



**WILLINGNESS TO PAY FOR INSECTICIDE TREATED BED NETS AND  
ASSOCIATED FACTORS AMONG HOUSEHOLDS IN BEREHET  
WOREDA, AMHARA REGION, ETHIOPIA.**

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COLLAGE OF PUBLIC HEALTH AND MEDICAL SCIENCES  
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SCIENCE**

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## **Abstract**

**Background:** Insecticide-treated bed nets (ITNs) have been demonstrated to be of significant value in reducing morbidity and mortality. Understanding the feasibility of achieving widespread coverage with insecticide-treated nets (ITNs) has to be preceded by learning how people value the nets and estimating the potential demand for the nets.

**Objective:** To determine Willingness to pay for insecticide-treated bed nets and associated factors among households in Berehet Woreda, Amhara region, Ethiopia, 2012.

**Methods:** A community based cross sectional study using both quantitative and qualitative was conducted in five random selected malarious Kebeles of Berehet Woreda from January to February 2012. The individual willingness-to-pay was assessed by contingent valuation technique using open ended with follow-up method. Qualitative data were also collected through focus group discussions (FGDs), observation and analyzed thematically. Binary logistic regression analysis was used to assess the association between independent and dependent variable by odds ratio (with 95% confidence interval) SPSS version 16 Software. For every respondent three kind of ITN was prepared for demonstration in order to elicit their preferences.

**Results:** The number individual of per net was 3.83. On average 1.75 sleeping place and 1.01 beds net per household was observed. Nearly 93.8%, respondents decide to use ITN in the near future and of these 68.5% were willing to buy ITN if supplied by the market. The median maximum amount that a person is willing to pay for blue rectangular was 20ETB. For blue and white conical ITNs people were willing to pay by 30ETB. Educational level and income was not significant influence willing to pay for ITN. Knowledge, perceive benefit of ITN, perceived severity and susceptibility on malaria was also found to be significantly associated with willingness to pay for ITN. Regarding to respondent's payment characteristics of ITNs, those who prefer Kebele as supplier rectangular shape ITN were more likely to buy than other places [OR=1.92, CI= 1.07-3.92].

**Conclusion:** The number of individuals per net was lower than the required amount of national strategy and a significant numbers of respondents had willingness to pay for ITN. So, designing social marketing strategy that make an important contribution to household coverage and that ensure a sustainable supply of ITNS into the future is mandatory.

**Keywords:** *willingness to pay for ITN, Insecticide-treated nets, Willingness-to-pay, Sustainability, free distribution*

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## **List of Abbreviations**

<b>ANC</b>	Antenatal Care
<b>CHWs</b>	Community Health Workers
<b>EDHS</b>	Ethiopian Demographic and Health Survey
<b>ETB</b>	Ethiopian Birr
<b>ITNs</b>	Insecticide Treated bed nets
<b>LLINs</b>	Long Lastingly Insecticide Treated bed nets
<b>MIS</b>	Malaria Indicator Survey
<b>MOH</b>	Ministry of Health
<b>NGO's</b>	Non-Governmental Organizations
<b>OR</b>	<b>Odd Ratio</b>
<b>PHC</b>	Primary Health Care
<b>RBM</b>	Roll Back Malaria
<b>SNNPR</b>	Southern Nation Nationalities and Peoples Region
<b>SPSS</b>	Statistical Package for Social Science
<b>WTP</b>	Willingness To Pay
<b>WHO</b>	World Health Organization
<b>WHOPES</b>	World Health Organization Pesticide Evaluation Scheme

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# CHAPTER ONE

## 1.1 INTRODUCTION

Globally, malaria remains to be a major problem causing an unacceptable toll on the health and economic welfare of world's poorest communities. There are some evidences that shows malaria and poverty are intimately connected and currently given as a cause of poverty in poor malarious countries [1].

Almost 68% of the populations in Ethiopia live in malarious areas covering almost 75% of the land. In 2009, 3 million suspected malaria cases were seen and nearly 2.3 million (77%) were tested. Over the past years, the disease has been consistently reported as the first leading cause of outpatient visits, hospitalization and death in health facilities across the country. Insecticide-treated bed nets (ITNs) have been demonstrated to be of significant value in reducing morbidity and mortality due to malaria in sub-Saharan Africa [2,3]. WHO roll back malaria program emphasizes the use of ITNs as one of the key malaria control measures in endemic countries, in order to reach the millennium development goal which targets to half by 2015. One of the indicators for this goal is the proportion of population in malaria risk areas using effective malaria prevention and treatment measures [4]. Children living in such areas have a greater risk of death from malaria, but sleeping under an insecticide-treated mosquito net (ITN) can protect children, as well as adults, and greatly reduce the risk of infection. Research shows that high ownership and use of ITNs reduces all-cause mortality in children under five by about 20 percent and malarial infections among children under five and pregnant women by up to 50 percent[5].

In Ethiopia, More than 20 million long-lasting insect side treated bed nets have been distributed since 2005 targeting, on average, two LLINs per household (*note*, the national policy was recently changed to provide LLINs for each sleeping place in a household. While the rapid scale-up of ITN distribution represents an enormous public health achievement, it also represents a formidable challenge for the future in ensuring that the high levels of coverage are maintained [6].

Achieving of large-scale ITN coverage also require the development of ITN strategy to look beyond short-term approaches and build consensus on how best to achieve sustainable supply and demand for ITNs. Understanding the feasibility of achieving widespread coverage with

insecticide-treated nets (ITNs) has to be preceded by learning how people value the nets and estimating the potential demand for the nets. This information could be obtained by examining a willingness to pay (WTP) as revealed by people's purchase decisions (revealed preferences). Factors those are associated with WTP and consumer preferences important for introducing ITN in the market rather than free distribution for all to ensure sustainability and self-reliance in the prevention of malaria. As well as, it creates program access and feasibility by increase the frequency of distribution points with long-term coverage. [7].

## **1.2 STATEMENT OF THE PROBLEM**

World Health Organization recommends that pregnant women and children less than five years of age in sub-Saharan Africa should have the highest priority for receiving ITNs. However, possession of ITNs in sub-Saharan Africa remains low, with only 6.7% of households owning one [8]. Despite their accepted effectiveness, there remain barriers to the use of ITNs in vulnerable households, including both supply- and demand-side constraints, which make rapid scale-up of ITN coverage difficult to achieve [9].

The Malaria indicator survey (MIS) 2007 in Ethiopia confirmed that the average household includes 4.5 members sharing 1.8 sleeping spaces, confirming that the target of supplying each household with two family-sized LLINs should be adequate to attain universal coverage. There was being an estimated national LLIN gap of about 6.75 million in 2011. However, none of the WHO Pesticide Evaluation Scheme (WHOPES) approved LLINs are registered for commercial importation and sale by local retailers. Efforts will be made to engage the national regulatory authorities to enable broader access to LLINs for those individuals and organizations – primarily in urban and semi urban areas not targeted for the mass free distributions – who may want to purchase their own nets [6].

Free distribution catch up programme (in areas greatly in need of rapid coverage increase) in conjunction with a universal coverage, modest subsidy/cost-sharing programme as a means of keep up is the most efficient and effective means of controlling malaria transmission. The modest level of cost sharing ensures greater programme sustainability while still lowering cost of ownership and increasing purchasing power within the populace [10].

Proponent's of cost -sharing ITN distribution programs argue that charging a positive price is needed to screen out people who will not use the net, and thus avoid wasting the subsidy on non-users. Cost-sharing programs often have a “social marketing” component, which uses mass media communication strategies and branding to increase the consumer's willingness to pay. The goal is to shore up demand and usage by making the value of ITN use salient to consumers. Cost-sharing programs also point out that positive prices are necessary to ensure the development of a commercial market, considered key to ensuring a sustainable supply of ITNs [10,11].

In making price decisions, managers of social programs face an equity dilemma, the problem of balancing the need for program sustainability with social goals of making services available to low income clients. Raising prices too high will deny services to poor clients. However maintaining needlessly low prices will perpetuate reliance on external donors. Although cost-sharing may lead to higher usage intensity than free distribution; it may also reduce program coverage by dampening demand. A number of experimental and field studies indicate that there may be special psychological properties to zero financial price and that demand may drop precipitously when the price is raised slightly above zero. [12].

Individuals' utility function is the most important issue, how it is expressed is upon the individual consumer. Understanding what individuals value as the most important attributes of a bed net, like avoid mosquito nuisance, which would influence willingness to pay for a bed net, and using such information to create social marketing messages, creates favorable grounds for attracting consumers to accept the intervention than using what scientists value most, like reduction of malaria cases. Besides, in the process what the community values most results in reduction of malaria cases, which is the scientifically expected end outcome [13].

Therefore, ITN distribution programmes need to take account of the diversity in WTP for ITNs if they are to ensure equity in access to the nets. Ethiopia is implemented free ITN distribution approach through the government for vulnerable social groups (pregnant women & under five Children) and new settlements in high-risk areas from NGOs funds. Though a greater amount of people are able to afford and access ITNs in such programmes will create problems of feasibility due to funding dependency. A step forward is to determine the level of consumers' WTP for ITNs, to inform policy makers about the amounts households are prepared to pay, motivate policy formulation on strategies for integration of ITNs into PHC and address the issue of cost-recovery targets and subsidies.

The purpose of this study is to determine willingness to pay for ITN and assessing of associated factors would discourage demand, designing social marketing system and sustainability of ITN interventions strategy for giving a greater insight for policy makers and programme managers about the potential equity effects of selling ITNs. Free distribution may signify the development of dependency that may affect future sustainability which is a feared side effect of free distribution. Therefore, the results of this study helps to guide the interventions that programmer and pol

## **CHAPTER TWO**

### **2.1. LITERATURE REVIEW**

The improvement of coverage of ITN programmes requires both demand and supply side interventions by the government and donors. The demand-side interventions may include means to increase the purchasing power of the poorer households by improving the financial access of the people. Supply-side interventions could include subsidies to the producers of nets, so that they would produce at lower cost and therefore sell to the consumers at reduced prices. Also, the duty on importation of nets and insecticides could be lowered or abolished so that the finished products would be brought into the country at reduced cost. The decision of whether to intervene on the demand or supply, or a mixture of strategies, would require future cost-effectiveness analysis [14].

Social marketing (the adaptation of commercial marketing techniques to increase the acceptability of desired health practices, services and products) is an increasingly popular method of ITN distribution in Africa, with nets and insecticides being made available for purchase at lower-than-market costs through subsidies provided either by other consumers or external donors [15]

#### **Factors influencing of willingness to pay for insect side treated bed nets**

##### ***Individual factors***

In WTP estimates are sensitive to client characteristics, such as motivation to use the product or service, or socioeconomic status (SES). Individual related characteristics are likely to be important in influencing WTP, and consumer preferences for ITNs. The findings presented in rural, southern Mozambique shows, WTP for bed nets highly dependent on formal schooling, market knowledge of bed nets, and use of alternate malaria prevention methods, While SES is found to have a significant effect on WTP, with respondents of higher SES willing to pay more on average, while the evidence presented here shows that households are WTP less on average for a net if they had received one for free in the past, they also appear to place a higher value on the nets than households who had not received a free net. There is also strong evidence that households where a child under five is present have a higher average WTP possibly indicating the higher value placed on child health, or awareness of the acute vulnerability of children to malaria. [16].

The survey study conducted in Nigeria also shows, most people who did not purchase ITNs were from the lower socioeconomic groups. The presence of formal education was positively associated with ownership of untreated nets and stated WTP for ITNs and interviewing a male, head of a household and respondents from household with many residents were associated with higher stated WTP for ITNs. A recent malaria episode in a household was also associated with increased WTP and purchases of ITNs. Hence, the decision to either pay for an ITN and/or acquire an untreated net was propelled by need and enhanced by better economic status. The fact that the poorest households perceived themselves to be at greatest risk of malaria suggests a coincidence of economic and biological vulnerability. Apart from the socioeconomic factors, a direct factor that influenced some respondents to purchase the nets was their immediate malaria experience. More recent malaria cases were positively associated with net purchase. [17].

Another study in Tanzania has tried to look at the role of gender on WTP for ITNs and found that, females were less likely to be willing to pay for ITNs , that have higher price, and more likely to pay for ITNs having lower price as compared to males. Among females the proportion of those who willing to pay for another person, at lowest ITN price, was significantly higher in those with under five in their households than in those in no under fives. This was not the case among the male respondents as the association was not statically significant. [18].

A cross sectional study in which was done Arbaminch Zuria District, Ethiopia, also shows Females were less likely to be willing to pay for ITN than males. Other predictors of willingness to pay for ITN were educational status, income of the family and farm size holding, for those who already possess at least one and the perceived benefit of ITN as well as household factors like , people living in a roof of corrugated sheet, those who posses radio, whose family size was greater than six and those who are married were significantly found to be more willing to pay. [19].



### ***Payment scenario***

The cross sectional study conducted on stated and actual willingness of ITN in Nigeria shows stated WTP was positively associated with actual purchases of ITNs, while living further away from the sales points for the nets was negatively and significantly associated with actual purchases of ITNs. [17,20].

In a baseline survey in four regions of Ethiopia, SNNPR, Tigray, Amhara and Oromia, shows that: almost all the respondents (92.5%) were interested in the future use of mosquito nets if available. Most of the respondents preferred to have nets on loan basis 60% of them preferring to pay the within three months to one year period of time. The rest 40% said they were ready to pay in cash immediately. From January to March people can easily sell their agricultural products and would be more willing to buy ITNs, because of seasonality of crops and income generated, people residing in most parts of the country may prefer to purchase ITN after the harvest. Another important finding was regarding on ways of distributing, was 69 % of the study group preferred health facilities to distribute the nets, while 27% preferred through Kebele administrative offices. [21].

Another study, which was done in Arbaminch Zuria District, Southern Ethiopia: shows that More than three fourth of the house (92%)hold owners were willing to buy also for other family members and the preferred site to buy ITN was from health institutions. . The average maximum WTP for the blue conical ITN was 26.2 ETB, white conical one was 25.7 ETB and this was found to be significantly different. The average maximum WTP for the blue rectangular net was 13.6 ETB. The common reasons for their unwillingness-to-buy were inability to afford 40.9%, and 29.5%, waiting of free charge. [19].

### ***Characteristics' of ITN***

Apart from individuals' social and economic background, characteristics of an ITN had a great impact on WTP. Even when the same price was charged for ITNs of different attributes. The ITN characteristics have different relative importance in influencing WTP, and such information would help planners to understand the type of ITNs people would like buy and at what prices. [11].

A Cross sectional study conducted in Communities of the Peruvian Amazon indicates, regarding on the characteristics bed net, fabric preferences of weave and color rankings appear in bleached

cotton was the favorite choice among netting fabrics. Light blue was the first color choice and pink the second for both men and women. Among the synthetic fabrics, jersey cloth was most popular. Beyond the rankings themselves, participant comments about the different color and weave choices provided much useful information about the necessary attributes of a more culturally appropriate synthetic ITN. Cleanliness and hygiene, on the other hand, carry significant weight for willingness to pay for ITN. [22].

Another study conducted by NetMark also indicates, programers should seek ongoing feedback from beneficiaries of ITN programs to understand their preferences for size, shape, color and type of textile. Ease of use, especially hanging, is another important factor to consider. A “one size fits all” approach will discourage use if the product is not one that beneficiaries prefer. As with any product, more people are likely to use it if they can choose what works best for them [7].

The study conducted in Oromia and Amhara Regional States, Ethiopia regarding on use and non use of like ITN characteristics, the variables significantly associated with use were ITN condition, shape, color, and whether the ITN had been purchased (with or without voucher) or had been given to a household for free. Whether an ITN was free or purchased was correlated with ITN color, shape and where it was obtained. [23].

Despite of this, another Study in Jimma zone, serbo, ITN characteristics variables were significantly associated with use were ITN age, condition, shape, color, and whether the ITN had been purchased or had been given to a household for free. Conical ITNs were more likely to be used the prior night compared to rectangular ITNs. Although, color of ITN was highly correlated with both free-bought status and shape.[24].The factors that explain altruistic WTP point to policy-making areas and opportunities for increasing coverage and ensuring that equity is maintained in ITNs programmes. Governments and other promoters of insecticide-treated nets should explore the possibility of motivating and using altruistic contributions to improve the equitable acquisition of ITN. [25].

### ***Contingent valuation method***

There are two main methods for assessing willingness to pay, the contingent valuation method and choice experiments. These methods have generally been used to set a monetary value on a package of health and/or non health benefits in the context of a specific intervention. CVM survey can collect useful data on individual's preferences' for the exact type of goods and services, their ability and WTP for this system and the types of organization that users would like to see managing the system. This information can then be used to determine an appropriate tariff policy and financing package for the improved serves system, often involving the allocation of appropriate subsidies to poorer households. [26].

Contingent valuation surveys include one or more questions concerning the expenses that respondents could accept in order to increase the amount of a public good. Values are elicited in contingent valuation method through various techniques including the binary with follow-up method, where a price for the good is presented to the respondent and they are then expected to give a "yes or no" response. In either case, there is a follow-up open-ended question to determine the maximum amount they are willing to pay. In the open-ended format, respondents are asked their maximum WTP amount as an open-ended question. An advantage of open ended question format is that it is easily amenable to comparison between stated with actual WTP because one could easily relate the maximum amount that was stated to the actual amount that the respondent paid. Also, if the good in question being valued is normally bought using an auction-like or donation- like question format, then it should be the appropriate question format. Most study argued that CVM question formats that better mimic price-taking in a particular context will generate more valid WTP estimates than others that do not. However, it is unclear whether the same question format should be used to value the three aspects of WTP (use, option, existence and altruistic values). Some question formats may in certain contexts resemble the real market decisions of individuals for valuing use or option values, but they may not resemble the peoples' normal altruistic decisions for goods and services. [27].

Avenues for mobilizing the communities to pay for ITNs should be pursued, as entirely free programmes are unsustainable because of the lack of government funds and very limited donor efforts. A step forward is to determine the level of consumers' WTP for ITNs, to inform policy makers about the amounts households are prepared to pay, motivate policy formulation on

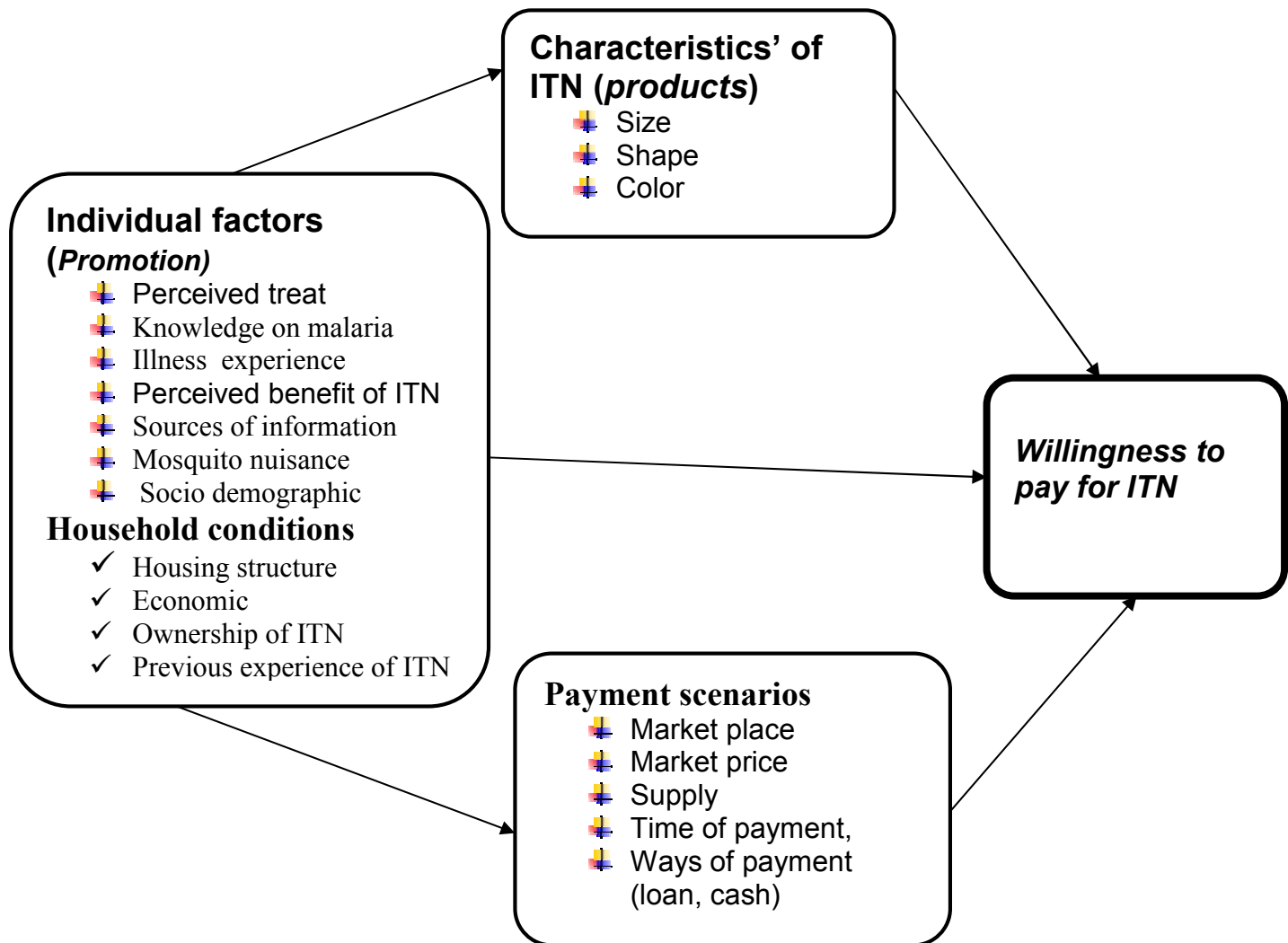
strategies for integration of ITNs into PHC and address the issue of cost-recovery targets and subsidies [28].

In Ethiopia, despite the distribution of ITNs, many literature recommended that, ITNs that are paid were more likely to be used than those obtained for free, a segmentation strategy targeting free ITNs to rural and poorest households combined with support for the commercial sector in urban and better-off areas may optimize sustainable ITN coverage as well as increase ITN use. This is to ensure that the final provision of the tools is equitable and that all socio-economic groups benefit equally from public expenditures and subsidies.

Overall, a better understanding factors that are associated with individuals (socioeconomic, demographic) and characteristics of ITN helps for effective distribution strategies within the general population, and justifies a study of consumers' valuation and purchase decisions for ITNs, together with factors that determine the level of access people have for the ITNs.

The findings of this study also will provide a basis for efforts to increase ITN coverage and plan for alternative outlets by strengthening the social marketing is a means of ensuring a sustainable supply of ITN into the future. This study helps to evaluate these gaps in the household of Berhet woreda, by determine willingness to pay for ITN and assessing of associated factors.

## 2.2 Conceptual framework of the study



**Figure 1: Conceptual framework on: Willingness to pay for insect side treated bed nets and associated factors among households in Berehet Woreda, Amahara region, Ethiopia, in January 2012. [18,19,20,21,22].**

### **2.3. Significance of the study**

Despite the intense activities pertaining to the distribution of ITNs, many questions remain unanswered these includes, the extent to which people are aware of the benefit of ITNs, the value they give it, as well as availability of commercial market supply of ITNs. Social marketing is making an important contribution to household coverage. It is also important to ensure that any current or planned ITN programmes implemented by the public sector or NGOs do not undermine the introduction growth of the social marketing. A demand creation approach helps to stimulate increasing demand in order to stimulate increased supply by the commercial markets and/or social marketing.

This study helps to determine the prices of different type of ITN based on consumer preference & explore factors that would influence WTP for an ITN that would discourage demand, designing district-specific social marketing system.

Furthermore, it provide greater insight for policy makers and programme managers about the potential equity effects of selling ITNs and free distribution may signify the development of dependency that may affect future sustainability which is a feared side effect of free distribution. The result of these study also be used by stakeholders and concerned organization to consider for their planning as well as it provides a base line data for further research activities.

On the top of this, the results of this study will be made available to guide the interventions that programmer and policymakers apply to social marketing strategy.

## **CHAPTER THREE: OBJECTIVE OF THE STUDY**

### **3.1 General Objective**

To determine Willingness to pay for ITN and associated factors among households in Berehet Woreda, Amhara Region, Ethiopia 2012.

### **3.2 Specific objective**

- To determine households willingness to pay for ITN.
- To assess factors associated to willingness to pay for ITN.

## **CHAPTER FOUR: METHODS AND MATERIALS**

### **4.1 Study area and period**

The study was conducted in Berhet woreda from January to February 2012. Berhet woreda is located 265 km from Addis Ababa and 385 Km from D/Berhan and has total surface area of 884.48 sq.km. According to the 2010, the projected population is around 37,182 inhabitants (18219 females and 18967 male) was found. The woreda is divided in to 1 urban and 9 rural kebele. Nine Kebeles were malaria endemic. The total projected population of the woreda is 5316 households for malarious kebeles. The town has a temperature that ranges from 20-34 °C, 1500-1800 mm<sup>3</sup> of the average annual rainfall and an altitude of 1520 m above sea level. Concerning the health and health related facilities, there are 03 health centers, 10 health posts and one private clinic were found in the woreda. According to the report from the woreda health office, ITNs distribution has been started since 1999 E.C.

### **4.2 Study design**

A community based cross sectional study design using both quantitative and qualitative research methods was used.

### **4.3. Population**

#### ***4.3.1. Source population***

The source population was all households living in the woreda.

#### ***4.3.2. Study population***

All sampled households were the study population.

#### **4.3.3. Study unit**

Heads of household or representatives.

#### ***4.3.4. Inclusion criteria***

All head of household or representative were included in the study. If the household head is absent, the older person (who is greater than or equal to 18 years) was interviewe. If more than



one older (greater than or equal to 18) is found, one of them who have better information about households were randomly included and include in the study.

#### **4.3.5. Exclusion criteria**

All head of household or representatives who are unable to communicate was excluded in the study.

#### **4.4. Sample size determination**

**Quantitative part:** We used the following single proportion formula to estimate willingness to pay

$$n = Z_2^2 p (1-P)/d^2$$

Where, P= proportion of households who are willing to pay a rectangular ITN at price of 20 Birr. (Estimated from previous study conducted in Arbaminch, whereas for the blue rectangular ITN around 59 % were willing to pay 15 ETB, 51.1% a price of 20 Birr and 76.9% a price of 10 Birr. Then, taking of p=51.1% due to giving maximum sample size out of the rest.), [30] at 95% CI and d=5%, it gives 384. Since the source population is less than 10,000 & it needs correction **nf**

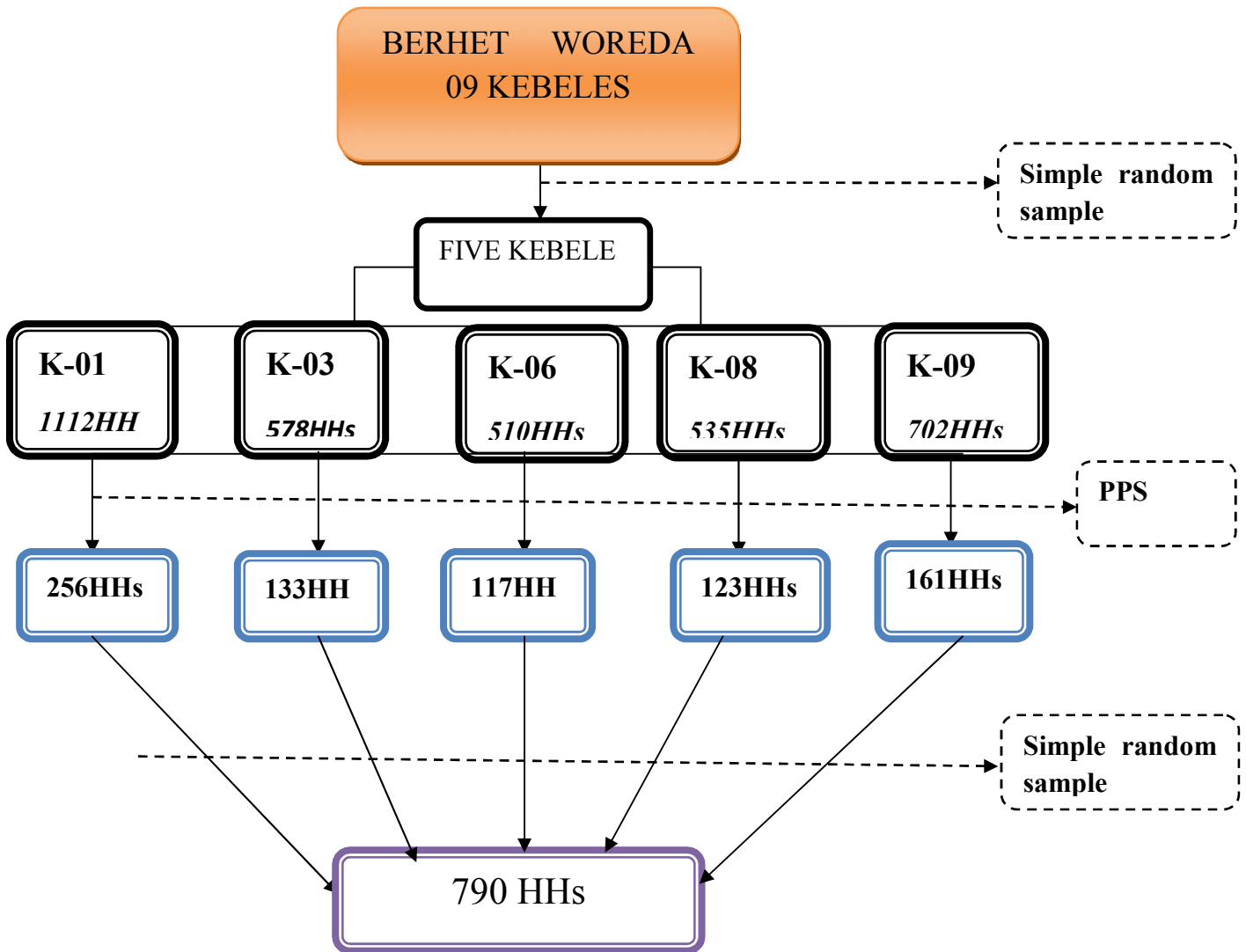
=  $\frac{n}{1 + \frac{n}{N}}$  and gives 359 heads of household's. Adding a design effect of 2 and non-response rate of 10%, the total sample size, 790 heads of Households were taken.

**Qualitative part:** three FGD about 24 individuals (10 females and 14 males) from selected kebeles were conducted. Since the idea is new for this community, FGD helps for gathering of shared new idea from the discussants. Household's heads, women who have under five children and opinion leader were included in the discussion. Selection of discussants was homogeneous type of purposive sampling. Each FGD took 30-90 minutes. Observation of the size, shape, Color, number, owner ship of ITN, type of roof, etc was conducting by using observational checklist.

#### **4.5 sampling procedure**

**Quantitative part:** Due to resources constraints 5 clusters (kebeles) were selected by simple random sampling. The number of households which were selected from each randomly selected cluster was determined by the households (population) proportion of respective clusters. Furthermore, the study units was selected by simple random sampling (computer generating

number) using the recent registration list which was prepared for DDT (Deltametrin chemical) spray in October 2011 by Woreda Health Office used as a sampling frame.



**Figure 2: Schematic presentation of sampling procedures for Willingness to pay for insect side treated bed nets**

**Qualitative part:** discussants for FGDs from kebeles were selected by kebele leader and health extension workers. All discussants appointed to the health post for conducting FGD. Each FGD had one trained moderator, note taker and assistants. Observation was conducted in all households.

#### **4.6. Data collection instrument**

**Quantitative part:** The questionnaire was prepared in English and translated to Amharic (by local language speaker) and re-translated in to English to checking its consistency. Questionnaire items were checked by experts for ensuring of content validity. The questionnaire was containing the following contents:

##### ***Socio-demographic measuring variables***

The first part contains 9 items of socio-demographic variables like age, gender, marital status, family size, and religion, respondent relationship to family, education status, ethnicity and occupation. And 9 items for economic related variables was prepared. The nature of the questions was closed ended, open ended, and multiple choose.

##### ***Factor associated with WTP for ITNs measuring variables***

The second parts of the questionnaire were containing factors associated of WTP for ITNs variables like: for knowledge (12 items), perceived threats and perceived benefit of ITNs (5 items for each, using likert scale of 1. Strongly disagree 2. Disagree 3. Neutral 4. Agree 5, strongly agree.), for ownership of ITN (7 items) was adopted based on existing local context.

##### ***Willingness to pay for ITN measuring variables***

The third part of questionnaire was containing: for willingness to pay measuring variables (14 items) using of open ended question with follow up of contingent valuation method. Which was closed ended (“yes” or “no”) and open ended questions for their maximum amount of birr to pay for three different types of ITNs. For every respondent one rectangular ITN which is free distributed from government, one white and blue conical (not free) ITN was prepared for demonstration in order to elicit their preferences. On the top these, 8 measuring items are prepared for assessing the size, shape, color, and payment scenarios.

**Qualitative part:** FGD was conducted using prepared guideline. It was translated to Amharic (local language) and then back to English version for the final study. The major discussion topics were perceived benefit of ITN, perception towards WTP for ITNs, what kind of size, shape, and color they know and perceived as easy to use? And their willingness to buy for stated kind of ITN, etc.

## 4.7. Study variables

### 4.7.1. Dependent variable

- ❖ Willingness to pay for insecticide treated bed nets

### 4.7.2. Independent variable

- ❖ **Socio-demographic characteristic** (Age, sex, Marital status, Family size, Occupational status, Educational level)
- ❖ **Economic factors** (monthly income, total farm size, type of major household agricultural product, number of livestock,).
- ❖ **Individual factors** (perceived susceptibility and severity of malaria, perceived benefit of ITNs, knowledge on malaria, ownership of ITN, source of information and illness experience)
- ❖ **ITN Characteristics** (size, shape and color)
- ❖ **Payment scenarios** (market place, time, ways of payment, supply)

## 4.8. Data collection method

**Quantitative part:** Face-to-face interviewers administered were employed at household level by using structured and semi structured questionnaire. This was adapted from similar studies according to the local context of the study area. [19, 24]. Five data collectors (Nurses), five supervisors (Nurses) were recruited on the basis of educational, ability to speak local working language and exposing existing culture. For both data collectors and supervisors were trained before data collection about four days on interviewing techniques, purpose of the study, importance of privacy, discipline, how to use check list with practical demonstration etc. For every respondent one rectangular ITN which is free distributed from government, one white and blue conical (not free) ITN was prepared for demonstration in order to elicit their preferences. And an open ended question with follow up of contingent valuation method was used.

**Qualitative part:** After selecting of convenient time by participants for FGD, discussion was conducted using prepared guideline. All FGDs were carried out by trained person and principal investigator. An audio tape recorder was used after getting permission. Additionally, note pad was taken to ensure accurate recording of all responses for transcribe and analysis purposes.

#### **4.9. Data analysis and presentation**

*Quantitative part:* First the collected data was checked for completeness, coded, and then entered into Epi data version 3.1 software for edition, cleaning and export to SPSS version 16 Software for analysis's. Univariate analysis such as, frequency distribution, percentages, mean, median, etc. was performed. Binary logistic regression analysis was used to check the presence of statistical significance association between independent and dependent variable by odds ratio (with 95% confidence interval). Data were organized and presented using tables, graphs and charts.

*Qualitative part:* the tape recorded interview data was transcribed to verbalism (written text). Following this, manual coding was done using themes from priory translating and reading of the transcript. Results were written by reorganizing, summarizing and quoting. And an open ended question was analyzed into major category of response. For close ended observational questions frequency distribution was used.

#### **4.10. Quality control**

Pre-testing was conducted on 5% of the sample population (40) in M/shankora woreda (which has similar population characterizes to the study area). It was carried out by principal investigator and trained person before the actual data collections. Training was given for data collectors (Nurses) and supervisors for 4 days. Questionnaires were checked for completeness every night at the time of data collection and incomplete ones were sent back to the data collector for checkup under supervision. Feedbacks on previous day activities were given by supervisors. Questionnaires were checked by other experts for ensuring of content validity.

#### **4.11. Ethical consideration**

A letter of ethical clearance was obtained from Jimma University College of Public Health and Medical Sciences. A supported letter was obtained from the zonal and woreda health administrations after a discussion on the significance of the study. Informed oral consent was also obtained from every study participant after assuring of Confidentiality by his/her name is not written in this questionnaire as well as the right to withdraw at any time of the interview or discussion for giving adequate information about the purpose of the study.

#### **4.12. Dissemination of the result**

The findings of this study was disseminated to relevant organizations and bodies who can make use of the study, including Jimma University college of public health and medical sciences, Department of Health education and behavioral science, Zonal Health Department, Woreda Health Offices. And also to peer reviewed journals for publication.

#### **4.13. Operational definition**

**Willingness to pay:** responses of respondents willingly to buy insecticide treated Mosquito nets if it is supplied by the market in order to ensure sustainable demands of his/her family member. And can be measured using of open ended question with follow up of contingent valuation method. Which was an open ended question for their maximum amount of birr to pay for three different types of ITNs.

**Knowledgeable;** A respondent who answered at least four of the seven knowledge related questions like cause, prevention, transmission of malaria etc and vice versa.

**Perceived susceptibility of malaria:** Opinion of household heads or representative for chance of getting malaria diseases.

**Perceived severity of malaria:** Opinion of household heads or representative for the consequences of malaria such as death, seriousness, disability, other social relations and economic consequence

**Perceived benefits of ITN:** Opinion of household heads or representative on the advantages of using ITNs for malaria prevention & control.

**High perceived susceptibility of malaria;** Person answers above the median scores for correct positive statements on likert five scale, he/she considered to have perceived susceptibility of malaria and vice versa.

**High perceived severity of malaria;** A person answers above the median scores for correct positive statements on likert five scale, he/she considered to have high level of perceived severity of malaria and vice versa.

**High perceived benefit of ITN;** A person answers above the median scores for correct positive statements on likert five scale, he/she considered to have high level of High perceived benefit of ITN and vice versa.

**Ownership of ITN:** If the household have at least one insecticide treated bed net (observed by the data collector).

**Insecticide Treated Mosquito Nets:** nets treated with insecticide to kill or irritate mosquitoes and used as physical barriers.

## CHAPTER FIVE: RESULTS

### 5.1. Socio –demographic characteristics

A total of 746 household heads or representatives were interviewed. The response rate was 94.4%. From the total households 424 (56.8%) were males. Five hundred five (67.7%) of them were rural kebeles.

The minimum age was 18 years and maximum was 85 years, with median age of 33.21 with  $\pm$ SD 10.89 years. Four hundred eighty-six (65.1%) of the respondents were Orthodox and 248(33.2%) were Muslim religion followers. Nearly three-fourth of the respondents 547(73.3%) were married. Three hundred eighty-five (51.6%) could not read and write. 836(89.5%) were Amhara by ethnic group. Four hundred thirty (57.6%) were farmer. The average family size per household was 4.28 (SD of 2.2)

361 (48.4%) were phone (cell phone) owners and 329 (44.1%) had functional radio. The median monthly income of the 746 respondents, who were willing to report their income, was 400 ETB with the SD of 504.13. More than half 453 (60.7%) families were living in a house with a roof made of corrugated iron sheet (Table 1).

**Table 1 : Socio-demographic status of households in Berehet Woreda, Amhara region , March, 2012.**

<b>Variables (n=746)</b>	<b>Number (%)</b>
<b>Place of living</b>	
Rural	505 (67.7)
Urban	241 (32.3)
<b>Sex</b>	
Males	424 (56.8)
Females	322 (43.2)
<b>Marital Status</b>	
Single	88 (11.9)
Married	547 (73.3)
Widowed	36 (4.8)
Divorced	74 (9.9)
<b>Religion</b>	
Orthodox	486 (65.1)
Muslim	248 (33.2)
Protestant	12 (1.6)
<b>Educational status</b>	
Illiterate	385 (51.6)



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Can read and write	189 (25.3)
Elementary (1-8)	67 (9)
Secondary(9-12)	37 (5)
College and above	68 (9.1)
<b>Ethnicity</b>	
Amhara	617 (82.7)
Oromo	7 (0.9)
Others*	121(16.3)
<b>Occupation</b>	
Farmer	430 (57.6)
Merchant	77 (10.3)
House wife	79 (10.6)
Teacher	24 (3.2)
Student	21 (2.8)
Others**	115 (15.4)
<b>Status of respondent</b>	
Husband	363 (48.7)
Wife	267 (35.8)
Others(child,)	116 (15.5)
<b>Family size</b>	
<4	419 (56.2)
4-6	213 (28.6)
>6	114 (15.3)
<b>Household passion</b>	
Mobile phone	361 (48.4)
Functional radio	336 (44.2)
Electricity	220 (29.5)
Television	63 (8.4)
Telephone	14 (1.9)
<b>Roof of the house</b>	
Corrugated Iron sheet	453 (60.7)
Thatch roof (tukuls)	293 (39.3)
<b>Monthly income</b>	
<200	194(26.1)
201-400	183(24.5)
401-692	183(24.5)
>692	186(24.9)

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*\*Aregoba ,kembata, tigre \*\* (daily labor, contractor, )*

## 5.2. Knowledge and perception of the respondents on malaria

Majority of the households, 729 (97.7) had awareness about malaria. Most of the 684 (93.8) household heads or representatives recognized that malaria is a serious health problem in their village and forty nine (6.6%) of households have reported that one of the family member has got believed or suspected malaria illness within two months prior to the study. A median of 77.96 ETB was spent with SD  $\pm$  66.23 (Range 22-450).

Regarding the cause of malaria majority, 704 (96.6%) had reported that malaria caused by bite of malaria causing mosquito. Also 167 (22.9%) and 114 (15.6), were responded by hunger and cold weather as cause of malaria respectively. Almost all of them knew at least one symptom of malaria.

Two hundred sixty two (36.2%) of respondents knew that malaria is communicable diseases and of these 252 (95.5%) of respondents responded that malaria is transmitted by mosquito bite. As to the knowledge on prevention of malaria, 85%, 68.9%, 56.6%, 47.9% of the respondents mentioned ITN utilization, environmental sanitation, insecticide spray, and taking anti malaria medication were mentioned the common methods of prevention respectively.

High risk group identification by the respondents was assessed and had shown that majority (55.7%) of the respondents perceived that children under 5years of age as high risk group. Similarly 135 (18.5%) of the respondents perceived that pregnant woman as one of high risk group for malaria infection (Table 2).

On the top this, 378 (50.6%) respondents answered at least four of the seven knowledge related questions like cause, prevention, transmission of malaria. Three-fourth of respondents (75.4%), 381(51.07%) and 408(54.6%) answered above the median of likert scale questions respectively for perceived susceptibility, severity and perceived benefit of ITN.

**Table 2 : knowledge of the respondents on malaria in Berehet Woreda, Amhara region ,  
March, 2012.**

<b>Variables</b>	<b>Number (%)</b>
<b>Ever heard of malaria (N=746)</b>	
Yes	729 (97.7)
No	18 (2.3)
<b>Malaria is health problem in thierVillage (n=729)</b>	
Yes	684 (93.8)
No	45 (6.2)
<b>Cause of malaria (N= 729 )</b>	
Mosquito bite	704 (96.6)
Lack of personal hygiene	71(9.7)
Cold weather	114 (15.6)
Hunger	167 (22.9)
Contact with malaria patient	36 (4.8)
Others (stagnant water, sleeping in river)	47 (6.4)
<b>Common symptoms of malaria mentioned (n=729 )</b>	
Fever	679 (93.1)
Sweating	320 (43.9)
Chills	633 (86.8)
Headache	537(73.7)
Vomiting	344 (47.2)
Loss of appetite	288 (39.5)
Body weakness	342 (46.9)
Thirsty	289 (39.6)
Joint pain	7 (1)
<b>Is malaria communicable disease (n= 729 )</b>	
Yes	264 (36.2)
No	466 (63.8)
<b>Mode of transmission mentioned (n=264)</b>	
Contact with a malaria patient	22 (8.3)
By flies	8 (95.5)
Mosquito bite	252 (95.5)
Due to cold	19(7.2)
<b>Methods of prevention mentioned (n=729 )</b>	
Environmental sanitation	502 (68.9)
Taking anti malaria medication	346 (47.5)
ITN s utilization	620 (85)
Insecticide spray	414 (56.6)
Others*	57 (7.8)
<b>High risk of malaria mentioned (n=729)</b>	
Under five children	406 (55.7)
Pregnant women	135 (18.5)
Adults	47 (6.4)
Youths	52 (7.1)
Others**	89 (12.2)

*\*Avoiding stagnant water, not sleeping in river area \*\*All of the above*

Six hundred and sixty eight (91.6%) respondents got health information pertaining to malaria in general were from health workers. Four hundred and fifty four (62.3) were also mentioned community event followed by 41.7% parents, 39.9% radio, and 15 % on school was the commonest source of information (Table 3).

**Table 3: Distribution of the respondents by source of information on malaria in Berehet Woreda, Amahara region, March, 2012.**

Source of information about malaria ( n= 729 )	Number (%)
Community event	454 (62.3)
Health workers	668(91.6)
Friends	231(31.7)
Parents	304(41.7)
On Radio	290 (39.9)
Schools	112 (15.4)
On Television	98 (13.4)
Newspaper	67 (9.2)
In pamphlets/ poster	63 (8.7)

### 5.3. Condition on ownership of insecticide treated bed net and related issues

540 (72.4) of the respondents reported that they own at least one bed net. Out of 540 families who owned ITNs, around 526 (97.4%) obtained their ITN for free. Regarding on using of ITN in their placing of sleeping, majority 89.9% of respondents were used hanging on the bed, followed by 8% of Spread on the blanket and 1.7 % of Spread under the mattress.

The assessment done on the number of bed net owned by a household, nearly two-third of 540 (72.4%) of the households own one bed net. *Among these, 465 (62.6%) households had rectangular and 1.7 % of circular type of ITN was observed by qualitatively.*

The mean number of individuals per household was 4.28, the mean number of bed net per household owned was 1.01 with SD  $\pm$  0.13, and the number of individuals per net was 3.83 for those who possess at least one bed net. Out of 746 households, 86.3% had less than two

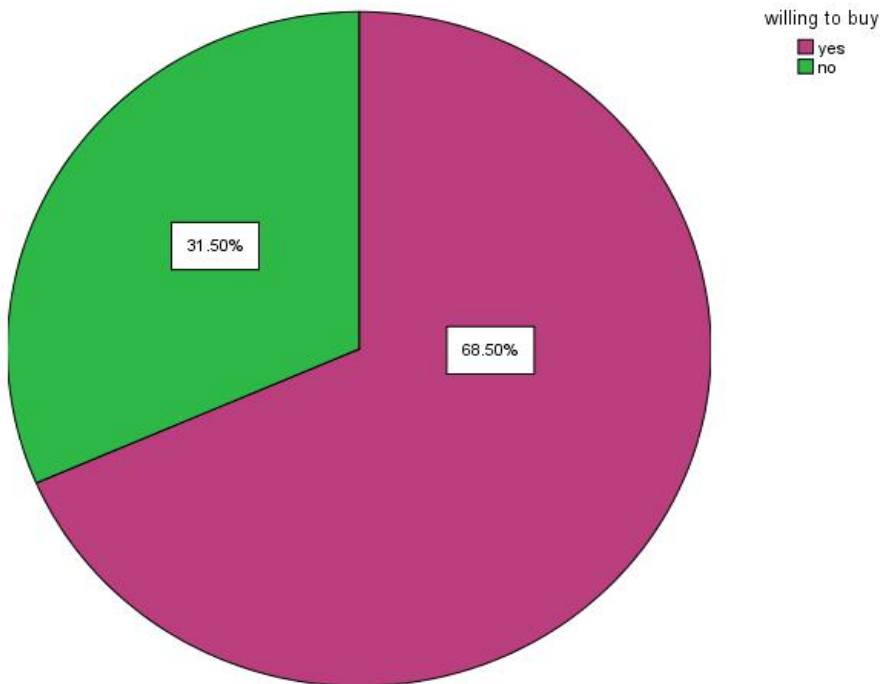
sleeping place was observed. On average the mean number of sleeping place per household was 1.75 with SD  $\pm$  0.68 family members had (Table 4).

**Table 4: Distribution of the respondents by condition of bed nets in Berehet Woreda, Amhara region , March, 2012.**

<b>Variables</b>	<b>Number (%)</b>
<b>Have functional ITNs currently(n=746)</b>	
Yes	540 (72.4)
No	206 (27.6)
<b>Number of ITNs (n=540)</b>	
One	280 (51.9)
Two	226 (41.9)
Three and above	34 (6.3)
<b>Source of ITN (n=540 )</b>	
Given free	526 (97.4)
Bough	9 (1.7)
I can t remember	3 (.6)
Other	2 (0.4)
<b>How to use ITNs in your household? (n=540 )</b>	
Hanging on the bed/“medeb”	481 (89.1)
Spread on the blanket	43 (8)
Spread under the mattress (qurbet)	9 (1.7)
Cover the door or window	10 (1.9)
<b>slept under ITNs the previous last night(n=540 )</b>	
Yes	376 (69.4)
No	164(30.4)
<b>Sleeping place (n=746)</b>	
= $<$ 2	647 (86.7)
$>$ 2	99 (13.3)

#### 5.4. Willingness to pay characteristics of the respondents

Nearly 700(93.8%), respondents decide to use ITN in the near future. From the total of 746 respondents, 511(68.5%) were willing to buy ITN if supplied by the market and the rest of 31.5% were not.



**Figure 3: Respondents willing to buy ITN in Berehet Woreda, Amhara region, March, 2012.**

According to focus group discussion: Almost all discussants of Focus group discussion, wants to buy if it is supplied by the market.

*One female discussants, who is 38 years old said, “ITN has been free distributed from health posts and kebele in order to prevent malaria and other diseases. This government free distribution may not continue for the future like other services. I think, the best solution in order to ensure sustainable supply of ITN for my family will be buying if it is supplied by the market on reasonable price from health post”.*

The major reasons for not willing to buy of the respondents were, 154 (65.5%) inability to afford, 14.4 (14.4%) no confidence on ITN, 15(6.4%) don’t bother for the disease and 11 (4.7%) don’t have knowledge was mentioned (Table 5). *Some of the discussants of focus group*

*discussion also agree, inability to afford due to low income of the household was one of the determinants not willing to buy.*

**Table 5 : Reasons for unwillingness to pay for insect side treated bed nets in Berehet Woreda, Amhara region , March, 2012.**

Wants to use ITNS (n=540 )	Number (%)
Yes	700 (93.8)
No	46 (6.2)
Reasons mentioned(n= 235)	
Can't afford	154 (65.5)
No confidence on ITN	35 (14.4)
I Don't bother for the disease	15 (6.4)
I don't have knowledge	11 (4.7)
Others	18 (7.7)

Respondent characteristics of willingness to pay for blue rectangular, blue conical and white conical type of ITNs were evaluated by open ended with follow up contingent valuation method. Almost 511(68.5%) house hold owners or representatives were willing to buy for these 3 different types of ITNS.

The median of a person willing to pay for free distributed rectangular ITN type was initially at 20 ETB (SD of 14.54, Range of 5 – 100). In addition to this, half of (53.8%) respondents were willing to buy it if the price was increased by 50% from initial and the rest of 46.2% were willing to buy it if the price was increased by 25%. The median maximum amount that a person is willing to pay for this ITN was 20 ETB (SD of 2.1, Range of 5 - 150).

Regarding on blue conical, the median of a person willing to pay was initially at 20 ETB (SD of 17.68, Range of 5 – 200). 286 (56%) respondents were willing to buy it if the price was increased by 50% from initial and the rest of 46% were willing to buy it if the price was increased by 25%. The median maximum amount that a person is willing to pay for this ITN was 30 ETB (SD of 24.41, Range of 5 - 250).

The third type of ITN, which was presented for observation in order to, elicit respondent decision for willingness to buy was white conical. The median of a person willing to pay for this ITN was 20 ETB (SD of 14.54, Range of 5 – 200). On the other hand, 269 (52.6%) respondents were willing to buy it if the price was increased by 50% from initial and the rest were willing to buy it

if the price was increased by 25% from initial. The median maximum amount that a person is willing to pay for this ITN was 30 ETB (SD of 24.9, Range of 5 - 250).

As shown on the maximum price of blue Rectangular ITN, around 25 percent of the values lie below 15 ETB and 75 percent of them below 31 ETB. For price of blue circular around 25 percent of the values lie below 20 ETB and 75 percent of them below 50 ETB. And regarding to the price of white conical, around 25 percent of the values lie below 20 ETB and 75 percent of them below 45 ETB (Table 6).

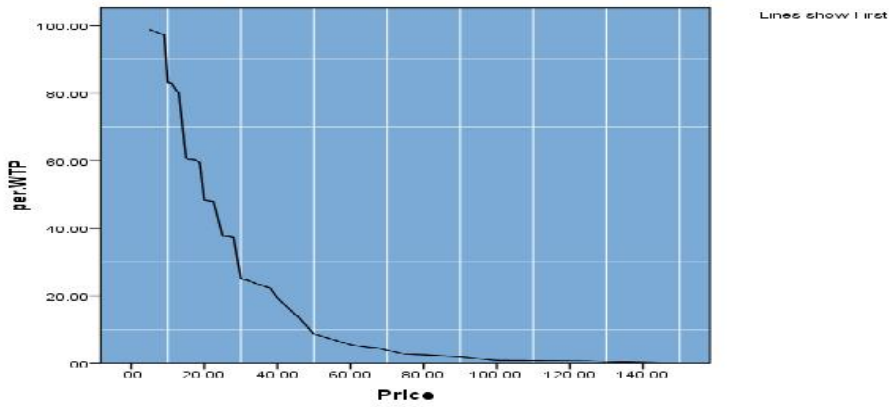
*The above finding also supported by qualitative study. A 46 years old female said that, “if rectangular ITN is supplied in the marked, I want to buy 30 birr up to 50 birr for me and the rest of my family”. On the top this, Majority of group discussants also agree a minimum of 10 birr and a maximum of 60 birr for rectangular type and a minimum of 15 birr up to 90 birr for circular type of ITN on respect to size, and color.*

**Table 6: Respondents Willingness to pay for three different kinds of insect side treated bed nets, in Berehet Woreda, Amhara region , March, 2012.(N=511)**

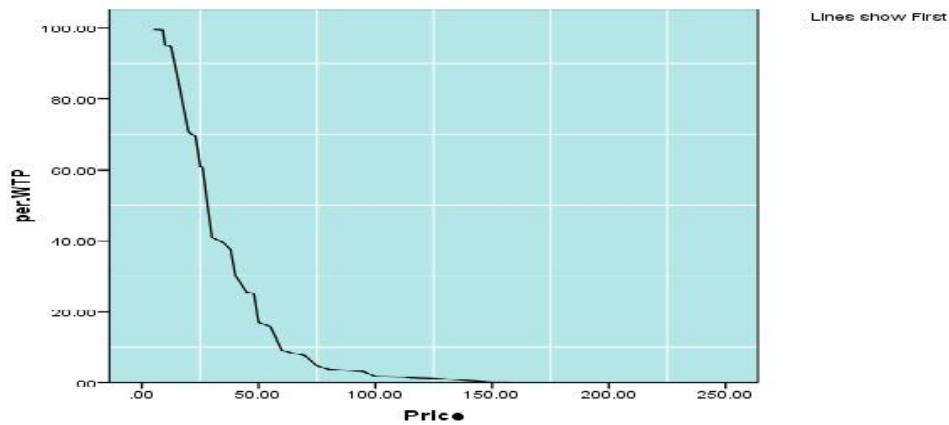
<b>Variables (n= 511 )</b>	<b>Number (%)</b>
<b>Initial WTP for rectangular ITN</b>	
< 10 Birr	204 (39.9)
10-25 Birr	192 (37.6)
> 25 Birr	115(22.5)
<b>Maximum WTP for rectangular ITN</b>	
< 15 Birr	200(39.1)
15-31Birr	183(35.8)
> 31 Birr	128 (25)
<b>Initial WTP for blue circular ITN</b>	
< 15 Birr	128 (25)
15-30 Birr	260 (50.9)
> 30 Birr	123 (24.1)
<b>Maximum WTP for blue circular ITN</b>	
< 20Birr	150 (29.4)
20-50 Birr	274 (53.6)
> 50 Birr	87 (17)
<b>Initial WTP for white circular ITN</b>	
< 15 Birr	135 (26.4)
15-30 Birr	254 (49.7)
> 30 Birr	122 (23.9)
<b>Maximum WTP for white circular ITN</b>	
< 20Birr	159 (31.1)
20-45 Birr	229 (44.8)
> 45 Birr	123 (24.1)



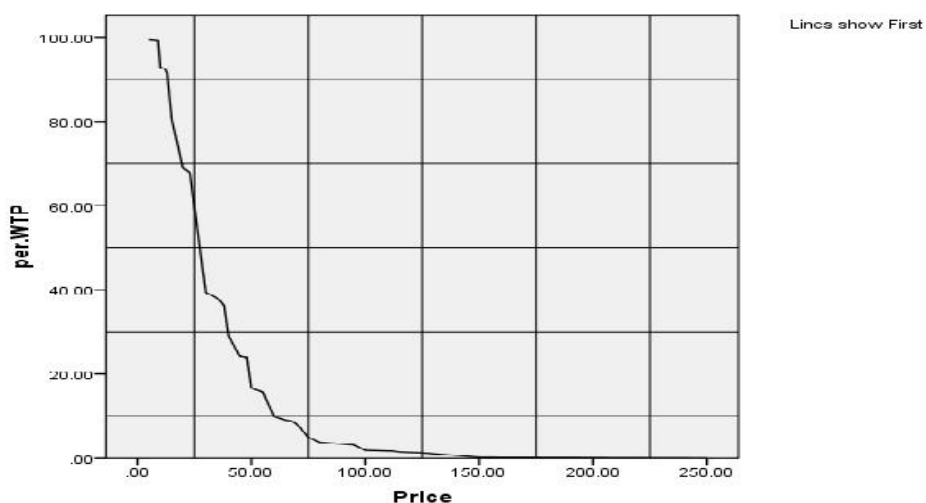
As demand curve shows below; if the price of ITN is increases, respondent willingness to pay decreases regardless of the shape and color.



**Figure 4 : Demand curve for the Maximum willingness to pay for a blue Rectangular insect side treated bed nets in Berehet Woreda, Amhara region , March, 2012.**



**Figure 5 : Demand curve for the Maximum willingness to pay for a blue conical insect side treated bed nets in Berehet Woreda, Amhara region , March, 2012.**



**Figure 6 : Demand curve for the Maximum willingness to pay for a White conical insect side treated bed nets in Berehet Woreda, Amhara region , March, 2012.**

### **5.5. Preferences on ITN characteristics by the respondent (product)**

As indicate table eight, 272 (53.2%) respondents were mentioned the most preferred shape was conical type of ITN. *Result from FGD shows that, Majority of discussants knew blue rectangular type and some of them knew blue and white conical ITN from shops and other places.* 82.3% of the respondents have mentioned the reason for choosing of this shape was easy to hang in their housing structure. The rest of 46.2%respondants, reason to choose rectangular shape was 155 (64.9%) having similar shape with their sleeping place/bed followed by 32.2% of already known or used, 2.5% for due to attractiveness were frequently mentioned responses.

The second most important attribute was the color for conical and 73.2% of respondents were mentioned the most preferred color was blue and least preferred were white (21.7%) . Regarding for rectangular type, majority 85.4% of respondents were mentioned the most preferred color was blue. The most preferred size of ITN was `medium size, a 4-feet-net. From the total respondents, 60.3% and 73.3% were mentioned for rectangular and conical type, respectively (Table 7). The above result also supported by qualitative result.

*A 40 years old male discussant said that, “I know two meter length of rectangular ITN that I obtain from health post and it is easy to hang around my sleeping place. All discussants of focus group, knew medium size of rectangular ITN and some of them also knew small and medium size of circular ITN”.*

Nearly half, 240 (47%) of respondents was the prefer place for willing to buy ITNs were health center followed by 34.8% of Health posts,13.1% of kebele, 4.3%of Public shops (place) .

Above three-fourth of the respondents (78.5%) were also preferred to have nets on cash and rest of (21.5%) were ready to pay on loan. One Hundred and sixty three respondents (31.9%) were preferred from September -November (fall) session of the year and their accessible time of the day was mooring (53.2%).

**Table 7 : Importance of insect side treated bed nets characteristics for willingness to pay in Berehet Woreda, Amhara region , March, 2012.**

<b>Variables</b>	<b>Number (%)</b>
<b>prefer shape of ITN to purchase (n=511)</b>	
Rectangular	239 (46.8)
Conical	272 (53.2)
<b>Reason for choosing of rectangular type(n=239)</b>	
Similar shape with our sleeping place	155 (64.9)
Already known/ used	77 (32.2)
Attractive	7 (2.9)
<b>Reason for choosing circular type(n=272)</b>	
Easy to hang	223 (82.3)
It needs small place	29 (10.7)
Attractive	20(7)
<b>Prefer color for Rectangular ITN (n=239)</b>	
Blue	204 (85.4)
White	17 (7.1)
Green	18 (7.5)
<b>Reason for choosing this color(n=239)</b>	
Attractive	113 (47.3)
Easy to wash	106 (44.4)
Others (only known and utilize this type)	20 (8.4)
<b>Prefer size for Rectangular ITN(n=239)</b>	
Small size	4 (1.7)
Medium size	144 (60.3)
Large size	91 (38.1)
<b>Prefer color for Conical ITN (n=272)</b>	
Blue	199 (73.2)
White	59 (21.7)
Green	14 (5.1)
<b>Reason for choosing this color(n=272)</b>	
Attractive	111 (40.8)
Easy to wash	157 (57.7)
Others (only known and utilize this type)	4 (1.5)
<b>Prefer size for Conical ITN(n=272)</b>	
Small size	7 (2.6)
Medium size	200 (73.5)
Large size	65 (23.9)

## 5.6. Factors affecting willingness to pay for insecticide treated bed nets

In order to determine what factors influence WTP for insecticide treated bed nets, several socio demographic and malaria related factors were entered in regression analysis. Females were more likely to be willing to pay for ITN than males, this was statistically significant even after controlling possible confounders like age, educational status, and income [OR=1.86, CI= 1.29, 2.55]. In addition to this, housewife was 2.06 times more likely to be willing to pay than of husband. As compared to single, those respondents who married 1.97 times and those who widowed 2.92 times more willing to pay for ITN. This was the same even after controlling for potential confounders.

Educational status of the head of the household was also found to be associated with their willingness to pay. Those who can read and write 0.61 times less and college and above 0.99, less likely to be willing to pay than of illiterate.

The monthly income of the respondents was also associated with their WTP. Those respondents with quintile one was more likely to be willing to pay than those with quintile four. This relation was true even after controlling for potential confounders [OR=22.44, CI= 12, 41.34].

Respondent's willingness to pay was also associated with their housing structure. People living in a roof of thatch were twice willing to pay than of people living in a roof of corrugated sheet. Those who have greater than one hectares farm land also less likely to be willing to pay than of less than one hectare. This relation was true even after controlling for potential confounders [OR=0.91, CI= 0.56-1.48] (Table 8).

**Table 8 : Binary logistic regression of factors affecting for willingness to pay variables in Berehet Woreda, Amhara region, March, 2012. (N=746)**

Variables	Willingness to pay for ITN		Crude OR(95%CI)	Adjusted OR(95%CI)
	Yes (%)	No (%)		
<b>Gender</b>				
Males	321(75.7)	103(24.3)	1.00	
Female	190(59)	132(41)	2.16(1.58-2.96)*	1.86(1.29-2.55) *
<b>Marital Status</b>				
Single	73(82)	16(17.8)	1.00	
Married	382(68.8)	165(31.2)	1.97(1.11-3.48) *	1.96(1.07-3.38) *
Widowed	19(52.7)	17(47.3)	4.08(1.74-9.54) *	2.92(1.22-6.96) *
Divorced	37(50)	37(50)	4.56(2.24-9.25) *	3.26(1.56-6.97) *
<b>Educational status</b>				
Illiterate	227(58.9)	158(41.1)	1.00	
Can read and write	142(75.1)	47(24.9)	0.47(0.32-0.7)*	0.61(0.39-0.93) *
Elementary (1-8)	50(74.6)	17(25.4)	0.49(0.27-0.87)*	4.72(1.48-15.04) *
Secondary(9-12)	28(75.6)	9(24.4)	0.46(0.21-1.00)	0.43(0.18-1.03)
College and above	64(94.1)	4(5.9)	0.09(0.03-0.25)*	0.99(0.29-0.99)*
<b>Occupation</b>				
Farmer	299(69.5)	131(30.5)	1.00	
House wife	39(49.3)	40(50.7)	2.34(1.43-3.80) *	3.1(1.5-5.51)
Student	12(57.1)	9(42.9)	5.04(1.81-9.25)	4.03(1.37-11.79) *
<b>Status of respondent</b>				
Husband	269(74.1)	94(25.9)	1.00	
Wife	155(58)	112(42)	2.068(1.47-2.89) *	2.21(1.65-5.24)
Other	87(75)	29(25)	0.95(0.58-1.54)	1.61(1.05-4.23)
<b>Roof of the house</b>				
Corrugated sheet	339(74.8)	114(25.2)	1.00	
Thatch roof (tukuls)	172(58.7)	121(41.3)	2.09(1.52-2.86) *	1.90(1.31-2.76) *
<b>Total farm size</b>				
<1 Hec	207(63.1)	121(36.9)	1.00	
>= 1 Hec	134(74.4)	46(25.6)	0.58(0.39-0.87)*	0.91(0.56-1.48)
<b>Monthly income</b>				
<200	48(24.7)	146(75.3)	30.23(16.66-54.89) *	22.44(12-41.34) *
201-400	127(69.3)	56(30.7)	4.38(2.43-7.9) *	3.01(1.64-5.52) *
401-692	167(91.2)	16(8.8)	0.95(0.46-1.84)	0.67(0.32-1.39)
>692	169(90.8)	17(9.2)	1.00	

\* Statically significant at p-value <0.05

Respondents' knowledge on malaria and ITN was also found to be significantly associated with willing to pay. Those who aren't answered correctly more than or equal to four of the seven knowledge related questions on malaria and ITN (Not knowledgeable) were less likely to buy than those of knowledgeable. This was the same even after controlling for potential confounders like educational status, sex, age and income. [OR=0.68, CI= 0.47, 0.98].

Respondents who have low perceived benefit of ITN were 0.28 times less likely to buy than those who have high benefit. Similarly, respondents, who have low Perceived susceptibility and severity of malaria also 0.64 times less likely to buy than those who have high Perceived susceptibility and severity.

Currently those of who haven't functional ITNs were 2.34 times more likely to buy than those of have. Those families who obtain ITN less than one year long were 1.61times more willing to pay than of greater than one year long even after controlling for potential confounders. Furthermore, households having under five children were 1.43 times more likely to buy than those of haven't.

**Table 9: Binary logistic regression of factors affecting for willingness to pay variables in Berehet Woreda, Amhara region, March, 2012. (N=746)**

Variables	Willingness to pay for ITN		Crude OR(95%CI)	Adjusted OR(95%CI)
	Yes	No		
<b>Knowledge on malaria</b>				
knowledgeable	281(74.3)	97(25.6)	1.00	
Not knowledgeable	223(63.5)	128(36.5)	0.60(0.43-0.82) *	0.68(0.47-0.98) *
<b>Perceived susceptibility of malaria</b>				
High	430(76.4)	133(23.6)	1.00	
Low	99(59.6)	67(40.4)	0.63(0.44-0.91) *	0.64(0.44-0.93) *
<b>Perceived severity of malaria</b>				
High	203(53.3)	178(46.7)	1.00	
Low	148(42.5)	200(57.5)	0.63(0.46-0.87) *	0.65(0.47-0.91) *
<b>Perceived benefit for ITNS</b>				
High	241(59)	167(41)	1.00	
Low	219(68.2)	102(31.8)	0.26(0.19-0.36) *	0.28(0.2-0.4) *
<b>Have under five in household</b>				
Yes	225(73.7)	80(22.3)	1.52(1.10-2.1) *	1.43(0.99-2.06) *
No	286(64.8)	115(35.2)	1.00	

<b>Age of their ITN</b>				
<12 month	80(62.9)	47(37.1)	1.61(1.06-2.46) *	
> 12 month	303(73.3)	110(16.7)	1.00	
<b>Have functional ITNs currently</b>				
Yes	383(71.6)	157(28.4)	1.00	
No	128(62.1)	78(37.9)	2.12(1.54-2.92)	2.34(1.61-3.4)

\* **Statically significant at p-value <0.05**

Relative importance of mosquito nets attributes on Consumer Preferences was assessed by logistic regression. Only two shapes of nets were presented, the rectangular and circular shapes. The analysis got from Binary logistic regression, willingness to pay for both rectangular and circular shapes of ITN was not statically significance variables was found regarding on the size and color of ITN.

Regarding to respondent's payment characteristics of ITNs, those who prefer kebele in order to buy for rectangular shape was more likely to buy than other places [OR=1.92, CI= 1.07-3.92]. And those who prefer kebel for circular shape was less likely to buy than other places [OR=0.41, CI= 0.43-0.911]. Those respondents who prefer willing to pay immediately on cash were less likely to pay for rectangular than of loan basis [OR=0.35, CI= 24-0.741]. But, for circular type 2.80 times more likely to pay than of loan basis. From January to March (fall session of the year) was 1.61 times more likely to pay for rectangular and 0.60 times more likely to pay for circular than of other session.

## CHAPTER SIX: DISCUSSION

This study revealed that 97.7% awareness about malaria and almost 93.8% recognized that malaria is a serious health problem in their village. This is more or less the same finding, from the study conducted in Uganda [29].

On this study, 36.2% of respondents knew that malaria is communicable diseases and of these 95.5% of respondents mentioned that malaria is transmitted by mosquito bite. This is more or less the same, on the study conducted in Southern Nations Nationalities and People Region (SNNPR), Amhara and Oromiya [21]. Health beliefs pertaining to transmission of malaria are important for preventive services [24].

This study revealed that 76% of the respondents used at least one method of prevention of malaria. Similarly finding was also obtained the study done in Jimma Zone shows [24, 29].

On this study, 85% of the respondents were mention the commonest method of malaria prevention was using of ITN. This is higher finding than the study done in Jimma Zone, serbo town [24] and lower than from the study conducted in a Northern state of Nigeria [30]. The possible reason for gap may be expansion of Community Health Worker in all kebeles and they are a main source of information for malaria.

In this study, 72.4% of the respondents reported that they had at least one bed net. In a study Burkina Faso, 49% of respondents reported ownership of at least one mosquito net in the year 2000 [31]. It is higher than the study conducted in SNNPR, Amhara, Oromiya and the study conducted by Net Mark in Ethiopia [2,21]. This possible reason for this may be free distribution program strategy of the country. But this result is very low when we compare to national plan to coverage all malarious district with ITN [6].

In this study, around 97.4% obtained their ITN with free. This is almost inverse result, when compared to the study conducted in Arbaminch Zuria [19]. This may be due to free distribution program strategy to cover all household with at least by one ITN will be possible reason at present time [3].



Regarding on using of ITN in their placing of sleeping, majority 89.9% of respondents were used hanging on the bed/“medeb”, followed by 8% of Spread on the blanket and 1.7 % of Spread under the mattress (qurbet). This finding was also true from results of observation and the study conducted in serbo [24].

In this study, the mean number of bed net per household owned was 1.01, and the number of individuals per net was 3.83. This is much lower than the required amount since the average family size was 4.28 and 1 nets per household are required for such a family size according to Ministry of health Disease prevention and control department National five years strategic plan for malaria prevention and control [3].

The age of the ITN was associated with their willingness to pay; ITNs obtained less than 12 months ago were more likely to be willing to buy than those obtained more than 12 months ago. This finding also supports by currently those of who haven't functional ITNs were more likely to buy than those of have on observational finding. On this study also, having under five in household were more likely to buy than those of haven't. This finding is goes in line with the study conducted in rural, southern Mozambique [16].

In the current study, respondents showed more preference to buy the conical type of ITN than the rectangular one. The second most important attribute was color for conical and rectangular was blue. Similar result also found in the study conducted in conducted in Communities of the Peruvian Amazon and in a poor rural Tanzania [13, 22]. Despite of this, another Study in Jimma zone shows conical type ITNs were more likely to be used the prior night compared to rectangular ITNs [24]. But, the analysis got from Binary logistic regression from the current study, willingness to pay for both rectangular and circular shapes of ITN was not statically significance variables was found regarding on the size, shape and color of ITN. The possible reason for this finding may be almost closed to 100% currently had rectangular type ITN and used only on it. In order to elicit their preference regarding on the size, shape and color of ITN on spot observation was conducted.

Regarding to the current study on payment characteristics of ITNs, 47% of respondents was the prefer place for willing to buy ITNs were health center followed by 34.8% of Health posts and 78.5% were also preferred to have nets on loan bases and rest of (21.5%) were ready to pay in cash immediately. 31.9% were preferred from September -November (fall) session of the year

and their accessible time of the day was mooring (53.2%). Similar finding was obtained the study conducted in four regions of Ethiopia, SNNPR, Tigray, Amhara and Oromia [21]. In addition to this, the analysis got from Binary logistic regression from the current study, indicates those who prefer kebele in order to buy for rectangular shape and circular shape was respectively for more likely and times less likely to buy than other places. This is also true during focus group discussion and the study conducted in Communities of the Peruvian Amazon [21]. The possible reason may be lack of trust on shops due to fright of higher cost.

From January to March (fall session of the year) was more likely to pay for rectangular. This may be From January to March people can easily sell their agricultural products and would be more willing to buy ITNs and people residing in most parts of the country may prefer to purchase ITN after the harvest [21].

On this study, around 68.5% of the respondents were willing to buy ITNs, if supplied by the market in a reasonable price. User fees are a popular approach for supporting and sustaining curative health services in less developed countries, and WTP studies are considered a simple, quick and cheap approach to evaluate their potential revenue and demand [33]. Studies in African countries like Kenya, Ghana, Nigeria and Tanzania indicated that household members are willing to pay for ITNs, but typically less than the current cost [30, 34]. During not have prior experience of using bed net, the study conducted in Western Shoa shows, almost 100% they are willing to pay for ITN. Similarly, the study conducted in Arbaminch Zuria District [19] result also shows that, higher than by 10% from the current study was found. This may be development of dependency due to free distribution of current strategy.

Similar result also found when we look willingness to pay for other health service like azithromycin treatment for trachoma. [35].

The major reasons for not willing to buy for this study were inability to afford, no confidence on ITN, and don't bother for the disease was mentioned. This is more or less the same the study conducted in Arbaminch Zuria District and On a survey done by MOH [19,21]. Even if affordability was one of the determinant factors, in the result of logistic regression household income was negatively significance to willingness to pay. This is also true regarding to economic characteristics like farm size, major agricultural products in quartile, number of

livestock, type of roof and household possession of radio, TV, and others. The possible reason might be low income group give value the need for ITN and the higher one wants to spent their money others household goods and services .

The median maximum amount that a person is willing to pay for blue rectangular was 20ETB. For blue and white conical ITNs people were willing to pay by 30ETB. This finding was higher than the study conducted in Arbaminch Zuria District [19]. The possible reason may be respondents give high value to ITN for malaria prevention and control.

In the current study also gender was found to be one of the determinant factors for willing to buy ITN and also housewife were more likely to buy than of husband. The study conducted in Tanzania found that, females were less likely to be willing to pay for ITNs as compared to males. [13,18]. In the current study, those who purchased their net were not statically significance than of those who got from free. This finding was not goes the study conducted in other places [22,23,24].The possible reason may be skewness of the data. I.e. those who got from free was very large (99%) number than of from buy.

Favorable beliefs were important in predicting willingness to pay for ITN [36].Those respondents, who perceive the benefit of ITN, were more likely to be willing to buy it. And also Other predictors of willingness to pay like respondents' having high knowledge, perceived severity and susceptibility on malaria was also found to be significantly associated with willing to pay. This finding also the same with the study conducted in Nigeria, Ethiopia [17,19]. In the present study area, Community health worker was a good source of information they provide at a closer distance this may be also the possible reason for having high perception and knowledge.

On this study, regarding to educational status, Those who can read and write, college and above less likely to be willing to pay than of illiterate. This indicates that as educational level increase, respondents' willingness to pay decrease. This finding was contemporary to other findings in which conducted in Africa [13,20]. This may be high risk perception towards malaria that leads to be more willingness.

### ***Strength of the study***

- Quantitative result is supported by qualitative study.
- Maximum sample size was taken.
- the questionnaires was adopted and pre test

### ***Limitation of the study***

- The cross sectional nature of the study by itself might have masked the relationship between some variables and outcomes

## **CHAPTER SEVEN: CONCLUSION AND RECOMMENDATION**

### **7.1. Conclusion**

- A significant numbers of respondents had willingness to pay for ITN.
- The number of individuals per net was lower than the required amount .
- Health beliefs regarding to individual knowledge, perceived benefit of ITN, perceived severity and susceptibility on malaria was important attributing factors for individuals willingness to pay for ITN.
- Community Health Worker was a main source of `information for having high perception and knowledge on malaria.
- Willingness to pay for ITN was not affected by ITN products, socio-economic factors and educational statuses of the respondents.
- The most preferable place for willing to buy ITNs was health institution and Health posts.

## **7.2. Recommendation**

### **Federal Ministry of Health**

- The Federal ministry of health should design social marketing strategic that make an important contribution to household coverage and strengthening of this sector for a means of ensuring a sustainable supply of ITNS into the future.
- The Federal ministry of health should also Stimulating and facilitating the development of social markets, through reduction of tax and tariff and distributors must be promoted to ensure that insect side treated bed nets are available to the general population at the lowest possible price with a combination of free distribution at health institution and Kebele offices.

### **Regional Health Office**

- Regional health office should design social marketing strategy and implementation guidelines based on local situation in order to ensure a sustainable supply of ITN.

### **Zonal Health Office**

- Zonal health office department should support and scaling up the implementation of social marketing principle to other Woreda.

### **Woreda Health Office**

- The Woreda health office should implement social marketing principle based on prepared guideline regarding to community preference on place, product, promotion and price of ITN.
- The Woreda health office should strengthen community health workers for ensuring appropriate malaria preventive measures among the general public to develop positive health behavior and health seeking habit.
- The Woreda health office should strength values on willingness to pay for ITN that make an important contribution to household coverage.
- Finally researchers should conduct further studies to address different issues of ITNs characteristics and ways of design social marketing strategic.

### **Community**

- The community members should give value and involve on services of social market insect side treated bed nets that make an important contribution of their house hold coverage.

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## **ANNEX I. Consent form (English version) for Questionnaire**

Jimma University

College of Public Health and Medical Science

Department Health education and behavioral science

To Determine Willingness to pay for ITN and associated factors among households in Amhara region, Berehet Woreda

### **Information sheet**

Good morning/afternoon!

Hello, my name is \_\_\_\_\_, I am one of the data collectors in this study. The study is intended to assess demand of the community for mosquito net. To attain this purpose, your honest and genuine participation by responding to the questions prepared is very important and highly appreciated. The information that I will obtain using this questionnaire will be used only for research purpose and also I need to assure any information you provide will be confidential and your name is not written. Therefore; I politely request your cooperation to respond to questions in questionnaire that follow. You do have the right not to respond at all or to withdraw in the meantime, but your input has great value for the success of study objective .

Agreed \_\_\_\_\_ continue interview

Not Agreed \_\_\_\_\_ say thank u and stop here.

**Informed consent**

I the selected participant for this research have heard information in the consent sheet and I understand the information, and agreed to participate in study.

Signature \_\_\_\_\_ date \_\_\_\_\_

**Interviewer Agreement**

I certify that I have taken informed oral consent from the respondent that he/she has agreed to Participate in to the study and I have confirmed that the agreement is correct.

Name of interviewer \_\_\_\_\_ Signature \_\_\_\_\_ Date of visit \_\_\_\_\_

## ANNEXE-II Questionnaire (English version)

**Instructions:** data collectors must be circle the response provided by the interviewee or write the appropriate answer on the space provided.

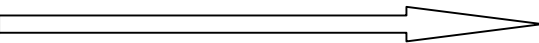
Questionnaire number \_\_\_\_\_ kebele 1.Rural 2.Urban

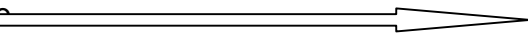
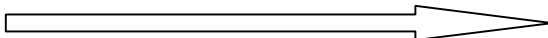
<b>Part 1: A. Socio-Demographic and economy characteristics of household</b>			
<b>1.1 Socio-Demographic</b>			
<b>S. No</b>	<b>Question</b>	<b>Response</b>	<b>Skip</b>
101	Age in years	_____	
102	Gender	1. Male 2. Female	
103	Marital Status	1. Single                      3. Widowed 2. Married                    4. Divorced	
104	Total number family members	Female _____ Male ___ under- five years of age Female _____ Male ___ more than five years of age	
105	Religion	1. Orthodox                      4. Catholic 2. Muslim                        5. Others (specify) _____ 3. Protestant	
106	Status of respondent	1. Husband 2. Wife 3. Other _____	
107	Educational status	1. Illiterate                      4. Secondary(9-12) 2. Can read and write      5. College and above 3. Elementary (1-8)	
108	Ethnicity	1. Amhara                      3. Tigre 2. Oromo                        4. Other (specify)____	
109	Occupation	1. Farmer                        4. Teacher 2. Merchant                    5. Student 3. House wife                6. others (specify)_____	

<b>1.2 economic related</b>			
<b>S. No</b>	<b>Question</b>	<b>Response</b>	<b>Skip</b>
201	Does your household have? <b>(more than one response is possible)</b>	<p style="text-align: center;">Yes      no</p> 1.A functional radio-1      2 2.Electricity-----1      2 3.Telephone-----1      2 4.Mobile-----1      2 5.Television-----1      2 6.Other-----	
202	What is the total farm size holding of the household in Hectars/ temade?	_____ temade _____ hectar	
203	What is the major household agricultural Product <b>(more than one response is possible)?</b>	<p style="text-align: center;">Yes      no</p> 1.Teffe -----1      2 2.Sorghum-----1      2 3.Maize-----1      2 4.Other_____	
204	How much did you produce (KG) for the following products in this year?	1.Teff _____ K.G 2. Maize _____ K.G 3. Sorghum _____ K.G	
205	How many livestock do you own? <b>(more than one response is possible)</b>	1. No of Oxen_____ 4. No of goat_____ 2. No of Cows_____ 5. Other_____ 3. No of ship_____	
206	Monthly income?	_____ in birr	

**Part 2. individual factors on WTP for ITN related questions**

**2.1.knowledge related questions**

207	Have you ever heard of malaria?	1. Yes 2. No 	<b>If no, Goto Q. 234</b>
208	If your answer is yes for Q,207 to above question. Where did you see or hear these information or educational messages from? <b>(more than one response is possible)</b>	<p style="text-align: center;">Yes      No</p> 1.Community event - - - - - 1      2 2.Health workers - - - - - 1      2 3.Friends - - - - - 1      2 4.Parents - - - - - 1      2 5.On Radio - - - - - 1      2 6.Schools - - - - - 1      2	51

		7.On Television - - - - - 1            2 8.In Newspaper / magazines – 1            2 9.In pamphlets/ poster - - - - - 1            2 10.Other (specify) -----																															
209	Do you think that, is it a health problem in your Village?	1. Yes    2. No																															
210	Was there any malaria illness in the family during the last two month?	1. Yes 2. No 	<b>If no go to Q.213</b>																														
211	If yes, in the above .write number of?	Male ___ Female ___ (< 5 yrs) Male ___ Female ___ (>=5yrs)																															
212	How much money you spent for malaria treatment in this year from September?	_____ birr																															
213	What do you think is the cause of malaria? ( <b>more than one response is possible</b> )	<table style="width:100%; border:none;"> <thead> <tr> <th></th> <th style="text-align:center;">Yes</th> <th style="text-align:center;">NO</th> </tr> </thead> <tbody> <tr> <td>1. Bite by malaria causing mosquito - -</td> <td style="text-align:center;">1</td> <td style="text-align:center;">2</td> </tr> <tr> <td>2. Lack of personal hygiene- - - - -</td> <td style="text-align:center;">1</td> <td style="text-align:center;">2</td> </tr> <tr> <td>3. Cold weather - - - - -</td> <td style="text-align:center;">1</td> <td style="text-align:center;">2</td> </tr> <tr> <td>4. Hunger- - - - -</td> <td style="text-align:center;">1</td> <td style="text-align:center;">2</td> </tr> <tr> <td>5. Through contact with a malaria patient-----</td> <td style="text-align:center;">1</td> <td style="text-align:center;">2</td> </tr> <tr> <td>6. Other(specify)_____</td> <td></td> <td></td> </tr> </tbody> </table>		Yes	NO	1. Bite by malaria causing mosquito - -	1	2	2. Lack of personal hygiene- - - - -	1	2	3. Cold weather - - - - -	1	2	4. Hunger- - - - -	1	2	5. Through contact with a malaria patient-----	1	2	6. Other(specify)_____												
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214	What are the symptoms of malaria do you know? ( <b>more than one response is possible</b> )	<table style="width:100%; border:none;"> <thead> <tr> <th></th> <th style="text-align:center;">Yes</th> <th style="text-align:center;">No</th> </tr> </thead> <tbody> <tr> <td>1. Fever - - - - -</td> <td style="text-align:center;">1</td> <td style="text-align:center;">2</td> </tr> <tr> <td>2. Sweating- - - - -</td> <td style="text-align:center;">1</td> <td style="text-align:center;">2</td> </tr> <tr> <td>3. Chills - - - - -</td> <td style="text-align:center;">1</td> <td style="text-align:center;">2</td> </tr> <tr> <td>4. Headache - - - - -</td> <td style="text-align:center;">1</td> <td style="text-align:center;">2</td> </tr> <tr> <td>5. Vomiting - - - - -</td> <td style="text-align:center;">1</td> <td style="text-align:center;">2</td> </tr> <tr> <td>6. Loss of appetite - - - - -</td> <td style="text-align:center;">1</td> <td style="text-align:center;">2</td> </tr> <tr> <td>7. body weakness - - - - -</td> <td style="text-align:center;">1</td> <td style="text-align:center;">2</td> </tr> <tr> <td>8. Thirsty- - - - -</td> <td style="text-align:center;">1</td> <td style="text-align:center;">2</td> </tr> <tr> <td>9. Other (specify)_____</td> <td></td> <td></td> </tr> </tbody> </table>		Yes	No	1. Fever - - - - -	1	2	2. Sweating- - - - -	1	2	3. Chills - - - - -	1	2	4. Headache - - - - -	1	2	5. Vomiting - - - - -	1	2	6. Loss of appetite - - - - -	1	2	7. body weakness - - - - -	1	2	8. Thirsty- - - - -	1	2	9. Other (specify)_____			
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9. Other (specify)_____																																	
215	Do you think that, malaria is transmissible disease?	1. Yes  2. NO	<b>If no goto Q,217</b>																														
216	If yes, how is malaria transmitted from	Yes    No																															

	one person to another person? <b>(more than one response is possible)</b>	1. Through contact with a malaria patient-----1 2 2. By flies-----1 2 3. Through mosquito bite -----1 2 4. Due to cold-----1 2 5. Other( specify)_____	
217	How can we prevent malaria transmission? <b>(more than one response is possible)</b>	Yes No 1. Environmental sanitation -----1 2 2. Taking anti malaria medication--1 2 3. ITN s utilization-----,-----1 2 4. Insecticide spray-----1 2 5. If other, specify_____	
218	Who are at high risk of malaria in your household? <b>(only one answer)</b>	1. Under five children 4. youths 2. Pregnant women 5. otherspecify_____ 3. Adults	

### 2.2 Perceived susceptibility of malaria

S,N	Questions	Strongly Disagree	Disagree	Neutral	Agree	Strongly agree
219	In my opinion, if my family gets malaria, he/she cannot be re-infected again.					
220	Malaria like any other disease can transmit from one member my family to others.					
221	If my family slept under bed net, he/she have less chance to get malaria.					
222	In my idea only my children and pregnant women is/are exposed to malaria.					
223	If my family live in the stagnant water area, he/she is not a risky of getting malaria.					

### 2.3 Perceived severity of malaria

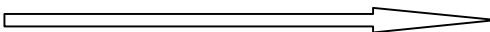
S,NO	Questions	S.D	D	N	A	S.A
224	I think malaria is serious illness for my family, it can lead to death.					
225	I think one of my family can recover from malaria without treatment					
226	I think malaria have an impact on my family's income					
227	if one of my family gets malaria, he/she might get disability					
228	I think I will be sad if one of my family member getting malaria					

## 2.4 Perceived benefit of ITN

S,NO	Questions	S.D	D	N	A	S.A
229	I think using of ITN for my family is important to avoid of mosquito nuisance					
230	I think my Children will get good health , if they slept under ITN					
231	I think using of ITN for my family is important to prevent malaria					
232	I think sleeping under bed net will induce too much heat during hot season.					
233	I think covering of windows with ITN will prevent malaria rather than hanging of in sleeping area					

N;B 1 strongly disagree(S.D) , 2, disagree(D) 3,neutral(N) 4, agree(A) 5, strongly agree(S.A)


## Households ownership of ITN

234	Do you (your family) have a functional insecticide treated bed net currently?	1. Yes 2. No			If no goto Q. 301
235	If yes, to above, how many?	_____			
236	How did you obtain your bed net(s)? <b>(more than one response is possible)</b>		Yes	No	
		1.It was/they were given to me for free -----	1	2	
		2.I bought it/them -----	1	2	
		3.I can t remember -----	1	2	
		4.Other, specify.....			
237	For how long have you use bed nets in this house?(for those functional ITN)	_____			
238	When you/your families used ITNs for protecting mosquito bite, how did you use it?(more than one response is possible)		Yes	No	
		1.By hanging on the bed/“medeb” -----	1	2	
		2.By spread on the blanket-----	1	2	
		3.By spread under the mattress(qurbet)	1		
		4.By cover the door or window -----	1	2	
		5.By means(specify)_____			
239	Total number of household members slept under ITNs the previous last night of survey	_____			

## Part three: willingness to pay using BWFU methods related Questions

S.N	Questions	Response categories	Remark
-----	-----------	---------------------	--------



301	Do you want to use an insecticide treated bed net?	1. Yes 2.No																			
302	As you know the government is free distributing ITN for high risk group for malaria prevention. This free distribution may not be ensuring sustainable way or not covering the rest of the family. If bed nets are supplied by the market, are you willing to buy it?	1. Yes 2. No  <b>If yes continue</b>	<b>If no, go to Q. 303 &amp; stop</b>																		
303	If no, why? <b>(more than one response is possible)</b>	<table style="width: 100%; border: none;"> <thead> <tr> <th></th> <th style="text-align: center;">Yes</th> <th style="text-align: center;">No</th> </tr> </thead> <tbody> <tr> <td>1.I have no confidence in it-----</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> </tr> <tr> <td>2.I can't afford to buy it---</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> </tr> <tr> <td>3.I don't bother much for the disease-----</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> </tr> <tr> <td>4.I don't have knowledge -</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> </tr> <tr> <td>5.Others (specify)_____</td> <td></td> <td></td> </tr> </tbody> </table>		Yes	No	1.I have no confidence in it-----	1	2	2.I can't afford to buy it---	1	2	3.I don't bother much for the disease-----	1	2	4.I don't have knowledge -	1	2	5.Others (specify)_____			
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4.I don't have knowledge -	1	2																			
5.Others (specify)_____																					
304	Suppose your income remains the same, how much would you buy for blue medium sized rectangular ITN?	_____ birr																			
305	If the price is increase by 50% Birr from your stated price (___ birr), will you buy this blue medium sized rectangular ITN?	1. Yes 2. No																			
306	If no, what if the price is increase by 25% Birr from your stated price (___ birr), will you buy this blue medium sized rectangular ITN?	1. Yes 2. No																			
307	What is the maximum amount that you are willing to pay for this ITN in Birr? _____	_____																			
308	Suppose your income remains the same, how much would you buy for blue conical ITN?	_____ birr																			
309	If the price is increase by 50% Birr from your stated price (___ birr), will you buy it?	1. Yes 2. No																			
310	If no, what if the price is increase by 25% Birr from your stated price (___ birr), will you buy it?	1. Yes 2. No																			

311	What is the maximum amount that you are willing to pay for this ITN in Birr? _____	_____ birr	
312	Suppose your income remains the same, how much would you buy for white conical blue conical ITN?	_____ birr	
313	If the price is increase by 50% Birr from your stated price (____ birr), will you buy this white conical blue conical ITN?	2. Yes            2. No	
314	If no, what if the price is increase by 25% Birr from your stated price (____ birr), will you buy this white conical blue conical ITN?	2. Yes            2. No	
315	What is the maximum amount that you are willing to pay for this ITN in Birr?	_____	

### **3.1 ITN characterizes related questions**

316	What type of shape do you prefer to purchase?( <b>only one response</b> )	1. Rectangular ----- <b>If yes for this go to Q.317</b> 2. Conical.----- <b>If yes for this go to Q.322</b> 3. Other _____ ----- <b>If yes for this go to Q.327</b>	
317	If yes for rectangular, What is your reason for choosing this shape?	_____ _____	
318	What type of color do you prefer to purchase for rectangular type?	1.Blue    3.Other _____ 2.White	
319	What is your reason for choosing this color?	_____ _____	
320	What type of size do you prefer to purchase for rectangular type? ( <b>only one response</b> )	1.small size (1 meter width,1.5 m height and1.8 m length ) 2.medium size (1.3 meter width,1.5 m height and1.8 m length) 3.large size(1.6 meter width,1.5 m height, and1.8 m length)	
321	What is your reason for choosing this size?	_____	
322	If yes for circular, What is your reason for choosing this shape?	_____ _____	
323	What type of color do you prefer to purchase for circular type?	1.Blue    3.Other _____ 2.White	

324	What is your reason for choosing this color?	_____ _____	
325	What type of size do you prefer to purchase for circular r type? <b>(only one response)</b>	1.small size (2.2m height and 13m <sup>2</sup> of area) 2.medium size (2.2 m height and 17.5m <sup>2</sup> of area ) 3.large size(2.5 m height, and 22.2 m <sup>2</sup> of area )	
326	What is your reason for choosing this size?	_____	
327	If yes for other, What type of shape, size, and color do you prefer to purchase?	_____ _____ _____	

### **3.3 ITN payment scenario related questions**

328	Where do you prefer to buy ITN? <b>(only one response)</b>	1. Health center 4. kebele 2. Public shops 5. Other _____ 3. Health posts	
329	How do you preferred to get ITN? <b>(only one response)</b>	1. Cash 3.Other _____ 2. Loan	
330	At which month of the year do you purchase?	_____	
331	At what time of the day do you purchase? <b>(only one response)</b>	1.mooring 3.afternoon 2.midday	

### Annex-III CHECKLIST

This check list is used for the observation of the household's- house hold conditions, structure for ITN, proper utilization by looking and factor influencing of it.

Household number \_\_\_\_\_ Name of the Observer \_\_\_\_\_ Date \_\_\_\_\_ Signature \_\_\_\_\_

S. No	Points to be observed	Observation	Remark
1	Is/ are the functional ITN(s) available in the household? (observe)	1. Yes 2.No	
2	The type of bed net that household owned?	1. Blue rectangular 3. White conical 2. Blue conical 4. Other----- -	
3	The number of bed nets observed in the household?	____ Blue rectangular ____ White conical ____ Blue conical Other-----	
4	Number of beds or places of sleep?	_____	
5	Number of beds /places of sleep observed with bed nets?	_____	
6	Is the bed net hanged(placed) properly over the bed or sleeping area	1. Yes 2. No	
7	Is there sharing of living room/s with domestic animals?	1. Yes 2.No	
8	What is the type of roof of the house?	_____	

## **ANNEX-IV: Consent form for focus group participants**

Jimma University

College of Public Health and Medical Science

Department Health education and behavioral science

To determine Willingness to pay for ITN and associated factors among households in Amhara region, Berehet Woreda

### **Information sheet**

Good morning/afternoon!

Hello, my name is \_\_\_\_\_, I am one of the data collectors in this study. The study is intended to assess demand of the community for mosquito net. To attain this purpose, your honest and genuine participation by responding to the questions prepared is very important and highly appreciated. The information that I will obtain from this discussion will be used only for research purpose. In addition, no personal identification will be written and we assure you that whatever information you are providing will only be used for the research purpose and only the research team will handle the data. While we are collecting the data it is difficult to jot down everything thus we will tape record our discussion. You do have the right to withdraw in the meantime, but your input has great value for the success of study objective

Are you willing to participate in the study?

Agreed \_\_\_\_\_ continue interview

Not Agreed \_\_\_\_\_ say thank u and search another voluntary

**Informed consent for focus group participants**

I the selected participant for this discussion have heard information in the consent sheet and I understand the information, and agreed to participate in the FGD of this study.

Code number of the discussant \_\_\_\_\_ Signature \_\_\_\_\_ Date \_\_\_\_\_

**Interviewer Agreement**

I certify that I have taken written consent from the discussants that they are agreed to

Participate in to the study and I have confirmed that this agreement is correct.

Name of moderator \_\_\_\_\_ Name of assistant \_\_\_\_\_

Signature \_\_\_\_\_ Signature \_\_\_\_\_

Date \_\_\_\_\_ Date \_\_\_\_\_

### **ANNEX-V Guide line for FGDs (English version)**

1. What is the perception of WTP for ITN if it is supplied by the market?
2. What is the individual factor affecting of WTP for ITN?
3. What kind of color, size, and shape of ITN do you know?
4. Which size, color, and shape of ITN do you perceived to be easy to use and why?
5. What is the maximum amount that you are willing to pay for the above stated different kinds of ITNs if supplied by the market?
6. If you are interested to buy ITN, where, when do you prefer?
7. What do you think the activity to done for the future in order to ensure sustainable coverage of ITN and by whom?

ANNEX-VI Consent form (Amharic Version) for Questionnaire

ጅም ዩኒቨርሲቲ

ህብረተሰብ ጤናና ሕክምና ሳይንስ ኮሌጅ

ጤና አጠባበቅና ስነሳሕሪ ትምህርት ክፍል

በአማራ ክልል በበረኸት ወረዳ ለሚከካሄደው የአልጋ አጎበር የመግዛት(የመክፈል) ፍቃደኝነትና የመሚወስኑት ምክንያቶች ጥር/2004

የጥናቱ መረጃ

ንዴት አደሩ/ዋሉ

ጤና ይስጥልኝ ስሜ \_\_\_\_\_ ይባላል። ለዚህ ጥናት መረጃ ከሚሰበሰቡት መካከል አንዱ ነኝ። ይህ ጥናት ወባን ለመከላከል ለአልጋ አጎበር ያለውን የመግዛት(የመክፈል) ፍላጎትና የሚወስኑትን ምክንያቶች ለማጥናት የተዘጋጀ ጥናት ነው። የርሶ ቀና ተሳ ፊነትና ለጥያቄዎቻችን ምላሽ መስጠት በጣም አስፈላጊና ከፍተኛ ጠቀሜ አለው። ርሶ በዚህ ቃለ-መጠይቅ የሚሰጡኝ መረጃ ለምርምርና ጥናት የሚወጡ ከመሆኑም በተጨማሪ በ ኔና በ ርሶ መካከል ሚስጥር የተጠበቀ ና ስምዎ አይጻፍም። ስለሆነም ርሶ በዚህ ጥናት ውስጥ ለሚከተሉት ጥያቄዎች መልስ ንዲሰጡኝ ጠይቃለሁ። ቃለ ምልልሱን በፈለጉት ጊዜ ያለመመለስና የማቋረጥ መብትዎ የተጠበቀ ነው። ነገር ግን ለጥናቱ መሳካት የ ርሶ ተሳትፎ ትልቅ አስተዋፅኦ አለው።

ፍቃደኛ ነዎት?

አዎ\_\_\_\_\_ ይቀጥሉ

አይደለም\_\_\_\_\_ አመሰግናለሁ ያቁሙ



**የተጠያቂውን ስምምነት ማረጋገጫ**

**የዚህን ጥናት ዓላማ ና ምንነት ስምጅና ተረድቼ ለጥናቱ የሚሆን ማንኛውንም መረጃ ለመስጠት (ለመሳተፍ) የተስማማው መሆኔን አረጋግጣለሁ።**

**ፊርማ \_\_\_\_\_ ቀን \_\_\_\_\_**

**የጠያቂው ስምምነት**

**ተጠያቂው በዚህ ጥናት ውስጥ ለመሳተፍ ፍቃደኛ ሆነ ዉና በፊርማቸው ያረጋገጡ ስለ ሆነ በትክክለኛነት ዕገልጻለው።**

**የጠያቂው ስም \_\_\_\_\_ ፊርማ \_\_\_\_\_ ቀን \_\_\_\_\_**

**ANNEX-VII Amharic questionnaire**

መግቢያ: መረጃ ሰብሳቢዎቻቸው የተጠያቂውን/ዋን ምላሽ በተሰጠው በ /ምርጫ መስረት ሙሉ።

መጠይቅ ቁጥር-----ቀበሌ 1.ገጠር 2. ተማ

የጠያቂው ስም----- ሱፐርቫይዘር ስም ----- ቀን-----

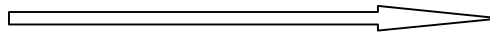
**ክፍል 1: ማህበረሰባዊ ና ስነ ህዝባዊ ባህሪ**

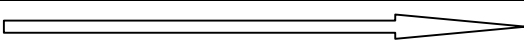
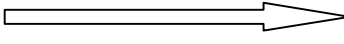
ተ.ቁ	ጥያቄ	መልስ	መለያ.ቁ
101	እድሜ	_____	
102	ጾታ	1. ወንድ 2. ሴት	
103	የጋብቻ ሁኔ	3. ያላገባ 3. የሞተበት 4. ያገባ 4. የፈ	
104	የቤተሰብ ብዛት	ሴት _____ ወንድ ____ አምስት ዓመትና በ ች ሴት _____ ወንድ ____ ከአምስት ዓመት በላይ	
105	ሐይማኖት	1. ኦርቶዶክስ 2. ሙስሊም 3. ፕሮቴስታንት 4. ካቶሊክ 5. ከዚህ የተለየ ከሆነ ይጠቀሱ _____	
106	ተጠያቂው ከቤተሰቡ ጋር ያለው ግንኙነት	1. ባል 2. ሚስት 3. ሌላ _____	
107	የትምህርት ደረጃ	1. ማንበብና መጻፍ አልቻልም 2. መጻፍ ናማንበብ እችላለሁ። 3. ከ1-8 ክፍል 4. ከ9-12 ክፍል 5. ኮሌጅና በላይ	
108	ብሔር	1. አማራ 2. ኦሮሞ 3. ትግሬ 4. ሌላ-----	
109	የስራ ሁኔ	1. አርሶ አደር 2. ነጋዴ 3. የቤት መቤት 4. መምህር 5. ተማሪ 6. ሌላ-----	

1.2 ኢኮኖሚያዊ			
ተ.ቁ	ጥያቄዎች	አማራጭ መልሶች	
201	ከሚከተሉት ውስጥ የትኛው በቤትዎ ይገኛል? <i>(ካንድ በላይ መልስ ይቻላል)</i>	<p>አለ የለም</p> <p>1. የሚሰራ ፊደሎች ---1. 2.</p> <p>2. መብራት-----1. 2.</p> <p>3. የቤት ስልክ-----1. 2.</p> <p>4. ሞባይል-----1. 2.</p> <p>5. ቴሌቪዥን-----1. 2.</p> <p>6. ሌላ -----</p>	
202	ጠቅላላ የቤተሰቡ የመሬት ይዘታ ምን ያህል ይሆናል?	<p>----- በጥማድ</p> <p>----- ሄክታር</p>	
203	በዋነኝነት ቤተሰቡ የሚያመርታቸው የግብርና ምርቶች የትኞቹን ነው? <i>(ካንድ በላይ መልስ ይቻላል)</i>	<p>አለ የለም</p> <p>1. ጤፍ-----1 2</p> <p>2. ማሽላሌ-----1 2</p> <p>3. ቦቆሎ-----1 2</p> <p>4. ሌላ-----</p>	
204	ከላይ ከተጠቀሱት ሶስት ዋና ዋና የምርት ኤነቶች ውስጥ ከባለፈው ዓመት ምን ያህል ምርት አመረቱ (በ ኪ.ግ) <i>(ካንድ በላይ መልስ ይቻላል)</i>	<p>1. ጤፍ -----ኪ.ግ 3. ቦቆሎ-----ኪ.ግ</p> <p>2. ማሽላ-----ኪ.ግ 4. ሌላ-----ኪ.ግ</p>	
205	ምን ያህል የቤት እንስሳቶች አልዎት?  በቁጥር <i>(ካንድ በላይ መልስ ይቻላል)</i>	<p>1. በሬ----- 4. ፍየል-----</p> <p>2. ላም ----- 5. ሌላ-----</p> <p>3. በግ-----</p>	
206	የወር ገቢዎ በአማካኝ ምን ያህል ይሆናል?	----- ብር	

**Part 2: individual factors on WTP for ITN related questions**

**2.1 ስለ ወጣ በሽ ወቀት**

207	ስለ ወጣ በሽ ሰምተው ያውቃሉ?	<p>1. አዎን</p> <p>2. አላውቅም </p>	አላውቅም ከሆነውደ ጥ/ቁ234ይ.ሂ.ዱ
208	ለጥያቄ ቁጥር 207 መልሱ አዎን ከሆነ ከየትኞቹ የመረጃ ሰጪ አካላት ንደሰሙ/ ንዳዩ ይምረጡ	<p>አዎን አላውቅም</p> <p>1. ከሕብረተሰቡ-----1 2</p> <p>2. ከጤና ባለሞያ-----1 2</p> <p>3. ከጎ ደገኞቹ-----1 2</p>	

		4. ከቤተሰቡ-----1            2 5. ከራዲዮ-----1            2 6. ት/ቤት-----1            2 7. ትልብሻርን-----1            2 8. ጋዜጣ/ዜና-----1            2 9. በራሪ ፅሁፍ/ፖስተር---1            2 10. ሌላ-----	
209	ባለቤት አካባቢዎ የጤና ችግር ነው ብለው ያምናሉ?	1.አዎን            2.ዓይደለም	
210	ባለፉት ሁለት ወራት ውስጥ በዚህ በሽ የተያዘ የቤተሰብ አባል አለ?	1.አዎ  2. የለም	የለም ከሆነ ወደ ጥ/ቁ 213 ይሂዱ.
211	መልሶ አዎ ከሆነ ስንት ሰው መመ?	ወንድ ___ ሴት _____ (< 5 ዓመት )  ወንድ ___ ሴት _____ (>=5 ዓመት)	
212	በዚህ ዓመት(ከመስከረም ጀምሮ) ለወባ ሕክምና ምን ያህል ገንዘብ አወጡ?	-----ብር	
213	የወባ በሽ መንስኤው ምንድነው ብለው ያስባሉ?(ከ አንደድ በላይ መምረጥ ይቻላል)	<p style="text-align: right;">አዎን            አላውቅም</p> 1. በወባ ትንኝ መነደፍ-----1            2 2. የግል ንፅህናን አለመጠበቅ-----1            2 3. በቅዝቃዜ-----1            2 4. በመራብ-----1            2 5. ከወባ በሽተኛ ሰው ጋር በመነካካት1            2 6. ሌላ ካለ-----	
214	ከወባ በሽ ምልክቶች ውስጥ የትኛውን ያውቃሉ? (ካንድ በላይ መልስ ይቻላል)	<p style="text-align: right;">አዎን            አላውቅም</p> 1. ትኩሳት -----1            2 2. ላብ-----1            2 3. ማንቀጥቀጥ-----1            2 4. የራስ ም ት-----1            2 5. ማስመለስ-----1            2 6. የምግብ ፍላጎት መቀነስኛ1            2 7. የሰውነት መለፈሰፈሰ-----1            2 8. መጠማት-----1            2 9. ሌላ-----	
215	የወባ በሽ ይተላለፋል ብለው ያስባሉ	1. አዎ  2. አይደለም	አይደለም ከሆነ ወደ ጥ/ቁ 217
216	መልሶ አዎን ከሆነ ከሰው ወደ ሰው የመተላለፊያ መንገዱ ንዳት ነው? (ካንድ በላይ መልስ ይቻላል)	<p style="text-align: right;">አዎን            አላውቅም</p> 1. ከበሽተኛ ሰው ጋር ንክኪ-----1            2 2. በዝንብ አማካኝነት-----1            2 3. በወባ ትንኝ በመነደፍ-----1            2 4. በቅዝቃዜ-----1            2 5. ሌላ ካለ-----	

217	የወባ በሽ ን ዕንዴት መከላከል ንችላለን? (ካንድ በላይ መልስ ይቻላል)	<p style="text-align: right;">አዎን አላውቅም</p> <p>1. የአካባቢያችንን ንፅህና በመጠበቅ 1 2</p> <p>2. የፀረ ወባ መድሃኒት በመውሰድ-----1 2</p> <p>3. የአልጋ አጎበር በመጠቀም-----1 2</p> <p>4. የፀረ ወባ ትንኝ ኬሚካል</p> <p>5. ርጭት ማካሄድ-----1 2</p> <p>6. ሌላ ካለ-----</p>	
218	ከቤተሰቡዎ ውስጥ ከፍተኛ የመጋለጥ ድል ያለው ማነው? (አንድ መልስ ብቻ)	<p>1. ሕፃናት(ከ5 ዓመት በ ች) 4. ወጣቶች</p> <p>2. ነፍስ ጡር ሴቶች 5. ሌላ ካለ-----</p> <p>3. አዋቂዎች</p>	

**2.2 የወባ ተጋላጭነት አመለካከት**

ተ.ቁ	ጥያቄ	በጣም	አልስማማም	አልስማማም	አልወስንሁም	አስማማልሁ	በጣም	እስማማለሁ
219	በኔ አመለካከት ከቤተሰቤ አንድ ሰው በወባ በሽታ ተይዞ ከነበረ ዳግመኛ ሊያዝ አይችልም ብዬ አስባለሁ							
220	ወባ እንደሌሎች በሽታዎችሁሉ በቤተሰቦቼ ውስጥ ካንዱ ወደ ሌላው ይተላለፋል ብዬ አስባለሁ::							
221	ቤተሰቦቼ በአልጋ አጎበር ውስጥ ቢተኙ በወባ የመያዣ እድላቸው ዝቅተኛ ነው ብዬ አስባለሁ::							
222	በኔ አስተሳሰብ ከቤተሰቦቼ መካከል ሕፃናትና ነፍስ ጡር ሴቶች ብቻ ለወባ በሽታ ተጋላጭ የሚሆኑት ብዬ አስባለሁ							
223	ቤተሰቦቼ በ ቆረ ውሃ አካባቢ የሚኖሩ ከሆነ ለወባ በሽ ተጋላጭ አይደሉም ብዬ አስባለሁ::							

**2.3 የወባ አስከፊነትና አደገኝነት አመለካከት**

ተ.ቁ	ጥያቄ	በአል	እል	አል	አስ	በእስ
224	እንደኔ ወባ በቤተሰቦቼ ላይ ሞትን ሊያስከትል የሚችል አደገኛ በሽታ ነው ብዬ አሳስባለሁ::					
225	ከቤተሰቦቼ አንዱምንም አይነት መድሃኒት ሳይወስዱ ከወባ በሽታ በቀላሉ ያገግማል					





	ቢቀጥል ይህንን ሰማያዊ ክብ መካከለኛ መጠን አጎበር በምን ያህል ይገዛሉ?	-----ብር	
309	አሁን ካሉት መጠን በ50 በመቶ ( ----- ብር) ቢጨመር በዚህ ዋጋ ለመግዛት ፈቃደኛ ኖት?	1.አዎ 2.አልገዛም	
310	አይ ካሉ ዋጋው 25 በመቶ ( -----ብር) ቢጨመር በዚህ ዋጋ ለመግዛት ፈቃደኛ ኖት ?	1.አዎ 2.አልገዛም	
311	ለዚህ አጎበር ለመክፈል ፍቃደኛ የሚሆኑት ከፍተኛ ዋጋ ስንት ብር ነው?	-----ብር	
312	ሆነ እንበልና የወር ገቢ አሁን ባለበት መጠን ቢቀጥል ይህንን ነጭ ክብ መካከለኛ መጠን አጎበር በምን ያህል ይገዛሉ?	-----ብር	
313	አሁን ካሉት መጠን በ50 በመቶ( ----- ብር) ቢጨመር በዚህ ዋጋ ለመግዛት ፈቃደኛ ኖት?	1.አዎ 2.አልገዛም	
314	አይ ካሉ ዋጋው 25 በመቶ ( -----ብር) ቢጨመር በዚህ ዋጋ ለመግዛት ፈቃደኛ ኖት	1.አዎ 2.አልገዛም	
315	ለዚህ አጎበር ለመክፈል ፍቃደኛ የሚሆኑት ከፍተኛ ዋጋ ስንት ብር ነው?	-----ብር	
<b>3.2 የአጎበር ባህሪያት</b>			
316	የትኛውን አይነት የአጎበር ቅርፅ ለመግዛት ይሻሉ (አንድ መልስ ብቻ)	1.አራት ማዕዘኑን-----ካሉ ወደ ጥ/ቁ 317 2.ክቡን----- ካሉ ወደ ጥ/ቁ 322 3.ሌላ-----ካሉ ወደ ጥ/ቁ 327	
317	አራት ማዕዘኑን ካሉ? ይህን የመረጡበት ምክንያት ምንድን ነው?	_____	
318	ለዚህ አራት ማዕዘን የትኛውን አይነት ቀለም(መልክ) ለመግዛት ይሻሉ?	1.ሰማያዊ 3.ሌላ----- 2.ነጭ	
319	ይህንን ቀለም (መልክ) የመረጡበት ክንያት ምንድን ነው?	_____	
320	ለዚህ አራት ማዕዘን አጎበር የትኛውን አይነት መጠን ለመግዛት ይሻሉ?	1.አነስተኛ መጠን(1.5% ኃ፤1.5%ቁ 1.8% ርዝ 2.መካከለኛ መጠን(1.3% ኃ፤1.5%ቁ 1.8% ርዝ 3.ከፍተኛ መጠን(1.6% ኃ፤1.5%ቁ 1.8% ርዝ	



321	ይህንን መጠን የመረጡበት ምክንያት ምንድን ነው?	-----	
322	ክብ ማዕዘኑ አጎበር ካሉ? ይህን የመረጡበት ምክንያት ምንድን ነው?	-----	
323	ለዚህ ክብ ማዕዘን የትኛውን አይነት ቀለም(መልክ) መጠን ለመግዛት ይሻሉ?	1.ሰማያዊ      3.ሌላ----- 2.ነጭ	
324	ይህንን ቀለም(መልክ) የመረጡበት ምክንያት ምንድን ነው?	-----	
325	ለክቡ ማዕዘን አጎበር የትኛውን አይነት መጠን ለመግዛት ይሻሉ?	1.አነስተኛ መጠን (2.2ሜ ቁ    ና 13ሜ <sup>2</sup> ስ) 2.መካከለኛ መጠን (2.2ሜ ቁ    ና 17.5ሜ <sup>2</sup> ስ) 3.አፍተኛ መጠን (2.5ሜ ቁ    ና 22.2ሜ <sup>2</sup> ስ)	
326	ይህንን መጠን የመረጡበት ምክንያት ምንድን ነው?	-----	
327	ሌላ ዐይነት ካሉ ምን ዐይነት ቅርጽ: መጠን: ቀለም ለመግዛት ይሻሉ?	----- -----	
<b>3.3 የክፍያ ሁኔታዎች</b>			
328	አጎበሩን ከየት መግዛት ይመርጣሉ?	1.አጤና ጣቢያ      4.አቀበሌ 2.አማንኛውም ሱቅ      5.ሌላ (ጥቀስ)----- 3.አጤና ኬላ	
329	በምን አይነት ሁኔታ	1.በጥሬ      3.ሌላ 2.በብድር	
330	በየትኛው ወር?	-----ወር	
331	በየትኛው ሰዓት?	1.ጠዋት      3.አሰዕት በጎላ 2.ረፋድ ላይ	

**አመሰግናለሁ**

ANNEX-VIII: Consent form for FGDs (Amharic version)

**ጅማ ዩኒቨርሲቲ**

**ህብረተሰብ ጤናና ሕክምና ሳይንስ ኮሌጅ**

**ጤና አጠባበቅና ስነባሕሪ ትምህርት ክፍል**

**በአማራ ክልል በበረኸት ወረዳ ለሚከካሄደው የአልጋ አጎበር የመግዛት(የመክፈል) ፍቃደኝነትና የመሚወስኑት ምክንያቶች ጥር/2004**

**የጥናቱ መረጃ**

**ንዴት አደሩ/ዋሉ**

ጤና ይስጥልኝ ስሜ \_\_\_\_\_ ይባላል። ከጅማ ዩኒቨርሲቲ የሁለተኛ ድግሪ ተማሪ አንዱ ነኝ። ይህ ጥናት ወባን ለመከላከል ለአልጋ አጎበር ያለውን የመግዛት (የመክፈል) ፍላጎትና የሚወስኑትን ምክንያቶች ለማጥናት የተዘጋጀ ጥናት ነው። የርሶ ቀና ተሳ ፊትና ለጥያቄዎቻችን ምላሽ መስጠት በጣም አስፈላጊና ከፍተኛ ጠቀሜ አለው። ርሶ በዚህ ወይይት የሚሰጡኝ መረጃ ለምርምርና ጥናት የሚወልድ ነው። የምትሰጡን ሀሳብ ለዚህ ዓላማ ስከ ዋለ ድረስ የፈለጋችሁትን ሀሳብ ለማንሸራሸር የማንንም ሰው ስም ዝርዝር የማይጻፍ መሆኑን ንገልጻለን። በተጨማሪም ሁሉንም ሀሳቦች በፅሁፍ ለመጻፍ ስለሚችግረን በ ናንተ ፍላጎት የድምፅ መቅረጫ ንጠቀማለን። ቃለ ምልልሱን በፈለጉት ጊዜ የማቋረጥ መብትዎ የተጠበቀ ነው። ነገር ግን ለጥናቱ መሳካት የ ርሶ ተሳትፎ ትልቅ አስተዋፅኦ አለው።

**ፍቃደኛ ነዎት?**

አዎ\_\_\_\_\_ ይቀጥሉ

አይደለም\_\_\_\_\_ አመሰግናለሁ ያቁሙና ሌላ ፈቃደኛ ይምረጡ

**የተጠያቂውን ስምምነት ማረጋገጫ**

የዚህን ጥናት ዓላማ ና ምንነት ስምጅና ተረድቼ ለጥናቱ የሚሆን ማንኛውንም ሀሳብ በወይይቱ ለመሳተፍ የተስማማው መሆኔን አረጋግጣለሁ።

ከድ ቁጥር \_\_\_\_\_ ፊርማ \_\_\_\_\_ ቀን \_\_\_\_\_

የጠያቂው ስምምነት

ተጠያቂው በዚህ ጥናት ውስጥ ለመሳተፍ ፍቃደኛ ሆነ ዉና በፊርማቸው ያረጋገጡ ስለ ሆነ በትክክለኛነት ዕገልጻለው።

የአወያዩ ስም \_\_\_\_\_

ማስ ዎሻ ያዠፍ ስም \_\_\_\_\_

ፊርማ \_\_\_\_\_

ፊርማ \_\_\_\_\_

ቀን \_\_\_\_\_

ቀን \_\_\_\_\_

**ANNEX-VIII Guide line for FGDs (Amharic version)**

**ለወይይት የተዘጋጁ ጥያቄዎች**

1. በፍላጎት ላይ የተመሰረተ የአልጋ አጎበር የመግዛትና የመጠቀም ሀሳብ ንዴት ዩ ላችሁ?
2. ምን አይነት ግለሰባዊ ችግር በፍላጎት ላይ የተመሰረተ የአልጋ አጎበር የመግዛትና ተጠቃሚነት ይወስኖ ል ብላችሁ ስባላችሁ?
3. ምን አይነት የአልጋ አጎበር ቀለም፤ ቅርፅና መጠን ውቃላችሁ?
4. ምን አይነት የአልጋ አጎበር ቀለም፤ ቅርፅና መጠን ለመጠቀም አመቺ ነው ብላችሁ ስባላችሁ?
5. በገበያ ላይ ነዚህ አጎበሮች ቢቀርቡ መግዛት የምትሹቡት ከፍተኛ ዋጋ ምን ያህል ነው?
6. የምትገዙትስ የትና መች ቢሆን ትመርጣላችሁ?
7. ለጣይነት ያለው የአልጋ አጎበርሽፋን ለማምጣት ምን አይነት ስራዎች መሰራት አለባቸው ትላላችሁ? በማን?