

**ADDIS ABABA UNIVERSITY  
SCHOOL OF GRADUATE STUDIES**

**FACTORS AFFECTING THE KNOWLEDGE, ATTITUDE AND  
PRACTICE OF THE COMMUNITY TOWARDS MALARIA  
PREVENTION  
IN KEDIDA GAMELA WOREDA OF KAMBATA TEMBARO  
ZONE, SNNPR**

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## ACRONYMS

a.s.l	above sea level
BoFED	Bureau of Finance and Economic Development
CHWs	Community Health Workers
CSA	Central Statistical Agency
EDHS	Ethiopian Demographic and Health Survey
FGD	Focused Group Discussion
HEWs	Health Extension Workers
HIV/AIDS	Human Immunity Virus / Acquired Immune Deficiency Syndrome
HSEP	Health Service Extension Program
IRS	Indoor Residual chemical Spray
ITNs	Insecticide Treated Mosquito Nets
KAP	Knowledge, Attitude and Practice
MIS	Malaria Indicator Survey
MDGs	Millennium Development Goals
FMoH	Federal Ministry of Health
NGOs	Non Governmental Organizations
NLFS	National Labour Force Survey
RBM	Roll Back Malaria
SPSS	Statistical Package for Social Science
SES	Socio Economic Status
SNNPR	Southern Nation Nationalities and People's Region
TB	Tuberculosis
WEF	World Economic Forum
WHO	World Health Organization
ZoFED	Zone of Finance and Economic Development

## Abstract

*In modern economic terms, healthy population is seen as an important engine of economic growth. Despite technological advancement in both prevention and treatment practice in the 21<sup>st</sup> century, malaria is still a major cause of morbidity and mortality in the past three decade. Malaria is not only a health problem but also a developmental problem. It places significant financial hardships on both households and the economy. Malaria is a long standing major health problem in Kedida Gamela Woreda of Kembata Tembaro zone, which is located in the central region of SNNPR, Ethiopia. So the paper focuses to investigate the factors that affect the knowledge, attitude and practice of the woreda community towards preventing malaria. The study was a survey type, both primary and secondary data were collected. Primary data was obtained through structured questionnaire, key informant interview and focus group discussion. Secondary data was obtained from published and unpublished materials, project reports and maps. A total of 422 sample respondents were identified using cluster random sampling technique. The study was conducted from March 1 up to March 17, 2009. The analysis was made at an individual level using bi-variate and multi-variate methods. By which this helps to identify the socio-economic, demographic status of the household and community in that specific locality. The result of bi-variate analysis showed that the demographic and socio-economic factors had relationship with respondents' knowledge, attitude and practice. Moreover, significant proportion of the respondents had knowledge, positive attitude but poor practices of malaria prevention. This situation had been observed across all the demographic and socio-economic characteristics of the respondents. The chi square and cross tab correlation analysis also showed that access to any form of medias ,level of income, participation on environmental sanitary management, contact with health extension workers, literacy status, and occupation were found to be significantly related to knowledge and attitude. Nevertheless, sex, marital status, age, place of residence and household size were not statistically associated with knowledge and attitude. Based on the findings, the following points of recommendations were stated: providing health education, improving the environmental dimension, searching alternative sources of transmitting health education and continuing the work done by NGOs.*

# 1. Introduction

Malaria causes more harm in Africa than in any other continent. It is the leading cause of diseases in the continent. Although only 54% of global malaria cases in 2004 occurred in Africa, the region accounted for almost 90% of malaria fatalities (WHO, 2005). Despite technological advancement in both prevention and treatments practice in the 21<sup>st</sup> Century, malaria is still a major cause of illness and death. Almost half of the world's population lives in areas where the disease is either endemic or epidemic. It affects about 107 countries and most of them are tropical (World Economic Forum, 2006).

Malaria is an old and long standing disease in Ethiopia. Generally lowland and temperate areas below 2000 meters above sea level (a.s.l) are considered to be malarious in the country. Occasionally, malaria transmission also occurs in previously non-malarious areas including areas up to 2500 meters a.s.l when micro climate and weather conditions are favorable for propagation of mosquitoes, resulting in short lived severe epidemics. Malaria epidemics generally occur in Ethiopia in September to November immediately after the long rains during June and July and in some places also following the short Belg rain during April and May (MOH, 2004).

Ethiopia is the second most populous country in Africa with the population of about 74 million in 2008 (CSA, 2008). About 84.6 % of the population lives in rural areas. Of about one million square kilometer of the country's landmass, about 75% is considered to be either malarious or potentially malarious; and about 65% of the total population of the country is at risk of infection (MOH, 2008). The transmission of the disease generally occurs during the peak cultivating and harvesting period of the year and has tremendous impact on the agricultural productivity. The adverse consequence of malaria epidemics does not only result in mortality and morbidity but also severely affect the income of households and the economy of the country at large (World Bank, 1999)

Malaria has always been a serious problem for the majority of human kind. Its impact on development is very high, especially in economic development frontiers. It is not just only a health problem; it is also a social and economic problem which can not be solved

solely by medical technology (World Economic Forum, 2006). The burden of malaria therefore is a challenge to human development, manifesting itself as a cause and consequence of under-development

In the health policy of Ethiopia the concept of primary health care has been widely adopted. Malaria control within the orbit of primary health care aims at the reduction of morbidity and mortality through strengthening the local capabilities by improving the knowledge, attitude and practices of the community towards preventing the malaria situation. However, to date in Ethiopia, the malaria prevention and control activities were mostly executed by health institutions which are often inaccessible due to many reasons. As a result, the majority of the rural population is not benefiting much from the services. In order to improve and expand malaria prevention and control services, it has been designed to entail the active participation of the communities and all organizations. To this effect, activities that raise the awareness of communities are being implemented so as to directly entail and involve the local communities in the malaria prevention and control activities (MOH, 2004).

Despite the continued intervention efforts, which includes anti malarial drugs and Insecticide Treated mosquito Net (ITNs) distribution as well as indoor residual spraying (IRS) for the past many years, the prevalence of malaria in Ethiopia was used to be very high (WHO, 2000). However, according to the FMOH 2007, national Malaria Indicator Survey (MIS) report, a remarkable progress has been made in the fight against malaria in the past 2-3 years, especially in scaling-up prevention interventions and reduction of parasite prevalence was very low(0.7%) in malarious areas and ITNs coverage has increased 15 fold.

The knowledge, attitude and practices (KAP) of communities in relation to malaria disease particularly the ways and methods of prevention and treatment must be understood prior to initiation of intervention, because it is not only the knowledge of health workers about malaria that really matters and also not the abundance and availability of effective drugs and ITNs that determines the spread of malaria, but it is very critical that the KAP of the local communities towards malaria reach a higher level.

The success of malaria control program presently relies heavily on community perception and practices in the transmission, treatment and control of disease. Incorrect beliefs or inappropriate behavior can influence the effectiveness of controlling measure (Deressa. *et al*, 2003). Based on cultural, social and economic factors, it is currently recognized that people in different settings hold a variety of beliefs and practices about the cause, transmission, recognition, treatment and prevention of malaria (Ahorlu *et al*, 1997). In such cases an understanding of the communities' knowledge, attitude as well as practices towards preventing malaria is mandatory to the success of implementation.

Thus, the major factor contributing to the regional and local variability in malaria burden is presumed to be differences in the levels of social and economic development. The other contributing factors for the increasing of morbidity and mortality of people by malaria in some areas include changing agricultural practices, deforestation, population movement into malarial areas and the deterioration of health services (World Economic Forum, 2006).

### ***1.1 Statement of the problem***

There is a growing literature on the importance of health to economies and development as a whole. Healthy population is seen as an important engine of economic growth. Good health affects economies in many positive ways. For instance, better health has an impact on labor productivity and can boost economies by promoting saving and investment. That is why health as a human and social capital is recognized as a vital component of the development process. But poor health in any community has been responsible for much of the human suffering and misery and also largely aggravates the vicious circle of poverty (Todaro, 2005).

Improved health status of a society in fact has an affirmative effect in enhancing the quality of life and promoting social development. Health is fundamental to the broader notion of expanded human capabilities that lay at the heart of the meaning of development (Todaro, 2005). Accordingly it is agreed that healthy human resource of a nation, not other material resources ultimately determines the character and pace of its

economic and social development because this resource constitutes the ultimate basis for wealth of nations.

It is the fact that malaria is one of the serious health problems in the world in general and in developing countries in particular, the burden of the disease is great. Over 1 million people die each year from the disease in sub Saharan Africa. It is the leading cause by a wide margin of disease in Africa. It imposes a heavy cost not only on a country's current income but also on the rate and level of its economic growth and development in the long run (World Economic Forum, 2006). Malaria affects individuals and communities both directly through its impact on employment and productivity and also indirectly through their effect on economies.

Malaria affects the development process of a nation because it affects the overall macroeconomic environment. According to the World Economic Forum (2006), the most immediate effect of malaria is its impact on the work force. Employees who felt sick by the disease are less likely to work effectively and more liable to take time off to recover. If workers' family members fall ill, workers may have to take time off to care for them. In a study done by Alsan (2006), malaria as a health problem slacken economies by reducing saving and investment. People who expect to live longer have a greater incentive to save for retirement, and their saving increases the funds available for investment in the economy. It is also added that malaria has an influence on nation's ability to attract foreign investment and expand tourism.

A study done in rural Tanzania by Mwangeni *et al* (2002) revealed that the economic impact of malaria is disproportionately felt by the poor. Many poor people live in environmentally vulnerable areas and are less able to afford prevention and treatment than wealthier groups. A study found that mortality in Tanzania resulting from acute fever among the poorest children was 39 % higher than among the wealthiest children.

According to Padmawati *et al*, 2005 the socio economic conditions of the community have direct bearing on the problem of malaria because ignorance and impoverished

condition of people contribute in creating source and spread of malaria and hinder disease control.

Malaria in Ethiopia has been endemic for many years and called by different names in different areas. Malaria is distributed in all zones of South Nation Nationalities Peoples Region (SNNPR) and ranks first among the top ten causes of morbidity in the region. On average over half a million cases of malaria are treated each year (Bureau of Finance and Economic Development, 2007).

It is also true that malaria is a long standing major problem in Kedida Gamella Wereda of Kembata Tembaro zone, which is located in the central region of SNNPR, Ethiopia. In fact the effort has been done by the government and Non Governmental Organizations (NGOs) to mitigate its impact and have born fruit in some spatial entities but the disease remains a resilient foe in many times. In order to bring the local community to fully participate in the prevention activities, the factors that affect the knowledge, attitude and practice of the local community towards preventing malaria need to be understood.

It is difficult to promote development without participation of the community. Development plans will not be effective if the community is unable to adopt interventions due to lack of knowledge and practices. Therefore, one would expect that knowing the level of knowledge, attitude and practice of the community would be an integral element of preventing malaria. Thus, this research is needed to identify socio economic, demographic and institutional factors affecting the community's knowledge, attitude and practice towards malaria prevention relationship within the individual and community level.

This study, therefore, deals with issues related to factors affecting the KAP of the community including general poverty, quality of housing, access to media and health services, access to health education, types of health service delivery, place of residence, level of education as well as the presence of malaria control program. This study was conducted in Kedida Gamella woreda of Kembata Tembaro Zone in SNNP region of Ethiopia where it is characterized by frequent epidemics of malaria.

## **1.2 Objective of the study**

### **1.2.1 General objective**

To investigate the factors that affects the knowledge, attitude and practice of the local community towards preventing malaria in Kedida Gamela woreda of Kambata Tembaro Zone, SNNPR.

### **1.2.2 Specific objectives**

- ❖ To examine the indigenous or introduced knowledge or practice of the community to prevent and control malaria.
- ❖ To investigate people's awareness about the environmental health management in relation to malaria prevention.
- ❖ To assess the extent to which community's knowledge, attitude and practices of malaria prevention are related to different socio-economic, demographic and institutional factors of the study population.

## **1.3. Research questions**

1. What differences exist in different socio-economic, demographic and institutional background characteristics and knowledge, attitude, and practices of the community towards preventing malaria across the study area?
2. What is the knowledge of the community concerning malaria as a disease and as a development problem?
3. What are the communities's indigenous and introduced knowledge or practices to control and prevent malaria in the study area?

## **1.4. Scope of the study**

The study about the community's knowledge, attitude and practices towards preventing malaria is a broad subject matter. It is difficult to address all issues in such a small research project. Therefore, this research is restricted in space and content. It is conducted in Kedida Gamela woreda. As far as the content of the study is concerned, this research focuses on the factors affecting the knowledge, attitude and practices of the community

#### *1.4. Scope of the study*

The study about the community's knowledge, attitude and practices towards preventing malaria is a broad subject matter. It is difficult to address all issues in such a small research project. Therefore, this research is restricted in space and content. It is conducted in Kedida Gamela woreda. As far as the content of the study is concerned, this research focuses on the factors affecting the knowledge, attitude and practices of the community towards preventing malaria by which it could help to identify the socio-economic, demographic and institutional status of the households and community in that specific locality.

#### *1.5 Significance of the study*

The findings of the study may contribute the lessons about current efforts by the government, NGOs, and researchers to find better policy and strategic option to address the problem of malaria. This study attaches great importance in assessing the level of knowledge, attitude and practice about preventing malaria in the proposed locality and community presenting possible interventions to avert the pressure of the disease. The local health service planners will get some insight in planning of prevention and controlling of malaria. This study will also give an insight for further study. As the subject is too broad, this small study perhaps may not be adequate to address all factors affecting the community's KAP towards malaria prevention but the study could pin point clues and identify opportunity for further investigation.

#### *1.6 Limitations of the Study*

It is difficult to address all issues in this study due to limited time and resource. The study tried to address the most important points by focusing on the selected variables in order to attain the objective of the study. The other limitation of this study is the absence of related researches which were useful for comparison. Since the study is a randomized survey type by taking smaller population, it is difficult to generalize all the results from the recent study about the whole community of the woreda. Further more the study was conducted under several constraints and challenges particularly during the process of data

collection since some of the households living in various clusters were inaccessible, scattered and found busy. The main solution were getting guiders, who know the surrounding very well and spending more time on the field work. Hence, reasonably the results can reflect the general picture of the communities' knowledge, attitude and practice towards malaria prevention to the extent possible.

### ***1.7 Organization of the paper***

The study is classified into six parts. The first part introduces the thesis incorporating statement of the problem, objectives, research questions, significance of the study, and limitations of the study. The second part presents review of literature and conceptual frame work of the study. The research methodology is explained under the third part where study design, data source of the study, sampling methods, sample size determination, method of data of analysis, and variables to be analyzed are explained. Chapter four presents the results of the study. Chapter five is devoted to discussion part. The final section presents the summary of the study, conclusive remarks, and recommendations.

## 2: REVIEW OF RELATED LITERATURE AND CONCEPTUAL FRAMEWORK

### 2.1 *Health and Development*

Development is a broader phenomenon. It is a universally acknowledged goal of individuals, families, communities, societies and nations all over the world. Development is also natural in the way that all forms of life on earth are inherently imperative to survive and develop.

*“Our first concern is to define the whole purpose of development. This should not be to develop things but to develop human beings. Human beings have basic needs like food, shelter, clothing, health and education. Any process of growth that does not lead to the fulfillment of these needs or-even worse disrupts them – is a travesty of the idea of development” (World Bank, 1975).*

People are both ends and means of development. Although improved health, nutrition and education are ends in themselves healthy and educated human being is also the principles of achieving development. According to World Bank 1989 measuring development in terms of access to basic health services, education and food is more satisfactory than using most other yardsticks. Social indicators such as life expectancy reflect more the condition of the population than per capita incomes.

Without improving the levels of living the prospect for development is non-existent. The first priority of moving from a chronic state of underdevelopment to one of development must be raising people’s level of living in terms of food, shelter, clothing, health, education, employment, and other social services. So, development can be conceived as a multidimensional process involving changes in structures, attitudes, and institutions as well as the acceleration of economic growth, the reduction of inequality and eradication of absolute poverty and unemployment with in the growing economy (Todaro M, 2005).

There is growing literature on the importance of health to economies and development. Healthy population is seen as an important engine of economic growth. Good health affects economies in the following ways (World Economic Forum, 2006). First, good health improves children's education. Healthy children are able to attend school regularly. They are also more capable of learning when in class. So improved cognitive abilities in children, in turn, are associated with a higher earnings and therefore potentially stronger economies in adulthood.

A second channel through which health affects economies is its impact on labor productivity. Healthier workers attend work more often and are more energetic and mentally agile when at work. If workers, communities are healthier, moreover, they need less time off to look after sick relatives. According to Bloom, study, a one year increase in life expectancy is tough to boost labor productivity by as much as 4%. Good health also boosts economies by promoting saving and investment people who expect to live longer have a greater incentive to save for retirement and their saving increases the funds available for investment in the economy.

Education and health are basic objectives of development. They are important ends in themselves. Health is central to wellbeing and education is essential for a satisfying and rewarding life: both are fundamental to the broader notion of expanded human capacities that lie at the heart of the meaning of development. At the same time education and awareness play key role in the ability of developing country to absorb modern technology and to develop the capacity for self sustaining growth and development. Moreover, health is a pre-requisite for increases in productivity, while successful education relies on adequate health as well (Todaro 2005).

Greater health capital may increases the return on investment because health is an important factor in school attendance; longer life spans raise the return to investments in education. Healthier individuals are more able to productivity and use education at any point in life (Todaro 2005).

The poor are significantly less healthy than the more affluent. Developing countries face a much more crippling disease burden than developed countries, especially regarding infectious diseases. Malaria, HIV/AIDS and parasites are the three major problems of the developing countries. Malaria is once in retreat, it's most deadly strand is now making a big comeback, particularly in Africa; it still kills about 1 million people each year (Todaro ,2005). Africa has made impressive progress in human development since its independent, but that has been a disquieting set back due mainly to fiscal difficulty and expanding population. If the current trend persists, the basis for long term development will be undermined (World bank, 1989).

On the micro economic level, human capital theory focuses on individual's investment. Human capital is a term economist's use for health, education and other human capacities that can raise productivity when increased. Individuals are assumed to increase the stock of skills, awareness and abilities of individuals with in economy. Human capital theory assumes that the increased productivity of individuals can be aggregated to the national or societal level of stimulate economic growth. As the health of the individual improves, the general quality of work force improves, workers become more efficient and the productivity of both labor and capital goes up (Nigatu 2005).

Most economists now agree that it is the human resources of a nation, not its other capitals or material resources that ultimately determine the character and pace of its economic and social development; because healthy human resources constitute the ultimate basis for wealth of nations.

Improved health status of one society has therefore an affirmative effect in enhancing the quality of life and promoting social development. If equitable and sustainable development is to be achieved, an initial step may be to give an adequate emphasizes for health as a means of identifying priorities in rural and urban development endeavors.

That's why the Millennium Development Goals ( MDGs ) were set forth in the Millennium Declaration, as document of development guidelines authored and accepted by countries of the world and their leaders including Ethiopia (Ministry of Finance and

Economic Development ,2005). The MDGs include eight goals, eighteen targets, and forty indicators. The MDGs, to be achieved between 2000 and 2015, include: halving extreme poverty and hunger, achieving universal primary education, promoting gender equality, reducing under-five mortality by two-thirds, reducing maternal mortality by three-quarters, reversing the spread of HIV and AIDS, malaria, and *Tuberculosis (TB)*, ensuring environmental stability and developing a global partnership for development, with targets for aid, trade and debt relief.

Malaria, therefore, is not only a health problem but also a developmental problem. It places significant financial hardships on both households and the economy. The burden of malaria therefore is a challenge to human development manifesting itself as a cause and consequence of under-development.

The adverse impact of malaria on the health and socio-economic development of Ethiopia is relatively heavy. The pattern and trend of human settlement, particularly of the sedentary type, are partly imposed by the distribution of malaria (Zein A etal 1984). The malaria burden is a challenge to human development. It is both a cause and consequence of under-development.

## 2.2 *What is Malaria?*

Malaria is an infectious and life threatening public health problem widespread in many tropical and subtropical regions. It affects more than 500 million people every year and causes of one million deaths annually mostly among young children in sub-Saharan Africa ( Harrison, 1998).

Malaria is both acute and a chronic parasitic disease of the tropics and subtropics caused by one or more of four intercellular protozoa of the genus *plasmodium*; *Plasmodium falciparum*, *Plasmodium vivax*, *Plasmodium ovale* and *Plasmodium malariae*. The effect is significantly underlined by invasion and destruction of red blood cells. (WHO, 2003)

The clinical presentation of malaria varies according to the infecting species and to the genetics, immune status, and age of the infected person. The most severe form of human

malaria is caused by *Plasmodium falciparum* in which variable clinical feature including spiking fever, chills, headache, muscular aching and weakness, vomiting, cough, diarrhea, and abdominal pain: other symptom related to organ failure may supervene, such as, acute renal failure and circulatory collages followed by coma one death. ([www.dcp2.org](http://www.dcp2.org).)

*Plasmodium falciparum* account for more than 50% of malaria infections in most parts of Eastern Africa, over 90% in sub Saharan Africa and almost 100% in South America (WHO, 2007). The transmission of the parasite by female anopheles mosquito was discovered in 1897 by the British surgeon Ronald Ross. In his accomplishment he discloses the host of malaria parasite is found within the body of mosquito ([http.wikipedia.org/wiler/malaria](http://wikipedia.org/wiler/malaria)).

The female anopheles mosquito often transmit the disease and spread malaria parasite through stinging and drawing up blood from infected person and injecting into the body of the healthy person. With the bite of infected mosquito, a few hundred slender, needle-shaped parasites are introduced into human body. These parasites grow within 7-10 days to protozoa from liver vessels, the related parasite find their way to the blood stream to start a typical malaria effect in human body (Macgraw Hill, 1982).

The Frenchman, Laveran in the year 1878 – 80, discovered malaria in his work. While examining and testing the blood in the laboratory from a patient, Laveran, saw for the first time certain pigmented bodies, which we now know, are the cause of malaria fever (Prothero, 1965).

### **2.3 Factors that precipitating the condition of malaria**

Factors which may cause an “unexpected” increase in transmission are numerous and categorized by human and natural factors (WHO, 2006). Socio-economic development activities modifying or destroying environment (directly linked to human activities) and leading to the temporary or permanent displacement of immune or non-immune people. As a result, secondary larval breeding sites are often created, vector density is increasing,

behavior of vectors may change and new vectors may adapt to the new conditions. People also can move into recently exploited areas where vectors occur.

Forest and jungle areas subjected to economic exploitation, Large scale agricultural projects or extensive cultivation of marshes particularly in highlands, hydraulic projects, dams Mining and logging activities, refuges making borrow – pits in resettlements, new roads better connecting endemic lowlands to highland virtually free of malaria, fast growing process of urbanization leading to new over crowded settlement in peri urban areas, low economic status, over crowding, deprivation and in certain circumstances, the absence of community spirit also contributes to the magnitude of diseases like malaria.

Over population leading to the increase of the population pressure on the available agricultural land like extensive cultivation of natural marshes in highlands, population movements, exploitation natural resources changing the micro climate for the insect fauna and driving wild animal population away. War and socio-political disturbances leading to large population movements contributing to modify environment (large refuge camps) and resettlement of non-immune people in malarious areas

Natural disasters and other disturbances can lead to unexpected environment modification, population movement, meteorological and climatic changes leading to more rapid development of infective stage of plasmodium in adult mosquitoes and development of aquatic stage of vector. Temperature, humidity and precipitation modify vectors metabolic processes. In addition the problems epidemics may be compounded by factors related to poor health services, insufficient knowledge of health worker and communities.

#### ***2.4 The link between malaria and poverty***

The burden of malaria is greatest among the world's poorest countries. While only 0.2% of global malaria deaths are found in the world's richest population, 57.9% of malaria deaths are concentrated among the world's poorest countries. Malaria is also said to cause poverty and prevent or reduce people's ability to escape poverty; however the evidence, about the relationship between poverty and malaria incidence, and the causal pathways

between the two is scant (Asante, 2003). In general the term malaria is commonly referred as a disease of poverty and is mainly found in the poverty – stricken regions of the world. It places significant financial hardships on both households and the economy.

Malaria's impact on households and society can be assessed from at least three important dimensions namely; health, social and economic. According to Worrall 2003, the impacts of malaria in all the dimensions to a large extent are less appreciated especially with the emergence of the HIV/AIDS pandemic.

## **2.4.1 Burden of malaria**

### **2.4.1.1 Economic Burden**

The economic burden of malaria is the total loss or reduction in output (Gross Domestic Product) that is associated with malaria morbidity and mortality. Labor is a key input determining the quantity of output that can be produced with a given technology (Worrall et al, 2003).

In Africa, malaria is understood to be the cause and effect of poverty. It has significant direct and indirect costs. It has been shown to be a major constraint to development in general. For developing economies, this has meant that the gap in the prosperity between countries with the malaria and countries without malaria have become wider every single year (Delacollette, 2002).

Malaria disease has the direct and indirect costs on the public and at an individual level. The direct cost of malaria includes combination of personal and public expenditure on both preventive and treatment of the disease. Personal (formal source of the treatment) expenditure include individual or family spending on ITN, medical cost and consultation fee, anti-malaria drug, transport to health facilities or special food, support for the patient and sometimes an accompanying family member during a hospital stays; and informal (i.e. ritual and self treatment) source of treatment. Where as public expenditure include spending by the government on maintaining health facilities and health care infrastructure, publicly managed vector control or vector target intervention, such as

reduction of mosquito breeding areas or for ITNs acquisition, education and research (WHO 2003).

On the other hand, the valuation of indirect cost is based on actual loss of income attributable to illness and death. It includes loss of productivity or income associated with illness or death. This might express as the cost of lost workdays or absenteeism from formal employment and the value of unpaid work done in the home by both men and women, or in the field that could be the result of direct monetary loss. For instance, like the destruction of crops by wild animal as field was left with out attendant, or loss of daily wage of casual labor, or reduction farm income or production (Nejera, 1998).

In this connection Deressa and etal attempted to estimate both the direct and indirect costs of perceived malaria in rural setting of Ethiopia, the case of Adami Tullu district. The indirect cost to the household accounted for 72% of the cost per fully recovered patient, the remaining 28% covering both treatment and transport cost. Although treatment of malaria is provided free of charge at marginal cost of labor and with nominal fees by Community Health Workers (CHWs) in the study areas, households spent a significant amount of their meager resources on malaria treatment at private health services. The transport costs are significant particularly for rural population (Deressa *et al*, 2005).

In this connection (Delacollette, 2002) pointed out the major end result as an example include preference by individual farmer /household to plant subsistence crop other than labor intensive cash crop because of the impact of malaria on labor during harvest, under developed market due to trader unwell to travel and invest in malarias area and under developed tourist industry due to reluctant of traveler to visit.

During the period of the sickness, the individual may stop work completely or may work partially due to the debility associated with the disease on temporary bases. Situations like these may affect household production adversely. In certain cases, a household member will have to cut down his/her own duty to cater for the sick or perform the duties of the sick person.

According to the study done by Deressa et al 2008 in Adami Tullu district of Oromia region, Ethiopia revealed that an adults workday was valued at birr 7.00 (\$0.81) assuming that patients and companions participated in all works activities during peak harvest time. The cost of a person per a day lost was birr 47.71 (\$5.52) for patients and birr 47.22 (\$5.46) for companions, giving birr 94.93 (\$10.97) per patient.

The cost of illness to the economy also includes tax exemptions on imported anti-malarial products. The direct costs may also include the resources that are spent directly or indirectly by various institutions like local governments, NGOs and communities (Delacollette, 2002).

According to the studies done by Worrall et al 2003, from a macroeconomic perspective, malaria mortality and morbidity have been observed to slow economic growth by reducing capacity and efficiency of the labor force. Basic economic theory postulates that the quantity of a given output produced is a function of several factors including the capital stock, labor force and the quality of labor available. Based on this, it could be argued that the effects of malaria on labor diminishes total output and for that matter national income. Gallup and Sachs (2001) in across-country econometric estimation of the effects of malaria on national income concluded that countries with substantial level of malaria grew 1.3% less per person per year for the period 1965 - 1990. The study also confirmed that a 10% reduction in malaria was associated with 0.3% higher growth in the economy

It is possible that mosquito-infested areas could experience reduced land utilization since people would not want to invest in such malarious areas. This could have a negative effect on the development of that area resulting in decline in tourism, agricultural and industrial activities among other things (Worrall et al, 2003).

#### 2.4.1.2 Socio-Demographic Burden

In this regard, the impacts of malaria rewind the progress of community by which health situation and education overlay the avenue of nation's development. Globally, human malaria indiscriminately affect all mankind, of course, children and pregnant women are

the most susceptible group of the community. Though adults are rarely affected, the probability of contracting the disease varies between endemic and epidemic regions. In endemic areas generally tropical and sub-tropical regions people contract the disease very often throughout their lives and causes death. On the contrary, in areas where malaria transmission is not stable and occasional epidemic occurrence both adults and children are vulnerable because neither build up resistance. (World Economic Forum 2006). According to McDonald (1950) and Wernsdorfer et al. (1998), malaria attacks are a major cause of school absenteeism and this has a negative impact on long term learning capacity overtime.

Malaria infection during pregnancy is a major public health problem in tropical and sub-tropical regions. In most endemic areas of the world, pregnant women are the main adult group at risk of malaria. The burden of malarial infection during pregnancy is caused by chiefly by *Plasmodium falciparum*, the most common malaria species in Africa, where 90% of the global malaria burden occurs. Every year at least 30 million pregnancies occur among women in Africa, most of whom reside in areas with relatively stable malaria transmission (WHO, 2003). Pregnant women residing in areas of unstable malaria transmission are at two or three fold higher risk of developing severe disease as a result of malaria infection than are non-pregnant adults living in the same area (WHO, 2003).

### ***2.5 The concept and methods of preventing malaria***

Prevention efforts have ranged from altering the external environment to protection within households. Draining or filling certain wetland pools of water and even puddles robs mosquitoes of breeding sites and forces them out of populated areas. Spraying breeding sites with insecticides helps reduce urban areas and refugee camps of mosquitoes. Improved weather forecasting helps in predicting epidemics, giving communities more time to be prepared (World Economic Forum, 2006)

A more common use of insecticides involves spraying the interiors of dwellings. The residue left by the chemicals stops mosquitoes from entering or kills them when they

on walls. Most sprays last up to six months. Nowadays there are concerns that DDT, for example, harms the environment so that its use is becoming less common today.

Insecticides are also used to treat bed nets. Bed nets have been used in malaria prevention for centuries, but ITNs have been adopted only recently. ITNs either kill mosquitoes that land on the net or deter them from entering a dwelling (malaria transmitting mosquito bite mainly at night). The latest generation of bed nets last over four years before they need to be replaced. Indoor chemical spraying and sleeping under bed nets are easy for members of the public to use without expert assistance (World Economic Forum, 2006).

ITNs protect more than those sleeping under them. Because they either kill mosquitoes or reduce the longevity of those that come into contact with the net, either effect extends over several hundred meters. If many people in a village use them other will be protected. (World Economic Forum, 2006)

## **2.6 Malaria in the Ethiopian context**

Malaria has been endemic in Ethiopia for many years and called by different names in different areas. For instance the terms “weba”, “nidad” in Amharic and “busa” in Oromiffa are widely used to describe malaria ( Zein A etal. 1984).

Studies have been conducted on malaria in order to see the knowledge, attitude and practices of the communities towards preventing malaria in different parts of Ethiopia. Studies done at Butajira on knowledge and attitude of malaria, fever, headache and chillness with shivering were reported as the symptoms of malaria by 89.7%, 87.5%, and 81.3% of the respondents respectively. Concerning to its vector only 59.5% said malaria is transmitted by mosquito bite. The rest were reported change in weather 21%, dirty stagnant water 16.3%, dirty personal and sanitary condition 2.9%, and contact with sick people 2.1% and don't know 13.7%. In the same study 10.2% of the respondent said malaria is not preventable and 4.1% don't know weather it is preventable or not. Concerning the practices in the same study revealed that 30.5% of the respondent believed malaria is treated with tradition. Medical practice by taking leaves, roots herbs, holy water and other type (Deressa *et al*, 2003).

believed malaria is treated with tradition. Medical practice by taking leaves, roots herbs, holy water and other type (Deressa *et al.*,2003).

A lot of people didn't come to health facilities timely for the diagnosis and treatment. For instance the study in Kenya Coast showed mothers usually treat their children at home with shop bought drugs on the same day or the day after symptoms first appear. However, clinics, health centers and hospitals are more often conducted from the second day onwards (Nymango, 2002). The same is true in Deressa *et al* 2008 studies in East Shewa zone where 74.5% of the respondents come to the health institutions after 2 days, of this 34.5% delayed 4 days and more. Mild illness, high work load, financial problem and thought of other disease were some of the reasons for the delay in the Eastern showa zone and this situation leads to severe malaria situation and other health related problems.

The health service coverage of the country is still very low and a great proportion of the population is not accessible for modern health service. Beside this many of those who have access are practiced self medication and not used the service in appropriate health institution at the beginning of their illness ( Deressa *et al* ,2003).

The efficacy and safety of using traditional medicine is not proper and it may be reason for delay. To overcome the entire coming problem working with community is very crucial because the success of malaria control program at present relies heavily on community perception and practice in the transmission, treatment and control of the disease (Gebreyesus *et al.*, 2001)

## **2.7 The need for strong national malaria prevention and control program**

Ethiopia is the owner of a health policy and package on malaria that identifies issues of public awareness and promoting understanding of the essential linkage between health and development. And the country is performing to improve the health of communities by reducing the overall burden of malaria (morbidity and mortality) by increasing the awareness of communities on malaria transmission, prevention and control measure as well as educate households to utilize health services before they get seriously sick from malaria (MOH, 2005).

potentially malarious areas. It is believed that having a good malaria extension package in a health policy by itself does not mean implementing it. Be it a policy and be it a strategy or proclamation the important thing is whether the package can help to solve the problem faced in the implementation process.

The history of malaria control program in Ethiopia dates back to the early 1960's, along with the country experienced the worst malaria epidemics in 1958 with an estimated three million malaria cases and 150,000 deaths. However, the measures taken during that time were not successful (MOH, 2004).

Health service extension program (HSEP) is a new initiative included in the Health Sector Development Program of Ethiopia. It is an innovative community based health care delivery system aimed at creating healthy environment as well as healthy living. The main objective of HSEP is to improve access and equity to essential preventive health interventions provided at kebele and household levels with focus on sustained preventive health actions and increased health awareness (MOH, 2005).

To date, the malaria prevention and control activities were mostly executed by public health institutions which are often in accessible due to many reasons. As a result, the majority of the rural population is not benefiting much from the services. In order to improve and expand malaria prevention and control services, Roll Back Malaria (RBM) has been designed. It entails the active participation of communities and all organizations to eradicate malaria (MOH 2005).

To this effect, activities that raise the awareness of communities are being implemented so as to directly engage communities in the malaria prevention and control activities and decision making to enhance the program.

The malaria extension package has been developed in order to mainly improve the health of communities by reducing the overall burden of malaria. By doing this the package aimed to increase the awareness of communities on malaria transmission, prevention and control measure to enable them actively participate in the malaria prevention and control

**Prevention practice** is defined as the practices that people in the study area have acquired from their communities and ancestors that is to mean any traditional method related to human behavior of preventing malaria from their surrounding or a knowledge that they have acquired through modern health education that could be from any form of health institutions, media, health worker and experts.

## *2.9 Factors affecting the knowledge, attitude and practices of the people towards preventing malaria.*

### **2.9.1 Demographic factors**

#### **Sex**

Some studies use gender as a proxy indicator for socio economic status, reflecting the social and material disadvantage experienced by women in many parts of the world. Sex may be one factor that substantially affects people's knowledge, attitude and practices towards managing the environment. But under the normal condition men and women do not differ in their level of concern about the health of the environment (Hayes, 2001), concerning the gender differences in knowledge and attitude towards the health related environment, there are basically three types of arguments.

The first line of argument (knowledgeable support hypothesis) basis it self on the view that Western society considers the health of the environment to be developed by science and technology. So that for men have got the opportunity to command techno-scientific component of the society that enabled them acquire scientific and technological knowledge to manage and dominate nature and socialized un-ecological attitude towards the condition of the environment. On the contrary, according to the same line of argument, women are denied of acquiring this knowledge because they have no access to the techno scientific knowledge.

On the second line of argument the eco-feminist theorists like merchant support, the above line of argument and describe environment health problems as the result of men domination. For these eco-feminists, female's inequality and environmentally caused

problems are the result of male domination. It is thus women have positive attitude towards maintain nature than men.

In the third line of argument, (the safety corner hypothesis) women are more likely to express concern about the health of the environment only when environmental issues directly threat the health of their families. For them such disparity in environmental attitude have strong correlation with selected phenomena when in one or the other way the phenomena is an environmental issue that could threat life.

A study done by Vundule et al (1996) in rural communities of Zimbabwe revealed that decision making at the household level concerning when and where to seek health care was said to be the responsibility of the male head of the household by 60% of the respondent, while 16% said it was the female head's responsibility. In Dares Salaam, Tanzania, for example, malaria-related mortality was shown to be proportionally equal (1:1 ratio) between men and women, though anemia was an important cause of death only in women (Korenromp *et al.*, 2001).

### *Age*

Age is one of the demographic factors that affect the knowledge and attitude of individuals towards the environmental health related management. (Torgler et al, 2005) People in the same age cohort would have similar attitudes towards certain issue as compared to those in different cohort.

There is some evidence to suggest that children, who are especially vulnerable to malaria, are not given priority access to malaria prevention. Evidence from Malawi revealed that bed nets used by adults are often newer and more recently treated with insecticide than those used by children (Ndawala *et al.*, 2000). These problems may be compounded in poor households where use of preventive methods is even more limited or constrained. However, data from Tanzania showed that children were given priority for sleeping under a net with the proportion of children under a net being constantly higher than that of adults in net owning households (Hanson and Worrall, 2002).

## **Marital Status**

There is also variation between those ever married and unmarried in knowledge and attitude towards protecting their surrounding environment. When people get married, they establish strong social network with in the community, therefore they are expected to involve in community activities than the single people. Their parental effect also makes them wish have conducive environment so that the future of their children is secured. (Tongler et al. 2005)

On the contrary, the findings of Flintan study in the year 2003 showed that married women as compared to the unmarried ones are busy of activities like housekeeping raising families, cooking and other activities as a result of which they are less involved in the community based activities. This, therefore, has limited their knowledge of preventing malaria from their surrounding.

### **2.9.2 Socio economic factors**

People's knowledge, attitude and practice towards preventing malaria is also affected by socio-economic factors like level of education, type of activity, access to health service institutions, contact with health extension works, income, place of residence, access to media etc.

WHO (1993) has stressed the necessity and importance of studies on socio cultural and socio-economic factors on the communities knowledge attitude and practices to prevent malaria. In this line Schultz et al (1994) pointed that the KAP study is becoming more important to design and improve malaria control activities to establish epidemiological and behavioral baselines.

According to Padmawait Tyai (2005) the socio-economic conditions of the community have direct bearing on the problem of malaria because ignorance and impoverished conditions of people contribute in creating source and spread of malaria and hinder disease control strategies. This is to mean that poor people that have less access to intervention do have less practice to prevent malaria.

It was recommended that prevention of the disease through better knowledge and awareness is the appropriate way to keep the diseases away and remain healthy as illness confusion and health seeking behavior may enhance the effectiveness of control measure.

### *Education*

Education could be taken as an optimal measure of the socio-economic status. As a result it has strong correlation with economic status, access to information, resource and many other benefits.

Studies indicate that women in the developing countries, as compared to men, have less access to education and resources. This fact has been confirmed in the DHS of Ethiopia 2005 that, there is large disparity between the educational attainment level of men and women in Ethiopia. According to this survey, out of the total women population 24 % in the urban and 74 % in rural areas women have no education. The percentage for uneducated men in the respective areas is about 7.9 % and 49.2 % respectively. When we look SNNPR in the DHS 2005, 65.7 % of women and 32.6 % of men have no education.

Education, therefore, will have a remarkable impact on women's relation with the health through affecting their social and economical status. So that uneducated women are highly likely to lack knowledge and resources to be invested in maintaining the health status as compared to men. In the study of Todaro 2005, uneducated women failed to understand the link between health and development as compared to men and have also little understanding about linkages between them.

In a study done of rural communities of Vietnam by Vundule (2006), it was found that many of the people in the study area were illiterate and didn't know that malaria is transmitted by mosquito bites. They had incorrect knowledge about malaria transmission, such as drinking unboiled water or stream water. So, their knowledge and behavior were significantly different from the educated groups. This finding stated that educational level of the household head was strongly correlated with the use of bed net to prevent malaria.

It was recommended that it is important to develop educational material oriented towards strengthening knowledge as well as giving new knowledge and sustaining practices that prevent malaria infection in the village.

Clear evidence on the impact of educational levels from the Malawi 2000 DHS revealed that women with lower levels of education were more likely to have fever than women with higher levels of education (Ndawala *et al.*, 2000). Net ownership has also been related to the educational levels of household members. This is a complicated relationship since educational attainment can be a proxy for socio economic status and is also likely to have an independent bearing on an individual's ability to understand and access information regarding malaria prevention methods.

Knowledge was higher among those who were skilled or professional than among the unemployed or unskilled category. The level of education attained may also be a factor. In a study on ITN use in Benin (Rashed *et al.*, 1999) suggest that there may be a threshold effect, with ITN acquisition increasing among those men who have completed secondary, but not primary, education. In Zambia, knowledge of malaria was found to be positively associated with level of education but no significant relationship was found between education and the use of mosquito nets. (Kaona *et al.*, 2000) indicating that education is sometimes, but not always, an important determinant of net ownership.

In Nigeria, Fawole and Onadeko (2001) examined the treatment seeking behavior of urban poor mothers or caregivers of children with fever. Of those with no formal education 28.8% went to a health facility first compared to those mothers/caregivers with secondary education where 40.2% visited the health facility first. Uneducated mothers constituted the majority (52.6%) of those who went to the traditional healer whereas "patent medicine sellers" were more frequently patronized by educated mothers (41%) than illiterate mothers (25%). In Zambia, the use of chloroquine (compared with traditional or no medicine) was positively correlated with age and level of education but no relationship was found between education and knowledge of correct dose (Kaona *et al.*, 2000).

### *Level of income*

Poverty appears still to be the most important barrier to net use with more than 80% of households without a net in one Malawian study reporting “lack of money” and 13% reporting “can’t afford them” as the reason (Holtz *et al.*, 2002). The authors of this study conclude that “Pervasive poverty and the expense of the nets were the chief reasons for lack of nets in these rural households”

The evidence suggests that the poor are less likely to use preventive measures, especially the most effective ones. They are also less likely to use preventive methods in the most effective or appropriate manner. Generally, the level of expenditure on prevention methods is positively correlated with income, wealth or other proxy measures of SES such as education and occupation; however the relationships are not always clear. It seems that when the poor do choose to invest in malaria prevention, they suffer a greater relative burden of this expenditure (in terms of the share of total household expenditure) and its opportunity costs

In Burkina Faso, Mugisha *et al.* (2002) found that people in urban areas and those with high incomes were more likely to seek care (for any illness) from health facilities (compared with self-treatment or a traditional healer) as a result of ease of geographical and monetary access. For malaria, treatment at health facilities was found to incur the greatest out of pocket expenditure, followed by self treatment and traditional healer; however most people chose self treatment for malaria because they were familiar with the disease and felt confident in their ability to treat themselves

The study reveals that dependency status of the household member, type of health facility usually attended and household income discriminate significantly on the amount households are willing to pay to control/eradicate malaria. Generally, as people’s incomes increase they are willing to pay more for control/eradicate of malaria in their household. Generally, as people’s incomes increase they are willing to pay more for control/eradicate of malaria in their household. An increase in the household income by

1% results in a 0.23% chance that households will be willing to pay the highest offer, on the average US\$47.13 to control/eradicate malaria in the household.

### **Occupation**

The type of activity or industry that an individual engaged has also impact on his/her knowledge and attitude towards preventing malaria at the household and community level. Accordingly to Flintan 2003, there is a consideration that there are occupation identified and assigned to men and women. Such division of labor is very common phenomena in Africa. Men are mostly assigned to field activities and women to household's activities. As a result of this there is an important difference in knowledge concerning the environmental health and attitude towards it between men and women depending on their industry.

For instance in Ethiopia, according to the 2005 national labor force survey CSA, 75 % of women and 84.3 % of men are engaged in agriculture, hunting and foresting related activities. Therefore based on the type of individual eco-activity, it's expected that men who deal with the environmental health management at the community level in large proportion than women have better knowledge of their sanitation at the household level

Certain occupations place individuals at greater risk for malaria infection than others. Agricultural laborers, for instance, may not only place themselves at risk through increased contact with the malaria vector but also, through their migration, place others at greater risk by contributing to the spread of the disease (Service, 1991; Martens and Hall, 2000). Consequently, occupation may reflect both socio-economic status and differential risk of exposure through occupational attributes.

In Ethiopia, highland migrant laborers have been shown to be vulnerable to malaria while migrating to find lowland agricultural work (Ghebreyesus *et al.*, 2000). While migration puts the laborers at greater risk, it also limits access to treatment as the agricultural work sites to which laborers migrate are located an average of over two hours' walk from health facilities.

Furthermore, the workers must sleep in the fields in which they work, which may increase significantly the risk of malaria infection in this group. Workers in other occupations, such as gem miners (Yapabandara and Curtis, 2002) and rice farmers (Mutero *et al.*, 2000) have also been shown to be at greater risk, both while they work and sleep. In Sri Lanka, for example, gem miners' housing gives no protection from the mosquito vector and cannot be sprayed with insecticide (Yapabandara *et al.*, 2001).

### **Place of residence and access to mass media**

Urban areas have better infrastructural development like education, health, media (radio, Television, newspaper etc) etc than rural areas. Therefore, people in urban areas have better access to make use of these opportunities. Therefore, they could easily access different health and medical research findings and became aware of the issues concerning to malaria.

Despite this fact, the percentage of people who have access to radio and Television at the national level is 26.3% and 3.75% and the aerial coverage was 76% and 43% respectively. The situation in the study area is even much worse as compared to the national average (Ministry of Information, 2004).

A rural or urban categorization is sometimes used as a proxy for socio economic variable, based on the assumption that people in rural areas tend to be poorer than those in urban areas. Though rural locations appear to experience higher rates of transmission, the relationship between the two is not fully understood. Rural locations can be associated with increased malaria risk for both epidemiological and socioeconomic reasons. Similarly, urban residence can be accompanied by potentially protective socio-economic factors against malaria risk such as education and income (Rashed *et al.*, 2000)

### **Participation on environmental sanitary management**

Involving in participatory environmental management is also another factor to determine the level of individuals' knowledge & attitude towards preventing malaria. It is a process oriented development and in the process the main actors are the government, NGOs &

communities where their role and responsibilities can vary depending on the nature of their development (MOH, 2005)

Encouraging people to actually sleep under bed nets is also a challenge. Effective bed net use depends on community's knowledge understanding community cooperation, and community's financial capacity. Without this, it is likely that people will sell their bed nets or use them for purposes other than sleeping in (Gebreyesus et al, 2005).

The ways in which people treat fevers are often directed by local beliefs about disease, access to treatment, costs, and attitude toward health care providers. People often use combinations of traditional and modern medical treatment both in the home and in the formal health sector (ibid)

In a study done in rural communities of Zimbabwe, it was found that the knowledge about the malaria transmission, treatment and prevention was very low and those villages who had poor knowledge of malaria and its cause reported not taking measures of their own to protect themselves. Although the indoor chemical spraying program has been sustained for over 40 years as the main stay of malaria control in Zimbabwe, a significant proportion of the target communities continue to have a poor understanding of why their homes should be sprayed. It was recommended that information of malaria probably needs to be improved with better focused message through participatory management approach.

### **Accessibility**

According to the Federal Ministry of Health, 2004, in Ethiopia the malaria prevention and control activities were mostly executed by public health institutions which are often inaccessible due to many reasons. As a result, the majority of the rural population is not benefiting much from the services. Distance was also found to be an influential factor in treatment seeking for fever and convulsions in Zambia (Baume *et al.*, 2000). They found that children living within 1 hour travel time were more likely (79%) to be taken to health centers compared to those living more than 1 hour away (58%). For a follow up visit for continued symptoms 16% of those living near and only 3% of those living far away made

the trip. They also found that financial constraints deterred caregivers from seeking help at clinics where user fees were charged. Caregivers living near these clinics most frequently cited lack of money as the reason for not taking child to clinic

### *2.10 Conceptual framework*

The following conceptual framework shows that the knowledge, attitude and practice of the community towards malaria prevention (figure1). The three major dependent variables that constitute the conceptual framework for this study are knowledge, attitude and practice of the community towards preventing malaria. These dependent variables are affected by different demographic, institutional and socio-economic factors.

The demographic factors include sex, age, marital status and family size of the respondents. There are also certain socio economic variables which have strong relation with knowledge, attitude and practice towards malaria prevention. Such variables are literacy status, occupation, level of income, place of residence, access to media and contact with health workers. The institutional factors include type, accessibility of health institutions, provision of health education and existence of health professionals.

In the conceptual framework the arrow reveals the impact of the independent variables on the dependent variables. Each dependent variable was expected to affect by the independent variable positively or negatively. The figure below show the relationship found between dependent variables and independent variables.

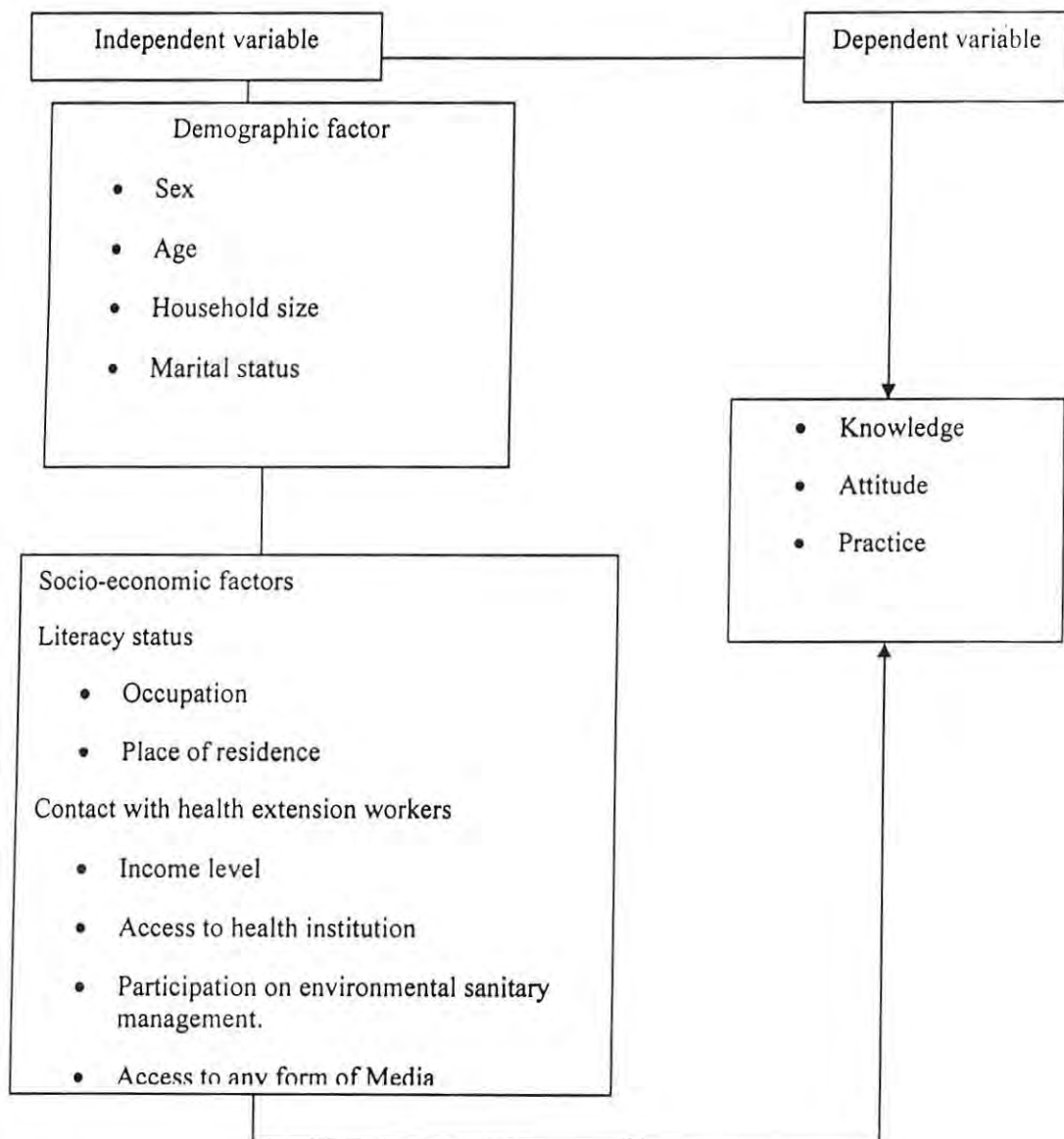


Fig 1. Conceptual Framework

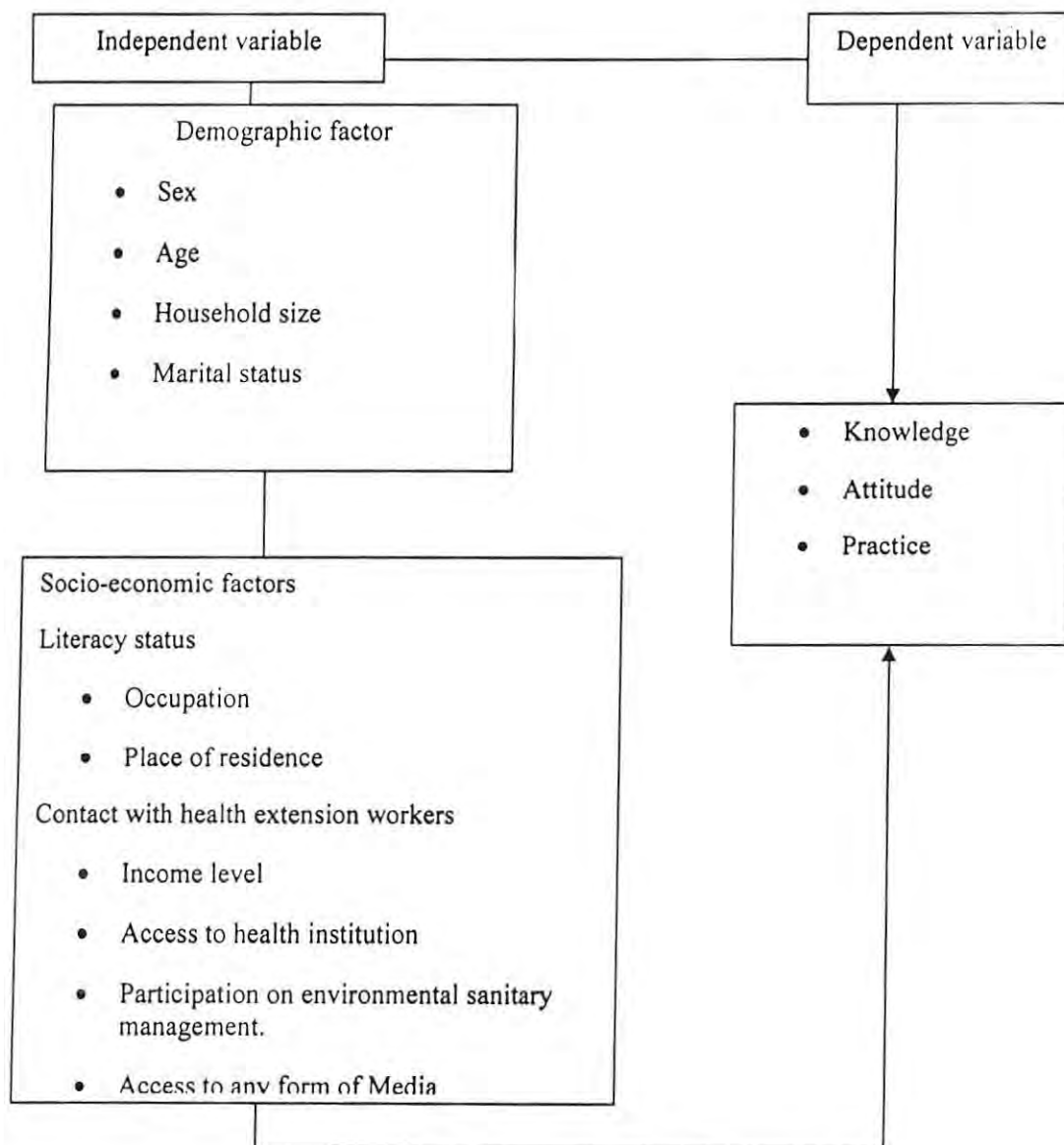


Fig 1. Conceptual Framework

### 3. Methodology and methods of analysis

#### 3.1 Background of the study area

The study area Kedida Gamela woreda is geographically located in the southern nation's nationalities people's regional state (SNNPR) in Kambatta Tembaro zonal administration. It is located between 7<sup>o</sup>11' and 7<sup>o</sup>27' North latitude and 37<sup>o</sup> 48' and 38<sup>o</sup>05' East longitude. The capital Durame has a distance of 350 kilometers from the federal capital Addis Ababa and 125 kilometers away from the regional capital Awassa. It covers a total area of about 322.4 square kilometer.

According to SNNPR Statistical abstract of 2006-07, the woreda population was estimated to be 111,184 of this 50.8 % are female. According to the woreda health office, 2008, the woreda accommodates about 18,530 total households and out of which 15,552 households are considered as malaria risk households and out of the total population of the woreda 93,307 (84%) people are malarias risk population. According to zonal department of health all kebeles of the woreda are considered to be malarious. Moreover, the status of the overall health coverage was 73% and the average distance traveled to access health services was 10 kilometers on average. In 2003 only 8 % of households had a bed nets and however currently the figure has increased to about 84%. Government is being responsible for most malaria prevention effort in the study area.

The human resource base supporting health services in the woreda is very limited. It has one of the lowest ratios of doctors to population in Ethiopia. The woreda health report 2008 revealed that the woreda has only 37 health extension workers with less than one year training for a population of 111,181 ,3 diploma sanitary workers,4 public nurses and 206 volunteers community health promoters.

Thus, malaria (*shekerre* local name) is a long standing major problem in the study area. In fact it has done an effort by government and NGOs to mitigate its impact and have born fruit in many spatial entities but the disease remains a resilient foe in many times.

Perhaps, the level of knowledge, attitude and practices of the community towards preventing malaria is so low (Woreda Health Office, 2008).

### *3.2 Study Design*

The main objective of the study is to focus on assessing the factors that affect the KAP of the local community towards malaria prevention. Cross sectional survey method was selected because it attempts to assess all members of the community to know their own KAP towards preventing malaria by selecting them randomly at a specific point and time. Both quantitative and qualitative methods were used. The aim of the study is to understand the relationship between the demographic and socio economic characteristics of the respondent's as well as the existence of health institutions and their knowledge, attitude and practice towards malaria prevention. For this purpose, descriptive statistics such as frequency distributions and cross tabulation were employed. Thus, the impact of demographic, socio-economic and institutional factors on KAP and variation of knowledge, attitude and practice towards malaria prevention by various types of demographic, socio economic and institutional backgrounds of the eligible respondents were assessed

### *3.3 Data Sources*

Both primary and secondary sources of data were used for this study. Primary data was collected through household survey, focus group discussion and key informant interviews. The eligible people for the study were the members of the community at the age of 18 and above. A total of 422 sample population or individuals who are an age of 18 and above respondents were selected and interviewed and three groups of FGDs from 6 kebeles were formed. The number of each FGD participants was ranges from 8 to 12. And the general direction pursued in the discussion was left for the researcher to trigger issues for discussion and promote active group participation. The key informant interview was conducted. The selected key informants were local government officials and wereda's health office experts and HEWs

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### 3.4 *Sampling Method*

The study focused on the Kembatta Tembaro zone of Kedida Gamela community in the SNNPR regional state. The number of malaria treated persons in the region as stated in CSA (2008) is outweighed the other regional states. In order to undertake the study, one zone has been selected randomly from the other seven zones which are at risk of malaria infection in the regions. Following this one woreda was selected randomly from the already selected zone because all woredas of the zone are living in areas at risk of malaria. There are 17 rural and one urban administrative kebeles in the selected wereda. Among these kebeles, 5 rural and one urban kebeles were selected. The woreda was divided or stratified into 5 strata based on their geographical proximity and homogeneity. Thus, those 5 rural study kebeles were selected from each clusters of the woreda using simple random sampling technique and one urban kebele was also selected in a purposive method just for comparison purpose. In all the selected sample kebeles, household listing were undertaken. It was later served as a sample frame for the study. Finally, the sample respondents were selected using systematic random sampling. The sample distribution among the kebeles was done using proportional methods to their population size.

### 3.5 *Sample Size Determination*

The sample size was calculated on the basis that 50% of the respondents have the knowledge of malaria prevention; at 95% confidence interval gave a sample of 384 plus 10% for incomplete forms gave a total sample size of 422.

To determine the sample size, the following formula was employed (Cochkan. 1999).

$$n = \frac{(P*(100-P) * Z^2)}{e^2}$$

Where: n = Sample size

P= Estimated proportion of respondents who have knowledge. As the Proportion was not known, 0.5 was used as P value to obtain maximum number of the respondents.

Z= the number of standard error corresponding to 95 percent confidence

Interval which is 1.96.

e = the margin of error that the researcher tolerates which is 0.05

Therefore:

- The total number of sample to be included in the study

$$= \frac{50 * (100 - 50) * 1.96^2}{5^2} = 384$$

With 10 % contingency the total number of the respondents were= 384+38= 422

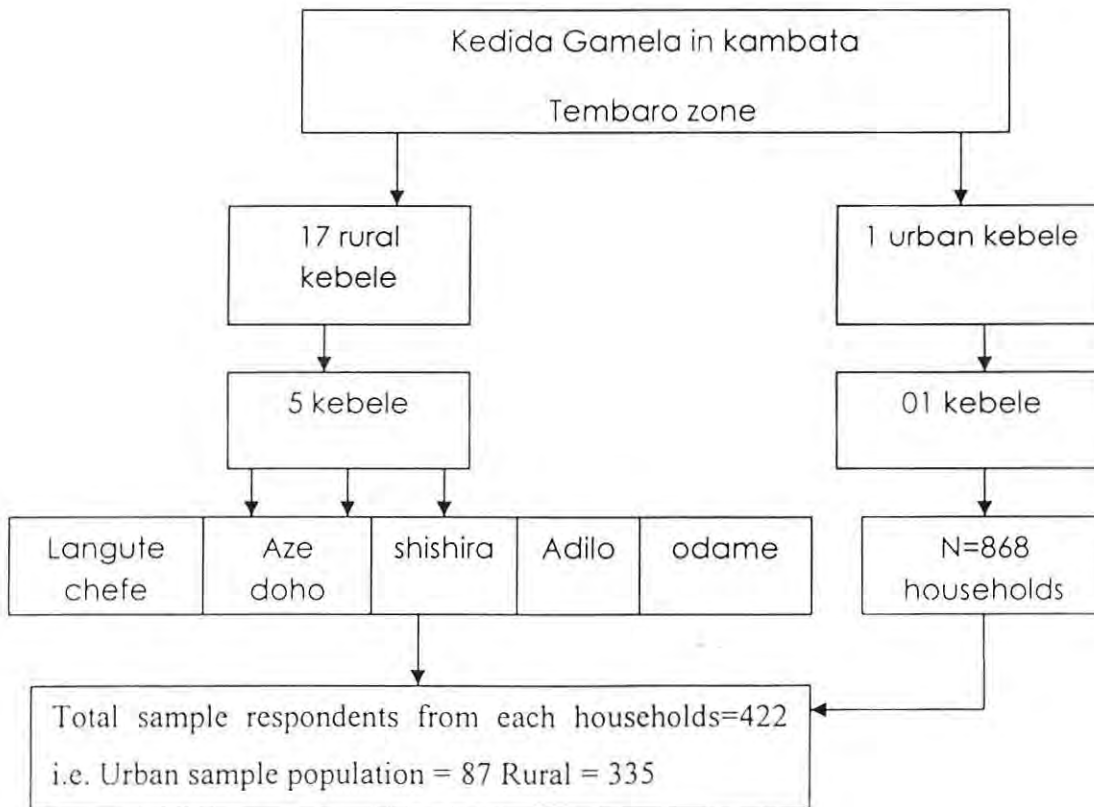


Fig. 1 Stages of sample selection

### **3.6 Data collection**

The questionnaire was designed from MOH survey standard questionnaire. Changes were made to adopt the questionnaire to the current research objectives and context. In addition, a short pilot of the questionnaire was carried out as part of the data collectors training and final adjustments made to the questionnaire. Data collection took place from March 1 up to March 15 using both quantitative and qualitative methods. In the collection process any randomly selected individual who was an age of 18 and above was interviewed. *Three* Focus group discussions were also held with men and women together, with 8-12 participants in each group to see the KAP of the community to prevent malaria.

Six data collectors were selected to undertake the study by the researcher based on their experiences and education level. Training of the surveyors took place for two days using the researcher's manual. The main focus of the training was how to conduct surveys using questionnaire interview.

### **3.7 Method of Data Analysis**

The collected data was templated, interpreted and analyzed by the investigator by using Statistical Package for Social Science (SPSS). Data editing and cleaning were done to assess data quality before the actual analysis. The qualitative data was analyzed by paraphrasing the responses in order to support the quantitative ones. The conclusion and recommendation were drawn after the data had been analyzed and interpreted. Cross tabulation and chi-square methods were used in order to find out the degree of association of each independent variable to the dependent variables.

### **3.8 Ethical Considerations**

The study had been conducted after securing approval from the Addis Ababa University, and local administration of health management office. The purpose of the study was explained and all information provided by the respondents was strictly kept confidential and maintained their privacy. It was informed to be obligatory to inform the subjects of the study results and towards publication. The individual's autonomy was respected.

Participation in this survey was voluntary and they can choose not to answer any particular question or all of the questions. However, their participation in this study was very encouraging. Finally, it was ensured that individuals and communities would benefit from the results.

## 4. RESULTS AND DISCUSSIONS

### 4.1 Background Characteristics of the Study Population

Knowledge, attitude and practice towards malaria prevention are closely related to the background characteristics of the community. Different studies like (Worral E .2007) indicated that knowledge, attitude and practice towards preventing of malaria are more likely affected by differences in demographic and socio-economic and health institutional characteristics of the community in the area. Hence, before examining the relationship between respondents' demographic and socio- economic characteristics and the influence of these characteristics on knowledge, attitude and practice, this section discussed the background characteristics of the study population.

#### 4.1.1 Demographic Characteristics

Out of the total respondents covered in the survey, 51.6 percent were found in the age group 15-30. So that about half of the sample respondents were found in the young age category. Thus all the three predicted variables i.e. knowledge, attitude and practice towards malaria prevention were seen across both sexes and age groups.

**Table 1: Percentage Distribution of the Respondents by Age and Sex**

Age Group	Sex Composition					
	Male		Female		Total	
Frequency	Percent		Frequency	Percent	Frequency	Percent
18-30	120	55	98	48.1	218	51.6
31-50	88	38	89	43.6	150	35.5
+50	37	17	17	8.3	54	22.9
Total	218	100	204	100	422	100

As far as marital status of the respondents is concerned, data was collected on the basis of five marital statuses such as married, divorced, widowed, single and separated. For the convenience of the analysis, these demographic variables were regrouped and recoded as “ever married” and “never married”. Those who were married, divorced, separated and widowed were categorized under “ever married” category while the rest categorized as “never married”.

**Table 3: Percentage Distribution of the Respondents by Marital Status**

Marital Status	Frequency	Percent
Never married	167	39.6
Ever Married	255	60.4
Total	422	100.0

Based on the above classification, it was found out that 60.4 percent of the respondents were ever married and 39.6 percent were never married at the time of the survey.

Like marital status, household sizes of respondents were recoded into two categories as less than or equal to five and greater than five. Table 4 below shows the frequency distribution of the household size of the respondents.

**Table 4: Percentage Distribution of the Respondents by Household Size**

Household Size	Frequency	Percent
$\leq 5$	307	72.7
$> 5$	115	27.3
Total	422	100.0

Accordingly, large proportion of the respondents (71.3. percent) were found to be protestant Christians ,(13.0&10.7) were muslim and orthodox christians respectively while the remaining (5.0 percent) followed other type of religion.

Table 3: Percentage Distribution of the Respondents by religion

Religion	Frequency	Percent
protestant	301	71.3
muslim	55	13.0
orthodox	45	10.7
others	21	5.0
total	422	100

As far as the ethnicity concerned , 75.6 percent of the total respondents were Kambata , while the remaining (24..4 percent) were being in other group of ethnicity

Table 4: Percentage Distribution of the Respondents by Ethnicity

Ethnicity	Frequency	Percent
Kambata	319	75.6
Tembaro	35	8.3
Hadya	18	4.3
others	50	11.8
Total	422	100

#### 4.2.2 Socio-economic Characteristics

In this research socio-economic characteristics encompass people's literacy status, occupation, average monthly income, place of residence and contact with health extension workers. Thus, the study attempted to investigate respondents' KAP towards malaria prevention across these socio-economic characteristics.

Data collected on literacy status indicated that only 51.2 percent of the respondents have had access to education that enabled them to read and write while about 48.8 percent of the respondents were illiterate (table 5).

**Table 5: Percentage Distribution of the Respondents by Literacy Status**

Literacy Status	Frequency	Percent
Literate	216	51.2
Illiterate	206	48.8
Total	422	100.0

Information on respondent's occupation was also collected as 'on-farm' and 'off-farm' occupation.

**Table 6: Percentage Distributions of the Respondents by types of Occupation**

Occupational Group	Frequency	Percent
On-farm	269	63.7
Off -farm	153	36.3
Total	422	100.0

The percentage distribution of the above table reveals that more than half (63.7 percent) of the respondents were engaged in on farm activities while off-farm accounted for 36.3 percent.

Concerning place of residence, 72.7 percent of the total respondents had reside in rural area, while the remaining (27.3 percent) had reside in urban areas (table 7).

**Table 7: Percentage distribution of the respondents by place of residence**

<b>Place of residence</b>	<b>Frequency</b>	<b>Percent</b>
Rural	115	27.3
urban	307	72.7
Total	422	100.0

In this study, respondents were also asked whether they have contact with health workers like health extension workers, NGOs, medical personnel, community health promoters etc or not. So as to investigate the influence of this socio-economic factor on their KAP towards Malaria prevention as indicated in table 7, about 56.9 percent of the respondents had contact with health workers; the rest 43.1 percent had no contact with them.

**Table 8: Percentage Distribution of the Respondents by Contact with health institutions**

<b>Contact with health institutions</b>	<b>Frequency</b>	<b>Percent</b>
Yes	240	56.9
No	182	43.1
Total	422	100.0

### 4.3 Knowledge of malaria and malaria prevention

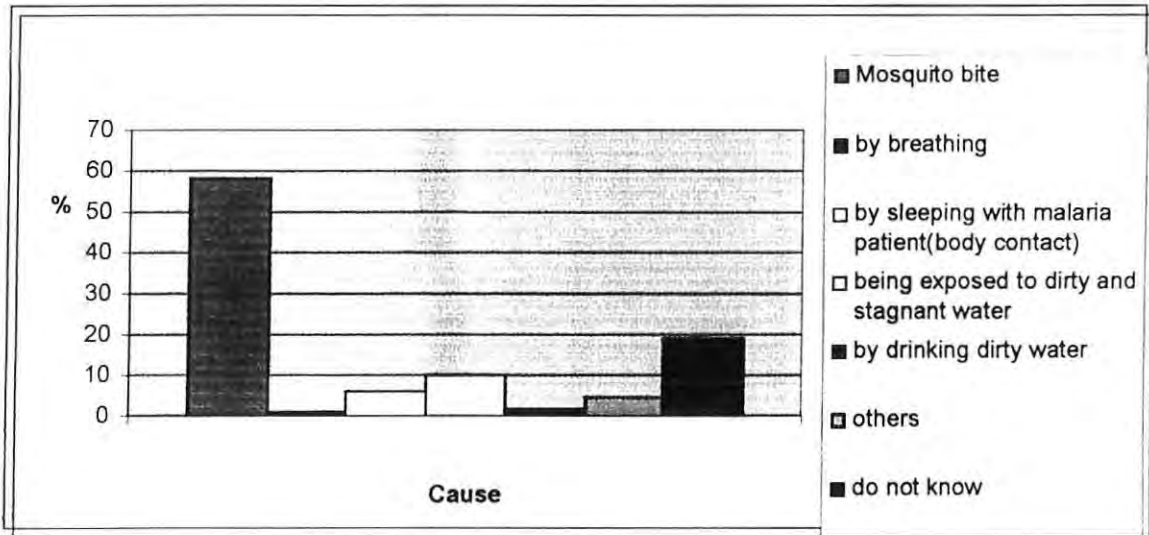
#### 4.3.1 Knowledge about the serious health problem

Of the total 422 respondents it was found that 71.3% have observed malaria as a major health problem of the area, 17.3% of the respondent did not know the existing serious health problem and the remaining 10.4% of the respondents replied that there were mainly typhoid and diarrhea problem in the study area. This was supported by the information obtained from the second FGD group participants. The participants pointed out that:

*Due to lack of sanitation in our area, the existence of malaria , typhoid and diarrhea are now common as the most serious health problems and we have got and understood that malaria is the top and first killer disease.*

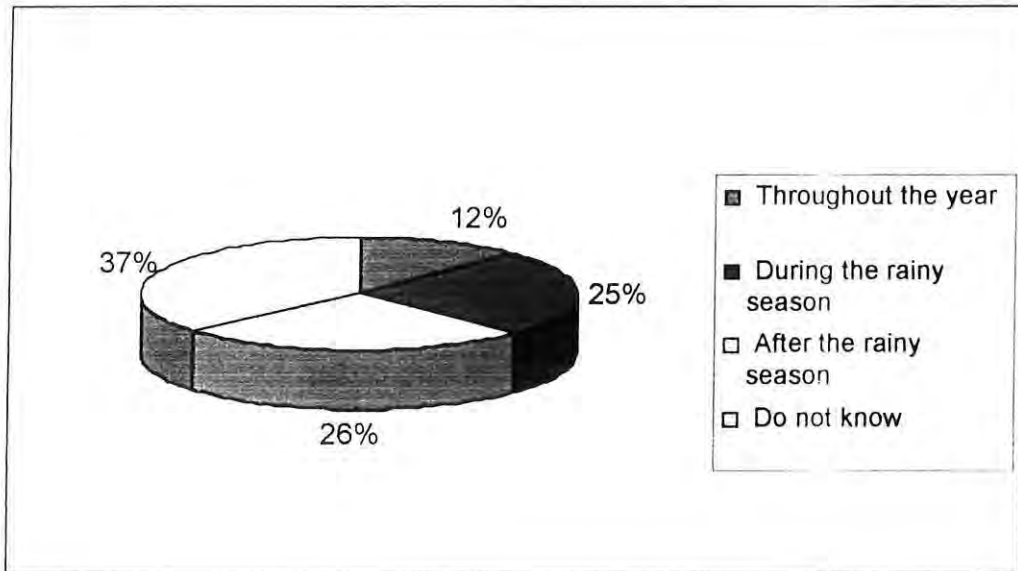
As figure 3 below indicated that of the total of 422 respondents 71% of them said that malaria is the major health problem of the area; of whom, 58.1% associated mosquito bite as a cause of malaria. Around 19.2% of the respondents did not know the cause of the disease. However 10.2% of the respondent mentioned exposure for dirty and stagnant water as the cause of malaria disease. 5.7% of them mentioned the cause by sleeping with malaria patient, while the rest 2% and 4.8% said drinking dirty water and other causes like hunger, breathing etc respectively.

**Figure 3; Percentage distribution of respondents by causes of malaria transmission  
n= 301.**



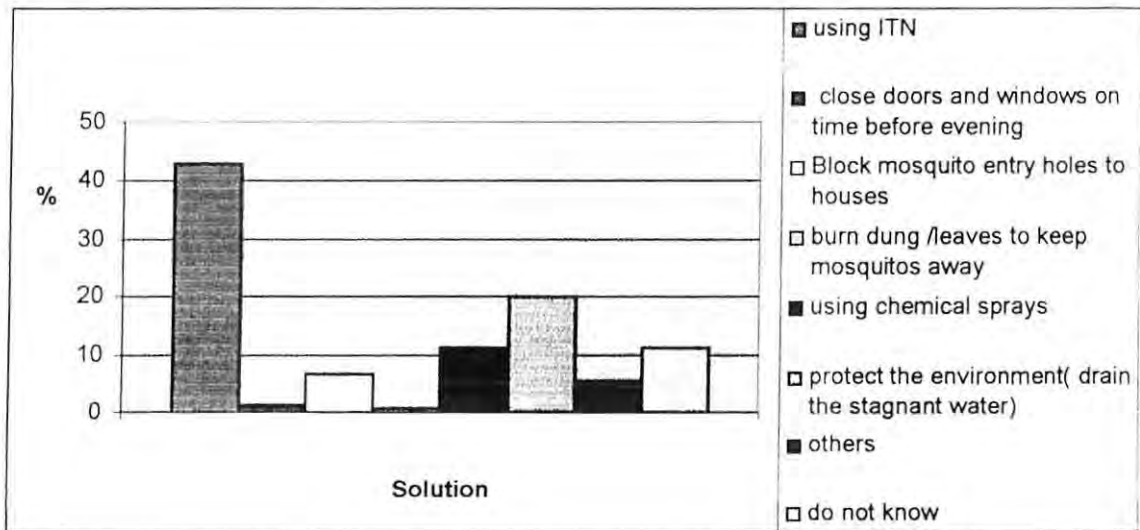
According to Ministry of Health of Ethiopia malaria epidemics generally occur immediately after the long rains in September to November and in some places also following the short belg rain during April and May. So generally malaria disease in Ethiopia can be more serious after the rainy season. As figure 4 indicated below that out of the total respondents who responded about the seasons or time of seriousness of the disease, majority of them (36.5%) did not know the time when malaria is more serious in the study area. About 26% said after the rainy season. The other 25% and 15% mentioned during the rainy season and throughout the year respectively. So generally the community did not know the time when malaria disease can spread and favorable time for mosquito breeding in the area.

Figure 4 percentage distributions by mentioning the time of seriousness of the disease n= 422



Regarding the solutions for malaria prevention, figure 5 showed that about 42.9% of the respondents suggested using ITN and 11.4% said indoor chemical spray to control and prevent malaria. Providing environmental education as a solution was also indicated by 5% of the respondent. Those who said protecting the environment by cleaning the surrounding and draining the stagnant water was only 20.1%. Closing doors and windows earlier in the night, smocking traditional herbals and blocking mosquito's entry holes to houses are pointed out as a solution by 8.8%. While the remaining 9% mentioned other solutions(3%)and do not know (6%).

**Figure 5 : Percentage distribution of the respondents by suggested solution for malaria prevention n=301**



#### **4.3.2 Knowledge of malaria prevention and the nexus between poverty and malaria**

The majority of the respondents (84%) did perceive that the spread of malaria may lead to poverty. The rest 16% of the respondents did not know whether there is a link between malaria and poverty or not. As far as their knowledge of malaria is concerned, 72.7% responded Kedida Gamela Woreda is an area of malaria prone district. As table 2 below revealed that among those who said malaria leads to poverty, 35% believed that it increases direct and indirect costs of the individual and households due to malaria and 21.3% of the respondent said due to the disease we did not attending work more often. While the other 17.3% responds reduces their saving and investments, 6.7% said their children were not able to attend school regularly. However the remaining 19.7% mentioned many other reasons.

Table 12: Percentage distribution of respondents by knowledge of malaria prevention and the link between malaria and Poverty

<b>How malaria link with poverty</b>	<b>Frequency</b>	<b>Percent</b>
Reduces saving and investment	64	17.3
Not attending work more often	79	21.3
Increases the direct and indirect cost	130	35
Children are not able to attend school regularly	25	6.7
Others	25	19.7

#### 4.3.3 Knowledge about the impact of malaria on development

All the 422 respondents were asked whether the impact of malaria is manifested on their livelihood or not. Accordingly, the majority of the respondents (71.8 percent) did perceive the long term and short term impact of malaria as a hindrance of development. It is only 28.2 percent of the respondents did not know and did not perceived the negative impact of the disease on their livelihood.

For a significant proportion of the community, they explained that malaria has an impact on their livelihood and on the local development process 84% of the respondents did perceive that malaria can lead to poverty in believing that it increases their direct and indirect costs and reduces saving and investments. As a result the community in the study area was well aware about the impact of the disease. This is consistent with other studies like Alsan, 2006, shows that malaria places significant financial hardships on both households and the economy. The burden of malaria therefore is a challenge to human development manifesting itself as a cause and consequence of under-development

#### 4.3.4 Indigenous knowledge for malaria prevention

Out of the total respondents during the survey, 55.9% respondents had different indigenous knowledge to prevent and control the malaria disease. table 3 indicated that out of these 55.9% respondents who had an indigenous knowledge, 30% associated the knowledge with smocking special types of plant woods and roots (weira and others) around the home and the surrounding. Around 23% of the respondents did know the way of prevention by eating garlic ("nech shinkurt") during the night time. However, 8.9% of the respondent mentioned drinking of local home beer. 11.4% of them were also mentioned praying and drinking the holly water, while the rest 8.5% and 18.2% said drinking by squashing plant leaves like yesensel kitel and smelling plant stems and roots respectively.

Table 13 Percentage distribution of respondents by mentioned the types of indigenous knowledge of malaria prevention n=236

<b>Types of indigenous knowledge to prevent malaria</b>	<b>Frequency</b>	<b>Percent</b>
Eating garlic "nech shinkurt " during the night	54	22.9
Smoking special plant woods and roots(weira)	71	30.1
Drinking local(home)beer	21	8.9
Smelling plant roots and leaves	43	18.2
Praying and drinking the holly water	27	11.4
Drinking by squashing plant leaves(sensel kitel etc	20	8.5

#### 4.4. Attitude towards malaria prevention

Data on attitude about the prevention methods of malaria was collected along with many other related issues. The respondent's attitude about the existing ways and methods of malaria preventions observed in the area includes agreement of using ITNs and indoor residual spray, encouragement of people who drain the dirty stagnant water agreement of punishment that people who are not cleaning their surrounding and the environment as well as People who visit traditional healers to prevent malaria must be encouraged or vice versa was collected in order to understand their attitude towards methods of malaria preventions in the woreda community.

Regarding their attitude towards the preventions, table 4 demonstrated that about 77 percent of the respondents suggested using ITN bed nets and indoor residual chemical spray to control and prevent malaria must be encouraged. The majority of the respondents replied that those of who don't cleaning and protecting the surrounding must be punished and 75 % of the respondents said draining the mosquito breeding sites (stagnant water) must be encouraged. About 44 % of the over all respondents forwarded that people who visit traditional healers to prevent malaria must be encouraged

**Table 14** Attitude of the community towards the methods of malaria preventions (n=422)

Attitude of the community towards the methods of malaria preventions	<u>Agree</u>	<u>Don't agree</u>	<u>Don't know</u>
Using ITNs and indoor residual spray must be encouraged	325(77)	17(4)	80(19)
People who drain the stagnant water must be encouraged	322(76.3)	2(0.5)	98(23.2)
People who do not clean the surrounding must be punished	312(73.2)	40(9.5)	70(16.6)
People who visit traditional healers must be discouraged	185(43.8)	199(47.2)	38(9)

#### 4.5. Practices of the community towards malaria preventions

Respondents who were practicing malaria prevention activities at the time of the survey categorized under 'Yes' and not practicing categorized under 'No' category. Based on this table 5 revealed that out of the total respondents about 36.5 % of them have had prevention practices. The practices include either draining mosquito breeding sites, using ITNs, spraying indoor chemical spray and any other traditional practices. The remaining did not have practices in any one of the practicing mechanisms. However, out of the 78.4% bed net holders, 59.8% of them were not sleeping under bed nets during the previous night during the time of the survey. Thus, having bed nets doesn't necessarily mean having the practice of sleeping under it.

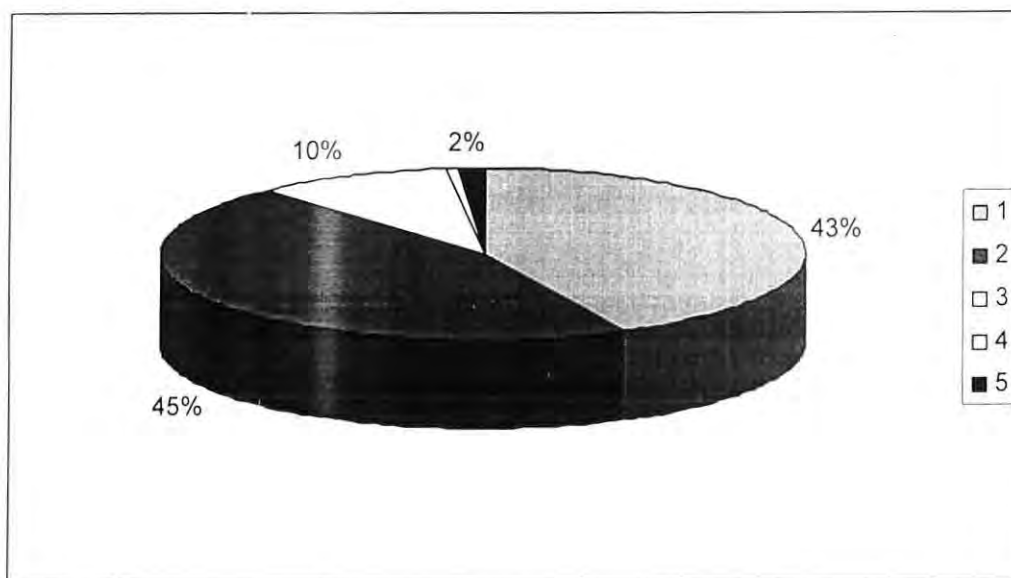
Table 15 percentage distribution by mentioning whether did have practices or not

<b>have you ever had malaria prevention practice</b>	<b>Frequency</b>	<b>Percent</b>
yes	154	36.5
No	268	
<b>sleeping under bed nets on the previous night</b>		
Yes	133	40.2
No	198	59.8

##### 4.5.1 Having an ITN and practices to prevent malaria

Bed nets have been used in malaria prevention for centuries, but ITNs have been adopted only recently. ITN either kill mosquitoes that land on the net or deter them from entering a dwelling (malaria transmitting mosquito bite mainly at night). Regarding to the ITN 78.4% of the total respondent did have at least one ITN bed nets in their home. Out of these, 45.3 % of the respondent did have two bed nets in their homes.

**Figure 6; percentage distributions of the respondents by number of an ITN in the household**



Regarding to the reason why they did not sleep under the net, table 6 depicted that the majority of the respondent (46.7%) mentioned that bed nets are not comfortable or convenient while sleeping. While 9% of the respondent mentioned that bed nets does not prevent malaria. The other 5% said due to in adequate space to hang it in the house. While 4% and 21% mentioned it has side effect and others respectively. The remaining 14% of the respondents did not know why they did not sleep under it.

**Table 16: Percentage Distribution of the Respondents by mentioning the reasons why did not slept under a net during last night n=199**

Reasons why did not slept under a net during last night	Frequency	Percent
not convenient while sleeping	93	46.7
not aware of its use	5	2.5
it has a side effect	3	1.5
does not prevent malaria	18	9.0
not adequate space to hang it in the house	10	5.0
others	42	21.1
do not know	28	14.1

#### 4.6. *Correlates of knowledge, attitude and practice of malaria prevention*

Data on knowledge of malaria and its prevention were collected focusing on ‘causes of malaria transmission’, main solution to prevent malaria, can people prevent malaria from their surrounding?’ and ‘time of mosquito bite’ Thus by computing these all questions, respondents were categorized under having and not having knowledge of malaria prevention. The researcher has categorized this group by using the criteria’s of MOH and WHO guidelines. If the individual responds at least one of the four questions in accordance with MOH and WHO criteria’s, then the researcher was categorizing him or her as having knowledge. Values were given for the respondents as having knowledge category when they respond mosquito bites, using of ITNs or use IRS or protecting the surrounding by draining the stagnant water, saying yes and during the night time for the question of cause of malaria transmission, main solution to prevent malaria, can people prevent malaria from the surrounding and the time of mosquito bite respectively.

The attitude towards prevention measure was captured by asking four measures of prevention question. Basically, knowing the presence of malaria as a hindrance of development, willing to use an ITN and indoor residual spray, agreement to drain the dirty stagnant water and cleaning the surrounding as well as agreement to contact and visiting of modern health institutions rather than traditional healers questions were taken as a measurement of attitude. In all groups the entire FGD participant attributed in the study area the most serious threat for the spread of malaria is unwilling to use ITNs, residual chemical spray and not willing to cooperate to drain the mosquito breeding sites by the community. For instance, there are people who are using the ITNs as clothing and uses for the purpose of home utensils and some are not allowed to spray their homes. Based on this fact, the respondents were asked their agreement or disagreement on the measure taken to use an ITN and indoor residual chemical spray, draining the stagnant water and cleaning the surrounding as well as visit traditional healers to prevent malaria. To simplify the analysis the answer were recoded as ‘positive’ and ‘negative’.

To understand prevention practice of the respondents the researcher was employed question that reflect malaria prevention practice for the analysis purpose. Based on this,

respondents who were practicing malaria prevention activities at the time of the survey categorized under 'Yes' and not practicing categorized under 'No' category.

The aim of this section is to understand the relationship between the demographic and socio economic characteristics of the respondent's and their KAP towards malaria prevention. For this purpose, descriptive statistics such as frequency distributions and cross tabulation were employed.

#### **4.6.1 Demographic factors and KAP towards malaria prevention**

Knowledge on the prevention of malaria has variation across various age groups. Accordingly, as table 17 below depicted that knowledge about malaria and its prevention was higher in the younger age group (from 18-30) which accounted for 54% of the total respondents. Of the total 219 respondents who were in the younger age group (18-30), about 63.6% had knowledge of malaria and methods of prevention. About 44.2% of those who had no knowledge of prevention were found in the middle age group of above 50.

The attitude of an individual towards any prevention measure also varied across the age group. Of the respondents (59.1%) in the age group between 18 and 30 responded positively for malaria prevention measures . On the other hand, 50% of the respondents who responded negatively for the prevention measures were found in the age group of above 50.

When we look at the malaria prevention practice of the respondents across the three age groups, relatively small percentage of the respondents were practicing prevention activities. The percentage of prevention practice relatively higher at the middle age (38.6%) and younger (32.8%) age than old age (19.6 %).

The study revealed that higher proportions of respondents with knowledge of malaria prevention methods were in the age category (18-30) than the other age categories. In terms of attitude, younger and older age groups had relatively positive attitude towards malaria preventive measures than the middle age group. Only small percentages of the respondents in all age groups were practicing prevention activity. However, evidence

from Malawi revealed that bed nets used by adults are often newer and more recently treated with insecticide than those used by children (Ndawala *et al.*, 2000).

Out of 218 male and 204 female respondents 62.8% of male were found to have knowledge of malaria and its methods of prevention but the percentage is relatively lower for female 53.9%). The study showed that more males than females were found to have better knowledge of malaria prevention and positive attitude towards preventive measures. This was also justified by (Todaro, 2005) indicated that women in the developing countries, as compared to men have less access to education and resource. So it is recommended that educating women can raise women level of awareness on malaria issues and increase their role in prevention activities. Concerning to the attitude, about 62.8% of the male respondents had positive attitude to modern methods of malaria prevention measures while the percentage for females was lower (51.5%). However, this study shows that female have better prevention practice than male. About 36.2% of female and 30.8% of female respondents are practicing preventive activity.

Table 17 below revealed that out of 253 ever married respondents 33.1% had no knowledge of malaria prevention methods. With respect to never married categories, 45.8% of respondents had no knowledge of malaria prevention. Therefore, this study indicates that ever married people had better knowledge of prevention than never married ones.

The study also showed that very significant difference between ever married and never married people towards preventing measure .Among the never married, 66.9% of the respondent had positive attitude towards malaria prevention measures while the percentage of positive attitude for the ever married group was 54.2%.

The prevention practice of the respondents among never married and ever married did not show significant variation. About 33.3% of never married and 33.2% of ever married respondents were practicing malaria prevention activity.

Out of 142 respondents who were living with the household that possessed more than five members, 53.1% were found to have knowledge of malaria prevention and the percentage

is relatively the same for those who had less than or equal to five household members(52.8%). Regarding attitude, about 60.2% of the respondents with more than five household size had positive attitude to prevention measures while the percentage for those who were living with less than or equal to five household member was 50%.

Concerning household size, respondents living with above five household sizes relatively had better knowledge and positive attitude than those living with less than or equal five. The trend is also similar in case of practice, one goes from low household size to high household size, the malaria prevention practice also increase. However study conducted in India showed that both married and unmarried people have no better knowledge and malaria prevention practice.

This study also showed that respondents who were living with household size more than five had better prevention practice than who had less than or equal to five. This result could support the finding that household which have large family size are relatively more victim by the disease of malaria .Thus, they have positive attitude and practice to wards preventing malaria.

Table 17: Percentage distribution of respondents by demographic characteristics and KAP towards prevention of malaria n=422

Demographic characteristics	Number of cases	Knowledge		Attitude		Practice	
		Have	Have No	Positive	Negative	Yes	No
<b>Sex of the Respondent</b>							
<i>Male</i>	218	62.8	37.2%	62.8%	37.2%	30.8%	69.2%
<i>Female</i>	204	53.9%	46.1%	51.5%	48.5%	36.2%	63.8%
<b>Age of the Respondent</b>							
<i>18-30</i>	219	63.6%	36.4%	59.1%	40.9%	32.8%	67.2%
<i>31-50</i>	151	56%	44%	57.3%	42.7%	38.6%	61.4%
<i>&gt;50</i>	52	44.2%	55.8%	50%	50%	19.6%	80.4%
<b>Marital status</b>				422			
<i>Never married</i>	169	54.2%	45.8%	62.1%	37.9%	33.3%	66.7%
<i>Ever Married</i>	253	66.9%	33.1%	54.2%	45.8%	33.2%	66.2%
<b>Household Size</b>				422			
<i>1-5</i>	299	52.8%	47.2%	50%	50%	35.1%	64.9%
<i>&gt;5</i>	123	53.1%	46.9%	60.2%	39.8%	30.2%	69.8%

#### 4.6.2 Socio-economic factors and KAP towards malaria prevention

Among the 217 illiterate respondents 42.9% had the knowledge of malaria disease and its methods of prevention while out of the 205 literate respondents the large proportion (75.1%) had knowledge of malaria prevention. In this regard, illiterate people were

observed to have low knowledge about the cause of malaria transmission and in establishing the link between malaria prevention and development and have also little understanding about the linkage between health and development.

Concerning attitude towards prevention measures, variation also is observed among literate and illiterate respondents. As table 18 below shown that about 26.8% of literate respondent had shown negative attitude towards prevention measure while large proportion of the illiterate respondents (57.6%) had negative attitude to prevention measure.

When we see the malaria prevention practice of the respondents, 72.7% of illiterate respondents were not practicing any kind of malaria prevention activities. The percentage of literate respondents who were practicing any prevention activities accounted for 39.6%. Thus, the prevention practice was much less in both literacy statuses.

According to the finding it's possible to conclude that literate person tends to be more concerned about the disease than illiterate ones. Padmawati T (2005) study showed that education is consistently and strongly associated with the use of bed nets. For respondents who were illiterate at the time of survey did have lesser knowledge than those literate respondents. In this regard, other things being constant, positive relationship was observed between literacy status of the respondents and having knowledge of malaria and its prevention. For example in Zambia, knowledge of malaria was found to be positively associated with level of education (Kaona *et al.*, 2000).

From those respondents who engaged in on-farm activity, 50.2% were not found to have knowledge of malaria. Similarly out of the off farm respondents, 26.1% have no knowledge of malaria and its prevention.

When we look at attitudinal variation table 18 below shown that among the two occupation group there was significant variation between the two occupation groups. About 48.7 and 32% of those who were engaged in on-farm and off-farm activities had negative attitude towards malaria prevention measure respectively. However, both occupational groups did not show significant difference regarding preventing practices.

About 68.5% and 63.9% of respondents engaged in on-farm and off-farm activities had no any prevention practice respectively. Certain occupations place individuals at greater risk for malaria infection than others. In Ethiopia, highland migrate laborers have been shown to be vulnerable to malaria while migrating to find low land agricultural work.(Ghebryesues et al;2000).

It is also important to investigate the knowledge, attitude and practice towards malaria prevention in relation with access to any form of media (radio, television and newspaper or magazines). The study indicated that 32.2% of the respondents who had access to any form of medias had better prevention knowledge (70.3) than their counter part. The percentage decreases to 50.2% percent for those who had no access to medias. According to the woreda Health office expert key informant interview, lack of Television transmission in the woreda and being of remoteness and rural location by themselves enforced the community to be ignorant about modern methods of malaria prevention. They also added, the community has no alternative source of getting timely information.

Unlike knowledge, the respondent's attitude to the prevention measure showed different patterns. Table reveals that 68.6% of positive attitude towards modern type of malaria prevention had been shown to those who had access to any form of medias and 49.4% shown for who had no access. With regard to practice there was no important difference by access to medias. The practice for those who had access to medias were about 32.9% showed an increment to 29.8% for those had no access.

This MOH has confirmed that it is possible to protect one self and family from the bites of mosquitoes. Individuals and the communities should participate in malaria prevention and control activities. However, in order to feel the gap the major tool to enhance community participation for malaria prevention and control is widely providing health education to the communities using different medium of communication.

It was also important to investigate knowledge, attitude and practice towards preventing malaria in relation to contact with health extension workers. In this study it is proved that knowledge of prevention increased from 45.6% for those who had no contacted with health extension workers to 68.3% who had contact with the health extension workers.

FGD discussant from Langute cheffe Kebele also confirmed the above finding that

*Since we taught by the kebele health extension worker about the use of ITN bed nets and the indoor residual spray in preventing malaria, we felt that we were guilty and ignorant what happened in the past. Because we had been using the ITN as clothing like "mekenet", "shashe and as "curtain" and also we had closed our doors when the spray men came to our homes.*

Their attitude towards the measures of prevention did show difference. Accordingly, as people established contact with health extension workers in every time, their attitude increasingly becomes positive. Positive attitudes, towards malaria prevention measures were 44.5% for those who had not contact and 67.1% as people had contacted with those extension workers.

The practice of prevention had shown a bit difference across contact with health extension workers. The practices, for the people who had contact with health extension workers, were about 36%. Where as 29.3% of the respondents involved in malaria prevention practice out of those respondents who had no contact with health workers.

Regarding contact with health extension workers, its relationship with knowledge of malaria prevention was statistically significant. The likelihood that those who had no contact with health extension workers did have lesser knowledge of prevention than those who had contact with extension workers. The result may be related to the work done by health extension workers. They are playing an important role by educating the community at the grassroots level.

According to the woreda Health office expert and kebele's health extension workers key informant information, lack of television transmission in the woreda and being of remoteness and rural location by themselves enforced the community to be ignorant about modern methods of malaria prevention. They also added, the community has no alternative source of getting timely information. Similarly, urban residence can be accompanied by potentially protective socio-economic factors against malaria risk such as education and income (Rashed *et al.*, 2000). This MOH has confirmed that it is

possible to protect one self and family from the bites of mosquitoes. Individuals and the communities should participate in malaria prevention and control activities. However, in order to fill the gap the major tool to enhance community participation for malaria prevention and control is widely providing health education to the communities using different medium of communication.

Knowledge on the prevention of malaria has varied across places of residence. Accordingly, as table 8 revealed that knowledge about malaria and its prevention was higher in people who reside in urban areas which accounted for 19.2 percent of the total respondents. Of these respondents who were residing in urban areas, about 70% had knowledge of malaria and methods of prevention. About 44.5% of those who had no knowledge of prevention were found and living in the rural areas.

The attitude of an individual towards prevention measure also varied with place of residence. The majority of the respondents living in the rural areas and out of these groups 56.1% had positive attitude towards malaria prevention measures. On the other hand, 62.1% of the respondents in urban areas who had positive attitude for the prevention measures. The finding shows that people who are residing in urban areas had relatively higher percentages of positive attitude towards prevention measure than the rural residence.

The prevention practice of the respondents among urban and rural population did show a bit variation. About 31.8% of rural population and 39% of urban population respondents were practicing malaria prevention activity. Urban areas in fact have better infrastructural development like education, health, media (radio, Television, newspaper etc) etc than rural areas. Therefore, people in urban areas have relatively better access to make use of these opportunities. Therefore, they could easily access different health and medical research findings and became aware of the issues concerning to malaria.

It is also important to investigate the knowledge, attitude and practice towards malaria prevention in relation with average level of income. The study indicated that out of the total respondents 48.3% of the respondents who had an average monthly income of less

than 300 Ethiopian birr. Of these, 52% respondents had better prevention knowledge. The percentage increases to 54.5% for those who had an average income of between 300 up to 600 birr. And still increases to 84% for those of who had an average monthly income of more than 600 birr. Unlike knowledge, the respondent's attitude to the prevention measure showed different patterns. Table reveals that 81.3% of positive attitude towards modern type of malaria prevention had been shown to those of who had an average monthly income of greater than 600 Birr and 50.5% shown for those who had less than 300 Birr. With regard to practice there was no important difference by level of income. The practice for those who had greater than 600 Birr monthly income were about 37.3%, but those who were getting less than 300 Birr had almost the same percentage(35%).

The findings of the study indicated that respondents who have got above 600 Ethiopian Birr had better knowledge, attitude and practices of malaria and malaria prevention than those of less than 600. This is also to mean that poor people that have less access to interventions do have less practice to prevent malaria. In Burkina Faso, Mugisha et al. 2002 found that people in urban areas and those with high incomes were more likely to seek care (for any illness) from health facilities (compared with self-treatment or a traditional healer) as a result of ease of geographical and monetary access. The same study by Holtz, 2002 revealed that pervasive poverty and the expense of the nets were the chief reasons for lack of nets in the rural households. Different studies revealed that the evidence suggests that the poor are less likely to use preventive measures, especially the most effective ones. They are also less likely to use preventive methods in the most effective or appropriate manner.

It is also important to investigate the knowledge, attitude and practice towards malaria prevention in relation with access to the nearest health service facility (health center, hospital, health post, and private clinics). The study indicated that 28.7% of the respondents who had an access of health center, the majority 58.8% had an access of health post, 7.6% did have hospital access and the remaining 4.9% of the respondent had an access of private clinics.

The study indicated that out of the total respondents who had an access of health center 65.3% of the respondent had better prevention knowledge. The percentage decreases to 53.2% for those who had an access health posts. This is highly related with the availability of health personnel and professional capability in those health institutions.

Unlike knowledge, the respondent's attitude to the prevention measure showed different patterns. Table reveals that 72.7% of positive attitude towards modern type of malaria prevention had been shown to those who had access to health centers whereas 63% shown for who had an access of the health post at the nearest place. With regard to practice there was important and significant difference by access to health facility. The practice for those who had access to health centers were about 49.1%. Where as it had showed a decrement to 5% for those had an access of private clinics.

It was also crucial to investigate the level of knowledge, attitude and practice towards preventing malaria in relation to participation on environmental sanitary management at the community level. As table 18 shows, the respondents who had participating on the community's health or sanitary activity voluntarily had better prevention knowledge than who had not participation. In this study it is proved that knowledge of malaria prevention increased from 47.2% for those who had no participation to 70.2% who had been participation on environmental sanitary management activity at the community level. Key informant discussions from the woreda health office experts, volunteers community health promoters and health extension workers also confirmed the above finding that

*There are about 263 voluntary health promoters in the woreda. These volunteers are selected in each clusters of the kebele and they can mobilize the local communities in environmental sanitary management like draining of mosquito's breeding sites (dirty stagnant water) twice in a month if necessary. Participation in these activity is also very pertinent for the community because it creates an awareness about the cause and preventions of the disease .Health extension workers can give health education particularly on the issue of malaria prevention methods and the communities can discuss very closely how to prevent and eradicate malaria from their surroundings. Therefore, the knowledge of the community is now improving.*

With regard to attitude towards malaria preventives there was no important difference by level of participation on local environmental sanitary management. Their attitude for those who had been participating in this activity was about 64.9%, but those who were not participating had relatively lower percentage (50%).

Their practices towards preventing malaria showed significant difference. Accordingly, as people participating in local environmental sanitary management their practices towards preventing malaria increasingly becomes high. Practices towards malaria prevention increased from 25.7% to 39.8% as people had participating on local environmental sanitary management activities.

The MOH has to play pivotal role in the prevention of malaria through enhancing the community's participation. The current malaria control strategy relies up on individuals and community to take action to protect and threat themselves against malaria. In the study area it is not only addressing public facilities and enhancing the knowledge of health works about malaria that matters and also not the availability of effective anti-malaria drugs that determines the prevalence of malaria, but equally important is that the KAP of communities about malaria reach higher level. In the health policy of Ethiopia the concept of primary health care has been widely adopted. Malaria control with in the orbit of primary health care aims at the reduction of morbidity and mortality through strengthening the local capabilities by improving the knowledge, attitude and practices of the community towards preventing the malaria situation (MOH, 2004).

To ensure the prevention and control of malaria in the study area, it's important that all temporary or permanent breeding sites with water should be identified and eliminated through active participation of communities. This malaria control strategy becomes effective only when the mosquito's breeding sites are identified. According to MOH, indoor residual house spraying is the most widely and commonly used chemical method for vector control in anti-malaria programs. Many countries have recently introduced insecticides treated mosquitoes nets (ITN'S) as malaria prevention and control measures. It has been found to be very effective in the reduction of malaria morbidity and mortality in several countries.

The 2007 Ethiopia MIS result show the remarkable progress the country has made in its fight against malaria in the post two years, especially in scaling up preservation. This success is the result of government, NGO's and communities at local level. However efforts are needed to increasing the knowledge, altitude and practice among those populations that are at risk of malaria.

The findings of the study have major implication of malaria prevention though adopting the usage of IRS,ITN'S environmental management and provision of health education by pin pointing the factors that are affecting the KAP of the community towards those preventative measure. Concerning the indigenous knowledge for malaria prevention activities about (55.9) respondents had different indigenous knowledge. This can reveled that using unperceived drugs were the most self treatment activity without institutional diagnosis.

Table 18: Percentage distribution of respondents by socio-economic characteristics and KAP towards preventing malaria

Socioeconomic characteristics	No of cases	<i>Knowledge</i> Have	Have no	<i>Attitude</i> positive	negative	<i>Practice</i> yes	no
<b><i>Literacy status</i></b>	<b>422</b>						
Literate	205	75.1	24.9	73.2	26.8	39.6	60.4
Illiterate	217	42.9	57.1	42.4	57.6	27.3	72.7
<b><i>Main occupation</i></b>	<b>422</b>						
On farm	269	49.8	50.2	51.3	49.7	31.5	68.5
Off farm	153	73.9	26.1	68	32	36.1	63.9
<b><i>Access to any form of media</i></b>	<b>422</b>						
Have	172	70.3	29.7	68.6	31.4	32	68
Have no	250	50.2	49.8	49.4	50.6	29.8	70.2
<b><i>Contact with health extension workers</i></b>	<b>422</b>						
Yes	240	68.3	31.7	67.1	32.9	36	64
No	182	45.6	54.4	44.5	55.5	29.3	70.7
<b><i>Place of residence</i></b>	<b>422</b>						
Urban	117	70.1	29.9	62.1	37.9	39	61
Rural	305	55.5	44.5	56.1	43.9	31.8	68.2
<b><i>Average monthly income</i></b>	<b>422</b>						
Less than 300 br.	204	52	48	50.5	49.5	35.7	64.3
300-600 br	143	54.5	45.5	54.5	45.5	26.3	73.7
Greater than 600	75	84	16	81.3	18.7	37.3	62.7
<b>Participate on community's environmental sanitary management</b>							
Yes	208	70.2	29.8	64.9	35.1	39.8	60.2
No	214	47.2	52.8	50	50	25.7	74.3

#### *4.7 Measuring of association between independent variables and KAP*

In the previous chapters some of the specific research questions were discussed using descriptive statistics such as cross-tabulation and percentage distribution. Moreover, the researcher tried to look at the relationship among the respondent's socio-economic, demographic and institutional characteristics, their knowledge status about malaria and its methods of prevention, their attitude towards ways of prevention and practices. However, this was not enough to make deduction and need to statistically explore the strength of the association between independent variables and the dependent variables. For this purpose, the chi square test analysis is used.

A number of variables indicating knowledge status of respondents about malaria disease their attitude towards preventing measures and practices in malaria prevention were used to see their association.

This study explored the factors affecting the community's knowledge, attitude and practices towards malaria prevention. The results show that understanding of the community about the disease and its prevention was relatively better in Kedida Gamela woreda. It shows that despite widespread knowledge about malaria and its prevention, the practices of the community towards prevention was relatively low in the area. Therefore, the finding pinpoints the gap between community's knowledge of malaria and their prevention practices. This is consistent with findings from other studies like (Vundule,1996) shows that if people do perceive and knows the cause of malaria transmission and methods of prevention they do not take significant measures of practices to protect themselves against the disease.

Age, sex, marital status, household size, literacy status, level of income, major occupation place of residence; access to any form of medias, access to health services , participation on environmental sanitary management and contact with health extension workers are taken as variables. These independent variables are believed to have or have no power to see the association between dependent variable (knowledge, attitude and

practices). This is to mean that, to what extent respondent's knowledge, attitude and practices are influenced by those of the independent variables.

The chi square test value indicates a particular variable do have a statistically significant association with the dependent ones (KAP) towards malaria prevention. If the P- value of the chi square test is less than 0.05, it indicates that the variable has an association and effect on the dependent variable. Chi Square Test=  $X^2 = \frac{(o-e)^2}{e}$

*e*

Where; o = observed value

e = expected value

n = number of cells

X<sup>2</sup>=Chi square value

Result of the Chi square test for Knowledge

**Table 19 results of the chi-square test for independent variables and knowledge**

Variable	X <sup>2</sup> value	df	p-value
Sex	3.456	1	0.075
Age	7.139	2	0.029
Marital status	17.544	1	0.002
Household size	1.851	2	0.396
Place of residence	6.059	1	0.015
Occupation	23.226	1	0.000
Income level	24.608	2	0.000
Participation on community sanitary magt.	22.981	1	0.000
Contact with HEW	22.303	1	0.000
Access to any form of media	17.021	1	0.000
Types of health care facility	14.367	3	0.001
Level of education	45.212	1	0.000

As Table 19 above shown, the result of the chi square shows that among the independent variables literacy status, level of income, participation on sanitary management, access to health service delivery, access to any form of media, contact with health extension workers, occupation, place of residence, age and marital status were significantly associated with the dependent variable (knowledge). The variation with in the independent variables can affect the level of knowledge. However, sex and household size variables did not have any association with the dependent variable (knowledge)

*Table 20, result of the chi square for attitude Vs independent variables*

Variable	X <sup>2</sup> value	df	p-value
Sex	5.573	1	0.023
Age	1.421	2	0.494
Marital status	10.416	1	0.032
Household size	5.725	2	0.057
Place of residence	0.999	1	0.333
Occupation	11.084	1	0.000
Income level	22.031	2	0.000
Participation on community sanitary magt.	9.579	1	0.002
Contact with HEW	21.571	1	0.000
Access to any form of media	22.021	1	0.000
Types of health care facility	4.596	3	0.197
Level of education	40.815	1	0.000

The result of the above chi square shows that among the independent variables literacy status, level of income, participation on sanitary management , access to any form of medias, contact with health extension workers, sex, occupation, and marital status were significantly associated with the dependent variable(attitude).The other variables like age ,household size, place of residence and types of health care facility did not have an influence or association with attitude towards malaria prevention.

*Table 21, result of the chi square for practice*

Variable	X <sup>2</sup> value	df	p-value
Sex	1.254	1	0.278
Age	6.178	2	0.038
Marital status	1.462	1	0.841
Household size	1.091	2	0.580
Place of residence	1.416	1	0.279
Occupation	0.850	1	0.373
Income level	3.570	2	0.161
Participation on community sanitary management.	8.589	1	0.000
Contact with HEW	1.861	1	0.187
Access to any form of media	1.631	1	0.230
Types of health care facility	23.355	3	0.000
Level of education	6.550	1	0.000

The result of the above chi square shows that among the independent variables like age, participation on community's sanitary management, types of health care facility and education were significantly associated with the dependent variable (practices).

## 5. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

### 5.1 *Summary*

Improved health status of a society in fact has an affirmative effect in enhancing the quality of life and promoting social development. Health is fundamental to the broader notion of expanded human capabilities that lay at the heart of the meaning of development. Malaria, therefore, is not only a health problem but also a developmental problem. It places significant financial hardships on both households and the economy. The burden of malaria therefore is a challenge to human development manifesting itself as a cause and consequence of under-development. Almost half of the world's population lives in areas where the disease is either endemic or epidemic. It affects 107 countries and most of them are tropical and developing countries.

This study was conducted in Kambatta Tembaro zone particularly Kedida Gamela wereda, SNNPR. It is one of the areas where the malaria disease is more common. The basic data used in this study were collected from household survey, focus group discussions, key informant and secondary data. Different methods were employed to analyze relationship between respondents' knowledge, attitude and practice and their demographic and socio-economic situations. These methods vary from simple descriptive statistics to the chi square test.

The majority of the respondents were found in the age group 18-30. Male constitutes nearly 52 % of the sample respondents. With regarding to marital status, 60% were married at the time of survey. The large proportion (73.2 %) of the respondents had less than or equal to five household members. Literate respondents make up only 48.2 percent of the sample population. And only 36.3 percent of the respondent participated in off-farm activities. The majority (58.8%) had an access of health post institution and about 57% of the respondents had contact with health extension workers.

People's knowledge, attitude and practice towards malaria prevention differ across various Demographic, socio-economic and institutional-characteristics. Based on this assumption the researcher had tried to look at the KAP of the sample population towards

malaria and malaria prevention. Accordingly, 71.3% of the respondents have observed malaria is the most serious health problem in the area. About, 58% mentioned mosquito bites as the major cause for malaria in the study area. In forwarding solution, 54.3% said using ITNs and indoor chemical spray and 20% said draining the stagnant water.. Of all the respondents, 84 % perceived the nexus between malaria and poverty. About 70% of the respondents perceiving that Kedida Gamela woreda are a malaria prone district.

There were higher proportions of respondents with knowledge and attitude of malaria prevention methods in the age category (18-30) than the other age categories. Only small percentages of the respondents in all age groups were practicing prevention activity. More males than females were found to have better knowledge of malaria prevention and positive attitude towards preventive measures.

The findings of the study indicated that the ever married respondents (66.9%) had better knowledge of malaria and malaria prevention than the never married ones (54.2%). However, the never married had relatively positive attitude towards prevention measures than the ever married. Their prevention practice did not vary significantly. Concerning the household size, respondents living with less than five household sizes relatively had better knowledge than those of living with more than five households. The trend is also observed in the case of practice that low household size did have better malaria prevention practice.

The large percentage (75.1%) of literate respondents had knowledge of malaria prevention while the percentage is much less for illiterate ones (42.9%). Concerning to their attitude towards malaria preventive measures, high variation is observed between literate and illiterate. More than 60% of the literate respondents had no prevention practices. This figure stated that having or not having education did matter for knowledge and attitude rather than practices to prevent malaria.

When we look at the knowledge variation among the major occupation groups, the higher proportion (73.9%) of those who were engaged in off-farm activities had more knowledge and positive attitude towards prevention of malaria than those involved in on-

farm activities. The prevention experience of both groups did not show a significant difference.

In relation to access of participating in environmental sanitary management activity, knowledge of malaria and malaria prevention had increased from 47% who had no participation to 70.2% who have had participation. Attitude towards the preventive measures show different pattern as that of knowledge. Positive attitudes had increased from 50% who had no participation to 64.9% who have had participation. The practice of malaria prevention had also increased from 25.7% with those who had no participation to 39.8% for those who had had participation.

Respondents who had contact with health extension workers had better knowledge and positive attitude towards malaria prevention. And all respondent who had no contact with health extension workers were not involved in prevention activity. In this regard, respondents who had contact with health extension workers obtained different health education related to malaria prevention

The result of the chi square shows that among the independent variables literacy status, level of income, participation on sanitary management , marital status , access to any form of media, contact with health extension workers and occupation were significantly associated with the dependent variables, knowledge and attitude. Knowledge was also associated with variables like place of residence, types of health care facility and with age. Regarding to practices, many of the independent variables were not significantly associated except variables like literacy status, participation on the community's environmental sanitary management and types of health care facility.

## **5.2** *Conclusions*

In light of this, the findings of the study indicated that demographic, socio-economic and institutional factors had significant impact on the community's KAP. The results show that understanding of the community about the disease and its prevention was relatively better in Kedida Gamela woreda. It shows that despite the existence knowledge about malaria and its prevention, the practices of the community towards prevention was

relatively low in the study area. Therefore, the finding pinpoints the gap between community's knowledge of malaria and their prevention practices.

The demographic factors, i.e. sex, marital status and household size were significantly affect the knowledge and attitude of the community, while age only affected attitude significantly. Among the socio-economic factors, literacy status, occupation Place of residence, level of income, access to health service and access to any form of medias were associated significantly with both knowledge and attitude. The remaining two factors such as, participating on community's environmental sanitary management and contact with health extension workers had only impact on the attitude of the community.

Concerning malaria prevention practice, the proportion of the respondents who were involved in malaria prevention activity was very small across all demographic and socio-economic factors.

Moreover, the overall finding of the research showed that considerable proportion of the sample population had knowledge of the malaria disease.

### **5.3 Recommendations**

Based on the finding of the study, the following points are recommended to promote the knowledge; attitude and practice of the community towards malaria prevention thereby mitigate malaria disease in the area.

A system that could bring about alternative sources of disseminating information on malaria should be developed by the government and other concerning bodies. As observed in the study, the area and the community are highly inaccessible of timely information on malaria either by electronic or printing medias.

The role of health extension workers to prevent malaria is very pertinent by increasing the awareness of the community towards mitigating the disease. Health extension workers should be utilized properly in teaching the community about the disease by integrating to other community based health activities. Others like teachers, agricultural

development agents, and NGOs are very helpful in bringing better health seeking behavior.

Generally, to overcome the health problem due to malaria, the local community is very critical because the success of malaria prevention program relies heavily on the community knowledge, attitude and practices towards preventing malaria. School, edir, equb and some cultural ceremonies are also good events for disseminating health information so as to bring basic knowledge, bring behavioral change about preventing malaria. Educate the community that malaria can be prevented and controlled by using ITNs.

Government has been responsible for most malaria prevention effort. The government, however, lack the resources for effective prevention activities. Therefore, this has led to calls for greater private sector involvement. All temporary or permanent mosquito breeding sites with water should identify and eliminated through active participation of communities and the other concerned bodies.

The work done by the NGOs in the area of capacity building program should be continued in a sustainable manner. As pointed out in the FGDs the community is highly benefits from the capacity building program and thereby changes their attitude to use modern methods of malaria prevention practices.

This research is limited to KAP of rural community towards malaria prevention. However, the social, environmental and economic aspects of the community were not studied. Hence, the study calls for further research in the area of poverty alleviation and environmental degradation in the community. Lastly in order to get the clear feature of KAP survey, larger population will be necessary because it is difficult to generalize all the results from the recent study about the whole community of the woreda.

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## Checklist

### A- Checklist for Focus Group Discussion

1. What is the serious health problem in your area?
2. Do you think malaria is the first common disease in your area?
3. What do you think the possible cause of malaria disease?
4. What do you think the major consequences or impact of the disease in your area?
5. Do you think the community is involving in malaria prevention activities?
6. Is there NGOs in your area working on malaria prevention activities?
7. If yes, what is their contribution to prevent the disease ~~from~~ from your area?
8. What is the status of knowledge and practice of the community about the disease and its prevention?
9. What do you think the possible solution to prevent malaria disease from your area?
10. Is there any indigenous knowledge and practices to prevent malaria?

### B- Checklist for Key Informants

1. What is your Duty?
2. How is the malaria prevalence through time?
3. What do you think are the developmental impact of malaria?
4. What is the level of people's awareness about malaria and its prevention?
  - a. Is there income variation?
  - b. Is there sex variation?
  - c. Is there occupation variation?
  - d. Is their educational variation?
  - e. Is their age variation?
5. What is the contribution of your Institution for malaria prevention activities?

ADDIS ABABA UNIVERSITY

Questionnaire Developed for the Study of Factors affecting the Knowledge, Attitude and Practice of the Community towards malaria prevention in Kedida Gamela Woreda of Kembata Zone, SNNPR

Objective of the study

The basic objective of this study is to explore the knowledge, attitude and practice (KAP) of the community and the various demographic and socio-economic, cultural and institutional factors influencing KAP towards malaria prevention. Therefore, you are requested kindly to give answer freely and openly. Any information you give kept confidential. Thus your cooperation is very necessary to achieve the objective of the study.

Area Identification

Interviewer's Name and Signature

Supervisors name and Signature

Region

Zone

Woreda

Name of the PA

Village Name

Code of the EA

Household code number

No	QUESTIONS	CODING CATAGORIES		
<b>1. Demographic and Socio economic Charactrrstics of the respondents</b>				
101	Sex of the respondent	Male		1
		Female		2
102	Age of the respondent? (In full years)			
103	What is your marital status?	Single		1
		Married		2
		Divorced		3
		Widowed		4

*Separated*

*5*

111	If the Occupation is off farm What is your major source of income	sale of cereal crop(Maize,Sorghum)		1
		Sale of coffe and spices		2
		sale of khat		3
		Sale of fruit and vegetable		4
		Sale of home beer		5
		others,specify		6
112	your place of residence	Rural		1
		Urban		2
113	your estimated monthly income in birr	Less than 300		1
		301-600		2
		> 600		3
114	How long do you travel to get health services in your area on average?	<5km		1
		5km-10 km		2
		11-15km		3
		16-20km		4
		more than 25km		5
<b>2. Accessibility Measures to any form of Media</b>				
201	Do you read news papers, magazines?	Yes		1
	<i>( only for answer (2.108 is Yes )</i>	No		2
202	If the answer is no , why not?	I am not interested		1
		Not easily available		2
		I don't know		3

203	Do you listen to the radio?	Yes		1
		No		2
204	If the answer is no , why not?	I am not interested		1
		Not easily available		2
		I don't know		3
205	Do you watch Television?	Yes		1
		No		2
206	If the answer is no , why not?	I am not interested		1
		Not easily available		2
		I don't know		3
<b>3. KNOWLEDGE</b>				
301	what is the series healthl problem in your area?	Malaria		1
		HIV/AIDS		2
		Respiratory		3
		Typhoid and Diharria		4
		others(specify)		5
		I don't know		6
302	Have you heard of malaria?	Yes		1
		No		2

308	What is the typical clinical symptom of malaria?	Fever and chills	1
		Headache	2
		Nausea and vomiting	3
		Fatigue	4
		Dizziness	5
		Didn't know	6
		Others	7
309	Can you name the types of malaria plasmodium you know available in the area?		
310	Can you name the types of plasmodium you know available in the area?		
311	Are all the types of plasmodium you mentioned currently available in large quantity?	Yes	1
		No	2
		Don't Know	3
312	Do you know someone with malaria/who has died of malaria	Yes	1
		No	2
313	Are you willing to go to health center? When you got symptoms	Yes	1
		No	2
315	Can you tell me a types of mosquitoes which you know		
316	Can people prevent malaria from the surrounding?	Yes	1
		No	2
317	If yes, how could they prevent malaria?	By using ITN	1
		Use of insecticide spray	2
		covering of bodies with sheets	3
		Using traditional herbal	4
		By cleaning the environment	5
		Others, Specify	6
318	If no, why? Describe it.		
319	Can people in the area get impoverished due to the spread of malaria?	Yes	1
		No	2
		I don't know	3

303	If your answer is yes and Malaria, what do you think is the cause?	mosquito <i>h, k</i>	1
		Climate change	2
		stagnant water	3
		environmental degradation	4
		lack of environmental Education	5
		lack of other source of livelihood	6
		Lack of gov/control	7
		Idont know	8
		others, Specify	9
304	If your answer is Malaria, what do you think is the solution?	Using ITN	1
		Using drugs and indoor spraying	2
		Protectin the environment	3
		cleaning the home and the village	4
		Education	5
		Idont Know	6
		Othres, specify	7
305	If your answer is Mosquito ,what do you think is the cause?	Dirty Stagnant water	1
		Dirty Flowing water	2
		others,specify	3
307	If your answer is mosquito ,what do you think is the solution?	Draining the stagnant water	1
		Indoor residual spring	2
		using ITN	3
		Using traditional & indiginious methods	4
		Others specify	5
306	Do you think Kedida Gamela woreda is malaria prone district	Yes	1
		No	2
		I don't know	3
307	If yes, how do you know it?	Heard from radio, television	1
		News papers, magazines	2
		Heard from Health office experts.	3
		I heard form NGOs	4
		learned from forefathers	5
		others,specify	7

320	If yes, how could they get impoverished?	Their income decreased		1
		the labor force decreased		2
		saling wood and Charcoal stops		3
		Others specify		4
321	When do you think the effect of malaria will be serious?	through out the year		1
		During the rainy season		2
		After the rainy season		3
322	Can you tell me all the good that you gained from the health institution concerning to malaria?			
323	Can you tell me all the bad that you have faced because of the presence of malaria case in your household			
324	Have you heard of the world malaria day?	Yes		1
		No		2
325	If yes, do you remember the day?	Yes		1
		No		2
326	Have you heard of any health program concerning o malaria on radio?	Yes		1
		No		2
327	Have you watched any health prog. Concerning to malaria on a television?	Yes		1
		No		2
328	Have you read of any malaria related issues in news paper?	Yes		1
		No		2

329	Do you have indigenous knowledge of preventing malaria	yes		1
		No		2
330	If yes what are they			
331	Have you ever contact with health institutionsd	Yes		1
		No		2
332	in which organization do you contact	Government		1
		Non government		2
		private		
		Others, specify		3
333	Do You get any information when you contact with health workers?	Yes		
		No		
<b>4. ATTITUDE</b>				
401	Do you think the presence of malaria is a hindrance of development in your area ?	Yes		1
		No		2
		I don't know		3
402	Who should prevent malaria in your area?	Individuals		1
		Community		2
		Government/state		3
		State and community		4
		I don't know		5
		Others, specify		6

403	If your answer is "individuals", why?			
404	If your answer is "Community", why?			
405	If your answer is "State", why?			
406	If your answer is "community and State", why?			
407	If your answer is no, would you please tell me why not?			
408	People who are willing to use an ITN and indoor residual spray must be encouraged.	I agree		1
		I don't agree		2
		I don't know		3
409	If you agree, why do you agree?			
410	If you Don't agree, why not ?			
411	People who drain the dirty stagnant water must be encouraged.	I agree		1
		I don't agree		2
		I don't know		3
412	If you agree, why?			
413	If you don't agree, why not?			
414	People who are not cleaning the home and village must be punished	I agree		1
		I don't agree		2
		I don't know		3
415	If you agree why?			
416	If you disagree ,why not?			

417	People who are degrading the environment must be punished?(clearing the forest etc...)	I agree		1
		I don't agree		2
		I don't know		3
418	If you agree why?			
419	If you agree why not?			
420	People who are visiting traditional healers to prevent malaria must be encouraged	I agree		1
		I don't agree		2
		I don't know		3
421	If you go to health institution would you satisfied with the service given in the institution concerning to malaria	Yes		1
		No		2
422	If yes how much	Complitley		1
		Partially		2
		Not at all		3
		No reponse		4
423	If no what is you reason			
<b>5. PRACTICE</b>				
501	Have you ever had any malaria prevention practice?	Yes		1
		No		2
		I don't know		3
502	If yes,what type of practice do you know?	Drug usage		1
		Cleaning the surrounding		2
		Draining the stagnant water		3
		Using ITN and residual spraying		4
		Using traditional herbal		5
		Others specify		6
503	Are you currently practicing of malaria prevention?	Yes		1
		No		2
504	If yes, what type of practice are you making currently?	Drug usage		
		Cleaning the surrounding		
		Draining the stagnant water		
		Using ITN and residual spraying		
		Using traditional herbal		
		Others specify		

505	If no, why not?		
506	If yes, for (Q 503) where did you learn it?	Inherited from the ancestors	1
		From Health office	2
		From media	3
		From NGOs <i>others</i>	4
507	Have you participating on communities environmental sanitary management	Yes	1
		No	2
508	If your response is yes what kind of sanitary management	Cleaning the home & surrounding	1
		Draining the stagnant water	2
		Reafforestation	3
		Others specify	4
509	From where/whom did you get the advice to use modern types of malaria prevention	Health professionals	1
		Reading leaf lets	2
		Have previous experience	3
		Neighbors	4
		Relatives	5
		Seeing the packages of the equipment	6
		Others specify	7
510	If you used to visiting traditional healers what practices you did	Praying	1
		Holly water	2
		Fasting	3
		Others specify	4
511	If you used to home remedies what kind	Leafes	1
		Roots	2
		Herbs	3
		Holly water	4
		Others specify	5



### ክፍል 1 የተጠያቂ የሥነ ህዝብ ማህበራዊና ኢኮኖሚያዊ ባህሪያት

ተ.ቁ.	ጥያቄ	ክፍል መለያ
101	ፆታ (ለታሰመጠይቁ የተመረጠው ሰው ፆታ)	ወንድ 1 ሴት 2
102	ዕድሜ (በመ-ሉ ቁጥር)	
103	የጋብቻ ሁኔታ	ያላገባ 1 ያገባ 2 የፈታ 3 በሞት የተለየ 4 የተለያየ 5
104	የቤተሰብ አባላት ብዛት	2 /ሁለት/ 1 ከሶስት - አምስት 2 ከአምስት በላይ 3
105	ሃይማኖት	ሙስሊም 1 ኦርቶዶክስ 2 ፕሮቴስታንት 3 ባህላዊ 4 ሌሎች 5
106	ብሔረሰብም ማነው?	ከምባታ 1 ጠንባር 2 ጉራጌ 3 ወላይታ 4 ሌሎች ካለ ይግለጹ 5
107	በዚህ አካባቢ ለምን ያህል ጊዜ ኖረዋል (በአመት) (ከአንድ ዓመት በታች ከሆነ 00 ተብሎ ይገለጻል)	
108	ት/ቤት ገብተው ያውቃሉ? (መልስዎ የለም ከሆነ ወደ ጥያቄ 110 ይለጉ)	አዎ 1 የለም 2
109	እስከ ምን ይህል ድረስ ተምረዋል?	የክፍል ደረጃ 1 የምስክር ወረቀት (ሰርተፍኬት) 2 ዲፕሎማ 3 ዲግሪና ከዚያ በላይ 4
110	በመሠረታዊ ትምህርት እና በሌላ መርሃ ግብር ለማንበብና ለመጻፍ ተሳትፈው ያውቃሉ?	አዎ 1 የለም 2
111	የመተዳደሪያ ገቢዎች በምን ላይ የተመሰረተ ነው የ3/4 ገቢዎ የተመሠረተው)?	በግብርና 1 ከግብርና ውጪ 2
112	ከግብርና ጎን ለጎን በምን ዓይነት ሥራ ላይ ይንቀሳቀሳሉ?	በጥቃቅን ንግድ 1 ማገድ በመስብሰብና በመሸጥ 2 ሸክላ ሥራ 3 ቅርጫት ሥራ 4 ሽመና 5 ሌላ ካለ ይግለጹ 6
113	መተዳደሪያዎ ከግብርና ውጪ ከሆነ በምን ዓይነት ሥራ ላይ እንደተሰማሩ ይግለጹ?	ጥራጥራ/ሰብል ሽያጭ/ 1 ቡናና ቅመማ ቅመም ሽያጭ 2 አትክልትና ፍራፍሬ ንግድ 3 አረቂ/ጠላ ሽያጭ 4 ሌላ (ይገለጹ) 5
114	የሚኖሩበት ቀበሌ ገጠር ነው ከተማ?	ከተማ 1 ገጠር 2
115	የወር ገቢዎ በአማካይ (በብር) ምን ያህል ይሆናል?	ከ300 ብር በታች 1 ከ300 - 600 2

		ከ600 ብር በላይ	3
116	በአቅራቢያዎ ያለው የጤና አገልግሎት ምንድነው?	ጤና ጣቢያ ጤና ኬላ የግል/የመንግስት ሆስፒታል የግል ክሊኒክ ሌላ አላውቅም	1 2 3 4 5 6
117	የጤና አገልግሎቱን ለማግኘት በአማካይ ምን ያህል ርቀት ይጓዛሉ? (በኪ.ሜ)	ከ5ኪ.ሜ በታች ከ5 -- 10 ኪ.ሜ ከ11 -- 15 ኪ.ሜ ከ16 -- 20 ኪ.ሜ ከ20 ኪ.ሜ በላይ	1 2 3 4 5

**ክፍል 2 የመገናኛ ብዙኃን አቅርቦት መለኪያ**

201	እርስዎ ጋዜጦችና መጽሔቶችን ያነባሉ? (ለጥያቄ 110 መልስዎ አዎ ከሆነ ብቻ)	አዎ የለም	1 2
202	መልስዎ የለም ከሆነ ለምን?	ፍላጎቱ የለኝም በቅርብ ስለማላገኛቸው አላውቅም	1 2 3
203	ሬዲዮ ያዳምጣሉ?	አዎ የለም	1 2
204	መልስዎ የለም ከሆነ	ፍላጎቱ የለኝም በተላላ ማግኘት ስላልቻልኩ አላውቅም	1 2 3
205	ቲ.ቤ.ቪ.ቫ.ን ይመለከታሉ?	አዎ የለም	1 2
206	መልስዎ የለም ከሆነ ለምን	ፍላጎቱ የለኝም በተላላ ማግኘት ስላልቻልኩ አላውቅም	1 2 3

**ክፍል 3 ስለ ወጣ በሽታ ያለው ግንዛቤ/ዕውቀት**

301	በአካባቢዎ ያሉት 3 አደገኛ የጤና ችግሮች ምን ምን ናቸው?	ጣፃ ታይፊ/ታይፎይድ ተቅማጥ ኢች አይ ቫይሩስ የመተንፈሻ እካላት ችግር የቶዳ በሽታ ሌላ (ይግለፁ) አላውቅም	1 2 3 4 5 6 7 8
302	በህብረተሰቡ ዘንድ ወጣ እንደ አደገኛ የጤና ችግር ይቆጠራል?	አዎ የለም አላውቅም	1 2 3
303	መልስዎ አዎ/ወጣ ከሆነ ስለወጣ በሽታ ስምተው ያውቃሉ?	አዎ የለም	1 2
304	የበሽታው ዋናና አብይ መንስኤው ምንድነው ብለው ያስባሉ?	በወጣ ትንኝ መነጻጻር በትንፋሽ ከወጣ በሽታኛ ጋር አብሮ በመተኛት/ በንክኪ ለቆሽሽና ለረግረጋማ በታ በመጋለት ቆሽሽ ውሃን በመጠጣት ሌላ ካለ ይግለጹ አላውቅም	1 2 3 4 5 6 7
305	ወጣ የየትኛውን የህብረተሰብ ክፍል በአደገኛነት ታጠቃለች?	ጎልማሳ ህጻናትን	1 2

		እርጉዝ ሴትን	3
		አዋቂ ሽማግሌን	4
		ሁሉንም በእኩል	5
		አላውቅም	6
306	መቼ ነው የወባ ትንኝ ሰዎችን የምትነድፈው?	ቀን	1
		ምሽት	2
		ሌሊት	3
		ቀንና ሌሊት	4
		አላውቅም	5
307	የወባ በሽታን ለመከላከል መፍትሔ ምንድነው? ብለው ያስባሉ	አጎበር መጠቀም	1
		በሮችና መስኮቶችን ከመምሸቱ በፊት መገበጋት	2
		ትንኞች የሚገቡበትን ማንኛውንም ቀዳዳ መድፈን	3
		ጢስ ማጠስ	4
		ፍሊት በመርጨት ትንኞችን መግደል	5
		አካባቢን መንከባከብ/ በአቅራቢያ ያለውን ያቆረ የውሃ አካልን ማፋለስ	6
		ሌላ ካል ይግለጹ	7
		አላውቅም	8
308	ለጥያቄ 304 መልስዎ የወባ ትንኝ መራባት ከሆነ የመራባትዎ መንስኤው ምንድነው ብለው ያስባሉ?	የረጋ ቆሻሻ ውሃ	1
		የቆሻሻና የሚፈስ ውሃ	2
		ሌላ ካል ይግለጹ	3
309	ቀዳዳ ጋሜላ ወረዳ በወባ በሽታ ተጋላጭና ተጠቂ ነው ብለው ያስባሉ?	አዎ	1
		የለም	2
310	መልስዎ አዎን ከሆነ እንዴት አወቁት?	በፊደላዎች በቲቪ	1
		ጋዜጣና መጽሔት በማንበብ	2
		ከጤና ባለሙያዎች በመስማት	3
		ከመያድ በመስማት	4
		ከተበሉ አስተዳደር ሰራተኞች	5
		ከተደግሞ አባቶቻችን	6
		ሌሎች	7
311	የወባ በሽታ ዋነኛ ምልክት ምንድነው ብለው ያስባሉ?	ትኩሳትና ማንቀጥቀጥ	1
		ራስ ምታት	2
		ትውክት	3
		ቁርጥማት	4
		ድካምና ድብርት	5
		አላውቅም	6
		ሌላ ካል ይግለጹ	7
312	በአካባቢዎ በወባ የተያዘ ወይም የጭተ ሰው ያውቃሉ?	አዎ	1
		የለም	2
313	የወባ በሽታ ምልክቶችን በራስዎ ላይ በይዩ ወደ ጤና ተቋማት ለመሄድ ፍላጎት አለዎት?	አዎ	1
		የለም	2
314	የወባን በሽታ መከላከል ይቻላል ብለው ያስባሉ?	አዎ	1
		የለም	2
315	መልስዎ አዎ ከሆነ እንዴት መከላከል ይቻላል?	በቤት ውስጥ አጎር መጠቀም	1
		የቤት ውስጥ ኬሚካል ርጭት	2
		ጎሳን በላስቲክ በመጠቀም	3
		በባህላዊ መንገድ ፅጽዋትን መጠቀም	4
		የአካባቢ ንፅህናን በመጠበቅ	5
		ሌላ ካል ይግለጹ	6

316	የጥያቄ 314 መልስዎ የለም ከሆነ ለምን ይግለጹ?		
317	የወባ በሽታ መስፋፋት ህብረተሰቡን ለድህነት ይዳርጋል ብለው ያስባሉ?	አዎ የለም አላውቅም	1 2 3
318	መልስዎ አዎን ከሆነ እንዴት?	ገቢን በመቀነስ የሠራተኛ ሀይልን በመቀነስ ሌላ ካለ ይግለጹ	1 2 3
319	የወባ በሽታ ተዕዕኖ አደገኛ የሚሆንበት መቼ ነው?	አመቱን በሙሉ በዝናባማ ወቅት የዝናባማ ወቅት ካለፈ በኋላ	1 2 3
320	የወባን በሽታ ከመከላከል አኳያ ከጤና ተቋማት ያገኙት መልካም ነገርን ለገልጹልኝ ይችላሉ?		
321	የወባ በሽታ በቤተሰብዎ አባላት ላይ መኖሩ ምን አሉታዊ ተዕዕኖ አለው?		
322	እርስዎ ስለ "የዓለም የወባ ቀን" ሰምተው ያውቃሉ?	አዎ የለም	1 2
323	መልስዎ አዎን ከሆነ ቀኑን ያስታውሱታል?	አዎ የለም	1 2
324	እርስዎ በጤና ዙሪያ የተሠሩ በተለይ በወባ ዙሪያ የተሰሩ የሬድዮ ፕሮግራሞችን ሰምተው ያውቃሉ?	አዎ የለም	1 2
325	እርስዎ በጤና ዙሪያ የተሠሩ በተለይ በወባ ዙሪያ የተሰሩ የቴሌቪዥን ፕሮግራሞችን ተመልክተው ያውቃሉ?	አዎ የለም	1 2
326	ወባን በተመለከተ በመጽሔትና በጋዜጣ አንብበው ያውቃሉ?	አዎ የለም	1 2
327	የአካባቢ/የሀገር በቀል የሆነ ወባን የመከላከል ዕውቀት አለዎት?	አዎ የለም	1 2
328	መልስዎ አዎን ከሆነ ምን ምን ናቸው ይግለጹልኝ?		
329	ከጤና ተቋማት ጋር ግንኙነት ያደርጋሉ?	አዎ የለም	1 2
330	መልስዎ አዎን ከሆነ አደረጃጀታቸው	የመንግስት መያዣ የግለሰብ ሌላ ካለ ይግለጹ	1 2 3 4
331	ከጤና ባለሙያዎች ጋር በሚገናኙ ጊዜ በቂ መረጃ ያገኛሉ?	አዎ የለም	1 2

**ክፍል 4 ስለ ወባ በሽታ መከላከያ ያለ አመለካከት**

401	የወባ በሽታ በአካባቢዎ መኖር ለልማት እንቅፋት ነው ብለው ያስባሉ?	አዎ የለም አላውቅም	1 2 3
402	የወባን በሽታ በዋናነት ከአካባቢዎ የማስወገድ/ የመከላከል ሀላፊነት የማን ነው?	የግለሰቦች የህብረተሰቡ የመንግስት የመንግስትና የህብረተሰቡ አላውቅም ሌላ	1 2 3 4 5 6
403	መልስዎ የግለሰቦች ከሆነ ለምን?		
404	መልስዎ የህብረተሰቡ ከሆነ ለምን?		
405	መልስዎ የመንግስት ከሆነ ለምን?		
406	መልስዎ የመንግስትና ህብረተሰብ ከሆነ ለምን?		
407	ለጥያቄ 401 መልስዎ የለም ከሆነ እባክዎ ለምን እንዲህ		

	እንዳሉ ቢገልጹልኝ?		
408	በቤት ውስጥ አጎበር መጠቀምና የቤት ውስጥ ርጭት ለማድረግ ፍላጎት ያለው ህብረተሰብ ሊበረታታ ይገባዋል	እስማማለሁ አልስማማም አላውቅም	1 2 3
409	መልስዎ እስማማለሁ ከሆነ ለምን?		
410	መልስዎ አልስማማም ከሆነ ለምን?		
411	ረግረጋማ የውሃ አካላትን የሚያፋሰስ ህብረተሰብ ሊበረታታ ይገባዋል?	እስማማለሁ አልስማማም አላውቅም	1 2 3
412	መልስዎ እስማማለሁ ከሆነ ለምን?		
413	መልስዎ አልስማማም ከሆነ ለምን?		
414	እካባቤውንና ቤቱን የማያጸዳ የህብረተሰብ እካል መቀጣት አለበት	እስማማለሁ አልስማማም አላውቅም	1 2 3
415	መልስዎ እስማማለሁ ከሆነ ለምን?		
416	መልስዎ አልስማማም ከሆነ ለምን?		
417	እካባቤውን የሚያራቁት ህብረተሰብ/ግለሰብ ካለ መቀጣት አለበት (ደን የሚጨፈጭፍ ወዘተ)	እስማማለሁ አልስማማም አላውቅም	1 2 3
418	መልስዎ እስማማለሁ ከሆነ ለምን?		
419	መልስዎ አልስማማም ከሆነ ለምን?		
420	የወባን በሽታ ለመከላከል ሲባል ባህላዊ አዋቂ ፊዋሾች ጋር ህብረተሰቡ መሄዱ ሊበረታታ የገባዋል	እስማማለሁ አልስማማም አላውቅም	1 2 3
421	መልስዎ እስማማለሁ ከሆነ ለምን?		
422	መልስዎ አልስማማም ከሆነ ለምን?		
423	እርስዎ ወደ ጤና ተቋማት ወባን በመከላከል ዙሪያ እምርተው ከሆነ በአገልግሎቱ ረከተዋል	አዎን የለም	1 2
424	መልስዎ አዎን ከሆነ ምን ያህል ረከተዋል?	ሙሉ በሙሉ በከፊል በጥቂቱ መልስ የለኝም	1 2 3 4
425	የጥያቄ 423 መልስዎ የለም ከሆነ ምክንያትዎ ምንድነው (ቢገልጹልኝ)		

**ክፍል 5 የወባን በሽታ ለመከላከል የሚደረጉ ተግባራትን መለኪያ**

01	የወባን በሽታ ለመከላከል የምታደርገው/ያደረከው ተግባር ይኖር ይሆን	አዎ የለም አላውቅም	1 2 3
02	መልስዎ አዎን ከሆነ ምን እይነት የመከላከል ተግባር	ጥሩ ምግብ መብላት መድኃኒቶችን መጠቀም የእካባቤን ንዕስና መጠበቅ የታቆሩ የውሃ አካላትን ማፋሰስ የአልጋ አጎበርና የኬሚካል ርጭት በባህላዊ ዕዕዋትን መጠቀም ጤስ ማጤስ ሌላ ካለ ይግለጹ አላውቅም	1 2 3 4 5 6 7 8 9
3	ለጥያቄ 501 መልስዎ አዎን ከሆነ ተሞክሮውን ከየት አገኙት?	ከቀደሙት ቤተሰቦች ከጤና ቢሮ ከመገናኛ ብዙኃን ከመያድ	1 2 3 4

		ከሌላ	5
504	እርስዎ በማህበረሰብ አቀፍ የአካባቢ ጤና አጠባበቅ ይሳተፋሉ?	አዎን የለም	1 2
505	መልስዎ አዎን ከሆነ ምን አይነት የጤና አጠባበቅ አስተዳደር?	ቤትን እና አካባቢን ማጽዳት/ንጽህና መጠበቅ በአካባቢ ያለን ያቆረና የረጋ ውሃን ማፋሰስ በደን ተክላ በሌላ	1 2 3 4
506	ዘመናዊ የሆነ የወባን የመከላከል ዘዴን ለመተግበር ምክሩን ከየት አገኙት?	ከጤና ባለሙያዎች በራሪ ወረቀቶችን በማንበብ ልምዱ ነበረኝ ከጎረቤት ከዘመድ አዝማድ ከምጠቀምባቸው የመከላከያ ቁሳቁሶች ማሻገያ ላይ በማየት ሌላ ካለ ይጥቀሱ	1 2 3 4 5 6 7
507	ባህላዊ የበሽታ ፈቀሾች ጋር የሚገናኙ ከሆነ ወባን ለመከላከል ምን አይነት ተግባራትን ቀሰሙ?	ሀሎት ሀበል ያም ሌላ ካለ ይጥቀሱ	1 2 3 4
508	ወባን ለመከላከል የሚጠቀሙት በቤት ውስጥ የተሰራ የፈውስ መድኃኒት አይነት ምንድነው?	ቅጠላ ቅጠል ሥርሰር ሀበል ሌላ ካለ ይጥቀሱ	1 2 3 4
509	በአሁኑ ሰዓት በቤትዎ የአልጋ አጎበር ይኖራል?	አዎ የለም	1 2
510	መልስዎ አዎ ከሆነ ምን ያህል የአልጋ አጎበሮች በቤትዎ ይኖራሉ?		
511	ትናንት ሌሊት በአጎበር ውስጥ ተኝተው ነበር?	አዎ የለም	1 2
512	ስንቱ የቤተሰብ አባላት በአጎበር ይተኛል?		
513	ለጥያቄ 511 መልስዎ የለም ከሆነ ለምን?	በውስጡ ስተኛ ስለማይመቸኝ ጥቅሙን ስለማላውቅ የጎንዮሹ ችግር ስለሚገዝፍ ወባን አይከላከልም ብዬ ስላሰብኩ በቂ የመስቀያ ቦታ ስለሌለኝ ሌላ አላውቅም	1 2 3 4 5 6 7

መጠይቁ እዚህ ላይ ያበቃል እርስዎም ጊዜዎን ስለሰጡኝ በጣም አመሰግናለሁ።

መረጃ ሰብሳቢ ስም \_\_\_\_\_ ፊርማ \_\_\_\_\_ ቀን \_\_\_\_\_  
 ተቆጣጣሪ ስም \_\_\_\_\_ ፊርማ \_\_\_\_\_ ቀን \_\_\_\_\_

በክልሉ በሚገኙ ሆስፒታሎችና ጤና ጣቢያዎች የተመዘገቡ ዋና ዋና የበሽታ መንስኤዎች፡ 2000

ሠንጠረዥ ኘ.4ሰ		ክልል- ደ.ብ.ብ.ሕ.	
ደረጃ	የበሽታ መንስኤዎች	ብዛት	ከመቶ
1	ወባ( ሁሉንም ዓይነት)	690991	26.3
2	የሳምባ ምች	277732	10.6
3	የአንጀት ትላትል ህመም	226748	8.6
4	የሳንባ ነቀርሳ (ሁሉንም ዓይነት)	186827	7.1
5	የላይኛው የመተንፈሻ አካላት በሽታ	165429	6.3
6	አደጋዎች	131269	5.0
7	የጨንፍና የአንጀት በሽታዎች	130570	5.0
8	የሽንት መሽኛ አካላት በሽታዎች	88370	3.4
9	የቆዳ ላይ ቁስልና በሽታዎች	88007	3.3
10	ታይፎይድ	77001	2.9
ድምር- የዋና ዋና የበሽታ መንስኤዎች		2062944	78.4
ድምር - የሌሎች በሽታ መንስኤዎች		568709	21.6
ጠቅላላ ድምር		2631653	100.0

ምንጭ፡ የክልሉ ጤና ቢሮ

Top Leading causes of Hospital and Health Centers Morbidity:2007/2008

Table 0.4g

Region - S.N.N.P

Rank	Diagnosis	No. of all Cases	% All Cases
1	Malaria All Types	690991	26.3
2	Pneumonia	277732	10.6
3	Helimentiosys (Excluding Guinea Worm 042.3)	226748	8.6
4	TB All Types	186827	7.1
5	Upper Respiratory Infection	165429	6.3
6	Accident	131269	5.0
7	Gastritis and Duodenities	130570	5.0
8	All other diseases of genito-urinary system	88370	3.4
9	Infection of skin and subcutaneous Tissue	88007	3.3
10	Typhoid	77001	2.9
Total of leading diseases		2062944	78.4
Total of other diseases		568709	21.6
Total causes of Morbidity		2631653	100.0

Source:- Region's Health Bureau

CSA 2008

በሀገሪቱ በ1999 ዓ.ም. በመጣ በሽታ የተጠቁ ተበላቂዎችና የመጣ በሽታ ለመከላከል የተወሰዱ እርምጃዎች፡ 2000  
 NUMBER OF MALARIA AFFECTED KEBELES AND MALARIA CONTROL MEASURES TAKEN IN THE  
 COUNTRY :2007/2008

ሠንጠረዥ ን. 7 (ለ)

Table 7(b)

ክልል	በመጣ የተጠቁ ተበላቂዎች ብዛት	መድሐኒት የተረጨ ቤቶች ብዛት	የተሠራጨ አጎበሮች ብዛት	Region
ትግራይ	1046	341471	446600	Tigray
አፋር	268	80106	76606	Afar
አማራ		659889	1702611	Amhara
ኦሮሚያ	1975	842496	1166561	Oromia
ሶማሊ				Somali
ቤንሻንጉል ጉሙዝ	306	81869	35000	Benshangul Gumuz
ደ.ብ.ብ.ሕ	429	783703	199476	SNNPR
ጋምቤላ				Gambella
ሐረሪ	16	172116		Harari
አዲስ አበባ	5			Addis Ababa
ድሬይዋ		10698	881	Dire Dawa
ድምር	4045	2972348	3627735	Total
	Number of Malaria Affected Kebeles	Number of Houses Sprayed	Number of bed Net Distributed	

ምንጭ፡ የክልል ጤና ቢሮዎች

Source:- Region's Health Bureaus

C SA 2008

በሀገሪቱ በ1998 ዓ.ም. በመባ በሽታ ታመው ህክምና የተደረገላቸው ሰዎች ብዛት እና በመባ በሽታ መከላከል የሠለጠኑ ሰዎች ብዛት፡ 1999  
 NUMBER OF MALARIA TREATED PERSONS AND TRAINED VILLAGE MALARIA CONTROL WORKERS IN THE  
 COUNTRY: 2006/2007

ሠንጠረዥ ኧ. 6 (ሀ)

Table 7(a)

ክልል	በመባ በሽታ ታመው ህክምና የተደረገላቸው ብዛት	በመባ በሽታ መከላከል የሠለጠኑ ባለሞያዎች ብዛት	
ትግራይ	109723	960	Tigray
አፋር	456955	79	Afar
አማራ	1076034	-	Amhara
አሮሚያ	606188	4725	Oromia
ሶማሊ	77992	195	Somali
ቤንሻንጉል	151900	40	Benshangul
ደቡብ ብ.ብ.ሕ	792821	588	NNNP
ጋምቤላ	-	244	Gambella
ሐረሪ	3151	143	Harari
አዲስ አበባ	1839	46	Addis Ababa
ድሬዳዋ	33	185	Dire Dawa
ድምር	3276636	7205	Total
	Number of Treated persons	Number of Trained village Malaria control workers	Region

1  
 2  
 3

ምንጭ፡ የክልል ጤና ቢሮዎች

Source:- Region's Health Bureaus

C SA 2008

በሀገሪቱ በ1999 ዓ.ም. በመባ በሽታ ታመው ህክምና የተደረገላቸው ሰዎች ብዛት እና በመባ በሽታ መከላከል የሠለጠኑ ሰዎች ብዛት፡ 2000  
 NUMBER OF MALARIA TREATED PERSONS AND TRAINED VILLAGE MALARIA CONTROL WORKERS IN THE  
 COUNTRY: 2007/2008

ሠንጠረዥ ን. 6 (ለ)

Table 6(b)

ክልል	በመባ በሽታ ታመው ህክምና የተደረገላቸው ብዛት	በመባ በሽታ መከላከል የሠለጠኑ ባለሞያዎች ብዛት	
ትግራይ		381	Tigray
አፋር	113142	277	Afar
አማራ	3592	132	Amhara
ኦሮሚያ	537231		Oromia
ሶማሌ	50058		Somali
ቤንሻንጉል ጉሙዝ	226668	72251	Benshangul Gumuz
ደ.ብ.ብ.ሕ	687033	2623	ANNR
ጋምቤላ			Gambella
ሐረሪ	7516	119	Harari
አዲስ አበባ	1050	1119	Addis Ababa
ድሬዳዋ	667		Dire Dawa
ድምር	1626957	76902	Total
	Number of Treated persons	Number of Trained village Malaria control workers	Region

ምንጭ: የክልል ጤና ቢሮ

Source:- Region's Health Bureaus

C SA 2008

7  
 26  
 1

