also that their school water supply was not tested for its quality. Accordingly, more than 93% (14 schools) revealed the need of treatment for their school water ($p<0.05$) (see annex 16). Water from improved sources in urban schools had a better chance of being treated than unprotected source of water in rural schools.

The survey of students showed that more than 18% of students faced diarrhea in this year at least once, and at least more than 15% of the students for the case were absent from school at least for one day due to the illness. The majority (26.1%) of the cases was from Nigat school and 16% & 19.1% were from Selamber and Hoha No. 4. schools, respectively (Table 6).

Table 6: Diarrhoea disease prevalence among students in sampled schools

School		Students caught by diarrhoea in this year		χ^2
		Caught	No caught	
Selamber	% within school samples	16.0%	83.0%	1.846
Hoha No.4	% within school samples	19.1%	80.9%	
Nigat	% within school samples	26.3%	73.7%	
Total	% within school samples	18.1%	81.3%	

(Source: Computed from survey data, 2011)

Despite the difference in location (urban v rural) and water source, students had the same problem at all schools. The result shows the existence of different sources of infection and hence study gap that needs to have further study to know real causal factors for the illness, as the cause could be non-water source, insufficient water treatment as reported by most of the sampled schools, or other hygienic problem while using drinking water.

b) Quantity of school water supply

The availability of school water could be compromised by varies factors such as distance of water source from the user location, adequacy, accessibility and sustainability of the service provision.

According to the survey, the sampled schools reported that their schools did not have sufficient water supply (62.5%) and water supply at their school was not consistently available (56.3%). About 61.5% of the schools also indicated that the amount of water supplied change throughout the school year. More than 56% schools reported that drinking water was not available in their school compound. This result is supported by the information gathered quantitatively where the average distance of schools from their source of water supply was more than 1.7 kilo meters in rural schools.

As per the water supply standards for school, the school water source is expected to be in school compound. Hence, the inaccessibility, inadequacy, insufficiency and

fluctuation of the amount of water supply throughout the school year could compromise the effectiveness of school WaSH.

As of the survey, 52.5% of the students reported that their school had continuous water supply. On the other side, 47.5% of students showed that their school had no continuous water supply. However, this did not necessarily mean that students could be served consistently from the school water.

Nearly forty one percent of students reported that they were not washing their hands due to lack of water supplies in their schools, and if water would be there they would wash their hands after defecation (89.4%). Other 10.7% students were not sure or did not want to wash their hands even if the facilities prevailed. This indicated that the existence of the need for facilities and lack of habit of hand washing practices.

In Selamber, though the school was connected to the town water supply pipeline, water provision was a challenge due to the inconsistency of town water supply. Therefore, students were forced to bring water from home or wait to get back home (22%). With the same token, in Hoha No. 4, students were compelled to bring water from home, or wait to get back home or using from the nearby village (17.4%) (see annex 17).

In selamber and Hoha No. 4 schools, the main reason for students not washing their hands was lack of water supply (29.6% and 11.1%, respectively)($p < 0.05$) (see Figure 4). But in the Nigat School, none of the students reported that the reason for not washing their hands was due to lack of water supply.

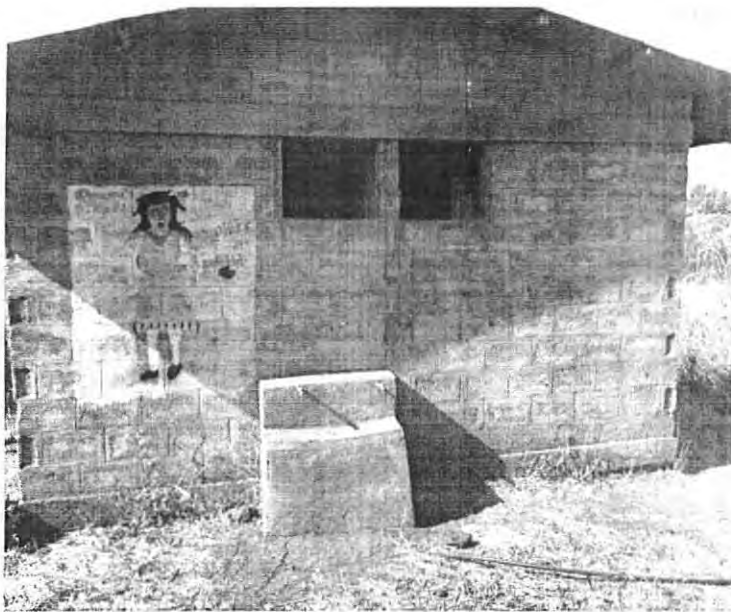


Figure 4: An empty bench
for hand-washing facility

(Selamber School)

(Source: Observation data, 2011)

This shows that the presence of the need for facilities does not necessarily mean the existence of the habit of using the facilities effectively. On the other side, without the provision of hardware part of school WaSH, required behavior of using facilities could not be developed.

The response of 96% of students was that they always wash their hands after defecation at home. The figure revealed a strong correlation with those who claimed to wash hands at schools if there were hand washing facilities and water supplies in school (89.4%).

According to KII with students and on- site observation, in Benishangul School drinking water point was not open for students to use (see Figure 5).

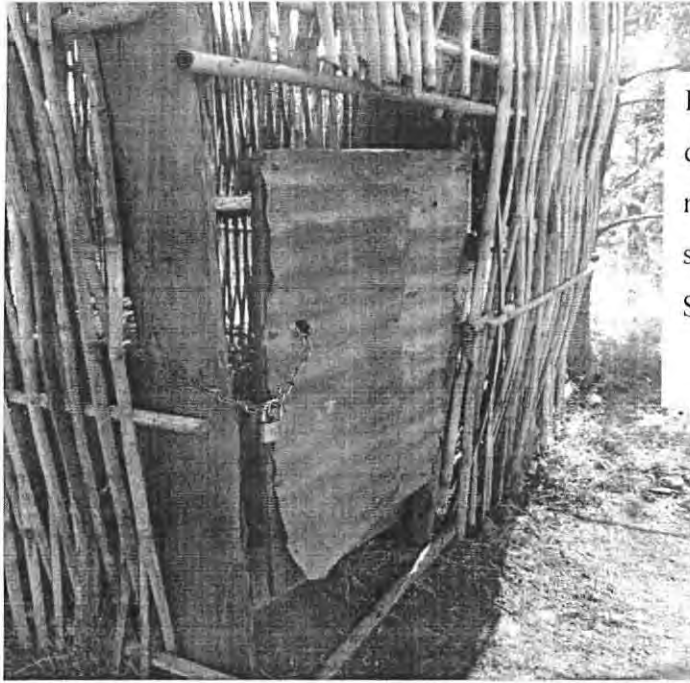


Figure 5: Inaccessible/locked drinking water point to restrict usage of the water by students in Benishangul School

(Source: Observation data, 2011)

The reason they mentioned for restriction was that students were not properly using the water supply and they could damage the facilities, and hence students were forced to bring drinking water, or wait get back home. One girl (grade 8th, 16 years old) during KII from Benishangul school quoted that *'It is shame to come to school during menstruation period with no washing water supply in latrine, and we prefer to absent from the school'*. Hence, having water supply at school does not necessary ensure an effective utilization of the services.

4.2.2. School sanitation and sanitation facilities

a) Latrine/toilets in schools

Almost for all sanitary concerns, toilets in the schools were the main and the immediate facilities. The average number of toilet per school was eight, where the maximum number was 16 in Selamber and the minimum number was two in Hoha No. 5. From the sampled 16 schools, there were 126 toilets, and there were 1:98 and 1:101 toilet student ratios for male and female students, respectively.

Girls especially should have privacy with regard to toilets and separate latrine block should be built for girls. Girls also need a private place to change menstrual clothes. The absence of such facilities is one reason for the high absenteeism of girls from

school (Finn –WaSH BG, 2008). Toilets were separated for boys and girls in schools (86.7%) at least with walls. This figure is very similar with the study result by Andualem(2010) in Kafa Zone, SNNPR, where the figure was 86%.

Girls had equal number of toilets when compared to that of boys in the three schools. The ratio of a toilet to girls was 1:176, 1:144, and 1:52 in Selambes, Hoha No.4 and Nigat respectively and that of the ratio of a toilet to boys were 1:132, 1:134, and 1:40 in the schools respectively. These ratios are better than the national study result which revealed that the toilet student ratios of 1:164 and 1:177 for boys and girls, respectively (MoH and UNICEF 2007). However, the figures are very low as the WHO (2009) standards where one toilet per 25 girls and one toilet plus on urinal per 50 boys.

b) Suitability of the toilets

The child friendly facilities are easy and pleasant for children to use. Child- friendly facilities are facilities that have appropriate quality, dimensions and features for children, which do not harm the environment, encourage hygienic behavior and offer enough capacity and minimal waiting time (IRC, 2007).

About 86.7% of the schools identified that the latrines were suitable for both younger and older students, and the remaining 13.3% of the schools claimed that the latrines were not safe for both younger and older students. These figures seem very encouraging. On the other hand, 46.7% of the schools reported that there was no separated latrine facility for teachers in their schools. Observations also identified that no schools that had separated latrine for teachers, but separated toilets.

More than half of the sampled schools reported that their toilets were clean. This figure is much better than the figure in the national study where more than 35% of school toilets were clean (MoH and UNICEF, 2007) and the study result by Andualem (2010) where 10% of school toilets were clean. However, about 33% of the schools mentioned that school toilets were smelly to the extent that made their usage was difficult.

c) Hand-washing facilities and provision of detergents

According to the reports by the sampled schools, 37.5% of schools have hand-washing facilities. The national study by MOH and UNICEF (2007) and the similar study by Andualem (2010) in Kafa zone showed that 4.4% and 41% of the schools had a hand-washing facilities, respectively. Taking in to account the time gap between the national study and this study, the figure for this study is encouraging, but for the effectiveness of WaSH, more effort is needed.

However, the observation and interview had indicated that the facilities were found not to be adequate, accessible and sustainable. In some schools, the facilities were insufficient (Hoha No. 4 and Benishangul) and in some schools, even if hand washing facilities were there, there were no water supply and affected the hygiene practice and sanitation condition of the schools.

For effective hygiene practice and hand washing, the use of some kinds of detergent is vital. However, only six schools reported that the students were provided with soap/ash. The remaining ten schools expressed that they could not provide students with the detergents due to financial constraint (75%) and lack of awareness (25%). These situations incomplete the desired provision of school WaSH services.

d) Classroom and school compound sanitation

In addition to improving the health of children and safe life of the community at large, classroom and school compound sanitation is vital to promote and improve the day to day learning and teaching process at schools.

Observation and KII with teachers indicated that there were absences or inadequacy or inconsistency of water supply in schools. As the result, students were defecating on the floor of latrines due to the smelly of toilets (see Figure 6). Observation also indicated that the boy students used open field when toilets were occupied during their break time.



Figure 6: Dirty and smelly latrine with faeces on its floor in the Selamber school

(Source: Observation data, 2011)

Schools were asked whether their school compound was in good sanitation status or not. Around 40% and 73% of schools identified that there were waste receptacles in their classroom and in the school compound, respectively. Nearly 86% of schools reported that their classrooms and the school compound are clean and safe for students.

However, observation indicated that there was very great difference between government schools and private schools with regard to school compound sanitation. There was no any observed waste receptacle in the government schools, even being urban schools. On contrary, the sanitation status of the private school compounds was seen as convenient and relatively safe for students. Waste receptacles were also observed and managed properly in the private schools (see Figure 7).



Figure 7: Receptacle for solid waste collection in Nigat School

(Source: Observation data, 2011)

Observations and KII with health extension workers and teachers indicated also that toilets were getting dirty after few hours of cleaning. Evidences show that there is positive relationship between healthy behaviors of students and improved WaSH services. Hence the absent of these facilities and the observed dirtiness of the toilets discouraged the hygiene and sanitation practice of students in the schools.

4.2.3. Management of school WaSH facilities

According to the study by Andualem (2010) in Kafa Zone of SNNPR, only 27% of the schools had a maintenance programme for WSS facilities. In this study, only 7.7% of schools had maintenance program for their school WSS facilities. Observation, KII with HEWs and FGD with PTAs indicated that the majority of WSS facilities were not functional.

The reason provided by schools for the absent or lack of maintenance program were financial constraints (45.3%), lack of experts for maintenance (27.5%) and the absence of responsible body for maintenance (18.2%). Sustainability of a service depends on the maintenance of the service providing facility components. Hence, having realistic program for maintaining the facilities is crucial for the effectiveness school WaSH.

4.3. Hygiene education, knowledge and practice of students

a) Hygiene education

Some aspects of hygiene education were incorporated in to various subjects. The major subjects that have already contained hygiene aspects include basic integrated science, environmental science and biology. The hygiene contents of the books at all grade levels were found to be meager. No contents and methods that promote the use of toilet regularly and the rational for the use of toilets and sanitation facilities.

Water Aid Ethiopia (2005) indicated in its study that hygiene and sanitation were noted to be given a low priority, both in curriculum and in school housekeeping in the Benishangul region. Hence, hygiene and sanitation education were very shallowly incorporated in the student teaching.

According to this study, 60.3% of school teachers reported that WaSH program was run in their schools and the remaining 39.7% of teachers were not aware of it. About 59% of the sampled teachers mentioned that hygiene education was given to students by incorporating it in to different subjects. The remaining 41% were not also aware of it. Moreover, more than two-third of the sampled teachers teaching on the natural science courses mentioned that they are aware of the WaSH program and the importance of hygiene education in their schools.

However, majority of the sampled social teachers were not aware of the program. This could be attributed to the fact that the hygiene aspects were incorporated in natural science books and the social science teachers might not be aware of it well. But for effective school implementation, all school teachers need to be well aware of the program.

However, all school community members are expected to be aware of school WaSH. The school teachers were asked for the strategies they use in their schools to support hygiene promotion. Accordingly, more than 81% of respondent teachers reported that they were not using any supporting strategy for hygiene promotion.

b) Hygiene knowledge and attitudes

More than fifty seven percent of students indicated confidence of their knowledge about environmental and personal hygiene; 58.5%, 55.3% and 58.8% in Selamber,

Hoha No 4 and Nigat schools, respectively (Table 7). And the remaining 41.4% of students in these three schools were not confident about their knowledge on the same issue. For the same case, there were some differences, especially between grade level 1-6th and 7-8th, showing that the knowledge of students improved with the increment of their grade level (see annex 18).

Table 7: Students' knowledge about their environment and personal hygiene among sampled schools

Confidence level	% within school samples			X ²
	Selamber	Hoha No.4	Nigat	
More confident	58.5	55.3	58.8	7.570
Confident on average	35.1	31.9	17.6	
Not that much confident	5.3	10.6	23.5	
Not confident	1.1	2.1	.0	
Total	100.0	100.0	100.0	

(Source: Computed from survey data, 2011)

Attitude on the critical times of hand washing was different among the grade levels. About 53.2% 36.9% and 62% of students at grade level 4th, 6th and 8th, respectively forwarded their attitudes that hands should be washed before meal, before eating fruits, and after defecation ($P < 0.01$). This indicated that there was a fragile attitude among different grade level of student towards the critical times to wash hands.

The knowledge of students on the ways of diarrhea transmission was also assessed. Hence, about more than half percent of students identified diarrhea transmission as eating unwashed fruits, dirty and long figure nails, landing of flies on food and using unclean water. The remaining percent of students had a fragmented understanding about it. About 58.9%, 35.3% and 78.0% of students identified the ways of diarrhea transmission in Selamber, Hoha No.4 and Nigat, respectively as the above mentioned ways of diarrhea transmission ($P < 0.05$). The knowledge gap among schools was very significant. On the same issue with respect to grade level, the response had almost the same figures (53.5%, 53.8% and 53.8%, respectively).

To know the attitudes of students whether they use to wash their hands only if they get some kinds of visible dirt, a question was administered. Accordingly, the attitude of students towards with invisible dirty was very encouraging and positive among the majority of students which had slight difference among schools (97.7%, 90.2% and 100% in Selamber, Hoha No. 4 and Nigat, respectively) (see annex 19). The response to the question was also independent of the grade levels of students; 95.7%, 96.3% and 95.7% of students were positive attitudes in Selamber, Hoha No. 4 and Nigat, respectively (Table 8).

Table 8: Attitudes of students in sampled grade levels towards the necessity of washing hands with invisible dirt

Response		Grade level			X ²
		4th	6th	8th	
Necessary	% within grade level	95.7%	96.3%	95.7%	0.032
No necessary	% within grade level	4.3%	3.7%	4.3%	
Total	% within grade level	100.0%	100.0%	100.0%	

(Source: Computed from survey data, 2011)

These figures are better than the study result by Andualem (2010) where 87%, 89% and 90% for the grade levels of 6th, 8th and 4th, respectively. On the other hand, attitude towards cleanness and safeness of running water varied significantly among students of the three schools (Table 9).

Table 9: Attitude of students whether running water is clean and safe for health or not

Response	% within school		
	Selamber	Hoha No.4	Nigat
Clean and safe	40.7	51.1	23.5
No Clean and safe		46.7	70.6
Don't know	7.7	2.2	5.9
Total	100.0	100.0	100.0

(Source: Computed from survey data, 2011).

The attitude towards cleanness of clear water varied significantly among students of the three schools (29.7%, 40% and 22.2% of the students in Selamber, Hoha No 4 and Nigat, respectively) that responded clear water could always be clean. This indicates that relatively rural school students use more running water and hence believes it for its cleanness than students from urban schools (in this case Selamber and Nigat) and hence there was knowledge gap between urban and rural school students.

Moreover, the attitude towards cleanness of clear water varied significantly with grade levels. About 43.9%, 72.1% and 82.7% of students in grades 4th, 6th and 8th, respectively responded that clear water could not always be clean (Table 10). This result has direct association with the age factors of students where the dominant age groups in grades 4th, 6th and 8th, were 9-11, 12-13, and 14-16 years. In this case, the positive attitude that clear water could not be always clean depends on the increment of student grade levels and ages.

Table 10: Response of sampled students in different grades whether clear water is clean or not

Response	% within grade level and age group			X ²
	Grade 4 th Age group (9-11 years)	Grade 6 th Age group (12-13 years)	Grade 8 th Age group (14-16 years)	
Clean	56.1	27.9	17.3	16.626
Not clean	43.9	72.1	82.7	
Total	100.0	100.0	100.0	

(Source: Observation data, 2011)

c) Hygiene practice of students

Knowledge, attitude and practice are the complementary of effective school WaSH, though to link all these components is a challenge. Hand washing practice of students in the school compound would have been assessed better if all the necessary facilities were in place.

Students were asked whether they are washing their hands at home after defecation. About 94% in Selamber, 97.7% in Hoha No.4 and 100% students in Nigat witnessed that they were always washing their hands after defecation at home. These figures show the similarities among various social settings in hand washing practice and washing hands after defecation at home by students was not depend on the locality of students.

At grade level 4th, 6th and 8th, 97.8%, 98.3% and 91.7% of the students reported that they were washing their hands after defecation (see annex 20). At their home, 96.9% of male students and 94.4% of female students were washing their hands after defecation. On the other side, only 57.7% of male students and 47.4% of female students were washing their hands after defecation at schools. The gap of usage / hand washing after defecation was very significant and could challenge the effective practicing of hygiene at school.

According to the schools' report, 66.7% of the schools were using pit latrine. Moreover, 84.6% of the schools reported that the current practice of defecation in their schools was using latrine. Nearly eighty eight percent of the schools reported that their classrooms were cleaned by students on the weekly basis. The main cleaning material used was brooms. And fifty percent of schools burn their rubbish in school compound. Even though 12 schools (75%) had been cleaning the toilets regularly, almost none of the schools were running the cleaning schedule within less than a weak interval.

Only 30 students (18.4%) were using school toilet regularly whenever they needed in the three sampled schools, and 63.2% of the sampled students are using the toilet occasionally. The figure for those using always is very low when compared with the study result by Andualem (2010) for the same case in Kafa Zone where the figure was 44 students (31%).

At least 33% of the sampled students said that they are not using school toilet regularly. Here the reasons mentioned for not using school toilet always were lack of privacy, long queue, broken facilities, and not clean or locked (Table 11). These conditions could affect the health, environment and learning aspects of the students, especially girls.

Table 11: Reasons provided by students for their irregular use of the toilet

Reasons identified	Responses		No. of cases
	No. of respondents	Percent	
Not Clean	30	32.3	73
Broken	3	3.2	46
Long queue	32	34.4	75
Locked	10	10.8	53
Lack of privacy	18	19.3	61
Total	93	100.0	308

(Source: Computed from survey data, 2011)

According to the sampled students, 11%, 75.7% and 13.3% of them used the latrine use options such as open defecation, wait to get back home, and use nearby household, respectively (Table 12).

Table 12: Options of defecation used by students in sampled schools

School		Alternative means of defecation		
		Open defecation	Wait to get back home	Nearby household
Selamber	% within school samples	4.9%	85.4%	9.8%
Hoha No.4	% within school samples	28.2%	46.2%	25.6%
Nigat	% within school samples	.0%	100.0%	.0%
Total	% within school samples	11.0%	75.7%	13.2%

(Source: Computed from survey data, 2011)

The toilet use frequency was independent of the grade level of the students. Relatively more students at fourth grade level always use their school toilets than the higher grade levels ($p < 0.05$) (Table 13). This could be associated with age factors of the students that the lower age group uses available toilets without looking for alternatives than the higher age groups.

Table 13: Frequency of Toilet use by sampled students in their respective grade levels

Grade level		Frequency of latrine usage		
		Always	Some times	Never
4th	% within grade level	23.4%	70.2%	4.3%
6th	% within grade level	15.6%	56.3%	28.1%
8th	% within grade level	17.3%	65.4%	17.3%
Total	% within grade level	18.4%	63.2%	17.8%

(Source: Computed from survey data, 2011)

However, the frequency of using school toilet among schools was also significantly different. Around 15.6%, 24.5% and 16.7% of students in Selamber, Hoha No. 4 and Nigat schools respectively reported that they were always using their school toilets (Table 14).

Table 14: Frequency of toilet use by sampled students in their respective schools

School		Frequency of latrine usage		
		Always	Some times	Never
Selamber	% within school samples	15.6%	64.6%	18.8%
Hoha No.4	% within school samples	24.5%	53.1%	22.4%
Nigat	% within school samples	16.7%	83.3%	.0%
Total	% within school samples	18.4%	63.2%	17.8%

(Source: Computed from survey data, 2011)

The result shows that students from urban schools were using more options than rural schools as they had better access to get alternatives in the urban community.

There was some difference on school toilet usage frequency between both sexes. About 21.7% of boys and 12% of girls were using school toilets whenever they need. This result could be correlated with the more sensitiveness of female students to inadequate, unsanitary and unhygienic conditions of toilets and facilities in the schools than boys (Table 15). Hence, there was a significant difference in queuing

time for toilets between boys and girls particularly for Selamber School. This indicates that there was a lack of attention and sensitiveness towards gender issues.

Table 15: Frequency of toilet use by sampled students in their respective sexes

Sex of respondent		Frequency of latrine usage		
		Always	Some times	Never
Male	% within sex of respondent	21.7%	66.7%	11.6%
Female	% within sex of respondent	12.0%	64.0%	22.7%
Total	% within sex of respondent	16.7%	65.3%	17.4%

(Source: Computed from survey data, 2011)

In general, variations in hygiene knowledge and practice of students were observed among schools and between school and home. The hygiene knowledge of students was independent of their grade levels except for cleanness of clear water. But it was dependent on the locality of their schools (being urban or rural area).

d) Outreach families

It is assumed that school children should understand the importance and techniques of having the children to pass information about health on to others and to play a pivotal role in bringing about attitude change among parents, sisters, brothers and other family members. However, there were no clear intentions and efforts by school communities so far to pass hygienic information to parents via students to promote hygiene and sanitation at home.

Students were asked to know the degree of interaction that existed with their parents. Accordingly, 73.8% of students reported that they were always supporting their families with regard to environmental and personal hygiene. About 91.2% of students also said that they could ask their families to construct latrine and provide them with soap for hand washing without any fear.

More than 90% of the students also mentioned that they discuss with their families on the issue of sanitation and hygiene without fear and their families allow them to consult and provide their ideas to improve the family members' hygiene behavior,

such as water handing and keeping home, toilet usage, hand washing and environmental sanitation. This level of interaction between children and their family shows the existence of potentials and opportunities of an effective school WaSH promotion as a very strategic institution to outreach the families and the community at large.

4.4. The enabling scenarios for effective school WaSH

4.4.1. Financing

For sound and effective school WaSH, appropriate source of fund and adequate amount of finance should be in place both for hardware and software components. In most schools, the main source of school fund was block grant from government. The government took a lion share of allocating budget for schools to improve the coverage and quality of education.

To improve the access of the hardware facilities such as latrines, hand washing facilities, sanitation facilities and water supplies, adequate funds and budget lines need to be secured. However, according to KII with the institutions, there was no direct allocation of budget for school WaSH from the government at all, and the government only focused on the classroom construction and education material provision.

Key informant interview with the woreda education office, BoFED and WoFED indicated that there was no any plan for financial provision for school WaSH and there was no specific budget allocated for the program. From the interview, there was an indication that school WaSH was not the governments' strategic focuses area/priority and lacked commitment; and it was understood that there was a sense of waiting for aid from NGOs for school WaSH.

About 86% of schools reported that they didn't have sufficient finance for school WaSH program. Nearly 70% of the schools also thought that school WaSH was not financially well supported when compared to other activities such as building classrooms, purchasing text books, furniture and other materials. Two-third of schools identified that financial problem was the most important issue in their schools.

Moreover, 46% of the sampled teachers identified that the main problem with regard to school WaSH in their school was financial constraints. This reveals that school WaSH has got low attention from the government to allocate adequate budget, and to coordinate & mobilize resources from stakeholders.

Decentralization of finance to school enables schools to plan in their priority area and will enhance the sustainability of financing so as to plan for long term (MoE, 2001). However, only 41.7% of the schools reported that they can make some kinds decisions in their school without the consultation and approval of woreda education office. But there were some emerging efforts to manage school grants at school, though there were indications of weak capacity at school.

4.4.2. Key partner institutions and their collaboration for school WaSH

Stakeholder integration is to bring the main partners of school WaSH through the agreed mechanisms for a sustained joint planning, implementation, monitoring and evaluation of the water supply, environmental sanitation and hygiene education in schools and even in communities (MoU, WaSH- BG, 2006)..

The main partner institutions and stakeholders expected to involve in school water supply, sanitation and hygiene program are:-

- **Government institutions**--education, health and water bureaus & office,
- **Non- governmental organizations**--NGOs, donor partners,
- **Schools communities,**
- **Parents and the community.**

However, the integration among these institutions for school WaSH implementation was very weak. This was attributed to the government priorities that did not give sufficient attention to hygiene concerns in schools (Water AID Ethiopia, 2005).

The KII with these institutions revealed that there was a huge gap between the agreement and its implementation and there was simply nominal joint planning, but no joint implementation, monitoring and follow up. The regional partner institutions were not clearly communicating with their respective branch institutions at woreda levels. According to the KII with the respective offices, there was no any integration

(sustainable joint planning, implementation, monitoring and evaluation) among the woreda partners with regard to the school WaSH.

On the other hand, 62.5% of the schools reported that HEWs were giving hygiene or health education for their students. About 56.3% of schools also indentified the interventions areas as hygiene education (33.3%), students' personal hygiene inspection (44.4%) and vaccination (22.3%).

The woreda water desk on its part indicated that they had their own plan for water point construction and did accordingly. However, the office reported that at school, most of the water points failed due to inappropriate site selection. This indicates the absence of harmonized planning and implementation among the partners.

School community members, specially teachers and school managements could play vital roles in schools to identify and prioritize the areas to be focused. School management and teachers are expected to link as much as possible the students' environment with practical hygiene education.

However, about 55% of teachers reported that hygiene education was not practically linked with the students' environment. About 47% and 31.3% of the schools identified that parents and school management were not aware of the water and sanitation facilities in their schools, respectively.

In the region, the most active NGOs were Finn-WaSH BG and Water AID. But these NGOs were not working in the study area. However, only USAID was participating in the building of some facilities such as toilet building and some material provisions in some schools in the study area.

KII with those NGOs/donor representatives at regional level indicated that there was no integration between GOs and NGOs and also among NGOs. Every donor or NGOs run their own system and no the intention of one budget- one plan- one target. Therefore, this could create the situation of resource duplication and unfair distribution of the services among users. Hence, this weak integration and absence of harmonization among these stakeholders could negatively affect the effectiveness of school WaSH.

About half of schools thought that the parents were aware of the sanitation and water facilities provided by the schools. Only about 37.5% of schools said that parents involved in the school to support the school sanitation issues by raising funds for the school (33.3%), serving in school committees (33.3%) and providing any contribution towards the sanitation facilities at the school.

However, FGD with PTAs indicated that they did not involve in any needs assessment of the school users for their needs and preference and facilities management. Parents were not participating in the school WaSH facility design, issues like annual budgets for the operation and maintenance of the facilities to ensure good access, and appropriate standards of operation and maintenance. There was no any awareness creation training given to the PTAs on the issues of school WaSH.

Generally, this weak integration could badly affect the school WaSH at lower levels of administration and end up with ineffective results. There were no clear and smart evaluation mechanisms for the effectiveness of sanitation and hygiene education. There were no mechanisms to promote the participation of school children as agent of change on sanitation and hygiene among their families and the communities at large. Schools were not in right levels in winning their responsibilities with regard to the realization of effective school WaSH.

4.4.3. Capacity building and management

About 68.8% of schools identified the interventions of these stakeholders other than government institutions as fragmented. Only about 31% of schools reported that by one or other way there was training given to teachers on sanitation and hygiene. But even for this meager training, there was the problem in selection of trainees. The right training was not given to the right person.

As depicted in Table 16, around 81.3% of the schools identified that lack of hygiene related education and training were at least important issues in their schools. Moreover, 73.3% of sampled teachers reported that they did not get any training on school WaSH.

Table 16: Importance of lack of hygiene related education and training issue in the schools by teacher respondents

Importance	Respondent	Percent
The most important	9	56.3
Important	4	25.0
Fairly important	2	12.5
Less important	1	6.3
Total	16	100.0

(Source: Computed from survey data, 2011)

About 64.5% of the teacher mentioned that there were no any sufficient teaching materials, books, or learning materials for school WaSH in their schools.

Generally, it indicates that at all expected institutional levels for school WaSH management and implementation, there were significant gaps in capacity, coordination, integration, commitment, and activity harmonization and hence this could significantly hinder the effectiveness of the program.

4.4.4. School WaSH policies and guidelines

Based on the MoU adopted by the Federal Ministries (MoH, MOE and MOUM) to cooperate and integrate on WaSH programme nationally, the BGRS Bureaus (Health, Education, and Water & Mineral) have adapted their MoU for integrated WaSH with the intention that the concerned authorities could have good understanding on the benefits of integrated approach and have the political will to fully support the implementation of the strategy and ensured the availability of an active participation at regional, woreda and community levels (MoU- BG, 2006).

According to the MoU signed among BoE, BoH and BoWM in the region, these partner institutions were not managing the school WaSH as per the agreement. Sectoral integration for school WaSH was not moved much beyond meetings and preparation of the agreed documents (MoU among partner). The woreda institutions (education, health and water offices) did not have these documents and hence no synchronized knowledge of these national and the regional strategies and programs.

According to KII with the woreda offices, the MoU that has been signed among the institutions at regional level was not cascaded down and known to the respective

woreda offices and hence schools and communities did not take their roles and responsibilities. This indicates the absence of commitment of the regional institutions for the effectiveness implementation of school WaSH at woreda, school and community levels.

Sanitation clubs are helpful in relaying of health messages both at school and home (snel, 2004). Accordingly, 75% of the schools had these clubs with different roles and issues of concerns such as promoting sanitation, school gardening, keeping school sanitation and others. However, it was not only the availability of these clubs in the school that matters but its active functionality. About 62.5% of the schools claimed that their school sanitation clubs were not functioning as required. This result has some gap with the study result by Andualem (2010) in Kafa zone where 76% of sanitation clubs were not functioning.



CHAPTER FIVE

CONCLUSION AND RECOMMENDATION

5.1. Conclusion

In Ethiopia, less consideration is given to the important contribution of clean and healthy school conditions towards better educational achievements. The provision of school WaSH facilities and its management was the main shortcoming where the challenge was prevailed in the study area. The study was aimed at assessing the effectiveness of school WaSH in the primary schools of the study area.

This study employed both qualitative and quantitative approaches and multi-stage sampling was followed. The sample units of the study were schools and individuals (teachers and students) where 16 schools, 64 teachers and 166 students were sampled. The data were analyzed with the help of statistical methods and software (SPSS) along with chi-square test and triangulated with qualitative data.

The study result revealed that school WaSH had got various shortcomings. Almost all of the schools under this study did not have adequate, consistent, and portable drinking water supply, and functional water supply facilities and well managed latrine. The type of water source in the schools depends on the location of the schools. Majority of water source of the school in rural areas were unprotected and whereas school from urban areas had pipeline connected water source. Despite the difference in location (urban v rural) and water source, students had the same problem at all schools. The result shows the existence of different sources of infection and hence study gap that needs to have further study to know real causal factors.

Hygiene knowledge and behavior of students was unsatisfactory. The attitude of students towards cleanness of clear water significantly varied with grade levels. It shows improvements as the grade level increase. It was also the same for the confidence of students about their knowledge of environment and hygiene. The reduction of hygiene related health problems depends on the degree of hygiene practice. On the other hand, the knowledge and attitudes of students about invisible dirt and washing hands after defecation was independent of grade level and the location of schools.

Over all, there were no uniformity of knowledge and understanding to different sanitation and hygiene related issues among students of varies schools and grade levels. There was an intermingled understanding about hygiene among students. This could be attributed to the fact that sanitation and hygiene related contents were poorly incorporated in to the concerned books along with insufficient and inappropriate teaching and evaluation conditions of the hygiene education. Moreover, the inadequate, inconsistent /non-existence of school WaSH facilities contributed to the ill-practice and hence behavior of students. Students from the town have relatively better understanding about hygiene than those from rural areas.

Hindering factors for the desired level of hygiene practice/behavior were inadequacy/absence of facilities and poor hygiene knowledge of students. One of the underlying causes for the undesired level of hygiene knowledge and behavior of students was the weak/absence of stakeholders' integration that could gear sound efforts to create appropriate enabling environment for the effectiveness of the school WaSH. Synchronized and harmonized management of the school WaSH among the concerned institutions/stakeholders was not observed in the area. The attention given to school WaSH was very low. This blurred/hindered the responsibilities and commitments that should be undertaken by the stakeholders for the effectiveness of the program. Hence, sanitation and hygiene conditions of the schools primarily require attention and commitment of stakeholders so as to realize a healthy school environment and then effective school WaSH.

Girls and boys are likely to be affected in different ways by inadequate water, sanitation and hygiene conditions in schools and this contributes to unequal learning opportunities. The hygiene practice such as using toilets at school was significantly different across sexes, and between school and home. Students were using toilets more frequently at their home than at schools. This is not unexpected that the water and sanitation facilities conditions of the school were poor. Moreover, female students are more sensitive to the poor conditions of water, sanitation and hygiene in schools. This could be proved from the fact that majority of female students were not using unsanitary and unhygienic toilets in schools than boy students. Relatively there was better water supply, sanitation and hygiene conditions and school compound hygiene management in private schools than government school.

Effective school WaSH can be a strategic tool to bring attitude and behavioral change in the public for it was found capable of outreaching the community. This research indicates that school could be an opportunity for the effectiveness of WaSH in the society. This is proved from the fact that majority of students were communicating, consulting and discussing about WaSH with their families at home and majority of students revealed their warmed preference to school WaSH service provision for hygiene practice at their school.

This study tried to address school WaSH in primary schools in a comprehensive manner. It incorporated the social, educational and the enabling environment aspects of school WaSH primarily focusing on the school WaSH facility analysis and hygiene behaviors of students. The findings best fitted to the schools under this study. However, the experiences of the study can be useful also in other schools and circumstances in the woreda and hence in the region. The users of the study results will be schools, government institutions, NGOs/donor partners and other stakeholders in different ways and circumstances.

There are some areas remaining for further studies. The favorable conditions and stakeholder integration can be further studied in detail. Further study can also be made on the linkages of school WaSH with gender & education, and community for sound WaSH program implementation. School WaSH program is an integrated package and hence could be affected by many factors in the learning and teaching processes, health and gender issues, and hence separated in-depth study on the impact of each of these factors is other areas for further research.

5.2. Recommendations

The achievement of sound and effective school WaSH needs the enhancement of the existing opportunities and good conditions on one hand, and creation of conducive environments at different levels, on the other hand. In this regard, the government along with concerned stakeholders needs to play a pivotal role to create and enhance these conditions and take the lead to coordinate the concerned stakeholders' fragmented efforts and harmonize the management mechanisms of these stakeholders for the school WaSH program effectiveness. Therefore, the following measures need to be taken in to action by the concerned actors.

- The institutional integration that has already agreed among the government institutions need to be converted in to practice on the real ground. This needs political will and support both at regional and district levels. The activities of school WaSH in these institutions need to be harmonized. The guidelines and the signed MoU among the regional institutions should be distributed and cascaded down to the respective woreda offices and then accordingly taken in to action.
- The capacity of the concerned institutions at different levels is of essential for sound and effective school WaSH management. Training and creating awareness on the provision of a service and utilization of the service for both the users and implementers is vital for an effectiveness of the program. Therefore, the woreda officials in collaboration with the regional institutions should create awareness and build the capacities of the implementers and service providers at different levels and service users (school community and the society at large).
- The regional concerned government institutions in collaboration with the woreda officials have to coordinate and harmonize the efforts of other stakeholders such as NGOs, donors and community with the government efforts so as to develop one budget-one plan-one target management/implementation mechanism of school WaSH.
- Smart Plan for school WaSH gives due attention for the financial part as it is a primary enabling condition to improve the access of the hardware and software components of the program. The government should take the lead to secure adequate funds and specific budget lines.
- The school principals, especially school management bodies should play a central role for the management and provision of the school water supply and sanitation facilities. The school management should commit to prepare smart plan for school WaSH. Locally appropriate, cost effective, gender-focused & suited, and easily maintained facilities need to ensured before its construction. The school community members and other stakeholder such as parents should participate in school WaSH planning and management. Teachers should organize outreach into the community by working directly with adults, such as the school management committee, and help children motivate their families and community. To this

effect, school children should understand the importance and techniques of having the children to pass information about health on to others and to play a pivotal role in bringing about attitude change among parents, sisters, brothers and other family members.

- Knowledge, attitude and practice are the complementary of effective school WaSH, though to link all these components is a challenge. Provision of WSS facilities, and developing the appropriate knowledge, skill and attitude of the school communities are inseparable components of effective school WaSH, and hence the schools should commit and play roles to link these components.
- The concerned government institutions both at regional and local levels should give due attention for the design and management of school WaSH, content and curriculum of hygiene education. The existing hygiene education contents in the books are very poor. The teaching and assessment mechanism of hygiene education was also very unsatisfactory. Therefore, as this study is a very comprehensive study, in-depth studies on institutionally separated issues with respect to school WaSH would be very important. This can help to allocate relevant responsibilities and mandates among the partners and design and develop appropriate hygiene education contents, and management tools based the study results.

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ANNEXES

Annex 1
ADDIS ABABA UNIVERSITY
COLLEGE OF DEVELOPMENT STUDIES

Dear, Sir/Madam Director/Representative,

Your school has been selected randomly to be included in the school water supply, sanitation and hygiene education appraisal study in Assossa Woreda. It is an educational research project in the fulfillment of the partial requirements for the Degree of Masters in Environment and Development Studies, Addis Ababa University. The goal of the study is to look in-depth at water supply, sanitation and hygiene education effectiveness of primary schools in the Woreda. I have planned to describe schools' sanitation and hygiene conditions, to look at what they do well, to discuss what they could do better, and, where useful, to make recommendations for future directions to improve the worth of hygiene teaching.

The rationale for this study is that school water, sanitation and hygiene is important from the perspectives of health, learning, the community, the environment, children right, gender equity and development of life-long skills.

This questionnaire is addressed to school directors to obtain information about their respective schools. Since your school has been selected as part of this study, your responses are very important in gaining a better understanding of schools' water supply, sanitation and hygiene situations. It is also important to obtain the perspective of school directors, who have a unique vantage point. School directors are one of the groups to be surveyed in this study. I have also planned to survey students, teachers and officials of education, health and water resource offices. I will also engage in site visits to some schools.

It is important that you answer each question carefully so that the information provided reflects the situation in your school as accurately as possible. Some of the questions will require that you look up school records, so you may wish to arrange for the assistance of another staff member to help provide this information.

When you have completed the questionnaire, please place it in the accompanying envelope and send it to the Education Bureau with in not more than five days.

Your cooperation in completing this questionnaire is greatly appreciated.

With best regards,

Habtamu Alemu

Researcher, Addis Ababa University.

Instructions

Dear Director/Representative,

- *Circle your choice number for the multi-choice questions.*
- *You can give (circle) more than one answer for some of the questions if appropriate.*

1. General School and Respondent Details

- 1.01 Name of the school _____, Name of the Kebele _____
- 1.02 Year of construction _____
- 1.03 Level of School: (1) Primary (1-4) (2) Primary (5-8) (3) Primary (1-8)
- 1.04 School time: 91) Day long (2) half day only (3) two Shifts
- 1.05 School ownership: (1) Government (2) Non-Government (3) Community
- 1.06 Total number of students (2003 E.C.) _____, Male _____, Female _____
- 1.07 Total number of Disable students (2003 E.C.) _____, Male _____, Female _____
- 1.08 Total Number of Staff (2003 E.C.) _____, Male _____, Female _____
- 1.09 Total Number of classroom (2003 E.C.) _____
- 1.10 Location of School: (1) Urban (Zonal town) (2) Semi-urban (Woreda town)
- (3) Village (Rural area)
- 1.11 Respondent's Designation/Position: _____
- 1.12 Sex of the Respondent: Male _____, Female _____

2. Water Supply in School

- 2.01 Where does the school get water?
- (1) Dug well with pump (2) Dug well (rope and bucket) (3) Protected spring
- (4) Unprotected spring (5) Rain water Collection cistern
- (6) Surface water (river, lake, and pond) (7) Connected with the town pipeline
- 2.02 Is the water supply/source found in the school compound? (1) Yes (2) No
- If no, estimate the distance in KM _____
- 2.03 Is the school water supply tested for its quality (e.g. bacteriological)? (1) Yes (2) No

- 2.04 Is treatment necessary? (1) Yes (2) No
- 2.05 If yes, how often? (1) Every day (2) Every week (3) Every two weeks (4) Every month
- 2.06 Is the water sufficient? (1) Yes (2) No
- 2.07 Is water available all of the time at the school? (1) Yes (2) No ☐
- 2.08 Does the amount of water change throughout the school year (dry/rainy season)? (1) Yes (2) No
- 2.09 If the school has a water supply, for which purpose is it being used?
- 2.10 Does the school restrict water use by students and staff? (1) Yes (2) No
- 2.11 Are students allowed to use the school water to wash hand after defecation? (1) Yes (2) No
- 2.12 How is drinking water provided to the students?
(1) Drinking cups (2) Taps (3) hand cup
- 2.13 By which method the drinking water is treated?
(1) Chlorination (2) Filtered (3) Boiled (4) Not treated (5) If any _____
- 2.14 Do you think that the water the school currently using is safe for health? (1) Yes (2) No
How? _____
- 2.15 Was there any incidence of illness of many students at a time in your school due to water born diseases? (1) Yes (2) No

3. Excreta Disposal (Sanitation Issues of the School)

- 3.01 What is the present practice of defecation?
(1) Latrines (2) open field (3) both latrines & open field

If open field, why not latrine? _____

Answer the following questions under this sub-heading only if your school has toilet/latrine

- 3.02 What types of latrine/toilet available?
- (1) Pit latrine No. of seats/holes _____
- (2) Ventilated Improved Pit latrine No. of seats/holes _____

(3) Flush toilet No. of seats/holes_____

(4) If other than the above type of latrines, specify_____

3.03 Is it clean? (1) Yes (2) No

3.04 Is it Functioning? (1) Yes (2) No

3.05 Are there urinals? (1) Yes (2) No

If yes, how many in number? For boys_____, for girls_____

3.06 Are the urinals functioning? (1) Yes (2) No

3.07 Are latrines at least 30 meters far from any drinking water source? (1) Yes (2) No

3.08 Are latrines suitable/ safe for both younger and older students? (1) Yes (2) No

3.09 Are there separate latrines for male and female students? (1) Yes (2) No

3.10 If no, why not? (1) Due to few number of toilets (2) We have never thought of it

(3) We were not aware of it (4) It is not important (5) If any, specify_____

3.11 Do all the toilets have a shelter (walls and roof)? (1) Yes (2) No

3.12 Are the toilets: (1) clean? (2) Well lighted and ventilated?

(3) Smelly to the extent that makes their usage difficult?

(4) If any, specify_____

3.13 Are the toilets cleaned (sweeping and cleansing) regularly? (1) Yes (2) No

3.14 If yes to Q13, how regularly are the toilets cleaned?

(1) Daily (2) More than once daily (3) Weekly (4) When dirty

3.15 If the toilets are clean, by whom?

(1) Girls (2) boys (3) both girls and boys (4) to penalize/punish students

(5) Sanitation workers hired by the school (6) other, specify_____

3.16 Are there separate latrine facility for teachers? (1) Yes (2) No

3.17 Is there water for cleansing inside or beside the toilets? (1) Yes (2) No

3.18 Is there a hand-washing facility in or adjacent to latrine for use by students? (1) Yes (2) No

3.19 If *no* to Q18, why not?

(1) Due to financial problem (2) there is no water in the school

(3) We have never thought of it (4) We were not aware of it

(5) It is not important (6) If any, specify _____

3.20 If *yes*, what facilities are provided for hand-washing?

(1) Tap (2) Well with bucket (3) other, specify: _____

3.21 Is soap/ash always available for hand washing? (1) Yes (2) No

22. If *no*, why not?

(1) Due to financial problem (2) We have never thought of it

(3) We were not aware of it (4) It is not important (5) if any, specify _____

3.22 Number of latrine seats for: boys____, girls____, and teachers____

3.23 Is there waste receptacle/garbage in latrine rooms? (1) Yes (2) No

3.24 What anal cleansing materials do students use after defecation?

(1) Tissue paper (2) Water (3) Leafs/grass (4) If any, specify _____

3.25 Are there signs/messages in side or out side the latrines encouraging good hygiene?

(1) Yes (2) No

3.26 Are latrines in good status? (1) Yes (2) No

3.27 Are latrines found open for use during the assessment? (1) Yes (2) No

3.28 Is hygiene/health education given to students as a subject? (1) Yes (2) No

If *yes*, by whom? (1) Teachers (2) Health workers

How often? (1) Every day (2) Every week (3) Every two weeks (4) every month

3.29 Does local health office or health institution has role in the school health (water supply, sanitation and hygiene education)? (1) Yes (2) No

If yes, in which services?

(1) Hygiene education (2) Student's personal hygiene inspection

(3) Epidemic control (4) Vaccination

(5) Other, specify _____

3.30 Is there the practice of students' personal hygiene inspection? (1) Yes (2) No

3.31 If yes, how often? (1) Every day (2) Every two weeks

(3) Every week (4) Every month

3.32 Was there a training given to teachers on sanitation/hygiene? (1) Yes (2) No

3.33 Do you think that students are comfortably using the school toilets? (1) Yes (2) No

3.34 If no, why not?

(1) Toilets are not clean (2) toilets are not sufficient (long waiting time)

(3) Toilets are broken & not safe (4) Students do not know that they have to use toilets

(5) Lack appropriate dimensions of facilities for children

(6) Locations of toilets are not well considered (e.g. far from users, near to areas which prevent privacy such as: class rooms, staffs, road sides, etc)

(7) If any, specify _____

4. Solid Waste Disposal, Classroom Cleanliness in School Compound and Maintenance of facilities

4.01 Where does the rubbish/trash produced in the school disposed?

(1) Disposed in the rubbish pit

If disposed in the rubbish pit, distance from the classrooms _____ mtr;

Distance from the water source _____ mtr

(2) Openly burned in the school compound

(3) Burned in the incinerator

(4) Disposed outside the school compound

4.02 Are there waste receptacles in class rooms? (1) Yes (2) No

4.03 Are there waste receptacles in the school compound? (1) Yes (2) No

If yes, state the number of waste receptacles observed in the school compound during the assessment: _____

- 4.04 Is the school compound in good sanitation status? (1) Yes (2) No
- 4.05 Is the school compound convenient and safe for students to play/stay in? (1) Yes (2) No
- 4.06 Are classrooms clean? (1) Yes (2) No
- 4.07 Who cleans the class rooms?
- (1) Students (2) Cleaners (3) if any, state _____
- 4.08 What cleaning materials are available in the school?
- (1) Brooms (2) Water buckets (3) Shovels (4) Glass slathers/machetes (5) Soap
- (6) If any, specify _____
- 4.09 Is there any non-government organization that assists the school? Yes No
- a) If yes, name of the organization _____
- b) Mention the types of support being provided by the organization _____
- 4.10 Number of toilets working (boys) _____ (girls) _____, Toilets not working (boys) _____ (girls) _____
- 4.11 Number of water taps working _____, Taps not working _____
- 4.12 Is there a maintenance program/pan and spare parts available to ensure facilities (toilets and/or taps) are always operational? (1) Yes (1) No
- If yes, who is responsible for the maintenance program? _____
- If no, why not?
- (1) Financial problem (2) Lack of maintenance experts (3) Lack of spare parts
- (4) There is no responsible body to do the maintenance (5) if any, specify: _____

5. Teachers, Community, institutions, financing and planning

- 5.01 Are there model teachers for their students by practicing hygiene themselves? (1) Yes (2) No
- 5.02 Does your school have appropriate and adequate number of teachers for hygiene and sanitation teaching? (1) Yes (2) No
- 5.03 Are there suitable conditions in your school for teachers to be good models for their students by practicing hygiene themselves? (1) Yes (2) No
- 5.03 Do teachers have a guide book for hygiene and sanitation? (1) Yes (2) No
- 5.04 What problems have been there regarding the Issues related to teachers in your school?
-
- 5.05 Are parents involved in the school in supporting the school sanitation issues? (1) Yes (2) No
- 5.06 Do the parents aware of the sanitation and water facilities provided by the school? (1) Yes (2) No
- 5.07 Based on your experience, do parents:
- (1) Raise funds for the school? (2) Serve in school committees?
- (3) Provide any contribution towards the sanitation facilities at the school?
- 5.08 Does the Woreda water office have role and participate in your school sanitation? (1) Yes (2) No

- If yes, in which services? (1) Water supply and hand washing facility construction
(2) water quality control and treatment (3) maintaining the facilities
(4) Finance (5) planning (6) if any, specify_____
- 5.09 Does Woreda education office have role and participate in your school sanitation? (1)Yes (2) No
If yes, in which services? (1) Financing water & sanitation facility construction
(2) Training teachers about sanitation & hygiene (3) Supervising school sanitation and hygiene program (4) planning (5) if any, specify_____
- 5.11 Are there any NGOs and donors participating in your school sanitation & hygiene program?
(1)Yes (2) No If yes, specify_____
- 5.12 Is there any integrated/ coordinated effort of stakeholders (education, water and health offices, community, etc.) to improve your school sanitation? (1)Yes (2) No
- 5.13 Do you think that water, sanitation and hygiene education are problems in your school?
(1)Yes (2)No
- 5.14 Is your school management aware of the issues of integrated provision of water, sanitation and hygiene education at school? (1) Yes (2) No
- 5.15 Do you think that your school has sufficient toilets currently? (1)Yes (2) No
- 5.16 Does your school have a plan to construct additional toilets until next year? (1)Yes (2) No
If yes, what number of toilets have you planned to construct?_____
- 5.17 Do you think that the water supply situation in your school is good? (1)Yes (2) No
If no, what is the plan of the school to improve the problem if any?_____
- 5.18 What is your source of finance for the provision of sanitation and water facilities at the school?
(1) Government (2) Income generated by the school
(3) Community contribution (4) donor support (5) No budget for sanitation and water at all (6) any other, specify_____
- 5.19 Is the finance sufficient? (1) Yes (2) No
- 5.20 Is the finance available in a regular and sustainable basis? (1)Yes (2) No
- 5.21 Do you think that school sanitation and water supply is well supported financially when compared to other activities such as building new classrooms, purchasing textbooks, furniture and other teaching materials? (1) Yes (2) No
- 5.22 To what extent do you/can you/ make decisions in your school without consultation and asking for approval of the Woreda Education Office? (E.g. Decisions on construction of sanitation facilities (toilets, etc), to limit the number of students your school accepts, to plan your school programs and to develop your own locally appropriate teaching methods and approaches, etc)?
(1) Always (2) some time (3) Occasionally (4) rarely (5) never
- 5.23 What do you suggest as solution/solutions for the problem in your school?_____

6. Hygiene Practice/Behavior and Education in the School

6.01 Is Sanitation and hygiene education given to students as?

a) A subject? (1) Yes (2) No

If yes, write the subject _____

b) Incorporated into different subjects as a chapter? (1) Yes (2) No

If yes, write the subject _____

6.02 Is there a sanitation club in the school? (1) Yes (2) No

If yes, do you think that it is functioning well? (1) Yes (2) No

If no, why not? _____

6.03 What do you think about the hygiene practices of the students in your school?

(1) Very good (2) Good (3) Average (4) Poor (5) not good (6) Not known

6.04 Are children encouraged to wash their hands with soap/ash after defecation & before eating food?

(1) Yes (2) No

If Yes, (1) regularly (2) some time (3) only on occasions (4) rarely

6.05 Which are the most important sanitation and hygiene issues of your school?

(Indicate in order of importance by numbering in the space provided from 1-4 in order

Where 1= the most important, 2=important, 3= fairly important, 4= less important)

Issues	Scale(1,2,3,4)
Lack of stakeholder integration and participation in the program	☐
Lack of hygiene related education and training	☐
Hygiene behavior and practices of students	☐
Poor maintenance of facilities	☐
Lack of adequate facilities (water and sanitation)	☐
Financial problem	☐

6.06 Has the school undertaken any initiatives, to promote good hygiene practices? (1) Yes (2) No

If yes, please give details _____

If no, why not? _____

Thank you for your thought, time, and effort in answering these questions!!

Annex 2

ADDIS ABABA UNIVERSITY COLLEGE OF DEVELOPMENT STUDIES

Introduction

Dear, Sir/Madam Teacher,

Your school has been selected randomly to be included in the school water supply, sanitation and hygiene education appraisal study in Assossa Woreda. It is an educational research project in the fulfillment of the partial requirements for the Degree of Masters in Environment and Development Studies, Addis Ababa University.

The goal of the study is to look in-depth at water supply, sanitation and hygiene education effectiveness of primary schools in the Woreda. I have planned to describe schools' sanitation and hygiene conditions, to look at what they do well, to discuss what they could do better, and, where useful, to make recommendations for future directions to improve the worth of hygiene teaching. The rationale for this study is that school water, sanitation and hygiene is important from the perspectives of health, learning, the community, the environment, children right, gender equity and development of life-long skills.

This questionnaire is addressed to school teachers to obtain information about their respective school hygiene program effectiveness. Since your school has been selected as part of this study, your responses are very important in gaining a better understanding of schools' water supply, sanitation and hygiene situations. It is important that you answer each question carefully so that the information provided reflects the situation in your school as accurately as possible. When you have completed the questionnaire, please place it in the accompanying envelope and send it to the Education Bureau with in not more than five days.

Your cooperation in completing this questionnaire is greatly appreciated.

With best regards,

Habtamu Alemu

Researcher, Addis Ababa University.



Instructions

Dear Teacher /Cluster Supervisor,

- *Circle your choice number for the multi-choice questions.*
- *Some questions will require you to write down a number or a text.*
- *You can give (circle) more than one answer for some of the questions if appropriate.*

School Name: _____

The course you are teaching: _____, Grades you are teaching: _____

Sex of the Respondent: Male _____, Female _____

Respondent's position/designation: _____

1. Is a WaSH program being run in your school? (1) Yes (2) No

2. Is hygiene education given for students in your schools? (1) Yes (2) No

3. If yes to Q2, is Sanitation and hygiene education given to students as?

a) A subject? (1) Yes (2) No

If yes, write the subject _____

b) Incorporated into different subjects as a chapter? (1) Yes (2) No

If yes, write the subject _____

4. Of the following strategies given in the table below, **tick (✓) in box the strategies** you use to support hygiene promotion in schools **if you do so**.

Strategy	Tick(✓)
Promote child focused learning methodologies on hygiene education	☐
Support the training of selected teachers from each school and orient on child-focused hygiene learning and communication techniques	☐
Promote hand washing with soap including personal, household and environmental sanitation with focus on behavior-centered hygiene and sanitation education/promotion in schools. Ensure Children are fully aware of hand washing with soap at critical periods	☐
School children need to improve their knowledge, skills, attitude and practices on hygiene through continuous learning and practice.	☐
Promote and strengthen the management capacity of the school management committees and/or Parent Teachers' Associations (PTAs).	☐
School children should understand the importance of and techniques for having the children to pass information about health on to others and to play a pivotal role in bringing about attitudinal change among parents, sisters, brothers and other family members.	☐
Teachers can function as role models for the children, and as children learn more about hygiene in schools, they can in turn influence the behaviour of family members – both adults and younger siblings – and thereby positively influence the community as a whole.	☐

5. Are teachers trained in School Sanitation and Hygiene Education? (1) Yes (2) No

6. Have teachers taught the children anything about hygiene? (1) Yes (2) No

7. Does the school have any teaching materials, books or learning materials in the school about WASH in Schools? (1) Yes (2) No

8. Can teachers correctly explain what sanitation and hygiene means to the children?

(1) Yes (2) No

9. Of the following activities given in the table below, **tick (✓) in box** for the activities that you can do to support hygiene promotion in schools.

Activities	Tick (✓) in box
Explain the purpose of the WASH in Schools programme.	☐
Train other teachers in the school.	☐
Plan and carry out the steps in setting up the programme and organizing community participation.	☐
Communicate with parents.	☐
Organize the use and maintenance of facilities.	☐
Give life skills-based hygiene education.	☐
Link WASH in Schools with the current curriculum and time schedules.	☐
Plan for children's health clubs	☐
Implement life skills-based education so that children develop new knowledge and Healthy practice.	☐
Manage activities and children in the school so that all Children use and maintain the water and sanitation facilities.	☐
Organize outreach into the community by working directly with adults, such as the school management committee, and by helping children to motivate their families and community	☐

10. Is there a sanitation club in the school? (1) Yes (2) No

If yes, do you think that it is functioning well? (1) Yes (2) No

If no, why not? _____

11. What do you think about the hygiene practices of the students in your school?

(1) Very good (2) Good (3) Average (4) Poor (5) not good (6) Not known

12. Are children encouraged to wash their hands with soap/ash after defecation & before eating food?

(1) Yes (2) No

If yes, (1) regularly (2) some time (3) only on occasions (4) rarely

13. Is hygiene education practical and links to the students' environment? (1) Yes (2) No

14. Do you have a guide book for hygiene and sanitation? (1) Yes (2) No

15. Do you consider that the hygiene behaviors of the students are?

(1) Poor (2) Average (3) Good

16. In which of the following issues/activities do you participate?

(Tick (✓) in box for the activities you participate)

Activities	Tick (✓)
Disseminate best practices and lessons learnt through the cluster meetings	☐
Advise schools on good operation and maintenance practices and structures for WaSH facilities	☐
Participate in the training of trainers in operation and maintenance of WaSH facilities.	☐
Advise schools on access to facilities during school hours, e.g. access to latrines, access to water during class time	☐
Support the school directors in the management of the operation and maintenance of the facilities	☐
Support the popular school clubs in carrying out WaSH activities, including coordination of operation and maintenance	☐

17. What is/are good practices of the school with regard to water supply, sanitation and hygiene?

18. What are major challenges of the school with regard to water supply, sanitation & hygiene?

19. What remedial solution/solutions do you suggest for these major challenges?

Thank you for your thought, time, and effort in answering these questions!!



Annex 3

ADDIS ABABA UNIVERSITY
COLLEGE OF DEVELOPMENT STUDIES

Introduction

Dear Student

Your school has been selected randomly to be included in the school water supply, sanitation and hygiene education appraisal study in Assossa Woreda. It is an educational research project in the fulfillment of the partial requirements for the Degree of Masters in Environment and Development Studies, Addis Ababa University.

The goal of the study is to look in-depth at water supply, sanitation and hygiene education effectiveness of primary schools in the Woreda. I have planned to describe schools' sanitation and hygiene conditions, to look at what they do well, to discuss what they could do better, and, where useful, to make recommendations for future directions to improve the worth of hygiene teaching. The rationale for this study is that school water, sanitation and hygiene is important from the perspectives of health, learning, the community, the environment, children right, gender equity and development of life-long skills.

This questionnaire is addressed to primary school students to obtain information about their respective school hygiene program effectiveness. Since your school has been selected as part of this study, your responses are very important in gaining a better understanding of schools' water supply, sanitation and hygiene situations. It is important that you answer each question carefully so that the information provided reflects the situation in your school as accurately as possible. When you have completed the questionnaire, please place it in the accompanying envelope and send it to the Education Bureau with in not more than five days.

Your cooperation in completing this questionnaire is greatly appreciated.

With best regards,

Habtamu Alemu

Researcher, Addis Ababa University.

Instructions

Dear student,

- Circle your choice number for the multi-choice questions.
- Some questions will require you to write down a number or a text.
- You can give (circle) more than one answer for some of the questions if appropriate.

01. Grade level: 1) 4th 2) 6th 3) 8th
02. Age: 1) 9-11 year 2) 12-13 year 3) 14-16 year 4) above 16 year
03. Sex: 1) Male 2) Female
04. Religion: 1) Orthodox 2) Muslim 3) Protestant 4) Others
05. Name of School: -----
06. For what purpose do you use water in your school?
 - 1) Drinking 2) Classroom cleaning 3) Gardening
 - 4) Latrine/Toilet cleaning 5) Hand washing 6) All the above
07. From where do you get drinking water in your school?
 - 1) School water supply 2) Holding from home
 - 3) Tolerating until turn back to home
 - 4) Nearby household 5) Drink much water before coming to school
08. What do you think about the cleanness of water supplied in your?
09. Is the school has continuous water supply? 1) Yes 2) No
10. If you use water in school, how many glasses do you utilize per a day?
 - 1) 1-2 Glasses 2) 3-4 Glasses 3) 1-5 litters 4) Above 5 litters
11. Where does your family get water?
 - 1) Deep well 2) protected spring/well with pump) 3) town pipe line
 - 4) Nearby unprotected spring 5) Nearby river 6) Rain water collected
12. What do you think about the cleanness of water supplied at your home?
 - 1) It seems clean 2) It seems not clean 3) Not Sure
13. Have you got diaharoea in this year? 1) Yes 2) No
14. If you got diaharoea in this year, did you absent for the school as the result of it?
 - 1) Not absent 2) 1-2 days absent 3) 3-5 days absent 4) more than 5 days absent
15. What is/are the condition/s of toilets in your school?
 - 1) Separated for male and female students, and safely used
 - 2) Constructed in one block, but separated for male and female and safely used)

- 3) Constructed in one block, and separated for male and female but not safely used
 - 4) Constructed in one block, and not separated for male and female and hence not safely used
 - 5) Constructed in one block, and not separated for male and female but safely used
16. Do your school need additional toilet construction? 1) Yes 2) No
17. Is there toilet at home? 1) Yes 2) No
18. Is your home toilet clean? 1) Yes 2) No
19. Do you use your home toilet safely? 1) Yes 2) No
20. What is the frequency of your latrine usage in your school?
- 1) Always 2) Sometimes 3) Never
21. If you do not always use latrine in your school, what is your option to use?
- 1) Open defecation 2) Wait to get back home 3) Nearby household
22. If you do not always use latrine, what is your reason not to use the latrine?
- 1) Not Clean 2) Broken 3) long queue 4) locked
 - 5) lack of privacy 6) all of the above
23. In your school, how do you wash your hands after using latrine?
- 1) Always 2) If need be 3) No
24. If you do wash your hands after using latrine, what is the reason for it?
- 1) Not aware of it 2) Forget 3) lack of water in the school
 - 4) It seems no need 5) all of the above
25. How do you wash your hands after using latrine if water available in your school?
- 1) Always 2) If not forgotten/need be 3) It seems not
26. At your home, how do you wash your hands after using a latrine?
- 1) Always 2) Sometimes/if need be 3) Never
27. Is that necessary to wash our hands if dirty not seen? 1) Yes 2) No
28. When do we need to wash our hands?
- 1) After awaking from sleep in morning 2) Before sleeping
 - 3) Before eating fruits 4) Before listening radio 5) Before eating food
 - 6) Sleep in morning 7) After using latrine
 - 8) After bathing 9) All of the above except choice 4 &

29. In what way diarrhoea transmit?
- 1) Eating unwashed fruits 2) playing in the sunshine
 - 3) Dirty and long finger nails 4) Dirty nose 5) Air
 - 6) warring dirty cloth 7) Landing of flies on food
 - 8) Lack of sleeping 9) Eating very much food 10) Using unclean water
 - 11) Very much workload 12) Choice 1,3,7,10,& 11 13) Don't know
30. What we do when we get diarrhoea?
- 1) Not disclose it 2) Reducing the amount of food we eat
 - 3) Wash hands after defecation 4) Defecate in open field
 - 5) Not take Liquids 6) Wash hands before eating food 7) Not take bath
 - 8) All except choice 3 9) Don't know
31. Stream water is not that much necessary for health? 1) Yes 2) No 3) don't know
32. Clean water could be identified by looking at it? 1) Yes 2) No
33. Parasites in our body are harmful? 1) Yes 2) No
34. While walking bare foot, some parasite worms may enter to our body?
- 1) Yes 2) No 3) Not know
35. Which disease could be the result of unclean environment and lack of personal hygiene?
- 1) Diarrhoea 2) Intestinal Parasite 3) Trachoma 4) Cholera 5) Typhoid
 - 6) HIV AIDS 7) All except choice 6
36. What do you know about environment and personal hygiene?
- 1) Do know much 2) Do know on average 3) Not enough 4) Never
37. How do you support your family with regard to environment and personal hygiene?
- 1) Always 2) Sometimes 3) Never
38. Could you ask your families to construct latrine and provide you with soap for hand washing without fear? 1) Yes 2) No
39. When necessary, could consult your families on the issue of hygiene and others without fear? 1) Yes 2) No
40. Do your families allow providing them ideas to improve their hygiene behavior without fear? 1) Yes 2) No

Thank you for your thought, time, and effort in answering these questions!!

Annex 4

Key Informant Semi-structured Interview with Heads/Representatives and Officers of *Regional Water, Health and Education Bureaus*

Introduction

In your region, Assossa Woreda has been selected for the school water supply, sanitation and hygiene education appraisal study. It is an educational research project in the fulfillment of the partial requirements for the Degree of Masters in Environment and Development Studies, Addis Ababa University. The goal of the study is to look in-depth at water supply, sanitation and hygiene education effectiveness of primary schools in the Woreda. I have planned to describe schools' sanitation and hygiene conditions, to look at what they do well, to discuss what they could do better, and, where useful, to make recommendations for future directions to improve the worth of hygiene teaching.

The rationale for this study is that school water, sanitation and hygiene is important from the perspectives of health, learning, the community, the environment, children right, gender equity and development of life-long skills.

The purpose of interview is to obtain information about water supply, sanitation and hygiene education in the primary schools of the Woreda. Your responses are very important in gaining a better understanding of schools' water supply, sanitation and hygiene situations. Regional education, health and water sectors Heads/representatives and experts are one of the groups to be interviewed in this study. I will also engage in site visits to some schools.

It is important that you answer each question carefully so that the information provided reflects the situation in your school as accurately as possible. Some of the questions will require that you look up school records, so you may wish to arrange for the assistance of another staff member to help provide this information.

Your cooperation in answering this question is greatly appreciated.

Thank you.

1. Respondent's name _____
2. Name of the Bureau: _____
3. Respondent's designation/position: _____
- 3 Is school WaSH program being undertaken in the Region? Yes ☐ No ☐
- 4 Who are your principal Government stakeholders with regard to the school WaSH in the region? List them! _____
- 5 Is there any policies, procedures, guidelines and systems that govern you & your stakeholders to undertake the school WaSH program? Yes ☐ No ☐
If yes, list them! _____
- 6 In which activity the stakeholders participate?
a) Planning b) Implementing c) Monitoring and Evaluation
d) Financing e) operation and maintenance f) Specify, if any _____
- 7 Does the Bureau organize the construction of water supply and sanitation facilities in schools? Yes ☐ No ☐
If yes, how and when? _____
- 8 Does the Bureau (**only for Education Bureau**) provide WaSH training for school School/luster supervisors, directors and teachers? Yes ☐ No ☐
If yes, answer the following questions by ticking (✓) your choice in the table blow.
- 9 How is your approach to water supply and sanitation provision at schools?
a) Demand driven b) Supply driven
- 10 Which preparatory approach do you use for WaSH provision in school?
(Tick (✓) your choice below in the table)

Preparatory Approach	Tick (✓)
Consult the users	☐
Consult the community	☐
Seeking advice from Health Extension Workers and Woreda Education, Health and Water office is mandatory	☐
Have a operation and maintenance plan and budget	☐
Have a monitoring and supervision plan	☐
Have good linkage between woreda health, education and water offices.	☐

- 11 What do you think about the WaSH situations in the primary schools of the Region?

- 12 Does the Bureau have a standard ratio of toilets to number of students and minimal standards for latrine construction? Yes ☐ No ☐
- 13 Does the Bureau mobilize professionals for preventive and promotion work survey? Yes ☐ No ☐
- 14 Does the Bureau inspect and evaluate health situations in primary schools? Yes ☐ No ☐
- 15 Do you have any monitoring and evaluation mechanism? Yes ☐ No ☐
- 16 Does the Bureau allocate finance for the construction of WSS facilities in the existing schools? Yes ☐ No ☐
- 17 Does the Bureau provide school WaSH funding for?
a) Advocacy Yes ☐ No ☐ c) program design Yes ☐ No ☐
b) Operation & maintenance Yes ☐ No ☐ d) monitoring & evaluation Yes ☐ No ☐
- 18 What amount of fund have you allocated this year for school WaSH?_____
- 19 Have you been providing or do you have a plan to provide water and sanitation facilities in schools? Yes ☐ No ☐
If not, why not?_____
- 20 Do you have a database on school WSS in the region? Yes ☐ No ☐
- 21 Does your Bureau conduct WaSH-related environmental health baseline survey particularly in primary schools of the region? Yes ☐ No ☐
Can you provide some data? Yes ☐ No ☐
- 22 Have you got data on the incidence of diseases and WaSH coverage in schools so as to get a complete overview of resources, or data about disease prevalence? Yes ☐ No ☐
If yes, list the sanitation-related diseases in the primary schools of the region.

- If not, how do you determine where investments and interventions were most urgently needed?_____
23. At national level, there is a memorandum of understanding that was signed among MoH, MoWME and MoE. Does this agreement true for your Region and Woredas?
Yes ☐ No ☐

24. What is the role of your Bureau in school WaSH program in the region?

(Answer the following questions by ticking (✓) your Bureau's role in the table blow)

25.1. Technology options	Bureau's role (✓)
25.1.1 The technology is of a standard acceptable within the framework of the National Sanitation Protocol. The frame work is formulated at federal level and adapted at school level.	☐
25.1.2 The technology is appropriate to the needs and preferences of the users (small and older children, girls and boys, children with special needs, and teachers)	☐
25.1.3 The technology is appropriate to the financial capacity of the school and woreda, and is replicable at the end of its useful life span.	☐
25.1.4 The operation and maintenance costs of the technology are within the capacity of the school	☐
25.1.5 The necessary skills can be developed to maintain the facilities at school and community level in addition to technical support from the woreda	☐
25.1.6 The technology option should be environmental friendly, simple to be replicated by community members.	☐

25.2. Design	Bureau's role (✓)
25.2.1 The design is appropriate to the needs and preferences of the users (small and older children, girls and boys, children with special needs, and teachers)	☐
25.2.2 The design considers issues such as size, location, access, orientation, ease of use and cleaning, privacy, ventilation, geographical diversity, gender, ease of understanding, etc	☐
25.2.3 The design is to be of low construction cost but keeping to minimum standards of sanitation, safety and need to consider durability.	☐
25.2.4 The design is to be of low operation and maintenance costs	☐
25.2.5 the design should be consulted by schools, PTAs and other stakeholders	☐

25.3.Financing	Bureau's role (✓)
25.3.1 Cost estimates are to be produced for construction, before approval of the project	☐
25.3.2 Cost estimates are to be produced for operation and maintenance, before approval of the project	☐
25.3.3 Cost sharing agreements are made between school woreda and other partners beyond construction for operation and maintenance to be agreed in advance.	☐
25.3.4 PTAs and kebele school board are to approve, allocate and monitor budgets for operation and maintenance	☐
25.3.5 The school should include WASH in its school action plan	☐

25.4.Community and Users Participation	Bureau's role (✓)
25.4.1. Users (small and older children, girls and boys, children with special needs, and teachers) are to be consulted on technology and design to ensure relevance to needs and preferences	☐
25.4.2. PTAs, kebele school board, communities and teachers are to be consulted on costs of construction and operation and maintenance	☐
25.4.3. PTAs, kebele school board, communities and teachers are to develop operation and maintenance plans prior to construction	☐
25.4.4. Teachers and other users are to be consulted on development of monitoring and supervision plans.	☐
25.4.5. There are to be a good links developed between the Woreda Administration, Education, Health and Water Offices to support the	☐
25.4.6. Cluster and schools in the planning, construction, operation and maintenance, and supervision, monitoring and compliance.	☐

26. What is/are good practices of your Bureau with WaSH program?_____

27. What is/are major challenges of your Bureau with WaSH program?_____

28. In your opinion, what remedial solution/solutions do you suggest for these major challenges?_____

Thank you for your thought, time, and effort in answering these questions!!

Annex 5

Key Informant Sem-Structured Interview with Heads/Representatives and Officers of *Woreda* Water, Health and Education Offices

Introduction

In your region, Assossa Woreda has been selected for the school water supply, sanitation and hygiene education appraisal study. It is an educational research project in the fulfillment of the partial requirements for the Degree of Masters in Environment and Development Studies, Addis Ababa University. The goal of the study is to look in-depth at water supply, sanitation and hygiene education effectiveness of primary schools in the Woreda. I have planned to describe schools' sanitation and hygiene conditions, to look at what they do well, to discuss what they could do better, and, where useful, to make recommendations for future directions to improve the worth of hygiene teaching.

The rationale for this study is that school water, sanitation and hygiene is important from the perspectives of health, learning, the community, the environment, children right, gender equity and development of life-long skills.

The purpose of interview is to obtain information about water supply, sanitation and hygiene education in the primary schools of the Woreda. Your responses are very important in gaining a better understanding of schools' water supply, sanitation and hygiene situations. Woreda education, health and water sectors Heads/representatives and experts are one of the groups to be interviewed in this study. I will also engage in site visits to some schools.

It is important that you answer each question carefully so that the information provided reflects the situation in your school as accurately as possible. Some of the questions will require that you look up school records, so you may wish to arrange for the assistance of another staff member to help provide this information.

Your cooperation in answering this question is greatly appreciated.

Thank you.

1. Respondent's name _____
2. Name of the Office: _____
3. Respondent's designation/position: _____
4. Is school WaSH program being undertaken in the Woreda? Yes ☐ No ☐
5. Who are your principal Government stakeholders with regard to the school WaSH in the region/in your Woreda? List them!

6. Is there any policies, procedures, guidelines and systems that govern you and your stakeholders in the Woreda to undertake the school WaSH program? Yes ☐ No ☐

If yes, list them!

7. In which activity the stakeholders participate?
- a) Planning b) Implementing c) Monitoring and Evaluation
- d) Financing e) operation and maintenance f) Specify, if any _____

8. Does the Office organize the construction of water supply and sanitation facilities in schools? Yes ☐ No ☐

If yes, how and when?

9. Does the Office (**only for Education office**) provide WaSH training for school School/luster supervisors, directors and teachers? Yes ☐ No ☐

10. How is your approach to water supply and sanitation provision at schools?

- a) Demand driven b) Supply driven

11. Which preparatory approach do you use for WaSH provision in school?

(Tick (✓) your choice below in the table)

Preparatory Approach	Tick (✓)
Consult the users	☐
Consult the community	☐
Seeking advice from Health Extension Workers and Woreda Education, Health and Water office is mandatory	☐
Have a operation and maintenance plan and budget	☐
Have a monitoring and supervision plan	☐
Have good linkage between woreda health, education and water offices.	☐

12. What do you think about the WaSH situations in the primary schools of the Woreda?

13. Does the Office have a standard ratio of toilets to number of students and minimal standards for latrine construction? Yes ☐ No ☐

14. Does the Office mobilize professionals for preventive and promotion work survey? Yes ☐ No ☐

15. Does the Office inspect and evaluate health situations in primary schools? Yes ☐ No ☐

16. Do you have any monitoring and evaluation mechanism? Yes ☐ No ☐

17. Does the Office allocate finance for the construction of WSS facilities in the existing schools? Yes ☐ No ☐

18. Does the Office provide school WaSH funding for?

a) Advocacy Yes ☐ No ☐ c) program design Yes ☐ No ☐

b) Operation & maintenance Yes ☐ No ☐ d) monitoring & evaluation Yes ☐ No ☐

19. What amount of fund have you allocated this year for school WaSH?__

20. Have you been providing or do you have a plan to provide water and sanitation facilities in schools? Yes ☐ No ☐

If not, why not?_____

21. Do you have a database on school WSS in the region? Yes ☐ No ☐

22. Does your Office conduct WaSH-related environmental health baseline survey particularly in primary schools of the region? Yes ☐ No ☐

Can you provide some data? Yes ☐ No ☐

23. Have you got data on the incidence of diseases and WaSH coverage in schools so as to get a complete overview of resources, or data about disease prevalence?

Yes ☐ No ☐

If yes, list the sanitation-related diseases in the primary schools of the region.

If not, how do you determine where investments and interventions were most urgently needed?_____

24. At national level, there is a memorandum of understanding that was signed among MoH, MoWME and MoE. Does this agreement true for your Region and Woredas?
Yes ☐ No ☐
25. Did your Woreda have established a *formal and parallel* communication and practical collaboration among Health, water and education offices of the Woreda?
Yes ☐ No ☐
If not, why not? _____
26. Do you know the details of a memorandum of understanding that was signed between the Bureaus of Health, Education and Water Resources of the Region on the implementation modality for integrated WaSH? Yes ☐ No ☐
27. What is the role of your Office in school WaSH program implementation?

28. What is/are good practices of your Office with WaSH program? _____
29. What is/are major challenges of your Office with WaSH program?

30. In your opinion, what remedial solution/solutions do you suggest for these major challenges? _____

Thank you for your thought, time, and effort in answering these questions!

Annex 6

Key Informant Unstructured Interview with Health Extension Workers

Your/ your institution name: _____

Woreda: _____ Kebele _____

1. Do you visit a nearby school to inspect or provide educational information to the students on hygiene and sanitation?
2. If you do not visit a nearby school, why not?
3. If you are visiting the nearby school, how regularly do you visit the school each year to provide this information?
4. What are your observations of the situation of WaSH in the school?
5. Do you have a role and participate in the school health (water supply, sanitation and hygiene education) activities? If yes, in which services?
6. In which of the following issues do you participate?
 - a) In the development of systems for appropriate use, cleaning and maintaining of the WaSH facilities, e.g. student rotas, cleaners
 - b) In the development of popular school clubs in the promotion of school WaSH, including the organization of operation and maintenance systems in the school.
 - c) In the training/coaching of smaller children in the proper use of the WASH facilities
 - d) In the training of those responsible for cleaning and maintaining the WaSH facilities
 - e) In Providing Hygiene Education to the school community (students, teachers and other staff)
7. What challenges have you faced?
8. In your opinion, what do suggest as solution for the problems encountered?

Thank you for your thought, time, and effort in answering these questions!!

Annex 7

Key Informant Unstructured Interview with Regional BoFD and WoFD Office

1. What is the basis for your budget allocation to sector Bureau/Offices?
2. What shares of each of these funds are allocated to sector offices?
3. What are the total budgets of the Bureau/Woreda in the past five years?
4. What shares of these total budgets are allocated to the sector offices?
5. What are the capital and recurrent allocations and expenditures for Education, Water and Health Offices for the past five years?
6. What is the budget utilization trend in Education, Water and Health Offices (both capital and recurrent) for the past five years?
7. What problems have you encountered? What solution do you suggest?

Thank you for your thought, time, and effort in answering these questions!!

Annex 8

KII conducted with student representatives

- For what use do you need water in your school
- Is there a problem of access to water: drinking, washing?
- Do you Use toilets at school? At home? Why not?
- What do you want the toilets to be: clean, segregated?
- Are you ready to clean toilets?
- can you self-organize to clean toilets
- Do you think students are using the existing facilities properly? If not why not? Do you take hygiene education?
- Do you have active sanitation clubs?
- Do you discuss with your parents?
- What do you think the solution could be there?

Annex 9

Unstructured Interview with some Concerned NGOs

1. Technology options

- a. The technology is of a standard acceptable within the framework of the National Sanitation Protocol. The frame work is formulated at federal level and adapted at school level.
- b. The technology is appropriate to the needs and preferences of the users (small and older children, girls and boys, children with special needs, and teachers)
- c. The technology is appropriate to the financial capacity of the school and woreda, and is replicable at the end of its useful life span.
- d. The operation and maintenance costs of the technology are within the capacity of the school
- e. The necessary skills can be developed to maintain the facilities at school and community level in addition to technical support from the woreda
- f. The technology option should be environmental friendly, simple to be replicated by community members.

2. Design

- a. The design is appropriate to the needs and preferences of the users (small and older children, girls and boys, children with special needs, and teachers)
- b. The design considers issues such as size, location, access, orientation, ease of use and cleaning, privacy, ventilation, geographical diversity, gender, ease of understanding, etc
- c. The design is to be of low construction cost but keeping to minimum standards of sanitation, safety and need to consider durability.
- d. The design is to be of low operation and maintenance costs
- e. The design should be consulted by schools, PTAs and other stakeholders

3. Financing

- 3.1 Cost estimates are to be produced for construction, before approval of the project
- 3.2 Cost estimates are to be produced for operation and maintenance, before approval of the project
- 3.3 Cost sharing agreements are made between school woreda and other partners beyond construction for operation and maintenance to be agreed in advance
- 3.4 PTAs and kebele school board are to approve, allocate and monitor budgets for operation and maintenance.
- 3.5 The school should include WASH in its school action plan

4. Community and Users Participation

- 4.1 Users (small and older children, girls and boys, children with special needs, and teachers) are to be consulted on technology and design to ensure relevance to needs and preferences
- 4.2 PTAs, kebele school board, communities and teachers are to be consulted on costs of construction and operation and maintenance
- 4.3 PTAs, kebele school board, communities and teachers are to develop operation and maintenance plans prior to construction
- 4.4 Teachers and other users are to be consulted on development of monitoring and supervision plans.
- 4.5 There are to be a good links developed between the Woreda Administration, Education, Health and Water Offices to support the cluster and schools in the planning, construction, operation and maintenance, and supervision, monitoring and compliance.

Thank you for your thought, time, and effort in answering these questions!!

Annex 10

FGD with PTAs

1. Have you ever involved in the needs assessment of the school users – including small and older children, girls and boys, children with special needs, and teachers – for WASH facilities?
2. Are you consulted with the users and other stakeholders on the different technology options and designs?
3. Have you ever involved in selecting technologies and designs appropriate that are appropriate to the school considering needs and preferences of users, cost of construction, ease of use and maintenance, cost of operation & maintenance, replicability, etc?
4. Have you ever involved in issues like annual budgets for the operation and maintenance of WASH facilities ensuring good access, and adequate standards of operation and maintenance. This can include activities such as cleaning of latrines, repairs to facilities, payment of monthly water bills, etc?
2. Are the facilities interactive space that stimulates children's learning and development?
3. Are the facilities designed with the full participation and involvement of children, teachers, parents and communities?
4. The facilities are designed with low cost materials with no compromise in the quality,
5. The facilities addresses the special needs and roles of girls and boys of all ages and children with disabilities,
6. The facilities are friendly - not harmful to the environment,
7. The facilities have appropriate dimensions and features for school children,
8. The facilities encourage hygienic behavior
9. The facilities offer enough capacity and minimal waiting time,
10. The facilities have well considered locations.

Annex 11

Checklist for observation of latrines, water facility and students' usage of the facilities

School name _____ School Id _____

Indicator	
Are the latrines functioning?	Yes / No
Total number of existing latrines	
Are there separate latrines for girls?	Yes / No
Is there easy access to the latrines for the boys and girls?	Yes / No (e.g. in bad condition, locked so that there are not enough latrines for the children)
Condition of doors for privacy	Good; fair (needs repair); bad (needs replacement)
Condition of roofs for protection	Good; fair (needs repair); bad (needs replacement)
Is there a bucket with water and a mug inside each latrine?	Yes / No (no cup, no bucket, or bucket is not with water)
Cleanliness: No visible garbage, excreta on floors. No visible excreta or dirt in pan	Good; fair (should be cleaned better or more often); bad (children don't like to use the latrine)
Do all students use the toilets	Yes / No
Are there hand washing facilities near the latrine?	Yes / No
Do children use the hand washing facilities?	Yes / No
Is there soap by the hand washing facility	Yes / No
Are facilities child friendly?	Yes / No
Are there puddles or pools of water/urine?	Yes / No
well considered locations	Yes / No
Have enough capacity and no waiting time	Yes / No
Is the water from the facility safe for drinking purpose	Yes / No
How many faucets are working?	

Annex 12: Statistical data of the Schools surveyed (in 2010/2011 academic year)

School Name	Grade Level	Number of Students			Number of Teachers			No. of Rooms	No. of Sections	Number of Toilets		
		Boys	Girls	Total	Male	Female	Total			Boys	Girls	Total
<i>Selamber</i>	1-8	1053	1404	2457	38	35	73	20	37	8	8	16
<i>Hoha No.5</i>	1-6	190	176	366	5	5	10	6	6	4	4	8
<i>Nigat</i>	1-8	161	209	370	15	3	18	10	8	4	4	8
<i>Megele Abramo</i>	1-8	528	356	884	11	5	16	8	13	4	4	8
<i>Goe</i>	1-8	264	292	556	12	12	24	9	9	6	4	10
<i>Baro</i>	1-8	423	409	832	6	9	15	12	12	4	4	8
<i>Ruhama</i>	1-8	168	197	365	12	3	15	8	8	2	2	4
<i>Selga No.2</i>	1-8	447	416	863	11	6	17	11	11	2	2	4
<i>Hoha No.6</i>	1-8	282	246	528	8	10	18	8	17	4	4	8
<i>Hoha No.10</i>	1-8	367	333	700	11	8	19	10	8	4	4	8
<i>Basha Buda</i>	1-8	186	217	403	8	1	9	8	8	2	2	4
<i>Benishangul</i>	1-7	256	308	564	11	11	22	11	12	4	4	8
<i>Hoha No.3</i>	1-8	302	251	553	6	3	9	8	10	4	6	10
<i>Hoha No.4</i>	1-8	535	574	1109	8	16	24	9	8	4	4	8
<i>Oura</i>	1-8	469	433	929	18	8	26	19	6	1	1	2
<i>Hoha No.2</i>	1-8	558	539	1097	15	7	22	12	12	6	6	12
Total		6189	6360	12549	195	142	337	169	185	63	63	126

Annex13.Sample Distribution of Teachers in Sample Schools

School	No. of respondent	Percent
Selamber	10	15.6
Hoha No.4	5	7.8
Nigat	4	6.3
Ruhama	4	6.3
Megele Abrahamo	3	4.7
Baro	3	4.7
Gohe	5	7.8
Benishangul	5	7.8
Hoha No.2	3	4.7
Hoha No.3	2	3.1
Basha Buda	3	4.7
Oura	4	6.3
Hoha No.10	3	4.7
Hoha No.6	4	6.3
Hoha No.5	2	3.1
Selga No.2	4	6.3
Total	64	100.0

(Source: Computed from survey data, 2011).

Annex 14: Type of water supply source with school location

Type of water supply source	Location of school		Chi-square value
	Urban	Rural	
Dug well with pump	0	4	16
Dug well (rope and bucket)	0	1	
Protected spring	0	1	
Surface water (river, lake, and pond)	0	5	
Connected with the town pipeline	5	0	
Total	5	11	

(Source: Computed from survey data, 2011)

Annex 15: Main water uses in sampled schools within water source type categories.

Type of water supply source		The water supply use in school			
		Drinking	Cleaning classroom	All of the above	No water supply
Dug well with pump	% within water source	50.0%	.0%	50.0%	.0%
Dug well (rope and bucket)	% within water source	.0%	100.0%	.0%	.0%
Surface water (river, lake, and pond)	% within water source	50.0%	.0%	.0%	50.0%
Connected with the town pipeline	% within water source	50.0%	.0%	50.0%	.0%
Total	% within water source	46.2%	7.7%	30.8%	15.4%

(Source: Computed from survey data, 2011)

Annex 16: Type of water source and method of treatment used for drinking water in schools

Type of water source	Method of treatment used			Total
	Chlorination	Boiled	Not treated	
Dug well with pump	4	0	0	4
Dug well (rope and bucket)	1	0	0	1
Protected spring	0	0	1	1
Surface water (river, lake, and pond)	0	1	3	4
Connected with the town pipeline	5	0	0	5
Total	10	1	4	15

(Source: Computed from survey data, 2011)

Annex17: Drinking water sources of students in sampled schools.

Source of drinking Water at School	Name of school			Total
	Selamber	Hoha No.4	Nigat	
School water supply	68	38	16	122
Holding from home	10	4	0	14
Tolerating until get back to home	11	1	0	12
Nearby village water supply	0	3	0	3
Nearby household	3	0	0	3
Drink much water before coming to school	2	0	0	2
Total	94	46	16	156

(Source: Computed from survey data, 2011)

**Annex 18: Confidence of students about their knowledge of environment
and personal hygiene by grade level**

Confidence level		Grade level			Chi-square value(X ²)
		4th	6th	8th	
More confident	% within grade level	55.6%	53.2%	64.7%	6.057
Confident on average	% within grade level	37.8%	30.6%	29.4%	
Not that much confident	% within grade level	4.4%	14.5%	5.9%	
Not confident	% within grade level	2.2%	1.6%	.0%	
Total	% within grade level	100.0%	100.0%	100.0%	

(Source: Computed from survey data, 2011)

Annex 19: Attitudes of students in sampled schools towards washing a hand with no visible dirt

Is it necessary to wash a hand with no visible dirt?		School			Chi-square value
		Selamber	Hoha No.4	Nigat	4.887
Necessary	% within school	97.7%	90.2%	100.0%	
No necessary	% within school	2.3%	9.8%	.0%	
Total	% within school	100.0%	100.0%	100.0%	

(Source: Computed from survey data, 2011)

Annex 20: Frequency of hand -washing after using a latrine by sampled students in their respective grade levels

Frequency of hand -washing		Grade level			Chi-square value
		4th	6th	8th	4.515
Always	% within grade level	97.8%	98.3%	91.7%	
Some time	% within grade level	.0%	1.7%	4.2%	
Never	% within grade level	2.2%	.0%	4.2%	
Total	% within grade level	100.0%	100.0%	100.0%	

Source: Computed from survey data, 2011

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Declaration

I, the undersigned, declare that this thesis is my original and real work that has not been for a degree in any other university and that all sources of materials used for the thesis have been duly acknowledged.

Declared by



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Confirmed by



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