Identifying and Mitigating Misuse of Insecticide-Treated Nets for Fishing Toolkit

May 2018

USAID FROM THE AMERICAN PEOPLE

CDC Centers for Disease Control and Prevention

U.S. President's Malaria Initiative

VECTOR WORKS

Scaling Up Vector Control for Malaria Prevention

Table of Contents

I. Executive Summary

In September 2016, the VectorWorks project, supported and financed by the U.S. President's Malaria Initiative (PMI), led an initial site assessment in Malawi looking at the potential misuse of insecticide-treated nets (ITNs) for fishing around Lake Malawi. Following this assessment, VectorWorks conducted a rapid assessment to determine the drivers behind the misuse of ITNs for fishing. The assessment was qualitative and observational, comprised of meeting with different sets of community members in five different locations along Lake Malawi. VectorWorks met with men, women and community leaders (men and women) to understand different points of view around this activity. The qualitative data was coded and analyzed and a final report, with results and programmatic implications, created and shared with the USAID/PMI Malawi team. USAID/PMI Malawi shared these recommendations with various stakeholders and implementing partners. The timing of sharing this information was critical, given that Malawi will distribute 10 million ITNs this year through its universal coverage campaign.

The misuse of ITNs for fishing is not unique to Malawi. Additional detailed research studies in sub-Saharan Africa, in the Democratic Republic of Congo, Madagascar, Mozambique, Tanzania and Zambia, demonstrate that, under certain conditions, mostly economic, ITNs are being misused for fishing. Additionally, anecdotal evidence shows us that this problem is not contained to these countries but happens elsewhere as well. However, no organization to date has successfully measured the magnitude of this problem. Each community, region or country facing this issue needs a locally appropriate and well-defined solution to the problem. In this case, a one-size-fits-all solution will not address the needs of everyone.

While there are ongoing studies and conversations about the misuse of ITNs for fishing, there is no standardized mechanism for collecting data. Without standardized data from other countries, it's difficult to bring this issue of ITN misuse for fishing to the larger global stage. While many national governments and international donors know that there is a problem, the paucity of data makes it difficult to determine how to best prevent or mitigate it.

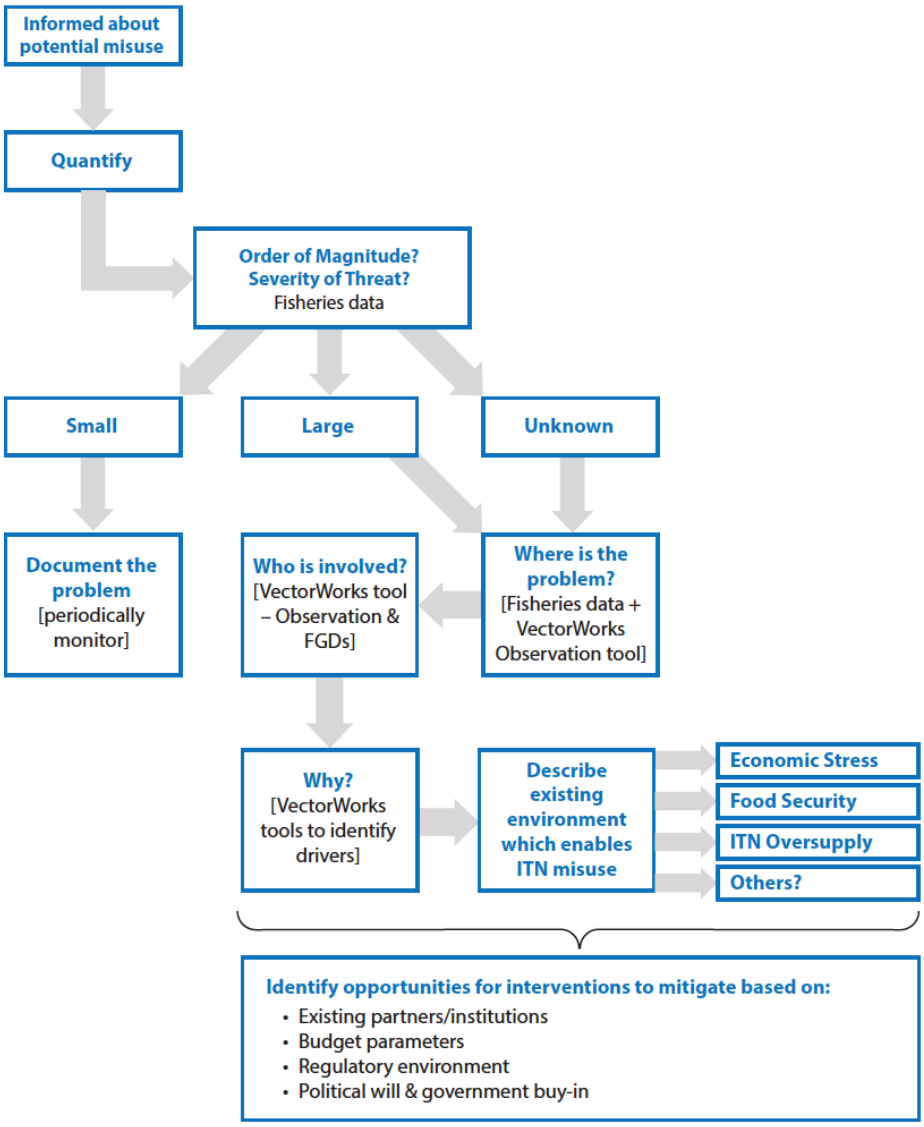
II. How to use this toolkit

The purpose of this toolkit to assist USAID Missions, donors, or implementing partners who think there may be a potential issue with ITN misuse for fishing in the country where they work and want to conduct a rapid assessment to inform their programs and contribute to the larger research base. Though the primary audience for this toolkit is USAID Missions, it can be shared and used to collaborate with other donors and country governments. The toolkit is comprised of seven parts: an initial stakeholder assessment guide, a flow chart representing the overall process of the research, expected results, and illustrative programmatic implications, followed by a research protocol, questionnaires, codebook analysis recommendations and an illustrative budget.

III. Responding to Potential ITN Misuse for Fishing

This flowchart provides a graphic representation of the expected process of responding to potential ITN misuse for fishing. It assumes that USAID Missions are leading the work, but USAID can determine with whom to collaborate and which donors or implementing partners are best situated to conduct the assessment.

After hearing of or being informed about the potential misuse, the user (USAID Mission, donor, or implementing partner) must try to determine the extent of the misuse. If the misuse is considered small, i.e., concentrated to one small village or area or only a problem for a small portion of the population, the issue should be documented and the donor notified, if the user is an implementing partner. If the issue appears to be chronic and widespread, or the extent of it unknown, additional action is needed. The user should work with intersectoral stakeholders including government bodies such as the Fisheries Department, Wildlife and Environmental Agencies, the National Malaria Control Program, and implementing partners and donors who work across sectors to collect data and use the observation tools in this toolkit to determine geographically where the problem occurs. The user can then target focus group discussion data collection to areas where the issue is deemed to be more severe, to better understand the drivers behind the misuse. Once the drivers are identified, the user can work together with local stakeholders to identify interventions to mitigate the misuse.



IV. Initial Site Assessment

After learning about potential ITN misuse for fishing, toolkit users should conduct a site visit to meet with relevant stakeholders, and to determine the magnitude of the problem. It is possible that some stakeholders are already aware of and working to address the problem. Or, it may be that stakeholders are aware but do not know how to address it. Below is a suggested list of critical stakeholders with whom to meet and a set of guiding questions. Since every context is different, there may be additional or different stakeholders to meet as well as additional or different issues to explore.

List of Stakeholders:

- Department of Fisheries, national level and regional/district, closer to water bodies
- Ministry of Health, National Malaria Control Program: national and regional/district level, closer to water bodies (if applicable)
- Fisheries enforcement officials
- Biodiversity or environmental management department
- Implementing partners, including those working in:
    - Health
    - Fisheries
    - Agriculture
    - Environment
    - Income generation and livelihoods
    - Social behavior change
- Universities or research institutions that have done work in malaria or fisheries
- Local funding partners, including:
    - USAID, Sustainable Economic Growth (SEG) Office
    - USAID, Environment Office
    - USAID, President's Malaria Initiative (PMI) Office
    - United Nations Food and Agricultural Organization or similar institution
    - World Bank's Global Environmental Facility or similar institution
- Local Government authorities at community level
- Religious leaders in the community
- Women's group leaders
- Fisheries, both large and small-scale

Guiding Questions:

1. What is your understanding of the use of ITNs for fishing here? What is the magnitude of the situation?
    a. Is ITN use for fishing widespread?
    b. Is ITN use for fishing localized to certain areas? Certain populations?
2. Do you see ITN misuse for fishing as a problem here? How would you describe the problem(s) it creates?
3. Are there any specific partners working to better understand this issue or to address it?
4. Is there a joint leadership committee working to address this issue?
5. Are there are any local institutions/committees/structures that can help resolve this issue at the local level?
6. How serious is malaria here? Do you think that people sleep under their ITNs?
7. How do people get their ITNs here? How do people get their fishing nets?
8. Why do you think that ITNs are being used for fishing? What do you think are the main reasons people fish with ITNs?
9. Who are the people most likely to be fishing with ITNs?
10. Are there other alternative uses of ITNs here? If yes, list examples mentioned.

11. What do you think can be done to resolve the misuse of ITNs here?
12. If caught using an ITN for fishing, what are the penalties/punishment? Are these enforced? By whom?

Following this site assessment, determine if/which partners should be involved in the rapid assessment and if any should review the protocol.

V. Expected Results

Based on the focus group discussion guide and data analysis codebook, we can expect results around the following themes: general changes from the past and insights into the future; current health issues; ITN distribution; food security and livelihoods; perceptions about ITN use; misperceptions about ITNs; enforcement; and ITN use for fishing. Below are excerpts from the Malawi Rapid Assessment Final Report which reports on these themes and gives a summary of results.

- General changes from the past and insights into the future
  - While development, in general, has brought access to roads, schools and better healthcare, the environmental and agricultural situation is bleak and participants don't see a bright future for their children or future generations.
- Current health issues
  - Malaria is still a top health concern for Malawians; many participants state that they need more nets, that health facility conditions are poor, and that medicines are not available.
- ITN Distribution
  - ITN distribution has been frequent in the last 5 years, but some families still say that they don't have enough nets.
  - Reported favoritism in net distribution and inequitable distribution practices appear to contribute to both over and under supply in different households.
- Food Security & Livelihoods
  - Food insecurity in Malawi is a huge challenge for a growing population
  - Crop yields have fallen over the past several years, leading to hunger and forcing families to search for additional income and food
  - Farmers often supplement their family consumption by fishing and selling the catches to purchase additional foods, such as maize flour.
- Perceptions about appropriate and inappropriate ITN use
  - Participants know that mosquito nets should be used for sleeping under, to prevent malaria
  - Participants know that using ITNs for fishing is both illegal and unhealthy for the fish population since ITNs catch fish too young to reproduce and thus inhibit the replenishment of fisheries
  - Participants acknowledge that rampant repurposing and misuse of ITNs is happening; for repurposing of nets, participants claim the users are ignorant and that poverty leads them to these practices.
- ITN Misperceptions
  - Many misperceptions still exist around side effects of using an ITN, including that nets contain contraceptives for men and that ITNs bring bedbugs into the home
  - There appears to be confusion around the difference between ITNs and LLINs and many respondents want to be able to retreat their nets
  - There are concerns around insecticide strength and potential insecticide resistance; people see fewer dead mosquitos around their nets in the morning
- Enforcement/Responsibility
  - Participants agree that a solution is needed to end this practice, but the mantra of it being "everyone's responsibility" has had the effect of it being no one's responsibility

    - There has been some success in various locations with joint solutions between communities and the government, using local leaders or local organizations, like Ripple Africa[1] in Nkhata Bay.
- Use of ITNs for fishing
    - Participants agreed that ITNs are being used for fishing, though none admitted to partaking in this practice themselves
    - While many agreed that the use of ITNs for fishing was harming the fish population and would ruin the lakes, some thought the fish populations will recover with more rain or that new species could solve the problem.
    - Artisanal fisheries[2] are the primary users of these ITNs for fishing

VI. Illustrative Programmatic Implications

The results presented here can be used to design targeted formative research and/or illustrative programmatic implications. These illustrative activities are a result of both the rapid assessment conducted in Malawi and in Tanzania (August 2018), using the same toolkit. While these emerging themes and root causes are useful to provide general guidance and steps forward, the data are not sufficient to make specific programmatic decisions at this time. Below, however, are some broad recommendations and guidance for misuse mitigation that may also be applicable to interventions in other countries.

Food Security

In Malawi, economic stress and food security were the biggest drivers for ITN misuse. They are the root causes and any intervention around them will have the biggest impact. In Malawi, where fishing is at the heart of the culture, investment into livelihoods projects, such as aquaculture, may provide some relief to overfishing on Lake Malawi. Income generation activities will be critical to any long-term solution. More challenging yet is to improve the environmental and agricultural conditions that have caused crop yields to decrease and livelihoods to vanish.

Responsibility and Governance

Many participants recognized that individuals play in a role in curbing the use of ITNs for fishing. Before a formal structure or agreement is put into place with roles for different organizations and government entities, SBC can be a first line in slowing this practice. Civic education was repeatedly mentioned throughout the study as an effective method by which to teach people. In some cases, this can include SBC. This activity will certainly need dedicated time and space to change the paradigm that the lakes and rivers are a common good for individual consumption, to one of the lakes and rivers being a common good that needs to be protected.

Participants mentioned a variety of enforcement methods, depending on their site, including local fisheries departments, beach village committees (BVCs) and local organizations, like Ripple Africa and national park authorities. With the exception of the national park authorities, who reportedly destroy boats and fishing gear if found within their parks, participants did not have an unfavorable response to enforcement. Many noted that local fisheries departments previously patrolled and enforced the non-use of small mesh nets, including ITNs, but that the practice has died down. BVCs were mentioned as being successful, but they're not consistently effective and local by-laws with penalties for using ITNs for fishing are challenging in an already resource-poor

[1] Ripple Africa is a local NGO that works in Nkhata Bay focusing on a variety of issues, one of which is fish conservation. They have established Fish Conservation Committees along the shores of Lake Malawi in Nkhata Bay and are working to reduce the use of mosquito nets used for fishing.

[2] Artisanal fisheries are defined as traditional fisheries involving fishing households (as opposed to commercial companies), using relatively small amount of capital and energy, relatively small fishing vessels (if any), making short fishing trips, close to shore, mainly for local consumption. In practice, definition varies between countries, e.g. from gleaning or a one-man canoe in poor developing countries, to more than 20-m. trawlers, seiners, or long-liners in developed ones. Artisanal fisheries can be subsistence or commercial fisheries, providing for local consumption or export. They are sometimes referred to as small-scale fisheries. Source: http://www.fao.org/family-farming/detail/en/c/335263/

community. In Tanzania, however, Beach Management Units (BMUs) appears to be a very effective mechanism for preventing ITN misuse. These best practices should be documented and shared across countries.

To document real change, a concentrated effort with support from all levels, including BVCs/BMUs, the traditional authority, fisheries departments and local organizations, will be needed.

Fishing Practices

Fishing practices vary widely across Malawi, with personal preferences and profit margins as deciding factors. Means of fishing include hooks, traps, and a variety and combination of nets, both legal and illegal. Different types of boats are also used. Fishing nets are purchased from local stores and these vary in both size and price. Over time, the cost of fishing gear has increased. This, coupled with decreased yields from fishing creates an economically unstable situation. This may lead fishermen to look for smaller, both legal and illegal mesh nets, to increase their yield and therefore profit. While standards of legal nets were once followed, the decrease in the fish populations in the lakes and rivers have driven fishermen to use whichever fishing gear they like. Populations of large sized fish, like chambo, have decreased so much that using a hook in most places is no longer viable. In order to catch the small sized fish, some type of fishing net is required. As mentioned previously, most participants do know that the fish populations are dwindling. They state that they are catching smaller fish, including, at times, fish eggs and fingerlings.

Potential interventions discovered in Tanzania include legalizing smaller mesh nets and equipping Fisheries Departments with better technical equipment and data to quantify current fish populations, distribution and changes over time. This data can be shared with the fishermen who may push further offshore to a more densely populated fishing areas, protecting the lakeside breeding habitats.

Selling of ITNs

Much of the data collected around selling of ITNs come from participants' accounts of knowing or hearing that people sell their nets. Given the sensitivity around this topic, and knowing that that they should not be selling their ITNs, no one provided a firsthand account and rationale for selling his/her ITN. Some of the reasons for why people might sell their ITN, or buy someone else's, include:

- Poverty and economic desperation: Although people understand the value of net to protect against malaria, the immediate need to eat or feed one's children is a higher priority
- Ease of availability; people will show up at the docks with bundles of ITNs for sale – there's no need to travel into a market town/city to buy a net
- Ignorance; people do not fully understand the health consequences they'll face tomorrow by selling their ITN today
- Perception of excess of ITNs distributed during the campaign
- ITN was received for free and individuals feel like they're not losing anything, rather gaining money from its sale

Addressing these points are the first steps to reducing the sales of ITNs.

Social Behavior Change

Given the misinformation in Malawi about ITNs, combined with the damage in Lake Malawi from use of ITNs for fishing, messages need to go beyond the basic "use your net every night" and challenge individuals and households to think about their futures and the misinformation that abounds. For example, Malawians are very cognizant that overfishing of the lake will result in fewer or no fish for future generations. However, they also misinformed and believe that ITNs still need to be retreated. Based on our findings, Malawi should consider developing a communication strategy or approach that describes how all of these issues are related, how they

influence ITN misuse, and recommend some social behavior change approaches to address them. Potential strategy areas of consideration include:

- Adverse effects and misperceptions of ITNs
- Effectiveness of ITNs
- ITNs vs. LLINs

VII. Research Tools: Protocol

For illustrative purposes, below is a snapshot of the critical elements of a protocol developed for Johns Hopkins University School of Public Health's Institutional Review Board (IRB). The IRB process may vary at other institutions, but this snapshot demonstrates the elements included in the Malawi work and provides a template from which to work. The objectives, background and rationale, study design and participants may vary, but this can be referred to as a starting point.

JHSPH IRB Research Plan for New Data Collection

Use this template for new data collection and if you also will analyze secondary data. Answer the questions below and for numbered sections that do not pertain to your study, retain the section numbers and bolded questions, and write "N/A". Please start typing in the gray boxes provided.

PI Name:
Study Title: Developing tools to assess the use of mosquito nets for purposes other than sleeping in Malawi
IRB No.:
PI Version No. / Date:

I. Aims of the Study: *Describe the aims/objectives of the research and/or the project's research questions or hypotheses.*

Broad objectives

The general objective of this study is to understand the factors driving misuse of ITNs and better characterize the extent of net misuse for fishing.

Specific objectives

The specific objectives of this study are to:

1. Better understand the factors driving misuse of ITNs for fishing related to:
    a. Local prioritization of malaria prevention in relation to competing priorities
    b. Local expectations about current and future availability of ITNs
    c. Current economic conditions
    d. Current environmental conditions
2. Better characterize ITN misuse for fishing, including:
    a. the magnitude of ITN misuse for fishing
    b. the types and likely sources of ITNs misused for fishing (mass vs. routine distribution, public vs. NGO distribution)
    c. the comparative cost of fishing gear in local markets, including relevant characteristics, including likely source of the nets (households or markets)
3. Ascertain availability of ITNs and other fishing gear in markets and other sources, through direct observation and focus groups.
4. Better understand existing social and political structures that might help curtail net misuse:
    a. National government entities such as the National Malaria Control Program, the National Department of Fisheries, and the National Police
    b. Local traditional authorities such as village chiefs and district or regional paramount chiefs
    c. Community-based entities such as Village Beach Committees (VBCs) set up to protect local community interests.

Because this is an exploratory descriptive study using qualitative methods, there is no hypothesis being tested.

II. Background and Rationale: *Explain why this study is being done. Summarize briefly what is already known about the issue and reference previously published research, if relevant.*

Since 2004, national malaria control programs, multilateral programs, and national and international non-governmental organizations (NGOs) have distributed over one billion insecticide-treated bed nets (ITNs) for malaria prevention in sub-Saharan Africa. This includes approximately 22 million ITNs in Malawi as of 2015 (1). ITN distribution and use has had a significant impact on malaria transmission during that time: WHO's Global Malaria Programme estimates that deaths due to malaria have dropped by 48 percent between 2000 and 2015, the last year for which figures are available. In Malawi, estimated malaria incidence has decreased by 50-75% during that time (2).

In Malawi, malaria remains a significant problem, where the entire population is at risk and an estimated 48% of the population resides in areas where the age standardized Plasmodium falciparum prevalence in children aged two to ten years is 40-50%. As a result, long lasting insecticide treated Nets (LLINs) remain the main vector control strategy for Malawi (3). The National Malaria Control Programme (NMCP) with partners conducted mass distribution campaigns of nets in 2012 and 2014 with a target of distributing one net per 1.8 persons. However, despite these mass campaigns, the burden of malaria remains unchanged and in other circumstances increasing, with countrywide proportion of parasitemia amongst under five children fluctuating between 30.7% in 2004 and 37.1% in 2014 (4). At the hospital level, no decrease in malaria incidence has been recorded during the decade of rapid scale up of interventions (5, 6).

Despite these achievements, both donor organizations and governments have expressed some concerns about the value of their investment in ITNs. This is due largely to the perception that net recipients are misusing their nets for purposes other than malaria prevention. Such uses include fishing, protecting crops, and displaying merchandise among many others. While there are many anecdotal reports and observations of misuse, there is little systematic data on the extent to which misuse occurs or the contexts in which it occurs (7): how many or what percentage of the nets distributed are involved and whether such misuse occurs only after the need for malaria prevention has been satisfied or despite an unmet need.

There is similarly little information about *when* such misuse occurs: Do net recipients use nets for purposes other than malaria prevention only after they perceive these nets to be no longer effective against mosquitoes that carry malaria, or do they use even new nets for alternative purposes? Even the meaning behind the term "misuse" is somewhat disputed: While some argue that use of an ITN for any purpose other than sleeping constitutes *mis*use, others suggest that some alternative uses of ITNs are really repurposing rather than misuse *per se*.

For instance, if, within a given household, there are enough ITNs that every household member has access to a net for sleeping and there are still additional unused nets, some might argue that using one or more of those nets to make window screens should be considered legitimate repurposing rather than misuse. Similarly, if a net is completely worn out and would otherwise be discarded, using it to protect plants or tree saplings or even as rope should also be considered repurposing. In any case, there is no global policy guidance on how households should dispose of worn-out nets. On the other hand, use of mosquito nets for fishing is illegal in many countries including Malawi because the small mesh size traps juvenile fish and can cause devastating declines in fish population. Thus many would argue that *any* use of ITNs for fishing should be classified as misuse even if the net no longer provides protection against malaria.
The study will be carried out as a collaboration between the Malaria Alert Center, College of Medicine, University of Malawi (COM) and the VectorWorks Project, Center for Communication Programs, Johns Hopkins Bloomberg School of Public Health (JHU). The Malaria Alert Center (MAC) is a semi-autonomous unit within the COM and supports training and implementation research as well as provides a link between policy and research. MAC has collaborated with national research programs and international partners on a

variety of activities that impact malaria policy, including antimalarial efficacy studies, exploration of strategies to improve ITN coverage, and assessing the integration of malaria rapid diagnostic tests into the community case management policy.

VectorWorks is a USAID-funded malaria prevention program working on increasing access to and use of insecticide-treated nets (ITNs). Activities include policy development, monitoring and evaluation of net distribution approaches and implementation challenges, and demand creation for use of ITNs. As one of the policy related activities, VectorWorks is exploring misuse of mosquito nets for fishing.

Anecdotally, the use of mosquito nets for fishing has been observed in a number of President's Malaria Initiative (PMI) focus countries and identified by both PMI and United States Government leadership as a significant concern.

Under the activity described here, VectorWorks will develop and apply rapid assessment tools to better understand why mosquito nets are being misused for fishing in waterside communities, quantify the extent to which it is occurring, and propose interventions likely to be effective at curtailing this practice. The information collected with these tools will ultimately be used to design future interventions to mitigate misuse of nets for fishing (defined here as the use of a mosquito net for purposes unrelated to malaria prevention, when the net is still in good enough condition to prevent malaria).

III. Study Design:

A. *Provide an overview of your study design and methods. The study design must relate to your stated aims/objectives. Details will be requested later. If your study also involves analysis of existing data, please complete Section XI, "Secondary Data Analysis of Existing Data" in the last part of this research plan. If your study ONLY involves analysis of existing data, please use the research plan template for secondary data analysis (JHSPH IRB Research Plan for Secondary Data Analysis of Existing Data/Specimens).*

This is a qualitative study that will utilize focus group discussions and observations of fishing sites and marketplaces in six target communities to better understand misuse of mosquito nets for fishing. We will conduct up to 18 focus group discussions (FGDs) with male and female community members and community leaders in target communities.
In addition to the FGDs, two different types of observations will be conducted: observations of fishing practices among community members, and observations of local marketplaces. These observations allow for understanding of the context in which activities occur that might not be otherwise apparent from FGDs.

Study locations

Focus group discussion and observations will take place in six waterside communities representative of regional, cultural, and geographic differences, including different types of waterways and different styles of fishing. The tentatively selected communities include:

Karonga: (9.9036° S, 33.9750° E). Karonga is a rural district in northern Malawi, bordered by Lake Malawi on the east and Tanzania on the north and the Nyika Plateau National Park to the west. Malaria is still a public health problem in the district, the use of ITNs is widespread in Karonga district so that in 2014, 84.8% and 75% under five children and household members slept under an ITN the previous night before the survey respectively (NSO, 2014). We propose the fishing villages of Ngala and Migumi to be involved in the study. The study team has worked in the area and has built a strong working relationship with the community (Paczkowski, 2014).

Rumphi: (10.7852° S, 34.3310° E). This is another lakeshore district in Northern Malawi just south of Karonga district. The main tribe is the Tumbuka and ITN coverage is also high. The study team has considerable experience conducting research and working with leaders/ communities in this district (Mathanga, 2010). We propose the fishing villages of Mlowe.

Mangochi [Makanjiri and Nkope]: (14.1388° S, 35.0388° E). Mangochi is the only district in the southern region of Malawi which is next to Lake Malawi. Because of the favorable humid weather, incidence of malaria is high in the district. We propose that **two** fishing communities be selected from Mangochi: Makanjiri fishing villages, a hard to reach remote site on the eastern side of Lake Malawi, and Nkope fishing villages. Nkope is on the western side of Lake Malawi.

Lake Chilwa: We propose fishing villages of around Lake Chilwa. The area is Traditional Authority Chikowi where the study team has considerable experience working with the community on malaria research (Mathanga,2015; Witek- McManus, 2015).

Liwonde: (15.0695° S, 35.2313° E) Liwonde is a small town along the Shire river with a vibrant fishing community. Although malaria incidence is high in the area, bed nets are not usually used because of religious reasons since the shape of the current nets resembles the Islamic coffin. As a result, a considerable number of nets are used for other activities including fishing. The consultants have experience working with the communities in this area (Mathanga, 2015).

B. *Provide a sample size and a justification as to how you arrived at that number. If you use screening procedures to arrive at a final sample a table may be helpful.*

Sample size for this study was calculated based on an estimate of the number of participants and data collection episodes necessary to achieve theoretical saturation. Table 1 below lists the number of FGDs and observations to be carried out based on the rationale for each data collection method, as described here. Guest, et al. found that 80% of themes in a data set were discovered after analyzing just three focus groups and 90% discovered after six. Based on these findings, the authors recommend three to six FGDs within any given population to reach data saturation. We propose to carry out three FGDs per community – a total of 18 across the five communities.
There are no specific guidelines for number of observations needed to reach saturation in qualitative studies and in any case the number would probably vary greatly depending upon the type of observations being conducted and the variables of interest being observed. Based on an initial exploratory field visit and meetings with a variety of stakeholders in September 2016, we believe that two observations of each type per community should be sufficient to achieve this study's objectives. This will yield a total of 24 observations across the six communities: 12 conducted on the beach and 12 conducted in markets.

Table 1 – Sample size, data collection guides, consent forms

Data collection activity	Study population	Number / community	Number of communities	Participants per group	Total participants	Guide	Consent form
Focus group discussions	Male residents	1	6	6-12	72	A	A
	Female residents	1	6	6-12	72	A	A
	Community leaders	1	6	6-12	72	A	A
Observations	Beach/community	2	6	n/a	n/a	B	B
	Market	2	6	n/a	n/a	C	C
Total				-	**216**		

IV. Participants:

Describe the study participants and the population from which they will be drawn. Specify the inclusion and exclusion criteria. If you plan to include children, note their ages and whether you will include children in foster care. Note if the participants are particularly vulnerable in terms of cognitive limitations, education, legal migration status, incarceration, poverty, or some combination of factors.

A. **Inclusion Criteria:**
- Is at least 18 years old AND
- Is a resident of the target community (for male or female focus groups) OR
- Is identified as a local leader in the target community (for leader focus groups)

B. **Exclusion Criteria:**
- Is under 18 years old
- Is a non-resident of target community OR
- Is not identified as a local leader in the target community

NOTE: If you are recruiting participants or receiving, accessing, or using data from a U.S. health care provider, HIPAA review is likely to be required. If you plan to bring identifiable health information from a foreign country to a U.S. covered entity (e.g., lab at the Hopkins SOM), HIPAA may be triggered. Check "yes" to the HIPAA question in the PHIRST application.

No U.S. health information and no identifiable health information from a foreign country will be accessed during this study.

V. Study Procedures:

*In this section, provide details of your procedures, particularly as they relate to human subjects. If this is a multi-center study, make the role of JHSPH clear. If the JHSPH will serve as **data coordinating center**, indicate in the sections below which procedures JHSPH will not be performing. Additional information regarding data coordinating centers is requested in a later section. If your study will develop in phases, address each item below by phase.*

A. **Recruitment Process:**

1. Describe how you will identify, approach, and inform potential participants about your study. Include details about who will perform these activities and what their qualifications are.

   Participants for FGDs will be recruited with the assistance of the village chief or other leader, who will be visited by field teams prior to recruitment to explain the study. Once participants are identified, they will be invited to participate in a FGD using a recruitment script. Only one person from each household will be invited to participate. If the individual agrees to participate, a member of the study team will provide them with the time and location of the FGD. Oral consent will be obtained prior to starting the discussion.

2. Address any privacy issues associated with recruitment. If recruitment itself may put potential participants at risk (if study topic is sensitive, or study population may be stigmatized), explain how you will minimize these risks.

   There should not be any privacy issues associated with recruitment as it is to take place in each person's home. Also, the topic is not sensitive and there is no stigma associated with the issues to be discussed, so there is very minimal risk to potential participants.

B. **Consent Process**:

1. *Describe the following details about obtaining informed consent from study participants. If a screening process precedes study enrollment, also describe the consent for screening.*

   a. *Who will obtain informed consent, and their qualifications*:

      Trained field staff will obtain informed consent from all participants.

   b. How, where, and when the consent discussion(s) will occur:

      Consent for the FGDs will occur prior to the start of the discussion, where each participant will be consented individually, either at the participant's home or at the FGD site. Consent for KIIs will be obtain at the site of the interview.

      As described in Section C below, observations will take place in communities, along beaches, and in marketplaces. For sake of convenience, we use the term "community" or "communities" to refer to all three settings. Consent for observations will be obtained from community leaders as is customary in this setting. This will be done for two reasons: First, the nature of these observations makes individual consent impractical since the observer will be walking through the community throughout the observation and seeing potentially tens or hundreds of people over the course of the observation. Stopping and consenting each individual – any one of whom might be observed for a few minutes, or a few seconds, or not at all – would be both nearly impossible and confusing to people on the scene. Second and more importantly, individuals within a community, beach, or marketplace will expect a community leader to provide consent on the group's behalf, would find it odd to be asked individually, and would typically ask the research team whether the community leader has consented. If the leader has provided consent, individuals will feel comfortable participating and would consent based upon the fact that the leader has consented. If the leader has not consented, individuals would typically ask the research team about the leader's view about the study and would hesitate to participate until assured that the leader had given consent.

   c. The process you will use to determine whether a potential participant meets eligibility criteria:
   During the recruitment process, the study team will ask whether the participant is over 18 and is a resident of that community.

   d. Whether you will obtain a signature from the participant or will use an oral consent process:
   Due to the very low literacy rate in Malawi, we are requesting oral consent from FGD participants.

   e. Whether you will obtain a legally authorized representative's signature for adults lacking capacity:
   N/A

   f. If children are included in the study, if and how you will obtain assent from them:
   N/A

   g. If children are included in the study, how you will obtain permission for them to participate from their parent, legal guardian, or other legal authority (if child is in foster care or under government supervision):
   N/A

   h. If you are seeking a waiver of informed consent or assent, the justification for this request:
   N/A

i. Whether you will include a witness to the consent process and why:
There will be at least one field staff member present during the consent process.

j. If the language is unwritten, explain how you will communicate accurate information to potential participants and whether you will use props or audio materials:
All consent will take place in the appropriate local language. Both are written languages. Consent forms will be translated into local languages and participants will be given the option of reading the consent form or having it read to them as they prefer.

2. *Identify the countries where the research will take place, and the languages that will be used for the consent process.*

Country	**Consent Document(s) (Adult Consent, Parental Permission, Youth Assent, etc.)**	**Languages**
Malawi	Adult oral consent (FGD), Adult written consent (KII)	Chichewa, Yao, Tumbuka, Tonga

C. **<u>Study Implementation</u>**:

1. *Describe the procedures that participants will undergo. If complex, insert a table below to help the reviewer navigate.*

Focus Group Discussions

We will conduct up to 12 FGDs with community residents, six each with male and female residents. In each community, community leaders will help identify up to 24 (12 male, 12 female) community residents who are at least 18 years old for participation in FGDs. In addition, we will conduct a separate FGD in each community with community leaders themselves to better understand differences in views between leaders and community members. The activity will be explained to potential participants individually, and if they agree they will be notified of the time and place of the FGD. FGDs will be facilitated by a member of the data collection team, who will be hired and trained as described above. The facilitator will follow a discussion guide [Focus Group Discussion Guide, see below] with questions related to life in the community, livelihood, use of mosquito nets for fishing, where fishing gear is obtained, and perceptions related to malaria prevention. FGDs will take place in the local language of the community. If all participants agree, each FGD will be digitally recorded. If a participant disagrees, a note-taker will take detailed notes by hand during the FGD. FGDs will be conducted in a convenient location selected with the assistance of a community leader. FGDs are expected to last between 1½ - 2 hours.

Observations

The study team will carry out participant and opportunistic observations at beaches, market stalls and households within and around the study communities to give context to the study, capture various ways residents use mosquito nets, and assess the magnitude of net use for purposes other than sleeping and specifically misuse for fishing. Research assistants will carry field diaries to document all the observations throughout the fieldwork. We will also employ photo-voice among community residents, fishermen and local traders to capture local perspectives on various forms of mosquito net use and misuse. Photo-voice is a community based participatory research

methodology that involves taking pictures of the experiences within the community which is shared with others. Photo-voice will be used to document net use for purposes other than sleeping among fishermen, local traders, etc., including likely uses at households, lakeside or market places. No formal interviews will take place during these observations, and observers will be instructed to record information about items or environments in a manner that makes it impossible to identify any individual. Study team members undertaking observation will be instructed not to record names or other personal identifiers of individuals with whom they interact or names of specific shops or businesses. Community members recruited to participate in photo-voice will be instructed to take photographs in such a way that individual people cannot be identified – either by taking picture of objects and environments rather than people or by taking pictures of people from an angle that does not reveal their face.

2. *Describe the number and type of study visits and/or contacts between the study team and the participant, how long they will last, and where/how they will take place.*

   Individuals will only be asked to participate once. FGDs will take between 1-2 hours, with refreshments provided, in a convenient location in the community. Key informant interviews will last around an hour, and will take place in a location convenient to the informant. Contact with individuals during observations will be incidental since the observations are not focused on any one individual per se. Observers will be walking through the community or the market or along the beach during observations, so contact with any one individual will be momentary. Consent for observation will be sought from community leaders as is customary in this research setting (see description of consent process in section B above).

3. *Describe the expected duration of the study from the perspective of the individual participant and duration overall.*

   This study will be conducted over 12 months, after receiving approval from the College of Medicine Research and Ethics Committee (COMREC) and the Johns Hopkins Bloomberg School of Public Health Institutional Review Board (JHU IRB). Data collection is expected to start in February 2017 and continue through June 2017. Analysis and reporting are expected to start in July 2017 and expected to continue through January 2018.

4. *Provide a brief data analysis plan and a description of variables to be derived.*

   All FGDs will be transcribed verbatim and translated from the local language into English. Qualitative analysis will be conducted using ATLAS.ti or a similar qualitative software program. We will use a combination of inductive coding based on the development and identification of new and emerging themes and deductive coding based on our original research objectives and framework.

5. Answer the following **if they are relevant to your study design**:

   A. If the study has different arms, explain the process for assigning participants (intervention/control, case/control), including the sequence and timing of the assignment.

   N/A

   B. If human biospecimens (blood, urine, saliva, etc.) will be collected, provide details about who will collect the specimen, the volume (ml) and frequency of collection, how the specimen will be used, stored, identified, and disposed of when the study is over. If specimens will be collected for use in future research (beyond this study), complete the "Biospecimen Repository" section below.

N/A

C. *If genetic/genomic analyses are planned, address whether the data will be contributed to a GWAS or other large dataset. Address returning unanticipated incidental genetic findings to study participants.*

N/A

D. *If clinical or laboratory work will be performed at JHU/JHH, provide the JH Biosafety Registration Number.*

N/A

E. *If you will perform investigational or standard diagnostic laboratory tests using human samples or data, clarify whether the tests are validated and/or the lab is certified (for example is CLIA certified in the U.S.). Explain the failure rate and under what circumstances you will repeat a test. For all human testing (biomedical, psychological, educational, etc.), clarify your plans for reporting test results to participants and/or to their families or clinicians. Address returning unanticipated incidental findings to study participants.*

N/A

F. *If your study involves medical, pharmaceutical or other therapeutic intervention, provide the following information:*

a. *Will the study staff be blind to participant intervention status?*

N/A

b. *Will participants receive standard care or have current therapy stopped?*

N/A

c. *Will you use a placebo or non-treatment group, and is that justifiable?*

N/A

d. *Explain when you may remove a participant from the study.*

N/A

e. *What happens to participants on study intervention when the study ends?*

N/A

f. *Describe the process for referring participants to care outside the study, if needed.*

N/A

VIII. Research Tools: Questionnaires

Focus Group Discussion Guide

Facilitator: _____Note taker: _____

Date of FGD: _____Start time: _____ End time: _____ District: _____Village: _____

Participant demographics

	Age	Gender	Education	(Women only group, men only group mixed gender group)
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

Education:
1= None, 2=Some primary, 3= Completed primary, 4=Some secondary, 5=Completed secondary, 6=University degree, 7=Other certificates and diplomas (specify), 8=Other (specify)

Instructions for FGD Moderator:

- This guide should help you to initiate and moderate the discussion, which should flow like a normal discussion rather than a question-answer session. The moderator should intervene as little as possible and allow participants to talk freely as much as possible. It is OK for group members to respond to one another. You should NOT ask people to raise their hand before speaking – allow the conversation to flow naturally.
- If one or two people dominate the discussion, redirect the conversation to others by telling them politely that you appreciate their contributions, but also want to hear from others. If there are people in the group who do not say anything or say very little, call on them and ask them what they think about the topic.
- The guide is designed for a group of 6-10 community members, to be conducted once in a community facility, such as a health center or school. Selected groups are male only, female only and community leaders which can be mixed sex.
- Participants must be aware that focus group discussions will take around 90 minutes (once you are at the site, it is best to conduct the FGD if at all possible).
- Ask another member of the research team to take notes about interactions, group dynamics, and the content of discussions.
- Ensure privacy as much as possible (including audio-privacy) for the discussion. However, participants are likely to know each other already, so anonymity may not be possible. Ask people not to repeat what was said in the group to anyone outside once the group is over.
- Ask people to silence their cell phones during the group – or turn them off completely if possible. This works best if you set an example by showing them that you are turning your cell phone off to avoid interruptions. Ask people in advance to take any urgent calls outside so as not to disrupt the discussion.

General outlook on the present and expectations for the future

1. I'd like to start off by asking everyone to introduce yourselves and tell us how long you've lived in [name of community]

2. In the time that you've been living here, would you say that things have gotten better off, worse off, or stayed the same? In what ways? What are some examples? Probes (if people don't mention them spontaneously):
    a. Are things better off the same, or worse off for your family? In what ways?
    b. Are things better off the same, or worse off for you personally? In what ways?
    c. Are things better off, the same, or worse off for people in [name of community]? In what ways?
    d. Are things better off, the same, or worse off for children in the [name of community]? In what ways?
    e. What about
        i. work/income/livelihood (need to discuss wording with local counterparts)?
        ii. food?
        iii. the environment?
        iv. fishing?
        v. health?

3. Now I want to ask you to think about the future. Think about when your children or grandchildren are grown. What do you think their life will be like? What will be better than now? What will be worse than now? What will be the same as now? (Use relevant probes from question 2.)

Food security

7. Now I'd like to ask about food in [name of community]. What do people usually eat here? What is your favorite thing to eat? What is your family's favorite thing to eat?

8. What did you have for dinner last night? What did you have for breakfast this morning?

9. What are the main sources of food for people here?
    a. How do most people get their food? (e.g., grow/catch/purchase/barter – try to avoid asking directly – ask only if people do not volunteer an answer)
    b. What other ways do people get their food?

10. What happens to the food that you grow or catch? How much of it do you and your family eat? How much do you sell? How much do you store for later?

11. Do people in [name of community] ever have problems getting enough food for their family?
    a. If so, what causes this to happen?
    b. Are there certain specific times when people have problems getting enough food for their families? What are those times? What makes it hard at those times compared to other times when it's easier? (Does it happen at certain times of the month? Or certain times of the year?)
    c. Do people ever have to sell something to have enough money to buy food? If so, what are some things that people sell? (Follow up with more specific questions as appropriate: "You said that sometimes people sell 'X.' If I were to sell 'X' how much money could I make?")

12. Do people in [name of community] ever go somewhere else to work/make money? Can you tell me more about this (who goes, where do they go, what do they do, when do they go, how long do they stay away, etc.)?

13. Is it easier or harder to feed your family now than it used to be? Or is it the same? (What makes it easier/harder?)

14. What are the most important health issues for your family?

15. What are the most important health issues in this community as a whole?

Fishing practices

16. How many months of the year do you fish vs. doing other employment?

17. What types of fishing do you do here? (*Examples: seine, trap, open water, etc.)*

18. What is your preferred fishing gear? Why?

19. Where do the nets for fishing come from?

    a. How long do they last?
    b. When/how do you replace them?

20. I'd like to ask about the types of fish that are usually caught and sold here:
    a. What are the most popular large fish usually in the local market?
    b. Have prices for these types of fish changed in recent years? If yes, have they gone up, down or remained relatively the same?
    c. Have any species of larger fish disappeared from the markets completely?
    d. What are the most popular types of smaller fish found in the market?
    e. Have prices for these types of fish changed in recent years? If yes, have they gone up, down or remained relatively the same?
    f. Have any species of smaller fish disappeared from the markets completely?

Pile sort/prioritization activity: Different ways people use mosquito nets

21. Now I'm going to show you some drawings of people using mosquito nets in different ways. I want you to look at the drawings and tell me what you see and what you think. (Drawings to include: Sleeping under a net, using netting material for window screens, using netting material to sell vegetables, using netting material to protect vegetable gardens or tree saplings, using netting material to dry fish, using nets to catch fish. For each drawing ask):
    a. How are people using the net here?
    b. What are the benefits of using a net this way?
    c. What are the problems with using a net this way?

22. People often use mosquito nets for fishing – I'd like to ask you about that:
    a. What are the different ways people fish with nets?
    b. What are the best reasons to use a mosquito net for fishing? What are the best reasons not to use a mosquito net for fishing?

c. When should people be allowed to use mosquito nets for fishing? When should people not be allowed to use them?
d. Compared to a regular fishing net, what effect does using a mosquito net for fishing have on the quantity of fish someone can catch?
    i. How does it affect the quantity of fish someone can catch now?
    ii. How do you think it will affect the quantify of fish people can catch in the future?

Malaria and mosquito nets

23. How big a problem is malaria in [name of community]? How big a problem is malaria for you and your family?

24. How well are you able to protect your family from malaria? Is there anything that would help you protect your family better against malaria?

25. How well do mosquito nets work here to protect people against malaria?

26. In the last three years, how many times has someone distributed free mosquito nets in this area?

27. When was the most recent distribution?
    a. What happened during that distribution?
    b. How many nets did each family receive?

28. Would you say that most people right now have enough nets, not enough nets, or too many nets?

29. Sometimes people sell their mosquito nets. What are the reasons why someone would sell a net?

30. Let's say I have a net I want to sell.
    a. If the net was brand new and still in the sealed bag, how much could I sell it for?
    b. What it the net was slightly used and maybe had a few small holes – how much could I sell it for?
    c. What if the net was very used and had quite a few holes, including some big holes, how much could I sell it for?
    d. If I wanted to sell my net, where would I go? Who would buy it from me?
    e. When should it be OK for people to sell a mosquito net?

31. Do you think most people in [name of community] feel mosquito nets are better used for sleeping or for fishing? Why?

32. To what extent do you think the use of nets for fishing affects the impact of malaria on the community?

Curtailing use of mosquito nets for fishing

33. Has anyone in [name of community] tried to do anything to stop people from using mosquito nets for fishing?
    a. What have they done to try to stop it?
    b. How effective has it been? Why did it work/not work?
    c. What do people in [name of community] think about this?

34. If someone wanted to stop people in [name of community] from using mosquito nets for fishing, how should they do it? What do you think would work?

35. What else would you like to tell me before we finish?

Structured Observation Guide for Beach, Community, or Market

INSTRUCTIONS: Fill out 1 form for each purpose you see a net being used for. You will fill out multiple forms for any one location or one observation session. Include as much descriptive detail as possible.

SECTION A – SITE DESCRIPTION

1. **Data collector ID** _____

2. **Date** _____ _____ _____ (DD MM YYYY)

3. Time _____ _____ (HH MM)

4. **Observation type** (Check one only)

- ☐ 4.1 Beach
- ☐ 4.2 Community
- ☐ 4.3 Market
- ☐ 4.4 Other (describe)

_____

_____

5. Location (Check one only)

- ☐ 5.1 Zomba – TA Mwambo
- ☐ 5.2 Machinga – Liwonde
- ☐ 5.3 Mangochi – Malindi
- ☐ 5.4 Nkhata Bay – Bandawe
- ☐ 5.5 Karonda – Ngala
- ☐ 5.6 Other (describe)

SECTION B – ACTIVITY OBSERVATION

What purpose is the net being used for?

- ☐ 6.1 Fishing
- ☐ 6.2 Drying fish
- ☐ 6.3 Selling something
- ☐ 6.4 Window screens
- ☐ 6.5 Protecting garden
- ☐ 6.6 Protecting tree
- ☐ 6.7 Patching
- ☐ 6.8 Other (describe)

How many nets are being used in Question 6? _____

8. Is the number recorded in 7 (check 1): ☐ An estimate ☐ An exact count

For the net(s) being used in 7.0, please include the following information:

Net #	Color (circle one)					Condition (circle one)				Length (m or UTD*)
1	a	b	c	d	e	a	b	c	d	
2	a	b	c	d	e	a	b	c	d	
3	a	b	c	d	e	a	b	c	d	
4	a	b	c	d	e	a	b	c	d	
5	a	b	c	d	e	a	b	c	d	
6	a	b	c	d	e	a	b	c	d	
7	a	b	c	d	e	a	b	c	d	

Color: a=dark green, b=light green, c=blue, d=white, e=other

Condition: a=new, b=lightly used, c=heavily used, d=unable to determine (UTD)

8. How many people are using the net(s)? (If no people are present, enter 0) ☐

9. For each person using the net, please include the following information:

#	Sex (1=M, 2=F, 3=UTD)	Age (1 =Adult, 2 = child)	Other comments

10. If nets are used for fishing in 11, what species of fish are being caught? (check all that apply)

☐ a. Chambo
☐ b. Usipa
☐ c. Species 3
☐ d. Species 4
☐ e. Species 5
☐ f. Unable to determine (UTD)
☐ g. Other (specify):

11. Estimate the proportion of fish that are juvenile.

☐ a. All ☐ b. Most ☐ c. Some ☐ d. Few ☐ e. UTD ☐ f. None

14. Please describe any other relevant information in as much detail as possible

_____

_____

_____

_____

_____

_____

_____

_____

_____

Use additional sheets of paper if necessary

Structured Observation Guide for Beach, Community, or Market

INSTRUCTIONS: On this form, the observer should keep track of the total number of each type of alternative net use observed during each observation. In other words, if you observe for one hour, you should record how many instances of each type of net use you see in that hour. Use the section for description on the second page to provide context for the specific incidents observed. Note: UTD = Unable to determine

SECTION A – SITE DESCRIPTION

1. Data collector _____ **File name** _____

2. Date _____ _____ _____

DD MM YYYY

3a. Start time _____ _____ **3b. End time** _____ _____

HH MM HH MM

4. **Observation type** (Check one only)

- ☐ 4.1 Beach
- ☐ 4.2 Community
- ☐ 4.3 Market
- ☐ 4.4 Other (describe)

_____

_____

_____

5. Location (Check one only)

- ☐ 5.1 Zomba – TA Mwambo
- ☐ 5.2 Machinga – Liwonde
- ☐ 5.3 Mangochi – Malindi
- ☐ 5.4 Nkhata Bay – Bandawe
- ☐ 5.5 Karonda – Ngala
- ☐ 5.6 Other (describe)

_____

_____

SECTION B – ACTIVITY OBSERVATION

6. What purpose is the net being used for? (Note: each time you see one of the uses mentioned below, make a tally mark to the right of that use. At the end of the observation, add up the tally marks for each type of use and record the total in the box to left of each type of use.

- ☐ 6.1 Fishing
- ☐ 6.2 Drying fish
- ☐ 6.3 Selling something
- ☐ 6.4 Window screens
- ☐ 6.5 Protecting plants
- ☐ 6.6 Khola/kraal for chickens, ducks
- ☐ 6.7 Patching
- ☐ 6.8 Roof lining
- ☐ 6.9 Lining around base of building
- ☐ 6.10 Other (describe:)

_____

_____

_____

_____

_____

_____

7. How many people are using the net(s)? (If no people are present, enter 0) ☐

8. If nets are used for fishing in 6, what species of fish are being caught? (check all that apply)

- ☐ a. Chambo
- ☐ b. Usipa
- ☐ c. Mulamba
- ☐ d. Utaka/ndunduma
- ☐ e. Mcheni
- ☐ f. Unable to determine (UTD)
- ☐ g. Other (specify):

_____

_____

9. Estimate the proportion of fish that are juvenile (circle response)

a. All b. Most c. Some d. Few e. UTD f. None

10. Please describe any other relevant information in as much detail as possible

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Use additional sheets of paper if necessary

IX. Data Analysis Code Book for Atlas.ti

VectorWorks created the following code book definitions with accompanying comments to explain the codes. The data analysis team used this codebook when reviewing the Malawi qualitative transcripts. These codes mirror the focus group discussion guide and should be used in any future qualitative data collection on ITN misuse. This will allow comparability across studies. Additional codes can be added, if needed.

Code	Comment/Explanation
A. future expectations	This code relates to question 3 on the FGD guide - particularly what expectations people have about the future for their children and grandchildren. Example quotation: *"I am number 7; if we cannot have ownership in the use of the environment, our children will have a big problem in the future because a lot of things will be destroyed for example how Maldeco (company which kills fish) is fishing with big fishing nets catching a lot of fish each and every day. I know our children will not see the things we have seen because the fish is not being cared for. Fortunately, now there is an initiative by a certain organization called National[SAH10] which is doing fisheries work that the fish should reproduce in the water where there is reed. So I feel if this initiative can continue may be our children will be able to see Chambo."*
A. go-environment	Use this code with relation to whether the environment is better off, the same, or worse off now than in the past. It's part of the general construct of whether life is improving, staying the same, or getting worse.
A. go-fishing	Use this code with relation to whether fishing is better off, the same, or worse off now than in the past. It's part of the general construct of whether life is improving, staying the same, or getting worse.
A. go-food	Use this code with relation to whether the situation with food is better off, the same, or worse off now than in the past. It's part of the general construct of whether life is improving, staying the same, or getting worse. Also use for comments relating to FGD guide q. 10.
A. go-health	Use this code with relation to whether health is better, the same, or worse now than in the past. It's part of the general construct of whether life is improving, staying the same, or getting worse.
A. go-livelihood	Use this code with relation to whether livelihood, income, economic status is better off, the same, or worse off now than in the past. It's part of the general construct of whether life is improving, staying the same, or getting worse.
B. fp-for sale	Short definition: Food production - for sale Full definition/When to use: Use when people are discussing producing food for sale to earn income, not for home consumption. Use food security codes when talking about whether people have sufficient food or not. Relates to FGD guide question #7.

B. fp-subsistence	Short definition: Food production - subsistence Full definition/When to use: Use when people are discussing producing food for their own consumption, not for sale. Use food security codes when talking about whether people have sufficient food or not. Relates to FGD guide question #7.
B. fs-agri	Food security issues related to agriculture or crops. This would include conversations about drought, pests, less productive soil, etc.
B. fs-fishing	Food security related specifically to fishing or lack of fish
B. fs-other	Food security related to issues not covered by the other fs codes
B. migration	Use for discussion of people going outside their community to work: To Blantyre, Lilongwe, Mozambique, or South Africa. This would include where they go, why they go, for how long, what they do, etc.
Background info	To show participant socio-economic status and occupation
C. Fishing pract	Use to code anything related to fishing practices: Where people fish, what type of gear they use, cost of gear, pros and cons of different types of gear, what type of fish they catch - anything related to section C of the FGD guide. Include in this code discussion of LEGAL fishing gear unless the discussion involves mixing legal gear with ITNs for fishing. Any discussion of ITNs for fishing should be coded with D. INT use-fishing.
D. ITN use	Use for any discussion related to section D/pile sort activity/drawings EXCEPT use for fishing - including both sleeping under nets and alternative uses. Do not use for discussion of fishing with nets - for that use D. Net use - fishing. Also do not use for discussions of whether people have enough nets or how many they received in the most recent distribution or other issues related to net access - for that, use codes in section E.
D. ITN use-fishing	Use for any discussion of using mosquito nets specifically for fishing. This would include discussion of legal gear used in conjunction with ITNs. Discussion of legal gear only should be coded under C. Fishing pract
E. ITN adverse	Any comments or observations about actual or perceived adverse effects from using ITN (e.g., infertility, rash, bed bugs, etc.)
E. ITN distrib	All discussion related to ITN distribution
E. ITN effectiveness	All discussion related to ITN effectiveness or ineffectiveness including need for retreatment
E. ITNs selling	Any comments related to selling ITNS
E. Malaria/health	Anything related to questions 17-19 in the FGD guide
F. Responsibility	Comments or suggestions about what can be done to reduce misuse of ITNs for fishing.
Intervention hook	Any comment, observation, or thought that might be included in or help form an intervention or recommendation for USAID/PMI
Paper	Quotes that would be effective to include in a paper
Social Desirability	Noting any potential social desirability bias

X. Rapid Assessment Illustrative Budget

This illustrative budget is meant to be a guide for any stakeholder wanting to move forward with a rapid assessment. Note, this budget is for the qualitative and observational data collection, as well as the data analysis and report writing; it does not include any costs for an initial site assessment or any interventions. The unit costs will certainly change, depending on the country and context, as well as the number of sites for data collection, number of data collectors, etc.

Activity	Effort (%)	Number of days	Quantity	Total cost (USD)	Comments/ Justification
Project PI	100%	2.00	1.00		The PI will provide overall leadership to the team in all aspects.
Project Coordinator - Social Scientist	100%	2.00	1.00		The project coordinator will be responsible for coordinating the project (from preparation, trainings, field work, data analysis, reporting etc.)
Data Manager	100%	2.00	1.00		Assist with programming electronic data devices, data management, cleaning and analysis.
Graduate research assistants - Translation of questionnaires to local language	100%	7.00	4.00		Questionnaires have to be in both English and local language. This study had four (4) local languages.
IRB approval					Local IRB fee for review and approval of protocol
Preparatory phase				**1,500.00**	
Advertising costs		2.00	1.00		2 adverts in the daily papers
Administrative Manager	100%	1.00	1.00		Provide administrative and logistical support to the project.
Recruitment				**750.00**	
Project PI	100%	1.00	1.00		The PI will provide overall leadership to the team in all aspects
Consultant costs:					
Project Coordinator - Social Scientist	100%	4.00	1.00		The project coordinator will be responsible for coordinating the project (from preparation, trainings, field work, data analysis, reporting etc.)
Data Manager	100%	1.00	1.00		Assist with programming electronic data devices, data management, cleaning and analysis
Graduate research assistants	100%	4.00	3.00		
Training of recruited research assistants					

Activity	Effort (%)	Number of days	Quantity	Total cost (USD)	Comments/ Justification
Vehicle hire (4x4 vehicles)		1.00	1.00		
Vehicle fuel		1.00	60.00		
Printing training materials plus stationery for training and recruitment					
Communication					
Training - Training constitutes 3 days in class and 1 day for study pilot				**5,000.00**	
Consultant costs *Project PI*	100%	1.00	1.00		The PI will provide overall leadership to the team in all aspects
Project Coordinator - Social Scientist	100%	12.00	1.00		There will be 1 team comprising Social Scientist and 3 graduate research assistants. They are expected to spend 18 days in field collecting data from all 6 study sites (this includes 6 days of travel)
Administrative Manager	100%	4.00	1.00		The administrator shall oversee the financial and all other grant management issues throughout the duration of the project.
Graduate research assistants	100%	12.00	3.00		There will be 1 team comprising Social Scientist and 3 graduate research assistants. They are expected to spend 18 days in field collecting data from all 6 study sites (this includes 6 days of travel)
Other field costs:					
Communication		10.00	3.00		Frequent communication with teams in the field as well as sending data collected to server
Digital recorders (3 additional required as back up)		1.00	3.00		For data collection
Per diems for Study Coordinator and 3 Research Assistants		18.00	4.00		There will be 1 team comprising Social Scientist and 3 graduate research assistants. They are expected to spend 18 days in field collecting data from all 6 study sites (this includes 6 days of travel)
Vehicle hire		18.00	1.00		There will be 1 team travelling to Karonga, Nkhatabay,

Activity	Effort (%)	Number of days	Quantity	Total cost (USD)	Comments/ Justification
Fuel		1.00	2,000.00		Mangochi, Lake Chilwa and Chikwawa. Estimated 2,000L of fuel.
Refreshments for focus group discussions		1.00	144.00		Refreshments for focus group discussion participants. At each of the 6 sites there will be two focus groups (12 males in one group and 12 females in another)
Community escorts		3.00	12.00		In each of the 6 sites we will have escorts to guide MAC teams through the communities for 3 days
Data collection				**18,150.00**	
Project Coordinator - Social Scientist	100%	7.00	1.00		The project coordinator will be responsible for coordinating the project (from preparation, trainings, field work, data analysis, reporting etc.). 7 days will be spent on data cleaning, management and analysis
Data Manager	100%	2.00	1.00		Assist with programming electronic data devices, data management, cleaning and analysis
Transcription - Graduate research assistants	100%	7.00	3.00		Digital recordings of all discussions will need to be transcribed into transcripts
Data management and analysis				**4,650.00**	
Project PI	100%	1.00	1.00		The PI will provide overall leadership to the team in all aspects
Project Coordinator - Social Scientist	100%	7.00	1.00		The social scientist is expected to spend 7 days on report writing
Report writing				**3,300.00**	
Total costs				**33,350.00**	
10% administrative costs				3,335.00	Administrative fees
GRAND TOTAL				**36,685.00**	