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MINISTRY OF HEALTH

BASELINE SURVEY REPORT

TOPIC: RISK FACTORS INFLUENCING CHILDREN'S HEALTHY ENVIRONMENT IN KAPLAMAI DIVISION TRANS-NZOIA DISTRICT

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WORLD HEALTH ORGANIZATION
(WHO)

COVER PAGE

Teachers and school pupils from the study area besides a heap of collected polythene during the implemention of polythene free initiative.

Table of Contents

Contents **Page**

1.0 Introduction
1.1 Overview of Healthy Environment of Children's Alliance ……. 1
1.2 Study area background information / district profile…… 2
1.2.2 Health profile …… 3
1.2.3 Divisional profile …….. 3
1.2.4 The Divisional priority health problems …….. 4
1.2.5 Community health structure…… 4
2.0 Study objective …… 4
3.0 Study methodology
3.1 Study design …… 5
3.2 Study population …… 5
3.3 Sampling procedure …… 5
3.4 Sample size determination ……. 6
3.5 Sampling technique …… 6
3.6 Data collection tools …….. 6
4.0 Study findings
4.1 Study findings - Community …….. 7
Social Demographic Information …….. 7
Knowledge on the Risk Factors affecting children …….. 12
Risk Prevention Action ……. 13
School Health Clubs ……. 14
Training of CHWs ……. 14
Disposal of Waste & hygiene promotion ……. 16
Frequency of toilet cleaning ……. 18
Importance of flies ……. 20
Hand washing and Hand washing facilities …… 22
Environment cleaning ……. 24
Polythene tree initiative within their environment (community)……. 14
Importance of dish rack …… 26
Safe drinking water (community) …… 26
Diseases spread through drinking water …….. 27
Food safety and security…….. 29
Observation ……. 30
Breading site within the compound …… 31

4.2 **Study findings – School**
Pupil-teacher questionnaire …… 33
Gender distribution in schools …… 34
Knowledge on school health club …….. 34
Club membership ……..35
Importance of school health club ……. 36
Training on school health club ……..37
Method of waste disposal ……. 38
Importance of polythene free initiative …… 40

Source of drinking water ……. 41
Method of water purification …….. 42
Latrines among schools …… 43
Hand washing facility …….. 44
Inspection of foods in schools …….. 46
Conclusion ……. 47
Recommendation …….47

List of Tables

Table1: Marital status……. 8
Table 2: Occupation of the respondent ……. 10
Table 3: Knowledge of risk factors affecting children within their environment..12
Table 4: Risk factors identified …….. 13
Table 5: Preventive Actions …… 13
Table 6: Methods of Waste disposal in the community……16
Table 7: Frequency of toilets cleaning ……..18
Table 8a & b: No and types of Washing facilities in Schools……. 22
Table 9: Awareness of polythene free initiative…… 24
Table 10: Presence of a dish rack…….. 25
Table11: Importance of a dish rack…….. 26
Table12: Source of drinking water ……26
Table13: Method used for purifying drinking water ……..27
Table14: Diseases spread through drinking unclean water…… 27
Table15: Purpose of spraying…… 28
Table16: Breeding sites within the compound…….. 31
Table 17: School population …….. 33
Table 18: Knowledge on school health clubs ……. 34
Tale 19a & b: Club membership ……35
Table 20: Importance of school health clubs …….. 36
Table 21: Method of waste disposal among different schools ……38
Table 22: Importance of polythene free initiative …… 40
Table 23: Distribution of pit latrine …….. 43
Table 24: Distribution of hand washing facilities ……. 44
Table 25: Inspection of food in school …….. 46

List of Figures

Figure 1: Distribution of respondents among the schools…… 7
Figure 2: Gender distribution ……. 8
Figure 3: Religion of respondents ……. 9
Figure 4: Level of education of respondents …….. 10
Figures 5: Importance of Health clubs in schools…… 14
Figure 6: Latrine use together with children …….. 16
Figure 7: Distribution of Latrines in respective schools…… 17
Figure 8a, b & c: Importance of flies ……20
Figure 9: Presence of refuse pit ……..23
Figure 10: Frequency of compound cleaning …….. 24
Figure 11: Importance of polythene free initiative …….. 25
Figure 12: Food safety and security ……. 29
Figure 13: Moulds in cereals …… 29
Figure 14: Type of house ……. 30
Figure 15: Main house in relation to kitchen ……31
Figure 16: Frequency of cleaning the compound ……. 32
Figure 17: Gender distribution in schools ……34
Figure 18: Training on school health clubs …….. 37
Figure 19: Methods of waste disposal …….. 38
Figure 20: Source of drinking water ……. 41
Figure 21: Method of water purification ……...42
Figure 22: Type of hand washing facility …… 45

FACTORS INFLUENCING CHILDREN'S HEALTHY ENVIRONMENT

A Case of Kaplamai Division Trans-Nzoia District

1.0 INTRODUCTION / STUDY AREA BACKGROUND INFORMATION .

1.1 Overview.

The Healthy Environments for Children Alliance (HECA) is a world- wide alliance to intensify global actions on environmental risks to children's health that arise from the settings where they live, learn and play. HECA was launched in 2002 at the world summit on Sustainable Development. By drawing on the strengths of many different parties, HECA aims to mobilize support and intensify global action to make children's environments safe and healthy.

1.1.1 Core Functions of HECA

- Ensure advocacy and awareness-raising
- Provide knowledge, information exchange and experience for decision-making
- Promote effective policies and action at all levels, in all sectors.
- Support countries and communities in creating and maintaining healthy environments for children
- Monitor and evaluate progress.

More than five million children die each year from environmental- related diseases and conditions such as diarrhoea, respiratory illnesses, malaria and unintentional injuries. Millions more children are debilitated by these diseases or live with conditions linked to their environment, ranging from allergies to mental and physical disability.

This suffering is not inevitable. Most of the environment- related diseases and deaths can be prevented using effective, low cost and sustainable tools and strategies.
The challenge is to implement these successful strategies on a national and global scale to provide all children with a healthy place to live, learn and play.

1.1.2 Targeted action

WHO is working with various partners and groups around the world to establish a global alliance to tackle environmental threats to children's health. Tackling these environmental threats requires a concerted, co-ordinated approach. This can be done through homes, schools and communities in general.

HECA is targeting areas in which to make the most difference and add value. A major initial emphasis is to focus on relatively neglected home's environment, where young children spend majority of their time, and where risks interact and expose children to a range of ill- health conditions.

1.2 STUDY AREA - BACKGROUND INFORMATION.

1.2.1 District Profile

Trans Nzoia district is one of the eighteen districts of Rift Valley province. It is bordered by the Republic of Uganda to the West, Bungoma and Lugari districts to the Southwest, West Pokot district to the North, Marakwet district to the East and Uasin-Gishu district to the Southeast.

The district lies between $0^0$52' and 1018' north and 34018' and 35023' east. It covers an area of 2487.3 sq. km, which represents 0.4% of the whole republic and 1.4% of the province including 1980 sq. km of arable land, 507 sq km of non-arable land, 488.08 sq. km of gazetted forest and 111.5 sq km of urban land.

The district comprises of 7 administrative divisions that are further subdivided into twenty seven (27) locations and fifty four (54) sub-locations. The district has three (3) constituencies, Saboti, Kwanza and Cherangani. The local authorities in the District are Kitale Municipality with 12 wards and Nzoia County Council with 26 wards. The district has an average altitude of 1800m above sea level, with the highest point 4318m above sea level (Mt. Elgon) and the lowest point 1400m above sea level. The District has a highland equatorial type of climate with fairly distributed rain throughout the year and an annual precipitation of 1242mm. Mt. Elgon and Cherangani Hills receive highest rainfall while the Northern parts receive the lowest. The rainfall pattern in the district is bimodal in nature with long rains from the month of April to June while short rains are between July and October. Mean temperatures vary between 100C and 300C.

1.2.2 Health Profile

The district has 66 health facilities, 17 of which are manned by the GOK, 9 by the GOK/community, 5 are mission hospitals/facilities. In addition, there are 2 NGO, 30 private, and 3 Municipal facilities. The Kitale District Hospital (KDH) has 240 beds.

The three most prevalent diseases in 2003 were Malaria (177,426 cases), URTI (76,006 and diarrhoeal diseases (19902 cases).

1.2.3 Divisional Profile.

The projected divisional population as per the year 2005 is 128,690. Has a total of (5) locations namely; Kaplamai, Motosiet, Makutano, Sitatunga and Sinyereri locations. The division has 148 villages.

In essence to the North the division borders West Pokot district, to the North East Marakwet district, to the East Cherangani division of Trans Nzoia district, Lugar district to the South. To South East Uasin Gishu district, Central division of Trans Nzoia district to the West and lastly Kwanza division to the North West.

As regards Ministry of Education school zoning the divisional is demarcated into (3) zones namely:- Ngonyek, Makutano and Kapsuru zones.

The total number of primary schools i.e both public and private is 53 in total for the (3) zones all together.

1.2.4 The Divisional Priority Health Problems.

- Malaria
- Intenstinal worms.
- Upper respiratory tract infections.
- Typhoid
- TB & HIV/AIDS
- Amoebiasis
- Diarrhoeal infection.
- Skin infections
- Gastro-enteritis
- Eye infections.

1.2.5 Community Health Structures in Place.

- Locational Environmental Health Committees i.e (LEHCs)
- Locational Primary Health Can Committees (LPHCC)
- Village Health Committees (VHCs)
- School Health Clubs (SHCs)
- Community Based Organizations (CBOs)
- Indoor Residual Spray Teams (IRS Teams)
- Traditional Birth Attendants (TBAs)
- Community Based Distributors of Condoms.

2.0 STUDY OBJECTIVES.

2.1 Broad Objectives.

- To determine factors influencing children's healthy environment with the view of instituting intervention measures in Kaplamai Division.

2.2 Specific Objectives

- To assess the knowledge of the communities and schools on the existing risk factors.
- To establish hygiene practices and behaviour through hand washing facility.
- To assess sanitation facilities status in schools and communities.
- To assess the risk factors influencing children healthy environment in relation to water, injuries, food safety and security.

3.0 STUDY METHODOLOGY.

3.1 Study Design.

This was a descriptive cross-sectional study which aimed at assessing risk factors influencing children's healthy environment in Kaplamai Division of Trans- Nzoia District. A total of 560 respondents were interviewed using interview from the community and 57 from schools using interviewer schedule and observation checklist.

3.2 Study population (inclusive criteria).

All the respondents in the community were PTA members either household heads, their spouse or representative above 18 years of age or any member who had been in the area for a period not less than six months. The study where 5 respondents were interviewed in each school, these include a school health club patron and a non patron, a school health club member and a non member one member was interviewed as a control.

3.3 Sampling Procedure

Simple random and cluster sampling procedures were used to collect data

The boundary of the village was identified with the help of the village elder (guide) followed by locating a road junction close to the center of the village: A coin was tossed to randomly select the direction to start sampling.

The first and the nearest house on the direction of the head of the coin was selected. A subsequent respondent was obtained by skipping every two households.

3.4 Sample Size Determination

The sample size was determined using standard formulae (Andrew Fisher's Method 1994)

Pop > 10,000

Formular $n = \frac{z^2pq}{d^2}$

Where n = Sample size

z = The standard normal deriate usually set at 1.96 and corresponding to 95% confidence level ±5

p= know characteristics of the target population (50%)

q= 1.0 – p

d= desired precision level or allowed standard error level ±5%

$n = \frac{1.96^2 x0.5x0.5}{0.5^2} = 384.16$

384x2 = 786

Desired sample size = 786

Actual sample size = 617

3.5 Sampling Technique

Data was collected on face to face interviews alongside with observations checklist which was tallied without asking.

3.6 Data Collection Tools

The following tools were used:

- Interview schedule
- Observation checklist
- A camera
- Pens, pencils and notebooks.

3.7 Data Analysis and Presentations

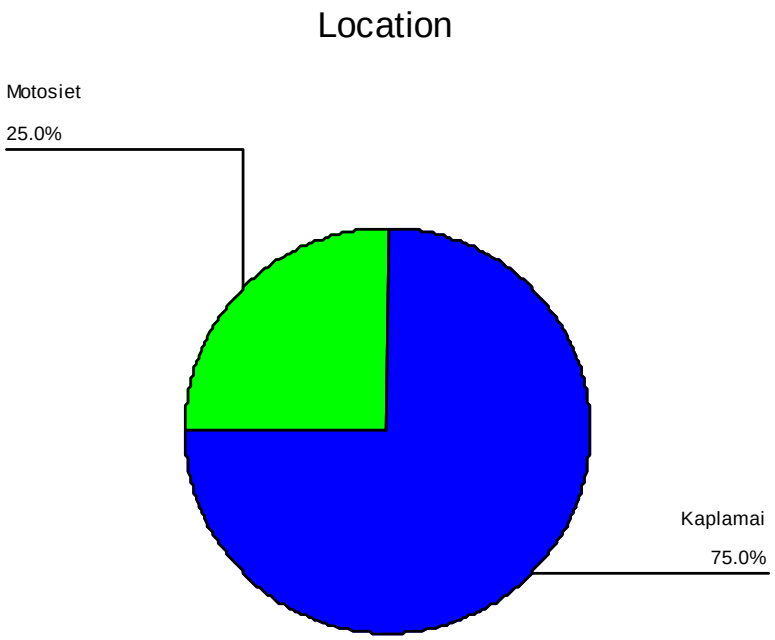
Despite statistics was used to analyse the data obtained both quantitative and qualitative methods were used.

4.0 STUDY FINDINGS

Section A: **SOCIAL DEMOGRAPHIC INFORMATION**

Most of the respondent 426 or (75%) came from Kaplamai location, while 142 or (25%) came from Motosiet location.

Fig.1: Social demographic information



Majority of respondents 169 or (29.7%) were aged below 30 years and 150 or (26.4%) in the 30-40 years age bracket. Among those aged below 30 years, 133 or (31.2%) came from Kaplamai and 36 or (25.4%) from Motosiet. Those aged 30-40 years, 113 or (26.5%) were from Kaplamai while 37 or (26.1%) from Motosiet.

The gender distribution was 69.1% female and 30.9% male; Most of them (85.6%) married. In Kaplamai, the distribution was 271 or (71.3%) female and 109 or (28.7%) male; while in Motosiet; the distribution was 85 or (63%) female and 50 or (37%) male.

Fig 2: Gender distribution.

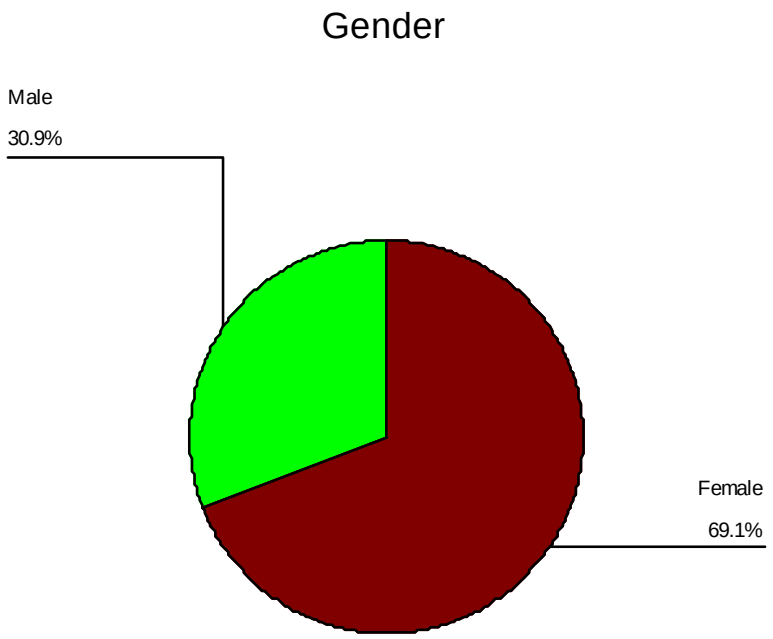


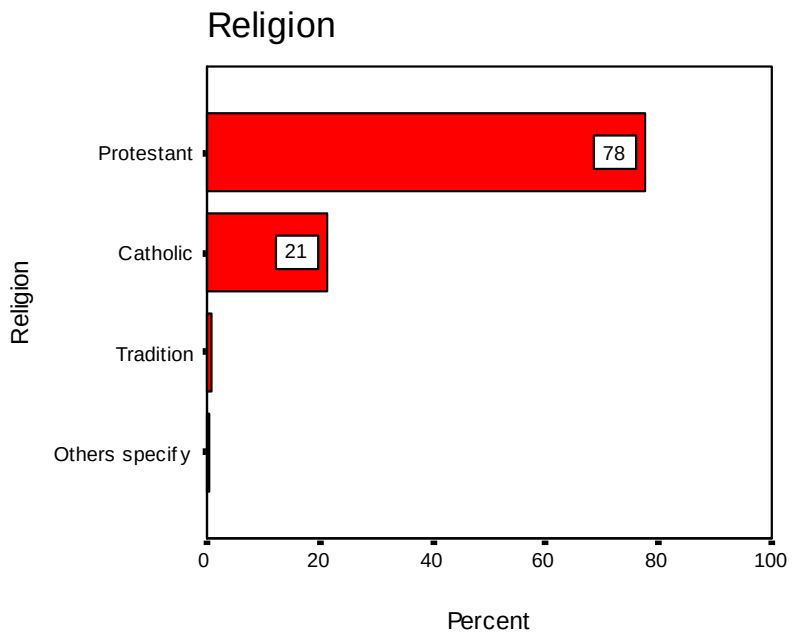
Table 1: Marital status

	Frequency	Percent
Married	**487**	**86.1**
Widower	14	2.5
Single	52	9.2
Widow	10	1.8
Divorced	2	.4
Total	565	100

In Kaplamai, 356 or (83.6%) were married compared to 130 or (91.5%) in Motosiet.

Most residents 424 or (78%) are Protestant, 117 or (21%) are Catholics.

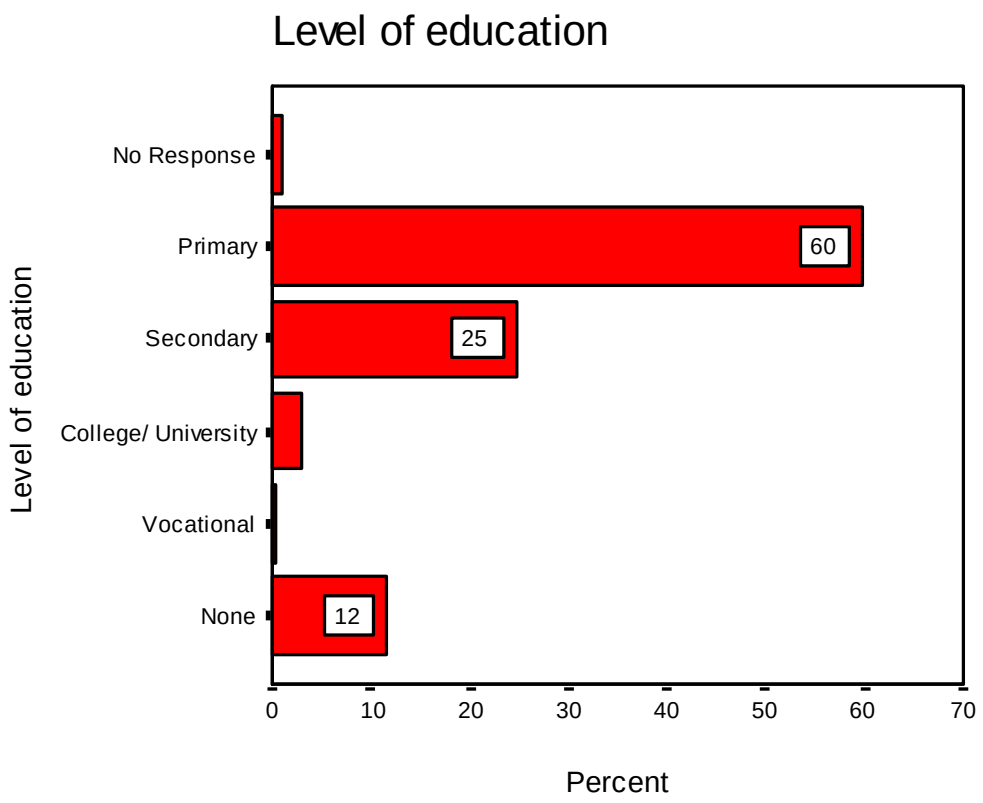
Fig. 3: Religion



Among the Protestants, 310 or (76.2%) were from Kaplamai and 114 or (81.4%) were from Motosiet; while among the Catholics, 91 or (22.4%) were from Kaplamai and 26 or (18.6%) from Motosiet.

The respective levels of education are as shown the graph below:

Fig. 4: Level of education



The distribution of the various levels of education in respective locations was as follows:

Kaplamai: 255 or (59.9%) had primary level of education: 103 or (24.2%) secondary and 51 or (12%) had none.

Motosiet: 84 or (59.2%) had primary level of education: 37 or (26.1%) secondary and 15 or (10.6%) had none.

There's no significant gender difference on the residents' level of education.

Table 2: Occupation of the respondent

	Frequency	Percent
Farmer	**459**	**86.1**
Business	52	9.7
GOK/Private employed	16	3.0
PTA member	5	1
CHWs	1	.2
Total	533	100

340 or (79.8%) of Kaplamai location residents are farmers compared to 118 or (83.1%) of Motosiet residents.

There's no significant gender difference on the residents' in the two locations occupation.

Section B: **KNOWLEDGE ON THE RISK FACTOR AFFECTING CHILDREN WITHIN THEIR ENVIRONMENT**

The study revealed that 505 or (88.9%) of the respondents are aware of the risk affecting children within their environment. In the locations, 386 or (90.6%) of Kaplamai residents are aware compared to 119 or (83.8%) of Motosiet residents.

Table 3: Knowledge on risk factors

	Know of any risk factor affecting children within their environment; Either home or school				Total
		Not aware	Aware	No Response	
Location	Kaplamai	7.7%	90.6%	1.6%	100.0%
	Motosiet	14.1%	83.8%	2.1%	100.0%
Total		9.3%	88.9%	1.8%	100.0%

However, **there's no significance difference** between residents of the two locations in their awareness level. 20 or (14.1%) in Motosiet residents are not aware compared to 33 or (7.7%) in Kaplamai.

The distribution of the awareness with respect to the various age brackets is as follows:

Kaplamai: Those aged below 30 years, 121 or (91%) are aware compared to 103 or (91.2%) of those aged 30-40 years, 77 or (95.1%) aged 40-50 years and 79 or (88.8%) aged above 50 years.

Motosiet : Those aged below 30 years, 26 or (72.6%) are aware compared to 32 or (86.5%) of those aged 30-40 years, 24 or (88.9%) aged 40-50 years and 36 or (87.8%) aged above 50 years.

Table 4: Risk factors identified.

	Frequency	Percent
Water borne disease	105	21.2
Vector borne disease	**330**	**66.7**
Physical injuries	37	7.5
Respiratory	23	4.6
Total	495	100

Vector borne diseases were claimed to be the most likely risks affecting children within their environment. In respective locations, the gender distribution on vector borne diseases was as follows:

Kaplamai: 174 or (71%) were female compared to 61 or (59.8%) male residents;

Motosiet: 46 or (63.9%) were female compared to 27 or (64.3%) male residents.

There's no significant age and gender difference among residents of the two locations on the views on possible risks.

<u>Prevention measures</u>

142 or (51.8%) of the residents from Kaplamai opted for a clean environment compared to 24 or (28.2%) from Motosiet who voted for the same.

Table 5: Preventive measures.

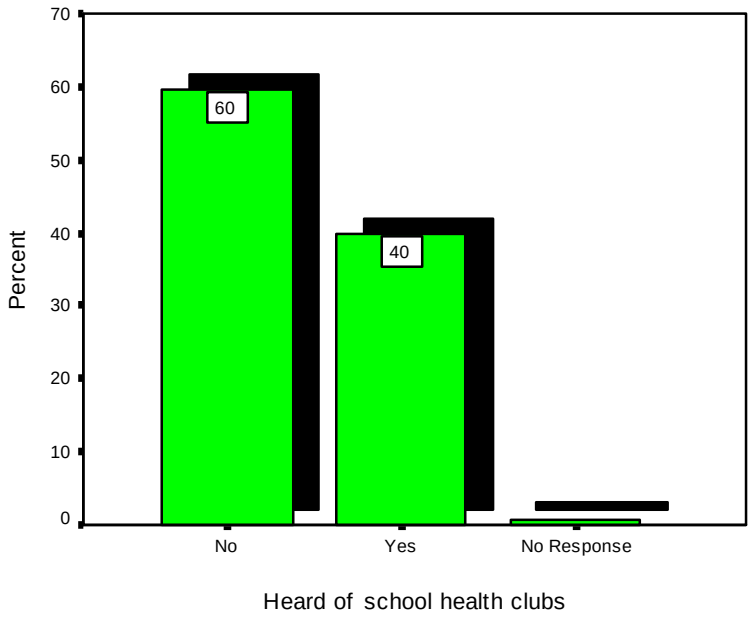
	Prevention action					Total
		Drinking safe water	Clearing bushes	**Clean environment**	Good housing	
Location	Kaplamai	22.6%	20.1%	**51.8%**	5.5%	100.0%
	Motosiet	27.1%	38.8%	**28.2%**	5.9%	100.0%
Total		23.7%	24.5%	**46.2%**	5.6%	100.0%

A further 55 or (20.1%) of Kaplamai residents opted to clear bushes compared to 33 or (38.8%) from Motosiet.

There's significant difference between the residents of the two locations in their prevention action to curb the risks affecting the children.

Other preventative actions included provisions of Insecticides Treated Nets (ITNs), Indoor residual sprays and seeking treatment.

Fig. 5: School health clubs



In respective locations, the gender distribution on awareness of School health clubs as follows:
Kaplamai: 110 or (40.6%) were female compared to 53 or (48.6%) male residents;
Motosiet: 31 or (36.5%) were female compared to 15 or (30%) male residents.

Most area residents are not trained community health workers. In Kaplamai location, only 19 or (4.5%) are trained compared to 4 or (2.8%) from Motosiet.

There's a significant gender difference in Kaplamai location on trained community workers.
10 or (3.7%) of the female residents are trained compared to 6 or (5.5%) male residents.

PTA membership

More male 44 or (27.7%) are members of PTA compared to 92 or (25.8%) female residents

In respective locations, the gender distribution on PTA membership as follows:

Kaplamai: 69 or (25.5%) female are members compared to 32 or (29.4%) male residents.

Motosiet: 23 or (27.1%) female are members compared to 12 or (24%) male residents.

Section C: **Disposal of waste and hygiene promotion**

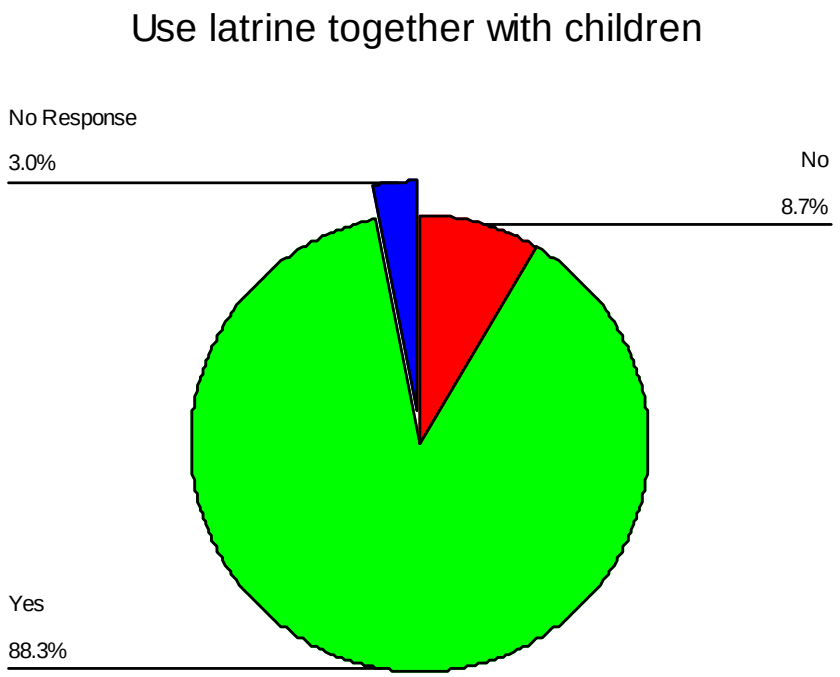
Methods of excreta disposal used in the home

The study showed that most residents, 547 or (96.1%), use pit latrines for excreta disposal in their homes. 496 or (88.3%) share the latrines with their children while 49 or (8.7%) do not. Among those who don't share latrines with their children 35 or (71.4%) claimed that children have their own latrines/toilets

Table 6: Methods of waste disposal

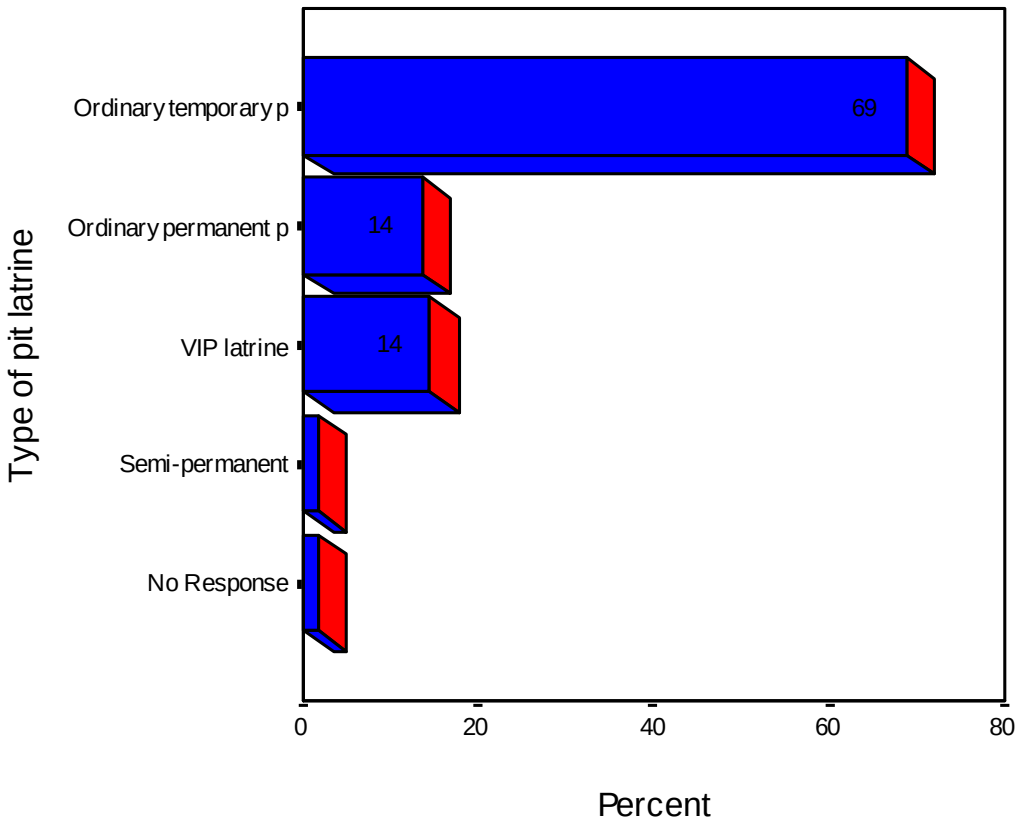
Method	Frequency	Percent
Pit latrine	**547**	**98.7**
Cat system	1	.2
Neighbors/None	4	.7
Bush	2	.4
Total	554	100

Fig. 6: Latrine use together with the children.



Among those who use pit latrine, majority (69%) use ordinary temporary pit, 74 or (13.5%) use ordinary permanent pit and a further 79 or (14.4%) use VIP latrine.

Fig. 7: Distribution of latrines



Among those who use pit latrines, the respective distribution of the type of pit latrine in the two locations is as follows:

Kaplamai: 287 or (70%) use ordinary temporary pit latrine, 61 or (14.9%) use ordinary permanent pits, 47 or (11.5%) use VIP and 11 or (2.7%) use semi-permanent.

Motosiet: 88 or (64.7%) use ordinary temporary pit latrine, 13 or (9.6%) use ordinary permanent pits, 32 or (23.5%) use VIP and 1 or (0.7%) use semi-permanent.

There's significant difference among the households in the two locations type of pit latrines.

Most of the residents 441 or (77.6%) have never heard of mobilets or eco loo latrine In respective locations, 335 or (78.6%) of residents from Kaplamai have never heard, 61 or (14.3%) are aware of them: In Motosiet, 106 or (74.6%) have never heard while 24 or (16.9%) are aware.

However **there's no significant difference** between the residents of two locations in their awareness level of mobilets and eco loo latrine. Further, **there's no significant age and gender difference** among residents from the two locations on the same.

Table 7: Frequency of toilets cleaning

	Frequency	Percent
Once a day	**163**	**29.8**
Once a week	**189**	**34.6**
Once a fortnight	30	5.5
When its dirty	**87**	**15.9**
Do not clean at all	11	2.0
When dirty	2	.4
Monthly	7	1.3
daily	6	1.1
Others	52	9.5
Total	547	100.0

Among those with latrines, **there's no significant difference** between the two locations on frequency of latrine cleaning.

The study revealed that 450 or (80.6%) of the residents are aware of the diseases associated with dirty latrine. Among respective age brackets, 109 or (83.2%) of those aged 50 years & above are aware compared to 92 or (85.2%) who are in the 40-50 years, 125 or (83.3%) in the 30-40 years bracket and 124 or (73.4%) below 30 years.

However, **there's no significant age difference** in the awareness level of diseases associated with dirty latrines, but **there's significant gender difference** in Kaplamai location on the same.

On disease contracted by going to the latrine bare-footed, it was found that 359 or (64.3%) of the residents are aware of the diseases associated with visiting the toilet bare-footed. Among respective age brackets, 81 or (61.8%) of those aged 50 years & above are aware compared to 69 or (63.9%) who are in the 40-50 years, 97 or (64.7%) in the 30-40 years bracket and 112 or (66.3%) below 30 years.

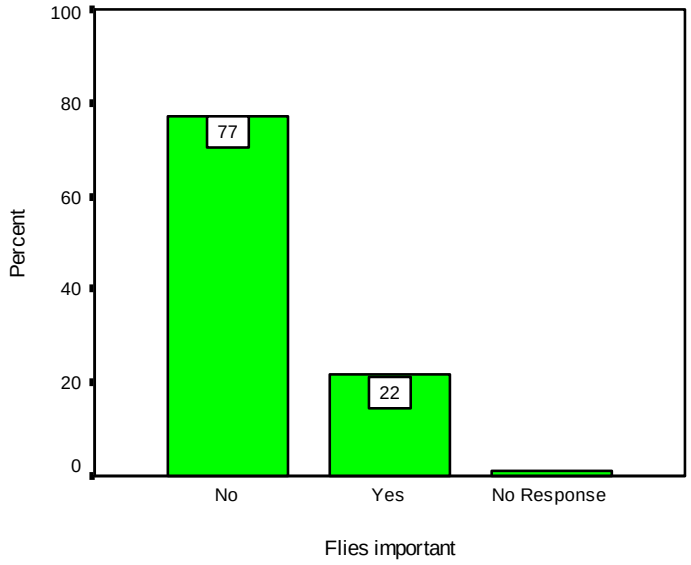
However, **there's no significant age and gender difference i**n the awareness level of diseases associated with visiting the toilet bare-footed.

Worm infection 180 or (49.9%) was given as the most likely disease contacted by visiting the toilet barefooted. 145 or (55.8%) of the residents from Kaplamai, claimed worm infection compared to 35 or (34.7%) from Motosiet.

There's no significant age and gender difference among residents in the two locations in their views on diseases associated with visiting the toilet bare-footed.

Fig. 8a: Importance of flies

440 or (77.3%) of the residents claim flies are important, compared to 123 or (21.6%) who claim they're not important.

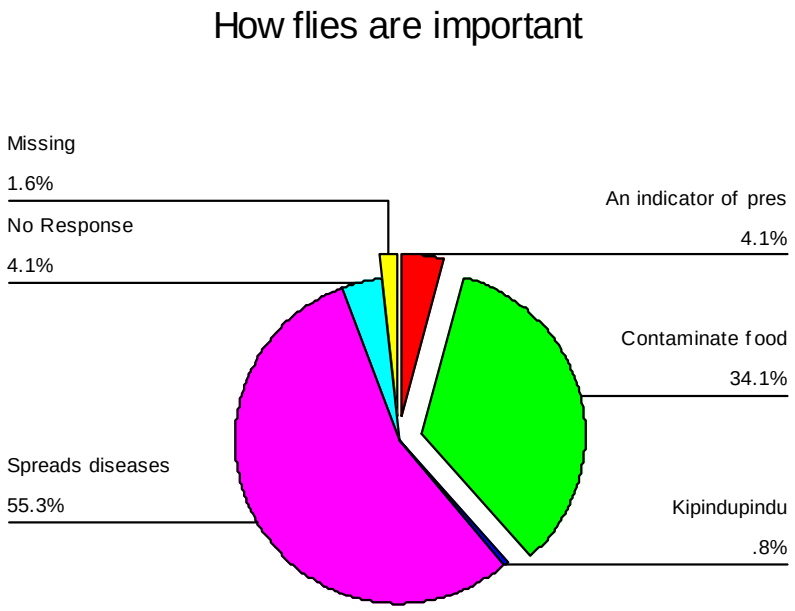


Among those who claim flies are important, 68 or (55.3%) said they spread diseases, 42 or (34.1%) said they contaminate food.

There's no significant gender and age difference among the two location residents on how flies are important.

Spreading/transmitting diseases was given by some residents as important, by others as not important.

Fig. 8b: Importance of flies



Among those who claim flies are not important, 364 or (89%) said they transmit diseases

Fig. 8c: Reasons for importance of flies.

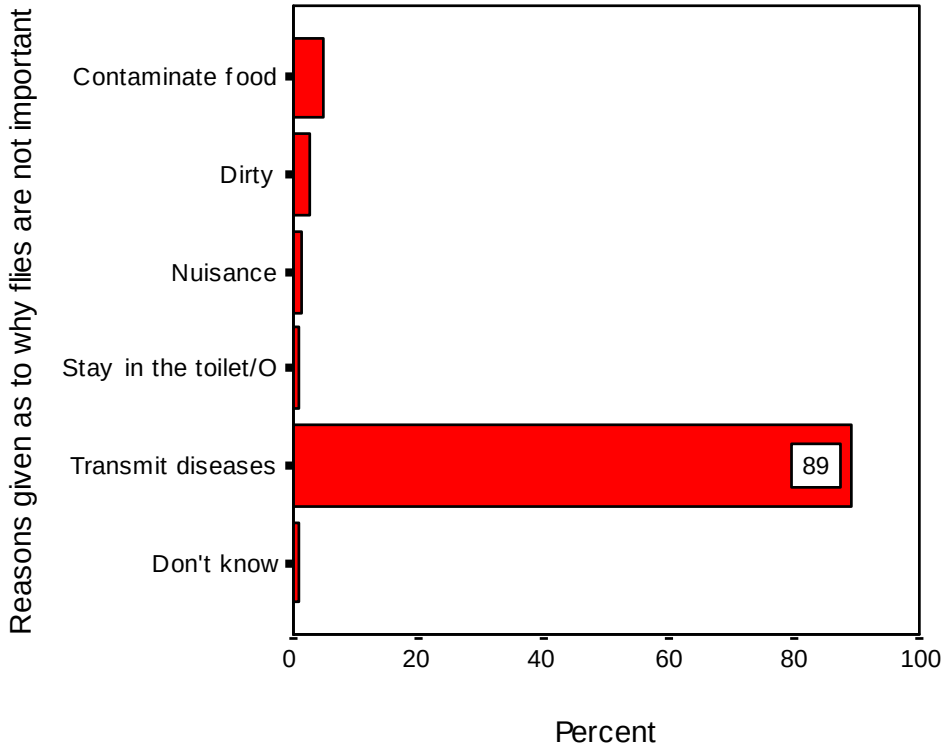


Table 8a: Hand washing and hand washing facilities

Majority of the residents 526 or (94.3%) wash their hands often.

	Often wash hands				Total
		No	**Yes**	No Response	
Age of respondent	Below 30 yrs	4.1%	**92.9%**	3.0%	100.0%
	30-40 yrs	2.0%	**95.3%**	2.7%	100.0%
	40-50	1.9%	**92.6%**	5.6%	100.0%
	50 yrs and above	1.5%	**96.2%**	2.3%	100.0%
Total		2.5%	**94.3%**	3.2%	100.0%

There's no significant age and gender difference on whether they often wash their hands. On the type of hand washing facility, 288 or (67.8%) of Kaplamai households use basin, 27 or (6.3%) use tilting cans and 17 or (4%) use standpipes. In Motosiet, 50 or (35.2%) use basin, 15 or (10.6%) use tilting cans and 11 or (7.7%) use standpipes. **There's significant difference** among the households in the two locations' type of washing facilities.

Table 8b: The types of hand washing facility were as follows:

	Frequency	Percent
Tilting can	42	10.1
Leak tins	28	6.7
Stand pipe	4	.9
Basin	**339**	**81.8**
Others(Bottle/Kettle)	2	.5
Total	415	100

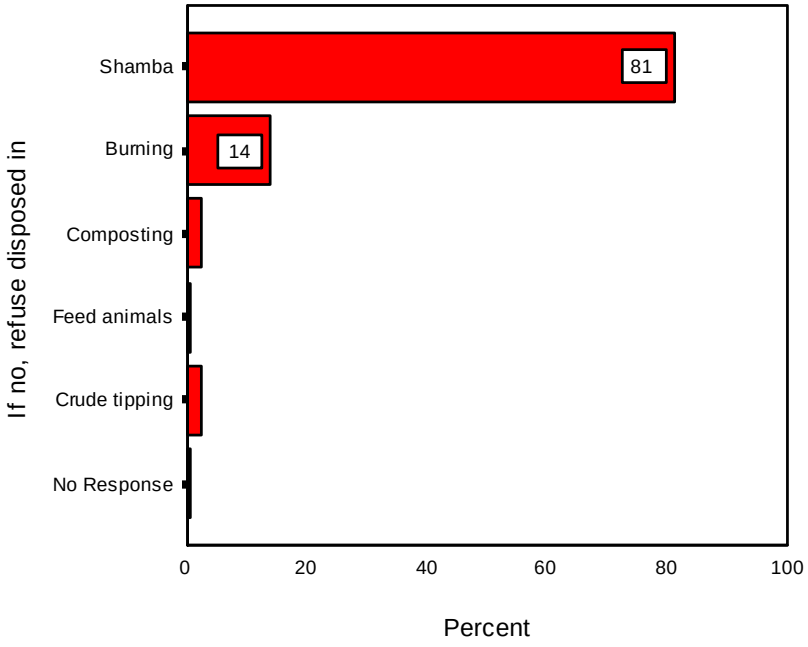
Almost all 552 or (97%), of the residents use soap with a further 534 or (93.8%) who often wash hands.

Refuse pit

286 or (50.3%) of the residents have no refuse pits, compared to 277 or (48.7%) who have. In respective locations, the distribution of those who have the pits is as follows. Kaplamai 197 or (46.2%) have refuse pits compared to 79 or (52.3%) in Motosiet.

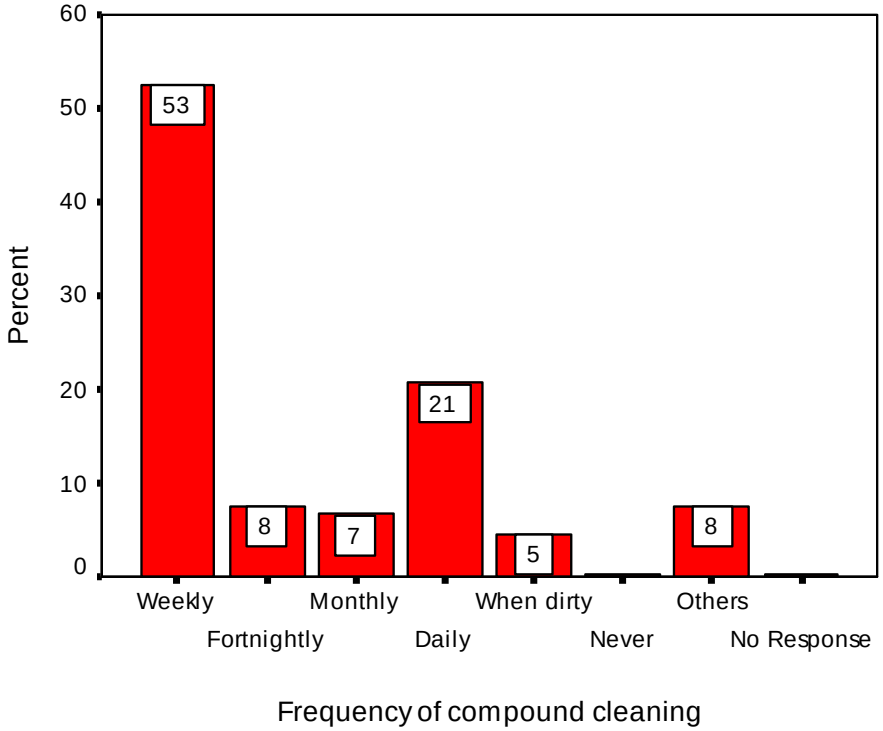
Among those who don't have refuse pits, 232 or (81%) dispose their refuse in the shamba, 40 or (14%) who dispose by burning. In Kaplamai, 177 or (79.4%) of the households dispose refuse in the shamba, 33 or (14.8%) by burning; while in Motosiet, 55 or (87.3%) dispose who dispose in the shamba and 7 or (11.1%) by burning.

Fig. 9: Presence of refuse pit



Most residents 299 or (53%) clean their compound weekly, compared to 118 or (21%) who clean daily.

Fig. 10: Frequency of compound cleaning.



There's no significant difference among the various households in the two locations on frequency of compound cleaning.

Polythene free initiative

Heard of polythene free initiative

Most residents (55.4%) are aware of the polythene free initiative, compared to (43.1%) who are not aware.

Table 9: Awareness of polythene free initiative.

	Frequency	Percent
Not aware	245	43.8
Aware	**315**	**56.2**
Total	560	100.0

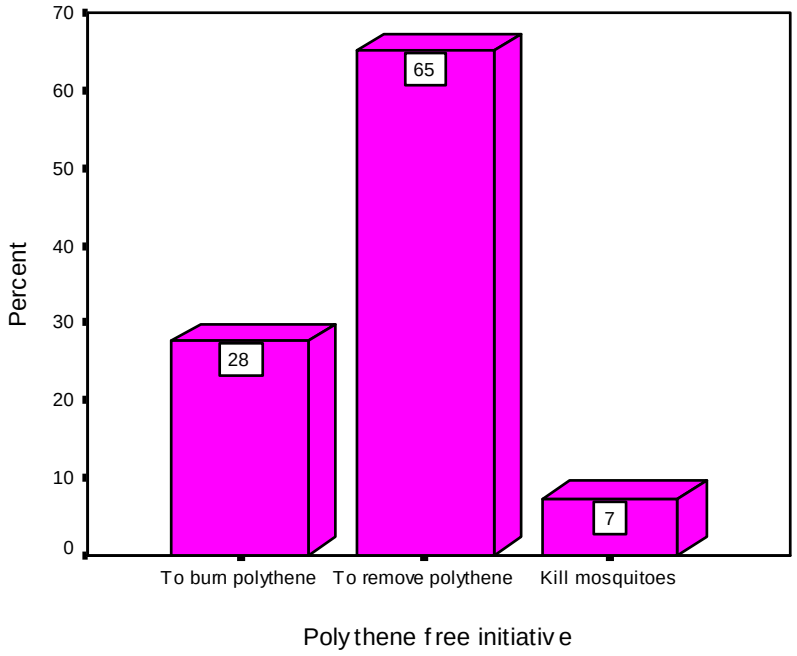
In Kaplamai, only 152 or (56.1%) of those female residents are aware of polythene free initiative compared to 51 or (60%) in Motosiet. 66 or (60.6%) male residents in Kaplamai location are aware of it compared to 20 or (40%) in Motosiet.

In Motosiet, **there's significant gender difference** on awareness of polythene free initiative.

More generally, In respective locations, 71 or half of Motosiet residents are not aware of the polythene free initiative, compared to 174 or (40.8%) in Kaplamai who are not aware. **There's significant difference** between residents in the two location awareness of polythene free initiative.

On what polythene free initiative involves

Fig. 11: Importance of polythene.



There's no significant gender difference on what polythene free initiative involves. Most area residents claimed it involves removing polythene from the environment. The study revealed that 98 or (64.5%) female Kaplamai residents claimed so compared to 52 or (78.8%) male, while 30 or (58.8%) female Motosiet residents and 10 or half of the male population claimed the same.

Table 10: The distribution of those who have a dish rack and its importance is as follows:

Location	Number with racks	Percentage
Kaplamai	**346**	**81.2**
Motosiet	**122**	**85.9**

NB: The (%) given represent proportion in respective locations

Table 11: Importance of a dish rack.

Location	Number claiming racks are important	Percentage
Kaplamai	**373**	**87.6**
Motosiet	**130**	**91.5**

NB: The (%) given represent proportion in respective locations

There's no significance age difference on possession of a dish rack. However, **there's a significant difference** among residents in various marital status on the importance of a dish rack. Among the married 444 or (91.2%) claim that the rack is important compared to 12 or (85.7%) of the widower, 37 or (71.2%) of the singles, 8 or (80%) of the widows and 1 or half of the divorced.

***Section D*: <u>Safe drinking water/ Vector control</u>**

<u>Source of drinking water</u>

The various water sources and purification methods distribution for the residents are as follows:

Table 12: Source of drinking water

	Frequency	Percent
Piped water	13	2.3
Spring protected	85	15.1
Spring unprotected	48	8.5
Shallow well	**370**	**66.0**
Borehole	20	3.6
Dam	10	1.8
River	13	2.3
Others	2	.4
Total	561	100

The study revealed that 287 or (67.4%) of Kaplamai households get water from shallow wells compared to 82 or (57.7%) of Motosiet households. **There's significant difference** among various households in the two locations source of drinking water.

Table 13: Method used for purifying drinking water

	Frequency	Percent
Boiling	**352**	**64.2**
Three pot system	6	1.1
Sodis	5	0.9
Klorin	30	5.5
Chlorination by tabs	41	7.5
Water guard	17	3.1
No Purification	**87**	**15.9**
Filtration	7	1.3
Others	3	0.5
Total	548	100

There' no significant age and gender difference among households of the two locations on the methods of water purification.

Table 14: The distribution of the various diseases spread through drinking unclean water is as follows:

	Frequency	Percent
Roundworms	19	3.3
TB	5	.9
Malaria	21	3.7
Cholera	**209**	**36.8**
Typhoid	**271**	**47.7**
Diarrhea	10	1.8
Others	3	.5
Amoeba	27	4.7
Dysentery	2	.4
Don't know	1	.2
Total	569	100

In respective locations, the gender distribution of those who claimed Cholera and Typhoid is as follows:

Kaplamai: 91 or (33.6%) female residents claimed Cholera, 137 or (50.6%) claimed Typhoid compared 49 or (45%) of their male counterparts who claimed Cholera and 50 or (45.9%).

Motosiet: 28 or (32.9%) female residents claimed Cholera, 40 or (47.1%)

claimed Typhoid compared 18 or (36%) of their male counterparts who claimed Cholera and 21 or (42%).

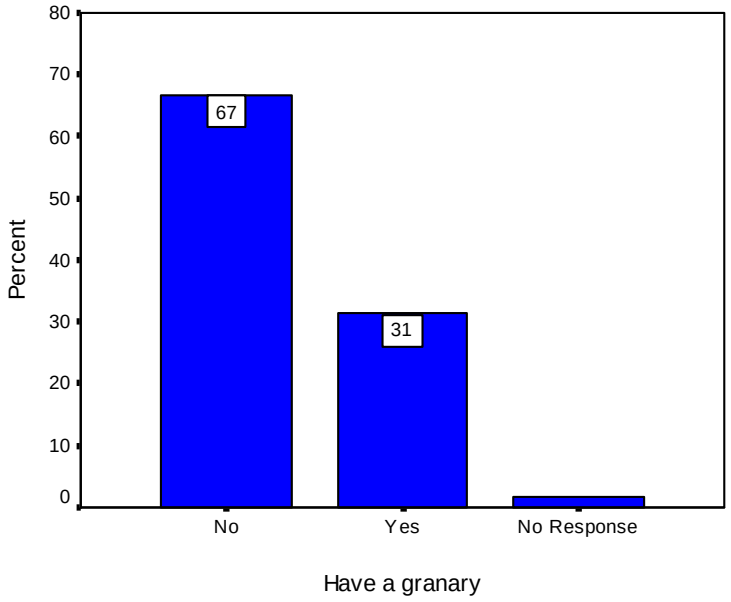
There' no significant age and gender difference among residents of the two locations on their views on diseases spread through drinking unclean water.

Most residents 530 or (93.1%) have heard of school or houses being sprayed and the purpose of spraying was indicated:

Table 15: Purpose of spraying

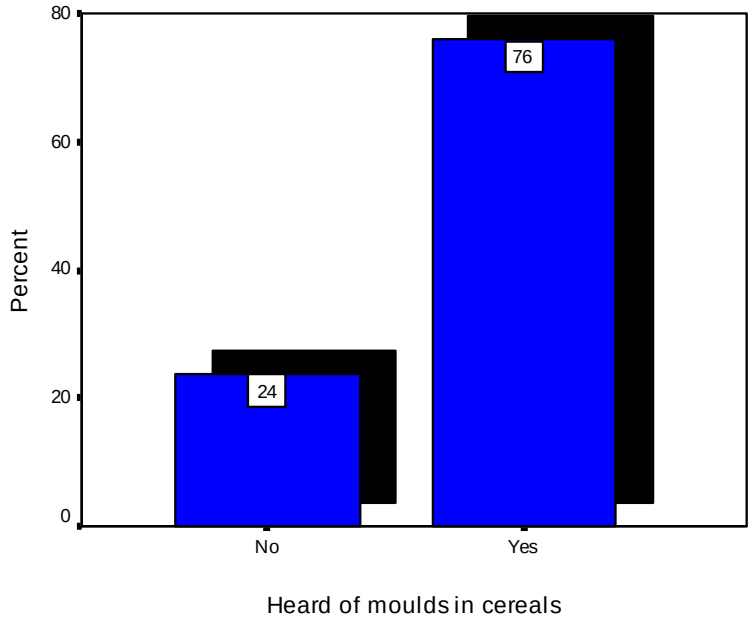
	Frequency	Percent
Typhoid fever	2	.4
Control mosquitoes and other vectors	**519**	**99.4**
Don't know	1	.2
Total	522	100.0

***Section E*: <u>Food Safety and Security</u>**
Fig. 12:



There's no significant difference between the residents of the two locations and marital status in granary possession
Among those with granaries, 154 or (86%) have their granaries rat proofed with cereals 146 or (81.6%) food kept in them

Heard of moulds in cereals
Majority of the residents 419 or (76%) are aware of moulds in the cereals.
Fig.13:



There's no significance gender and age difference among residents in the two locations on the knowledge of moulds in the cereals.

On the distribution of Importance of moulds to residents, 391 or (93.3%) claim they cause sickness by toxins while on the possession of a kitchen garden 301 or (52.9%) of the residents have one. In Kaplamai location, 228 or (53.5%) households have granaries compared to 73 or (51.4%) in Motosiet.

***Section F*: Observation**

Most of the houses in Kaplamai division are semi-permanent at 437 or (77.9%), permanent 75 or (13.4%) and 49 or (8.7%) are temporary; out of which 495 or (88%) have a separate kitchen. There's no significant location difference on type of housing and on the issue of main houses serving as kitchen

Fig. 14: Type of house.

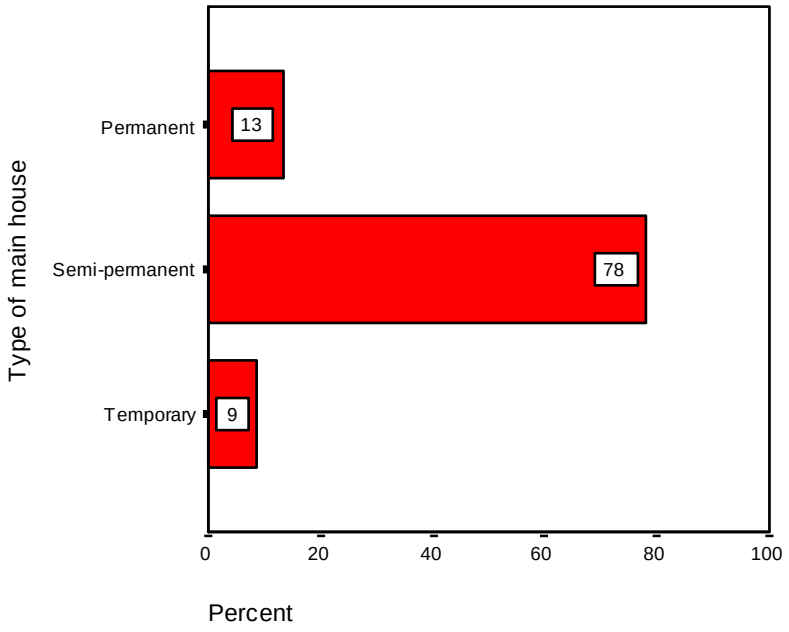


Fig. 15: Main house in relation to kitchen

Most houses 459 or (91.8%) are not screened.

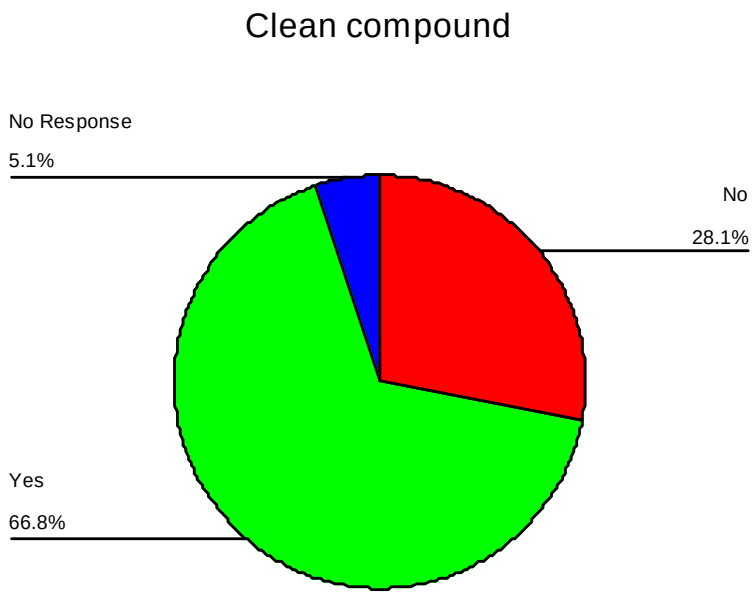
Table 16: The distribution of the breeding sites within the compound is as follows:

	Frequency	Percent
Open drains	47	12.2
Stagnant water	46	11.9
Overgrown grass	**217**	**56.4**
Plantations	17	4.4
None	22	5.7
Others	36	9.4
Total	385	100.0

Among those who claim that overgrown grasses are common breeding sites, 165 or (57.3%) are Kaplamai residents and 52 or (54.2%) are Motosiet residents.

There's no significant difference among households in the two locations on breeding sites.

Fig. 16: Frequency of compounds.



However, 66.8% of the homesteads have clean compounds.

PUPIL-TEACHERS REPORT

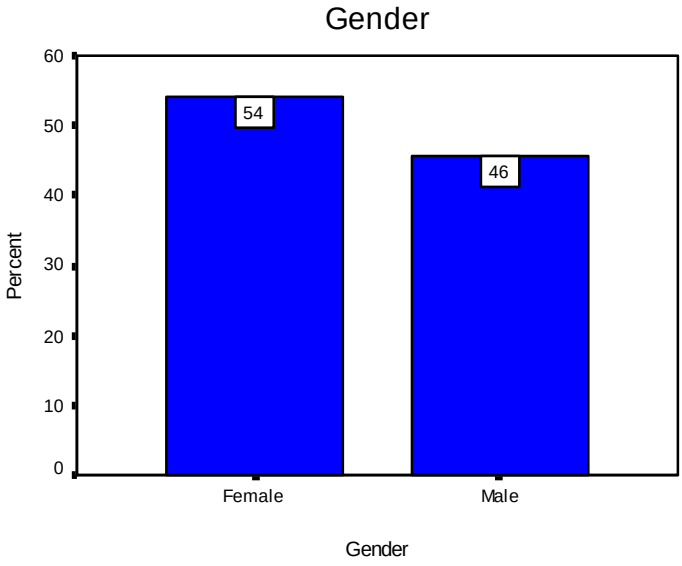
Schools population

The population of the 12 schools that took part in the study is broken down as follows:

Table 17: School population.

Location	School name	Total population	Male students	Female students	Teaching staff	Support staff
Motosiet	Sinoko	1396				
	Motosiet	515	269	233	12	1
	Chepkaos	303	122	171	9	1
	Kapchesir	413	282	120	10	3
	Kaplamai	404	199	192	12	2
Kaplamai	Karara	291	148	134	7	2
	Kimoson	366				
	Ngonyek	584	261	295	17	11
	Nyakinyua	863	436	403	22	2
	Nyasa land	209				
	Botwa	897	450	425	20	2
	Yuya	763	363	373	24	3

The gender distribution of the respondents is 32 or (54%) female and 27 or (46%) male.
Fig. 17: Gender distribution in schools.



Thirty-five or (59.3%) of the respondents were pupils while 24 or (40.7%) were teachers. From Kaplamai, 27 or (60%) were pupils, 18 or (40%) teachers; while in Motosiet, 8 or (57.1%) were pupils and 6 or (42.9%) were teachers.

Among the female population in Kaplamai, 18 or (66.7%) were pupils and 9 or (33.3%) of the teachers. The distribution of the male population in the same location was half pupils, half teachers.

In Motosiet, 3 or (60%) of the female population were pupils, 2 or (40%) teachers; while among the male population, 5 or (55.6%) were pupils and 4 or (44.4%) teachers.

The average age of the pupils was 14 years; the youngest was 12 years and the oldest 17 years. Among the teachers, the average age was 42 years; the youngest was 27 years while the oldest was 54 years old.

Table 18: Knowledge on school health club

	Frequency	Percent
No	1	1.7
Yes	**58**	**98.3**
Total	59	100.0

All teachers are aware of the school health club. The (1.7%) of the school population that is not aware of it represent the pupils.

All schools have a health club. Among the teacher-pupil populations who have heard of school health club, all agree that the clubs are important.

Club membership

Half of the pupils who participated in the survey belong to a health club compared to (58.3%) of the teachers.

Table 19a: Club membership

		Club membership		Total
		Belong to the club	Does not Belong to the club	
Occupation	Pupil	50.0%	**50.0%**	100.0%
	Teacher	41.7%	**58.3%**	100.0%
Total		46.6%	**53.4%**	100.0%

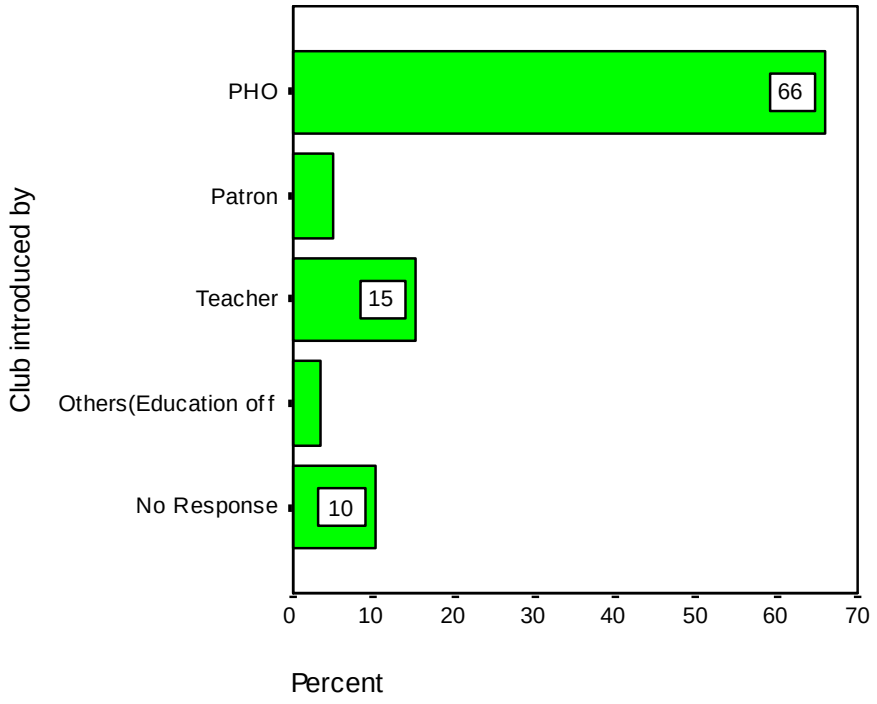
Table 19b: Club membership

		Club membership		Total
		Belong to the club	Does not Belong to the club	
Name of school	Botwa		100.0%	100.0%
	Chepkaos	66.7%	33.3%	100.0%
	Kapchesir	33.3%	66.7%	100.0%
	Kaplamai	66.7%	33.3%	100.0%
	Karara	66.7%	33.3%	100.0%
	Kimoson	66.7%	33.3%	100.0%
	Motosiet	50.0%	50.0%	100.0%
	Ngonyek	66.7%	33.3%	100.0%
	Nyakinyua		100.0%	100.0%
	Nyasa land	66.7%	33.3%	100.0%
	Sinoko	66.7%	33.3%	100.0%
	Yuya	50.0%	50.0%	100.0%
Total		50.0%	50.0%	100.0%

Among the pupils who participated in the survey, all pupils in Nyakinyua and Botwa primary schools belong to the health clubs compared to half of those interviewed from Yuya and Motosiet, (66.7%) from Kapchesir and (33.3%) from Chepkaos, Kaplamai,

Karara, Kimoson, Ngonyek, Nyasa land and Sinoko primary schools. However, there was **no significant difference** among the various schools on pupils' club membership. The study revealed that among Kaplamai residents, 30 or (66.7%) claimed that the public health officers introduced the health clubs while in Motosiet 9 or (64.3%) claimed the same.

Fig. 17: Gender distribution in schools.



Almost all the pupils, 33, (94.3%) believe health chubs are important.

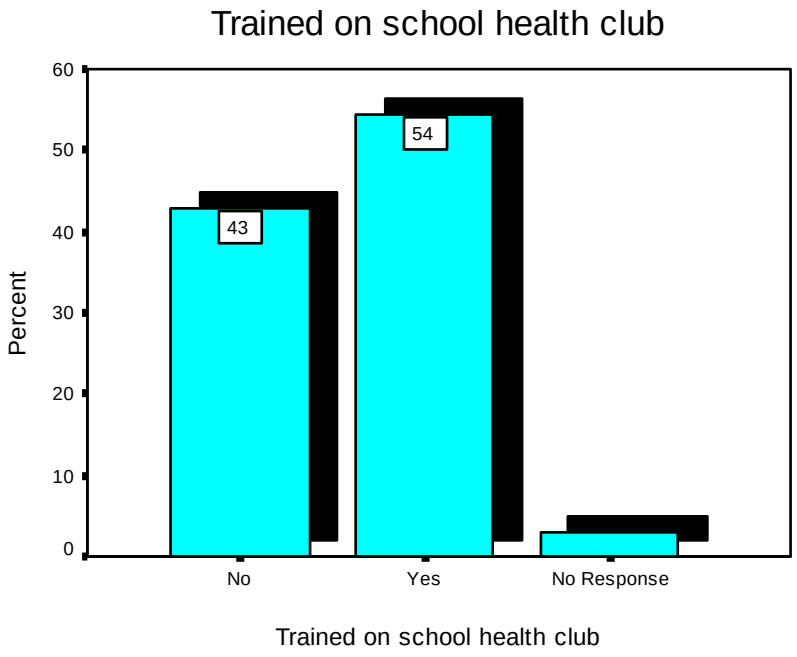
Various reasons were given as to why the health clubs are important. They include:

Table 20: Importance of school health clubs.

Reasons	Frequency	Percent
Make one's environment clean	**31**	**59.6**
Disease control	14	26.9
Promote health/hygiene	7	13.5
Total	52	100.0

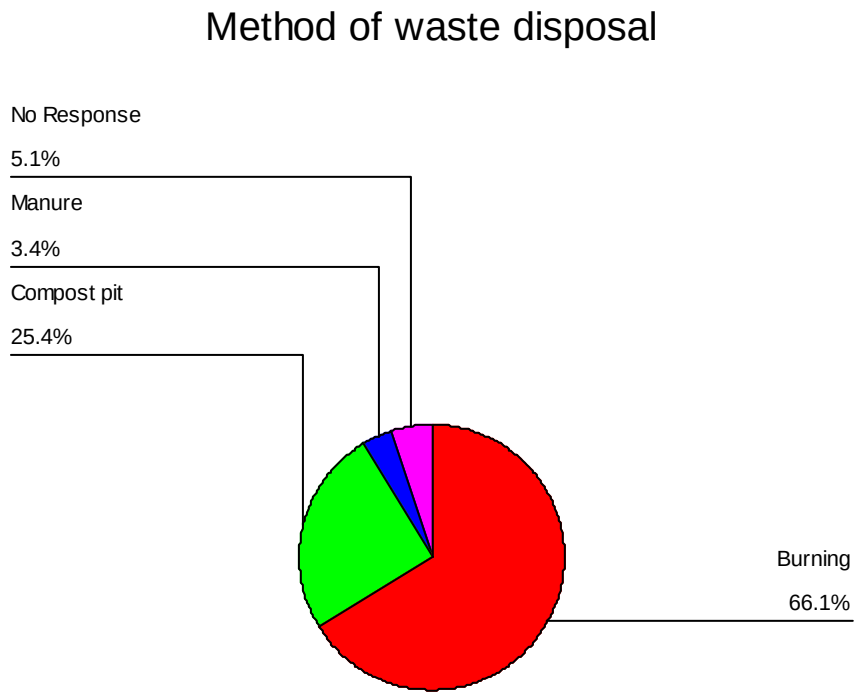
There's no significant difference between teachers and pupils in the two locations on their views on importance of health clubs.

Fig 18.



Among the pupils, (54%) have been trained on school health chubs compared to (43%) who have not received any training on the same. However, **there's no significant difference** among pupils/teachers from the various schools on training on school health clubs.

Fig. 19: Method of waste disposal.



There's significant difference among the various schools' method of waste disposal.

Table 21: Method of waste disposal among different schools.

		Method of waste disposal				Total
		Burning	Compost pit	Manure	No Response	
Name of School	Botwa	100.0%				100.0%
	Chepkaos	40.0%	60.0%			100.0%
	Kapchesir	60.0%	40.0%			100.0%
	Kaplamai	100.0%				100.0%
	Karara	40.0%		20.0%	40.0%	100.0%
	Kimoson	60.0%		20.0%	20.0%	100.0%
	Motosiet	80.0%	20.0%			100.0%
	Ngonyek	80.0%	20.0%			100.0%
	Nyakinyua	100.0%				100.0%
	Nyasa land	100.0%				100.0%
	Sinoko		100.0%			100.0%
	Yuya	25.0%	75.0%			100.0%
Total		66.1%	25.4%	3.4%	5.1%	100.0%

Schools which use burning as the only method of waste disposal are Botwa, Kaplamai, Nyakinyua and Nyasa land. In both Motosiet and Ngonyek primary schools, (80%) of the refuse is burnt while the rest (20%) is disposed in a compost pit. In both Kapchesir and Kimoson primary schools, (60%) of the waste are burnt. In Yuya primary school (75%) of the waste is disposed in a compost pit

All pupils and teacher are aware of compost pits.
All schools in Motosiet, 14 or (100%) have compost pits compared to 38 or (84.4%) of the schools in Kaplamai location.
On polythene free initiative, 36 or (80%) of the pupils interviewed from Kaplamai location schools are aware of it compared to 14, (100%) interviewed from Motosiet location.
Out of 36 pupils in Kaplamai location who are aware of the polythene free initiative, 20 or (74.1%) of the female pupils and 16 (88.9%) of the male pupils are aware.

Table 22: Importance polythene free initiative

	Frequency	Percent
Burn polythene	9	18.0
Remove polythene from environment	**31**	**62.0**
Kill mosquitoes	10	20.0
Total	50	100.0

On what polythene free initiative involves, 31 or (62%) of the pupils and teachers claim it involves removing polythene from the environment. Out of this 62%, 19 or (61.3%) were pupils while 12 or (38.7%) were teachers.
Among these pupils, 10 or (52.6%) were female and 9 or (47.4%) were male; while among these teachers, 5 or (41.7%) were female and 7 or (58.3%) were male.

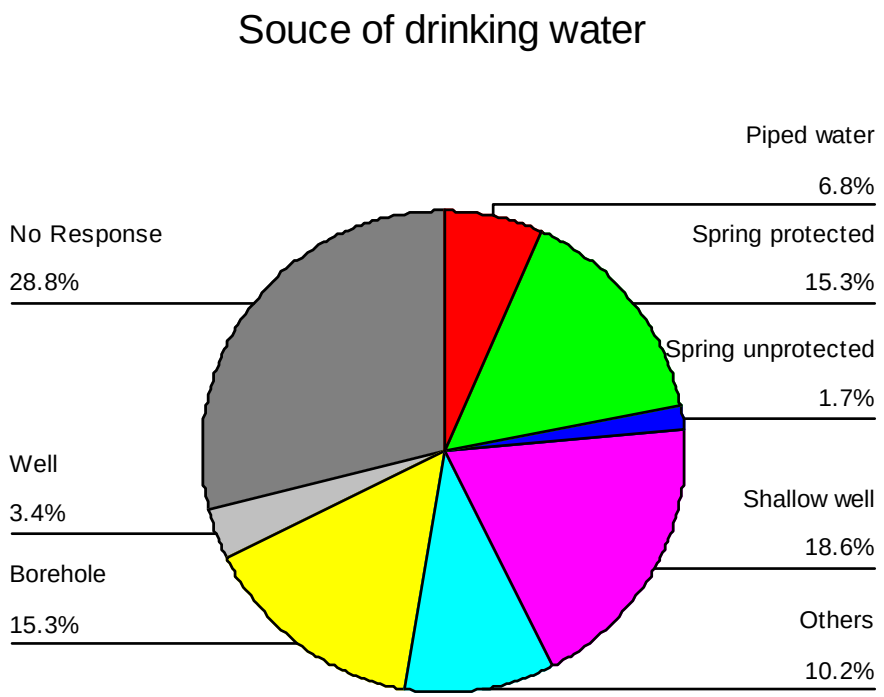
All 14 schools in Motosiet, which took part in the study, participate in the polythene free initiative compared to 33 or (91.7%) of the schools in Kaplamai.

All pupils and teachers who participated in the study are aware of house spraying all claimed that the purpose was to control mosquitoes and/or kill harmful insects.

On whether the schools have been sprayed, only the teachers' views are considered as they're more likely to know than the pupils. In Kaplamai, 13 or (72.2%) of the teachers said that their respective schools have never been sprayed compared to 3 or half of the teachers interviewed from Motosiet who said their schools have been sprayed. There's **no significant difference** among teachers from the two locations on school spraying.

Most respondents 11 or (18.6%) obtain their drinking water from shallow wells, 9 or (15.3%) from spring (protected) another (15.3%) from boreholes.

Fig. 20: Source of drinking water

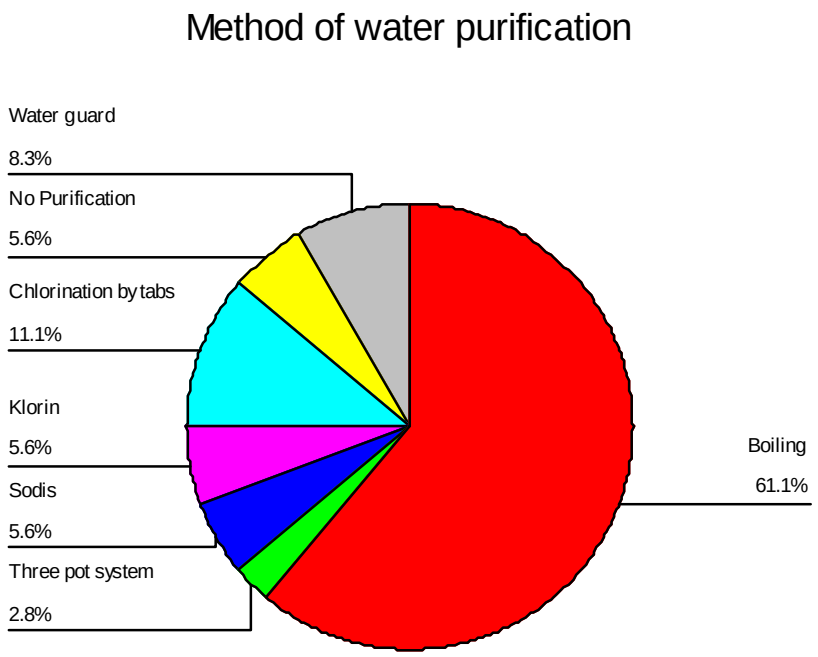


Among those pupils 6 or (17.1%) obtain drinking water from shallow water compared to 5 or (20.8%) teachers; 4 or (11.4%) of the pupils obtain water from protected springs compared to 1 or (4.2%) of the teachers; 4 or (11.4%) of the pupils obtain water from boreholes compared to 5 or (20.8%) of the teachers.

There's **no significant difference** among pupils or teachers from the two locations on sources of drinking water.

On method of water purification, 36 out 59 teachers and pupils responded.

Fig. 21: Method of water purification.



Most of the 22 or (61.1%) boil water for purification, 4 or (11.1%) use chlorination by tabs and 3 or (8.3%) use water guard.

Among those pupils 13 or (68.4%) boil water compared to 9 or (52.9%) teachers; 3 or (15.8%) of the pupils use chlorination by tabs compared to 1 or (5.9%) of the teachers; 1 or (5.3%) of the pupils use water guard compared to 2 or (11.8%) of the teachers. **There's no significant difference** among pupils and teachers from the two locations on methods of water purification.

Note: The above statistics are based on 36 responses (19 pupils and 17 teachers).

Pit latrines

All schools have pit latrines. **There's significant difference** among the various school in Kaplamai type of pit latrine but **no significant difference** in Motosiet.
18 or (40%) of the Kaplamai respondents claimed that they've ordinary pit latrine, 13 or (28.9%) VIP and 12 or (26.7%) permanent pits. In Motosiet location, 10 or (71.4%) claimed they've VIP latrines and an even split 1 or (7.1%) have ordinary or permanent latrines.

Table 23: Distribution of pit latrine among schools.

		Number of Latrines			
Location	**School name**	**Boys' Latrines**	**Girls' Latrines**	**Teachers Latrines**	**Total**
Motosiet	**Sinoko**	**10**	**10**		**20**
	Chepkaos	**2**	**2**	**1**	**5**
	Motosiet	**5**	**9**	**2**	**16**
Kaplamai	**Botwa**	**7**	**11**	**2**	**20**
	Kapchesir	**4**	**4**	**2**	**10**
	Kaplamai	**4**	**4**	**2**	**10**
	Karara	**6**	**6**	**2**	**14**
	Kimoson	**4**	**4**	**2**	**10**
	Ngonyek	**8**	**8**	**2**	**18**
	Nyakinyua	**10**	**22**	**3**	**33**
	Nyasa land	**4**	**4**	**2**	**10**
	Yuya	**4**	**5**	**2**	**11**

In Motosiet location all the female pupils and teachers felt that girls' privacy is provided as compared to Kaplamai location where only 10 or (55.6%) felt the same. However, there's **no significant difference** between the female pupils and female teachers in Kaplamai on the issue of provision of girls' privacy.

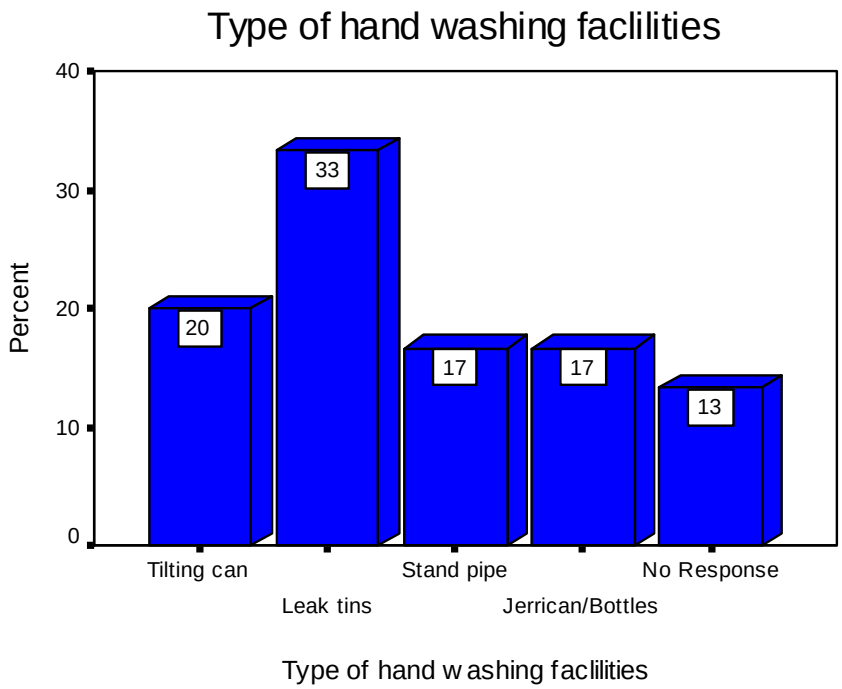
Note: The statistics are based on the female population.

There's significant difference among schools in Kaplamai location on the presence of hand washing facilities. 19 or (52.8%) of the teachers and pupils claimed there are no such facilities. However all school in Motosiet have the facilities.

Table 24: Distribution of hand washing facilities

Location	School	Number of washing facilities
Motosiet	Sinoko	6
	Chepkaos	4
	Motosiet	5
Kaplamai	Botwa	
	Kapchesir	
	Kaplamai	
	Karara	
	Kimoson	
	Motosiet	
	Ngonyek	3
	Nyakinyua	
	Nyasa land	3
	Yuya	

Fig. 22: Types of hand washing facilities in school.



In Kaplamai location, 6 or (35.3%) of the pupil/teachers who took part in the study use tilting can for hand washing, a further 5 or (29.4%) use Jeri cans and 4 or (23.5%) stand pipes. There's no significant difference among the various schools in the location on the kind of washing facilities present.

In Motosiet, 10 or (76.9%) of the respondents use tilting cans and only 1 or (7.1%) use stand pipes.

On hand washing practices with soap, most pupils 24 or (88.9%) in Kaplamai do not use soap when washing hands as compared to 3 or (37.5%) in Motosiet. Among the teachers, 14 or (77.8%) in Kaplamai do not use soap compared to 2 or (33.3%) in Motosiet. However, **there's no significant difference** between the pupils and the teachers in the two locations on hand washing practice using soap. Also, **there's no significant gender difference** on the same.

In Kaplamai location, 29 or (64.4%) of the respondents claimed they cook food in the school compared to 12 or (85.7%) from Motosiet. However, **there's significant difference** among the schools in Kaplamai on food cooking at school.
Only 6 or (20.7%) of the respondents in Kaplamai claimed that the food is inspected while in Motosiet, half of the respondent claimed its inspected.

Table 25: Inspection of food in schools

	Food inspected before cooking by a health officer				Total
			Not inspected	Inspected	
Location	Kaplamai	Number	23	6	29
		%	79.3%	20.7%	100.0%
	Motosiet	Number	6	6	12
		%	50.0%	50.0%	100.0%
Total		Total	29	12	41
		Overall %	70.7%	29.3%	100.0%

They study showed that, 39 or (86.7%) of the respondents from Kaplamai have no first aid kits compared to 5 or (35.7%) in Motosiet. However, **there's significant difference** among the schools in the two locations on possession of first aid kit.

Among those who don't have, physical injuries are management either by simple dressing, sending home and/or referred to dispensary.

All schools participate in school clean-ups. In Kaplamai location, they study showed 28 or (62.2%) of respondents claimed the whole school participate in clean-ups and 15 or (33.3%) claimed the health club members are involved.

In Motosiet location, 9 or (64.3%) of respondents claimed the whole school participate in clean-ups and 5 or (35.7%) claimed the health club members are involved. **There's significant difference** among Motosiet schools in terms of who participate in school clean-ups.

All respondents from schools in Motosiet location do school clean-ups on weekly basis as compared to 31 or (68.9%) from Kaplamai who clean weekly and 8 or (8.9%) clean daily. **There's significant difference** among the various schools in Kaplamai in terms clean-ups frequency.

CONCLUSION

It is clear that Knowledge on existing risk factors both in schools and in the community was high. However practice to combat the same remains a challenge. This study did not explore risks factors as pertains to in-door air pollution and yet upper respiratory infection was found to be among the top ten diseases in the study area.

Therefore there is need to carry out a study of the same to achieve our target.

RECOMMENDATIONS.

- There's need to enhance knowledge on child's healthy environment risks factors hence interventions.
- There is need to enhance knowledge transfer from school health clubs to community through child to child initiative.
- Communities should increase latrine coverage through use of available / appropriate techniques.
- Hygiene practices were found to be poor, hence there is need to introduce wash, phase etc initiative to improve behaviour change in both schools and community.
- There's need to increase facilities in relation to guidelines and focus girls privacy.
- There's need to increase information and education on identification, prevention and control of diseases.
- Encourage the community to have granaries that are treated, aerated and rat proofed.
- Intensify food inspection in schools.
- Enhance knowledge available water treatment technologies.
- Polythene free initiative should be up stalled with a view of promoting sustainability.