EVALUATION OF THE AVAILABILITY OF SAFE WATER AND SANITATION FACILITIES IN IDP CAMPS IN KAHDA DISTRECT IN MOGADISHU, SOMALIA

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ABSTRACT

Water, Sanitation and Hygiene (WASH) is generally a challenge in Somalia particularly in IDP settlements where access to water and sanitation facilities is limited. Children particularly the ones under the age of 5 years mostly fall victim to diseases caused by poor sanitation and hygiene practices. The objective of this study was to evaluate the availability of safe water and sanitation facilities in IDP camps Kahda district Mogadishu Somalia. The study was descriptive cross-sectional baseline assessment. The study area was selected purposively 4 IDPs camps in Kahda district and the sample size was 166 households, draw from 270 households from selected 4 IDPs using Cochran's formula for calculating sample size when population size is finite. Administrated closed-ended questionnaire and observational checklist was used as data collection tools and the study employed statistical package for social science SPSS version (20.0) for data analyzing and data was present descriptive statistics graphs and frequencies tables. Majority of the households 84 (51.5%); their source of water were hand dug well with pump as well as Most of the households 100 (61.3%); it takes 3km walk to get a water from their nearest point source while the guide to WASH cluster strategy and stander states that the maximum distance from any household to the nearest water point should be 500 meters. Which means it is longer than the stander and 61 (37.4%) households they bring 1 dollar per day to get water, 52 (31.9%) they bring less than $0.5 per day so that it is one factor that may affect the availability of safe water and sanitation, whereas A very large number of households 105 (64.4%) don't treat their drinking water to improve the quality of water and The study also founded that 21 (12.9 %) of the households do not have latrine and 153 (93.9%) of the households share latrine with their neighbor and most of these households 57 (35%) they share latrine with 5 households and above, 37 (22.7%) they share latrine with 4 households, while the highly average 117 (71.8%) of the households do not wash their hands after using toilet. The study was done and it proves that the water source is far from and longer three times more than the standard, the quality of drinking water is not good and the knowledge of the dwellers for the treatment of drinking water needs to improve. Some of the households don't have latrine and they share with their neighbor. the study recommends Federal Ministry of health and social welfare, local and international nongovernmental organization and authorities concerned with constructing water source near IDPs, conducting health promotion campaign for drinking water treatment and hygiene and constructing toilets.

1.0 background of the study

Safe water, sanitation and hygiene at home should not be a privilege of only those who are rich or live in urban centers," says Dr Tedros Adhanom Ghebreyesus, WHO Director General. "These are some of the most basic requirements for human health, and all countries have a responsibility to ensure that everyone can access them." In order to decrease global inequalities, the new Sustainable Development Goals (SDGs) call for ending open defecation and achieving universal access to basic services by 2030. Of the 2.1 billion people who do not have safely managed water, 844 million do not have even a basic drinking water service. This includes 263 million people who have to spend over 30 minutes per trip collecting water from sources outside the home, and 159 million who still drink untreated water from surface water sources, such as streams or lakes. (WHO, 2017) Globally, significant progress has been made to increase access to water and sanitation during the Millennium Development Goals (MDG) era. Over the last two decades more than 2 billion people have gained access to improved drinking water and almost 2 billion to sanitation. Indeed, the MDG target for drinking water was achieved five years ahead of schedule. However, 663 million people still lack access to improved drinking water, and questions remain about both the sustainability and safety of drinking water supplies. Of great concern is the fact that some 2.4 billion people do not use improved sanitation facilities, and almost one billion people practice open defecation. Notably, many countries in Africa were unlikely to meet the MDG targets for either water or sanitation. (UNICEF, 2015)

2 In 90 countries, progress towards basic sanitation is too slow, meaning they will not reach universal coverage by 2030 and Of the 4.5 billion people who do not have safely managed sanitation and 2.3 billion still do not have basic sanitation services. This includes 600 million people who share a toilet or latrine with other households, and 892 million people – mostly in rural areas – who defecate in the open. Due to population growth, open defecation is increasing in sub-Saharan Africa and Oceania. Good hygiene is one of the simplest and most effective ways to prevent the spread of disease. For the first time, the SDGs are monitoring the percentage of people who have facilities to wash their hands at home with soap and water. According to the new report, access to water and soap for hand-washing varies immensely in the 70 countries with available data, from 15 per cent of the population in sub-Saharan Africa to 76 per cent in western Asia and northern Africa. "Safe water, effective sanitation and hygiene are critical to the health of every child and every community – and thus are essential to building stronger, healthier, and more equitable societies," said UNICEF Executive Director Anthony Lake. "As we improve these services in the most disadvantaged communities and for the most disadvantaged children today, we give them a fairer chance at a better tomorrow. (WHO, 2017)

the Specific objectives of the study

1. To assess the availability and access of safe water in IDP camps kahda district.
2. To determine the availability of improved sanitation facilities in IDP camps kahda district.
3. To define the factors that influences the availability of safe water and sanitation facilities in IDP camps kahda district.

2.0 METHODOLOGY

2.1 Study design of the research

Study design was descriptive cross-sectional study design only quantitative to identify the availability and access of safe drinking water and improved sanitation facilities in IDPs kahda district.

2.2 Study area of the research

The study area was kahda district which is the 17th of banadir region and it is a very distinctive region and is located in south-west of Banadir region and is located south of Dharkenley, it is also west of Lafoole District of Lower Shabelle Region, north of Deynile district. The district is under the control of Ex-Controle Afgooye and is located in Longitude in Lower Shabelle. but has experienced many different stages, the district identified directly 15/10/2012 to be one of the districts in banadir region and founded on Monday and the many problems which occurred in Mogadishu city and it contains four sub districts and they are Ali janaale, Barwaaqo, Shimbiraale and KM13 (which are Still not provided for a direct name) and the district is approximately 15kms per inch. Andthereare about 120000 people.

2.3 sample size

The study covered total IDPs in the study area and selected 4 IDPs from all IDP camps in the district and sample size was 166 which was drawn from total population of those 4IDPs (270).

2.4 Data collection tools

Structured, Survey Closed Ended Questionnaires and observational checklist was used as data collection tools.

2.5 Ethical considerations

Ethical approval for the study was obtained from the Institutional Research Board, Faculty of Health Science, and Jamhuuriya University for Science and Technology. Each subject was given verbal consent and agreed to be part of the study after explanation of the aim of the study and re-assurance of confidentiality of the information.

3.0 Results

3.1 Respondent by gender

Categories	Frequency	Percent%
Male	36	22.1
Female	127	77.9
Total	**163**	**100.0**

Table 3.1 Respondent by gender

The majority of the respondents 127 (77.9%) were female and 36 (22.1%) were male.

3.2 Respondent by age

Categories	Frequency	Percent%
18-24	16	9.8
25-35	70	42.9
36-45	58	35.6
46-55	15	9.2
56-65	4	2.5
Total	**163**	**100.0**

Table 3.2Respondent by age

As the result of the study, Most of the respondents who participated this study 70 (42.9%) were between the age of 25-35, 58 (35.6%) were between the age of 36-45, 16 (9.8%) were between the age of 18-24, 15 (9.2%) were between the age of 46-55 and rest of the respondents 4 (2.5%) were between the age 56-65.

3.3 Respondent by educational level

Categories	Frequency	Percent
Primary	13	8.0
University	1	.6
Illiterate	149	91.4
Total	**163**	**100.0**

Table 3.3 Respondent by educational level

149 (91%) were illiterate, 13 (8.0%) were primary level and one individual of the respondents (0.6%) were university level.

3.4 Respondent by household members?

variables	Frequency	Percent%
2 only	14	8.6
2-4	57	35.0
5-6	58	35.6
7 and above	34	20.9
Total	**163**	**100.0**

Table 3.4 Respondent by household members?

Majority of household members 58(35.6%) were b/w 5-6 members, 57 (35.0%) were b/w 2-4, 34 (20.9%) were 7 and above and rest of households 14 (8.6%) were 2 members only.

3.5 Respondent by occupation status

Variables	Frequency	Percent%
Employee	63	38.7
Unemployed	100	61.3
Total	**163**	**100.0**

Table 3.5 Respondent by occupation status

Very high average of the respondents 100 (61.3%) were unemployed and 63 (38.7%) rest of respondents were employee.

3.6 What is the main source of drinking water?

Categories	Frequency	Percent%
piped water	56	34.4
hand dug well with pump	84	51.5
from vendors	16	9.8
pond water	7	4.3
Total	**163**	**100.0**

Table 3.6 What is the main source of drinking water?

According to respondents the Majority of the households 84 (51.5%) there source of water were hand dug well with pump, 56 (34.4%) were get piped water, 16 (9.8%) their source of water were from vendors and 7 (4.3%) their source of water were pond water.

3.7 How much water is used in this household per day?

Categories	Frequency	Percent
40-60 liters	38	23.3
61-90 liters	39	23.9
91-120 liters	20	12.3
120 liters and above	66	40.5
Total	**163**	**100.0**

Table 4.7 How much water is used in this household per day?

Most of households 66 (40.5%) were used 120 liters per day 39 (23.9%) of households were used 61-90 liters of water per day, 38 (23.3%) of households were used per day 40-60 liters, rest of households 20 (12.3%) were used 91-120 liters of water per day.

3.8 Is the water you are receiving enough to satisfy your household basic needs?

Variables	Frequency	Percent%
Yes	50	30.7
No	113	69.3
Total	**163**	**100.0**

Table 4.8 Is the water you are receiving enough to satisfy your house hold basic needs?

Majority of the respondents 113 (69.3%) they said no which means the receiving water it's not enough to satisfy our basic needs and 50 (30.7%) were said yes.

3.9 How long does it take you to fetch water from nearest water point?

Variables	Frequency	Percent%
less than 30 minutes	19	11.7
30 m-1hr	100	61.3
1hr and half - 2hr	35	21.5
above 2hr	9	5.5
Total	**163**	**100.0**

Table 3.9 How long does it take you to fetch water from nearest water point?

This table shows Most of the households 100 (61.3%) it takes to get a water from their nearest point 30 m-1hr, 35 (21.5%) also it takes 1hr and half - 2hr, 19 (11.7%) it takes less than 30 minutes and small number of household 9 (5.5%) it takes above 2hr.

3.10 Do you do anything (treat) to improve the quality of drinking water?

Variables	Frequency	Percent%
Yes	55	33.7
No	108	66.3
Total	**163**	**100.0**

Table 3.10 Do you do anything (treat) to improve the quality of drinking water?

A very large number of households 105 (64.4%) they don't do anything of treatment to improve quality of their drinking water and 50 (37.7%) they do drinking water treatment.

3.11 If your response yes in the above question, which treatment?

Variables	Frequency	Percent%
Chlorination	47	28.8
Boiling	7	4.3
Others	1	.6
Total	**55**	**33.7**

Table 3.11 If you response yes in the above question, which treatment?

According to the respondents 47 (28.8%) out of 55 who were select yes, they use chlorination to treat their drinking water and 7 (4.3%) were use boiling, and 1 (0.6%) were use other method.

3.12 How much does it cost you to get water per day?

Variables	Frequency	Percent
it free	24	14.7
less than $0.5	52	31.9
1 dollar	61	37.4
2 dollars	26	16.0
Total	**163**	**100.0**

Table 3.12 How much does it cost you to get water per day?

This table shows, most of the households 61 (37.4%) they bring 1 dollar per day to get water, 52 (31.9%) they bring less than $0.5 per day, 26 (16.0%) they bring 2 dollars per day and 24 (14.7%) they get a water for free.

3.13 Do you think it's important to use latrine?

Variables	Frequency	Percent%
Yes	137	84.0
No	26	16.0
Total	**163**	**100.0**

Table 3.13 Do you think it's important to use latrine?

Most of the respondents 137 (84.0%) they said it's important to use latrine and rest of respondent don't agreed it's important to use latrine.

3.14 Do you have a latrine?

Variables	Frequency	Percent%
Yes	142	87.1
No	21	12.9
Total	**163**	**100.0**

Table 3.14 Do you have a latrine?

According to the respondents, more than half of households 142 (87.1%) who were under the study were have a latrine and 21 (12.9%) they don't have latrine.

3.15 What kind of latrine do you have?

Variables	Frequency	Percent%
traditional pit latrine	157	96.3
Others	6	3.7
Total	**163**	**100.0**

Table 3.15 What kind of latrine do you have?

Most of the households in the IDPs 157 (96.3%) were used traditional pit latrine and 6 (3.7%) were used others method or other way.

3.16 Do you share latrine with other household members?

Variables	Frequency	Percent%
Yes	153	93.9
No	10	6.1
Total	**163**	**100.0**

Table 3.16 Do you share latrine with other household members?

Majority of the households in IDPs 153 (93.9%) they shared latrines with other households and 10 (6.7%) they don't share latrine with other households.

3.17 If you response yes in the above question how many household do you share with the latrine?

Variables	Frequency	Percent%
2 households	31	19.0
3 households	28	17.2
4 households	37	22.7
5 households and above	57	35.0
Total	**153**	**93.9**

Table 3.17 If you response yes in the above question how many household do you share with the latrine?

57 (35%) out of 153 (93.9%) who were said previous question (yes) they share latrine with 5 households and above, 37 (22.7%) they share latrine with 4 households, 31 (19%) they share latrine with 2 households and 28 (17.2%) they share latrine with 3 households.

3.18 What is the condition inside the container you store drinking water?

Variables	Frequency	Percent%
clean	45	27.6
dirty	118	72.4
Total	**163**	**100.0**

Table 3.18 What is the condition inside the container you store drinking water?

Many households 118 (72.4%) the condition inside their storage containers of drinking water were dirty and 45 (27.6%) were clean.

3.19 Do you wash your hands after using toilet?

Variables	Frequency	Percent%
Yes	46	28.2
No	117	71.8
Total	**163**	**100.0**

Table 3.19 do you wash your hands after using toilet?

This figure and table shows Majority of the respondents 117 (71.8%) they don't wash their hands after using toilet and rest of the respondents 46 (28.2%) they wash their hands after using the toilet.

3.20 If you have children how did you dispose the children's feaces?

Variables	Frequency	Percent%
child used potty	110	67.5
thrown into garbage	23	14.1
buried	18	11.0
left in the open	12	7.4
Total	**163**	**100.0**

Table 3.20 If you have children how did you dispose the children's feaces?

Majority of the households 110 (67.5%) were used child used potty to dispose their children's feces, 23 (14.1%) they thrown into garbage, 18 (11%) they buried and 12 (7.4%) they left in the open.

3.21 Does anyone in your household less or equal 5 years of age has unusual diarrheal symptoms (watery/bloody diarrhea for a few days) in the last year?

Variables	Frequency	Percent%
Yes	66	40.5
no	62	38.0
does not apply	35	21.5
Total	**163**	**100.0**

Tables 3.21 Does anyone in your household less or equal 5 years of age has unusual diarrheal symptoms (watery/bloody diarrhea for a few days) in the last year?

Many under five children of age 66 (40.5%) were occurred watery /bloody diarrhea for a few days in the last year, 62 (38%) of under five children of age were not occurred diarrhea and 35 (21.5%) does not apply.

3.22 Are drinking water container properly covered?

Variables	Frequency	Percent%
Yes	61	37.4
No	102	62.6
Total	**163**	**100.0**

Table 3.22 Are drinking water container properly covered?

Majority of households 102 (62.6%) their drinking water containers were not properly covered and 61 (37.4%) of drinking water containers were properly covered.

3.23 Are there any chemicals waste oil petrol solvent on or around the water point with in 50cm?

Variables	Frequency	Percent%
Yes	45	27.6
No	118	72.4
Total	**163**	**100.0**

Table 3.23 Are there any chemicals waste oil petrol solvent on or around the water point with in 50cm?

This table shows, Most of the households in the IDPs 118 (72.4%) there were not any chemicals waste oil petrol solvent on or around the water point with in 50cm and 45 (27.6%) there was chemicals waste oil petrol solvent on or around the water point with in 50cm.

3.24 Is there water turbid?

Variables	Frequency	Percent%
Yes	68	41.7
no	95	58.3
Total	**163**	**100.0**

Table 3.24 is there water turbid?

According to observation checklist 95 (58.3%) of the households did not have water turbid and 68 (41.7%) their water was turbid.

3.25 Does water have and abnormal test?

Variables	Frequency	Percent%
Yes	67	41.1
No	96	58.9
Total	**163**	**100.0**

Table 3.25 does water have and abnormal test?

Majority of household drinking water 96 (58.9%) did not have abnormal test and 67 (41.1%) had abnormal test.

3.26 Are the water container general dirty?

Variables	Frequency	Percent%
Yes	85	52.1
No	78	47.9
Total	**163**	**100.0**

Table 3.26 are the water container general dirty?

Most of the households their water containers 85 (52.1%) were generally dirty and rest others 78 (47.9%) were not generally dirty.

3.27 Are there leaks on the piping on the borehole headwalls?

variables	Frequency	Percent%
Yes	35	21.5
No	128	78.5
Total	**163**	**100.0**

Table 3.27 are there leaks on the piping on the borehole headwalls?

128 (78.5%) there were not leaks on the piping on the borehole headwalls and 35 (21.5%) there were leaks on the piping on the borehole headwalls.

3.28 does water have an odour or smell bad?

variables	Frequency	Percent%
Yes	27	16.6
no	136	83.4
Total	**163**	**100.0**

Table 3.28 does water have and odour or smell bad?

Majority of household water 136 (83.4%) did not have an odour or smell bad and 27 (16.6%) had an odour or smell bad.

3.29 Is there water point manager?

variables	Frequency	Percent%
Yes	35	21.5
No	128	78.5
Total	**163**	**100.0**

Table 3.29 is there water point manager?

Large number 128 (78.5%) there were not water point manager and rest 35 (21.5%) there were water point manager.

3.30 How is general condition of the latrine?

Variables	Frequency	Percent%
Good	17	10.4
Bad	146	89.6
Total	**163**	**100.0**

Table 3.30how is general condition of the latrine?

Majority of households 146 (89.6%) their general condition of latrines were bad and small number of households 17 (10.4%) their general condition of latrines were good.

Discussion

According to demographic characteristics The majority of the respondents 127 (77.9%) were female and 36 (22.1%) were male that means women are more likely to stay houses for caring children and Most of them 70 (42.9%) were between the age of 25-35, 58 (35.6%) were between the age of 36-45, 16 (9.8%) were between the age of 18-24, 15 (9.2%) were between the age of 46-55 and 4 (2.5%) were between the age 56-65 also 149 (91%) were illiterate, 13 (8.0%) were primary level and one individual of the respondents (0.6%) were university level and 58(35.6%) were b/w 5-6 members, 57 (35.0%) were b/w 2-4, 34 (20.9%) were 7 and above and rest of households 14 (8.6%) were 2 members only.

Based on the results founded in previous studies, The majority of the respondents 756 (94.4%) were mothers and the remaining 45 (5.6%) were their spouse and Five hundred eighty-eight (73.4%) mothers and 458 (66.1%) fathers were illiterate whereas the majority (89.5%) of respondents were married and 602 (75%) had a family size of five or more with a mean family size of 5.95 (±1.944 SD) persons. (Yimam Tadesse Yimam, Kassahun Alemu Gelaye at el, 2013)

The results of the study showed84 (51.5%); of the households their source of water were hand dug well with pump, and Most of the households 100 (61.3%); it takes 3km walk to get a water from their nearest point source and 66(40.5%); were used 120 liters per day and 39 (23.9%) of households were used 61-90 liters of water per day and 38 (23.3%) were used per day 40 -60 liters, and more than half of respondents 113 (69.3%) Did not satisfy the water they receive and very large number of households 105 (64.4%) they don't do anything of treatment to improve quality of their drinking water and According to the respondents47 (28.8%) out of 55 who treated their water, they use chlorination and 7 (4.3%) were use boiling, and 1 (0.6%) were use other method and Most of the households 61 (37.4%) they bring 1 dollar per day to get water also 52 (31.9%) they bring less than $0.5 per day.

As the previous study results in Kenya, Most of the respondents (51%) obtained their water from open sources and the remaining 49% obtained water from boreholes (41%) and taps (8%), which are relatively safer for drinking as they are less exposed (Kimongu Justus Kioko at el, 2012) and The majority of households (81%) do not treat drinking water at household level. Eighty-six percent of households use narrow mouthed containers for storing drinking water. (UNICEF, 2017)The respondents were further asked about the water treatment methods they used on the water they perceived unsafe for drinking. The results are given of the river water users, 50% used chlorination while the remaining 50% boiled their water. For those using tap water, 12.5% used boiling, 50% used chlorination with 37.7% using filtration. Among the borehole water users 95% used chlorination and 5% filtered their water. (Kimongu Justus Kioko at el, 2012) The average water collection time is 46.5 minutes and it took less than 30 minutes to collect water (including two-way travel and queuing time) for 48% of households and more than a third (37%) of households do not have access to toilet facilities. (UNICEF, 2017)

The study also founded that 21 (12.9 %) of the households do not have latrine and 153 (93.9%) of the households share latrine with their neighbor that can result many unhygienic problems and 117 (71.8%) of the households do not wash their hands after using toilet and Majority of the households 110 (67.5%)Were used potty to dispose their children's feces and 23 (14.1%) they thrown into

garbage, and 12 (7.4%) they left in the open and Many under five children of age 66 (40.5%) were occurred watery /bloody diarrhea for a few days in the last year due to unhygienic practices and lack of safe water and Majority of households 102(62.6%) their drinking water containers were not properly covered also highly number of households 146 (89.6%) their general condition of latrines were bad which is significant related diarrheal diseases.

Based on the result of Ethiopia up to 60% of the current disease burden is attributable to poor sanitation. Latrine facility coverage is increasing since Health Extension Program started, whereas less attention to quality and utilization of latrine facilities in rural Ethiopia. Whereas a total of 801 households with latrines were assessed for their latrine utilization status. The extent of latrine utilization among 490 (61.2%) households was satisfactory and Types of available latrines in the district were 100% simple pit latrines. About 764 (95.4%) latrines were privately owned and the rest 37 (4.6%) was shared with their neighbors as the result From the functional latrines almost all of latrine slabs were made of mainly wood and mud from this 464 (76.1%) were sealed with mud and the remaining 144 (23.6%) have no properly constructed slab and only 1 cemented. About 290 (52.4%) of latrines had no cover on the squatting hole and Hand washing practices were measured through proxy indicators that focus on the existence of hand washing devices near the latrine. Only 164 (26.9%) latrines have hand washing devices. Water was observed in 124 (75.6%) households and among this soap, ash was observed only in 42 (25.6%) and 23 (14.0%) hand washing stations respectively. Among all functional latrines only 65 (10.7%) of households with access to a place to wash hands that has all essential supplies and Among the 226 households which have 3-5 years children only 20 (8.8%) children were using latrines. Of those households which have ≤5 children 133 (31.7%) households disposed their children's faeces improperly by disposing out of houses somewhere either in the backyard or in the nearby bush. (Yimam Tadesse Yimam, Kassahun Alemu Gelaye at el, 2013)

In the literature results shows the prevalence of open defecation in rural areas is estimated as 56%. Poor hygiene and sanitation practices are major causes of diseases such as cholera among children and women. With only 25 % of the population having access to improved sanitation, empowering communities to take action for their own sanitation needs, as well as supporting schools and health facilities to provide essential sanitary facilities, are priority Water, Sanitation and Hygiene (WASH) interventions. (UNICEF, 2015)

Conclusion

Water, Sanitation and Hygiene (WASH) is generally a challenge in Somalia particularly in IDP settlements where access to water and sanitation facilities is limited. Children particularly the ones under the age of 5 years mostly fall victim to diseases caused by poor sanitation and hygiene practices. And the main objectives of the study was evaluation of safe water and sanitation facilities among IDP CAMPS IN KAHDA district and the results that founded in the study are 21 (12.9 %) of the households do not have latrine and 153 (93.9%) of the households share latrine with their neighbor that can result many unhygienic problems and 117 (71.8%) of the households do not wash their hands after using toiletand Majority of households 102 (62.6%) their drinking water containers were not properly covered also highly number of households 146 (89.6%) their general condition of latrines were bad which is significant related diarrheal diseases. And 84 (51.5%); of the households their source of water were hand dug well with pump, and Most of the households 100 (61.3%); it takes 3km walk to get a water from their nearest point sourceand 66 (40.5%); were used 120 liters per day and 39 (23.9%) of households were used 61-90 liters of water per day and 38 (23.3%) were used per day 40 -60 liters.

REFERENCES

Elizabeth Ndinya at, el. (2016). *improving access water and sanitation in rural somalia.* FEDERAL REPUBLIC SOMALIA: AFRICAN DEVELOPEMENT BANK GROUP.

center, R. r. (2016). *Somali Displacement Crisis: Daynile IDP settlement overview-Mogadisho, Banadir.* https://reliefweb.int.

Hutton G, Rodrigues UE at, el. (2008). *economic impacts of sanitation in southeast Asia* . JAKARTA: world bank.

job wasonga, at, el. (2014). Improving Households Knowledge and Attitude on Water, Sanitation, and Hygiene Practices through School Health Programme in Nyakach, Kisumu County in Western Kenya. *journal of Anthropology*, 1.

John sifuma, at,el. (2016). . In *IMPROVING ACCESS TO WATER AN DSANITATION IN RURAL SOMALIA* (p. 1). somalia: african development bank group.

Kimongu Justus Kioko at el. (2012). Household attitudes and knowledge on drinking water enhance water hazards in peri-urban communities in Western Kenya. *journal of disaster risk studies*, 1-3.

micheal paul schlegelmilch, at, el. (2016). Evaluation of water, sanitation and hygiene program outcomes shows knowledge-behavior gaps in Coast Province, Kenya. *Pan African Medical Journal* , 1.

Sharma NP at, el. (1996). african water resources: challenges and apportunities for sustainable development. *world bank technical paper*, 331.

Sudeshnha Ghosh and Elvira Morella. (2011). *africa's water and sanitation infrastructure, access, Affordability, and Alternatives.* Africa: world bank technical paper.

UNICEF. (2008). Intoduction. In *UNICEF HANDBOOK ON WATER QUALITY* (p. 1). world: Unicef.

UNICEF. (2015). *water sanitation and hygiene.* SOMALIA: UNICEF.

UNICEF. (2015). *water sanitation and hygiene* . SOMALIA: UNICEF.

UNICEF. (2015). *water, sanitation and hygiene.* somalia: unicef.

UNICEF. (2015). *water, sanitation and hygiene* . World: UNICEF.

UNICEF. (2015). *water, sanitation and hygiene* . somalia: unicef.

UNICEF. (2017). *KAP Baseline Survey on Water, Sanitation, and Hygiene.* ethopia: development research and training (dab).

WHO. (2008). *regional global costs of attending the water supply and sanitation (target 10) of the MDGs.* Geneva: world health organization .

WHO. (2010). *progress on sanitation and drinking water* . world: world health organization.

WHO. (2017). *progress on drinking water and sanitation hygiene.* world: World health Organization.

who. (2017). *progress on drinking water sanitation and hygiene.* WORLD: WORLD HEALTH ORGANIZATION.

WHO. (2017). *progress on drinking water sanitation and hygiene.* world: World health organization.

WHO. (2017). *progress on drinking water sanitation and hygiene.* World : WORLD HEALTH ORGANIZATION.

WHO/UNICEF. (2000). *global water supply and sanitation assessment, joint monitoring program geneva.* world: WHO.

WHO/UNICEF. (2010). *Progress on sanitation and drinking water.* World: UNICEF.

WHO/UNICEF. (2010). *Progress on sanitation and drinking water* . world: WORLD HEALTH ORGANIZATION.

Yimam Tadesse Yimam, Kassahun Alemu Gelaye at el. (2013). Latrine utilization and associated factors among people living in rural areas of Denbia district, Northwest Ethiopia,. *the pan african medical journal*, 1-3.