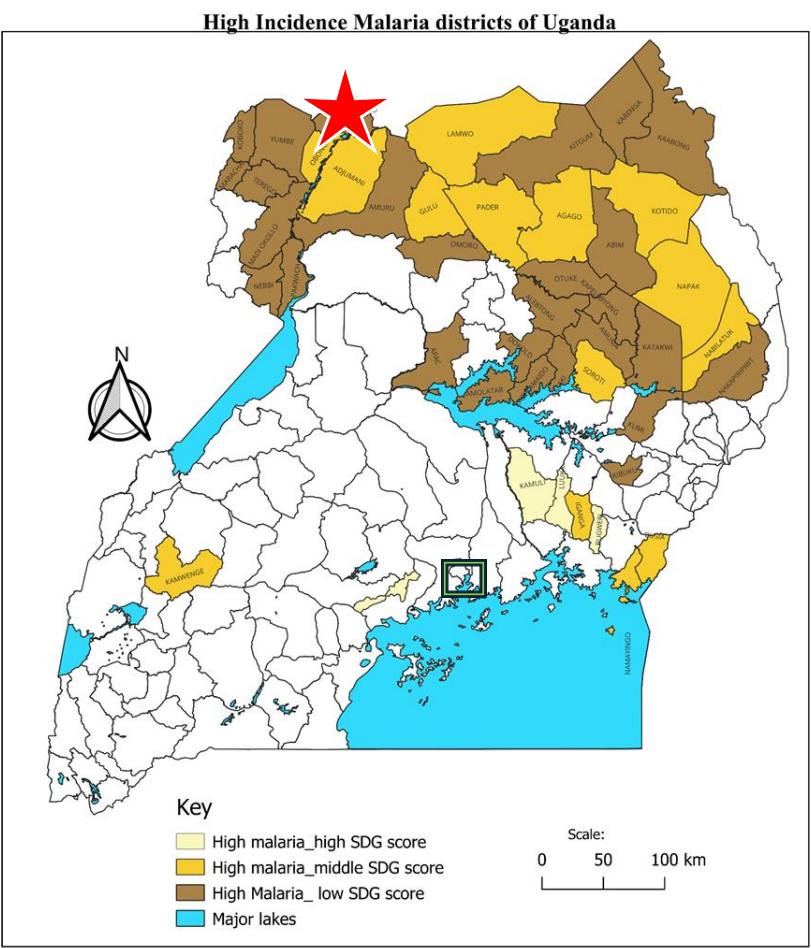




RESUME

The report presents the findings from Moyo district on the vicious cycle between lack of development and malaria. The target audience is people who want insight and detail. For those who want less detail and higher level of synthesis, please see Volume 1.

Authors: Susan Nayiga, Bonny Enock Balugaba, Stellah Namatovu, and Erik Blas

Building Pathfinder Impact and Investment Cases (PIICs) in Uganda.

Volume 4: Moyo District

Content

Executive note	3
1.0 Introduction	4
1.1 PIICs Objectives	5
1.2 Methods	5
2.0 Patterns of malaria, NTDs and enteric diseases by sub-county	6
Burden of malaria	6
Burden of enteric diseases	7
Burden of NTDs	7
3.0 Why is there so much disease and what's the impact?	8
3.1 Semi-structured interviews	8
Secretary for Health, Gender, and Community Based Services LC V	8
Chairman LC III, Laropi sub-county	9
Chief Administrative Officer (CAO)	11
Business owner / Farm manager	12
District Community Development Officer – DCDO	13
District Agriculture Officer - DAO	15
Head Teacher, Laropi sub-county	17
District Health Officer - DHO	19
Assistant District Health Officer – ADHO-MCH	21
Assistant District Health Officer Environmental Health – ADHO-EH	23
Development Partner – CEFORD	26
3.2 Focus Group Discussion	28
3.3 Commented results	29
SDG-Group 1: Political/ institutional	29
SDG-Group 2: Economic	29
SDG-Group 3: Social	30
SDG-Group 4: Environment/climate	30
SDG-Group 5: Health/system	30
Table 1: Development challenges in sub-counties versus malaria incidence rates	31
4.0 How can the vicious cycle be halted?	32
4.1 Pathway A – Indivisible SDGs	32
Group 1: Political and Institutional Challenges (SDG 16 and 17)	33
Group 2: Economic challenges (SDG 8, 9, 10, and 12)	33

Group 3: Social Challenges (SDG 1, 2, 4, 5, 7, and 11)	33
Group 4: Environmental and Climate Challenges (SDG 6, 13, 14, and 15).....	34
Group 5: Health system challenges (SDG 3).....	34
4.2 Pathway B: Five steps to become malaria-smart	34
4.3 Pathway C: 360° Accountability	36
Political Accountability	36
Technical Accountability	37
Public Accountability	37
4.4 Commented results	37
Table 2: Result of comprehensive effort-effect simulation	39
5.0 Closing discussion	40
5.1 Why has it not already happened?	40
5.2 For what would additional resources be used?	40
5.3 Does the district want to join why or why not?	40
Annexes	41
Annex 1: Recorded malaria incidence by Sub-County	41
Annex 2: Recorded incidence of enteric diseases by Sub County	42
Annex 3: Recorded incidence of NTDs by Sub County	43
Annex 4: List of key informants	44

Executive note

Kitgum, Kapelebyong and Moyo districts were selected from among the 27 out of Uganda's 136 districts where the vicious cycle between lack of development and malaria grinds the hardest. The Volume 4 report presents the detailed findings from Moyo district, including discussions held with local politicians, community leaders, senior government officials, technical and other people with insight. For synthesis, please see Vol.1.

While the District Health Officers reported, marked effects of indoor residual spraying (IRS), the vicious cycle between lack of development and malaria appears still grinds hard in Moyo – and in some areas and for some population groups it grinds harder than for others.

Building on and enhancing what is already there will help slow the vicious cycle. However, the district cannot do it alone – but needs gentle push and guidance.

Moyo, like Kapelebyong and Kitgum needs a larger share of the national pie because it is among the 20% of the districts left the furthest behind.

The report at hand (vol. 4) shows a continued serious and difficult situation despite some reported improvement. The situation is a result of many diverse factors that intersect to form the vicious cycle that produces disease, poverty, lost opportunities, and that leaves Moyo behind most other districts in Uganda.

To break this vicious cycle comprehensive concerted action across many different factors along three pathways A, B, and C is needed (see figure 1). The people who were interviewed and participated in the focus group discussions (FGD) demonstrated in-depth knowledge of their individual subject fields as well as the communities they serve. They further acknowledged the need for support, guidance and committed to eventually participate in the Pathfinder roll-out

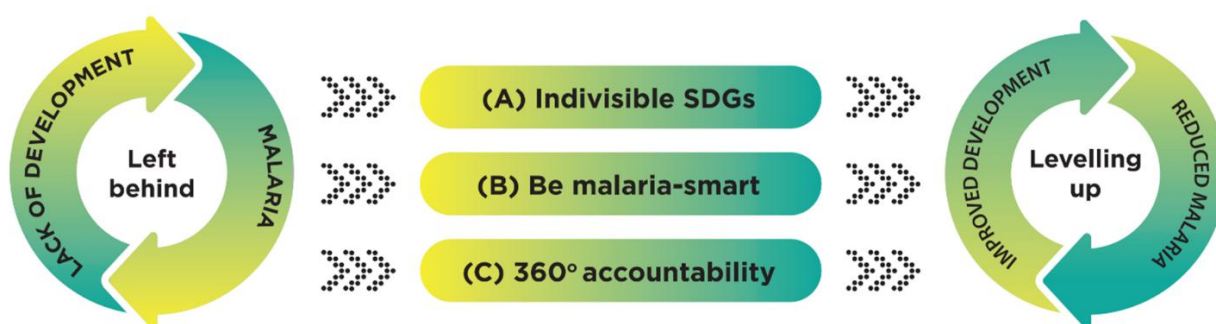


Figure 1: The three pathways from vicious to virtuous

An encouraging insight is that with minimal catalytic investment and a facilitated process to get more out of existing structural, human and financial resources, stakeholders consulted during the exploration believed that many small improvements could be made in a concerted fashion across the three pathways. The outcome would be mutually amplifying improvements, leading to economic, social and health gains; and to the slowing or inverting of the vicious cycle between lack of development and malaria for it to become virtuous.

1.0 Introduction

Despite significant investments in combating malaria, NTDs, and enteric diseases over the past several decades, these health challenges continue to persist due to various systemic and operational issues (George, David et al. 2023). The World Malaria Reports of the past five years, show that the number of malaria cases in the WHO African region are increasing. This highlights the complexity of rolling these diseases back as well as the fragility of achievement.

In Component One of the Uganda Pathfinder Impact and Investment Cases (PIICs) we analyzed data on Sustainable Development Goal (SDG) indicators and malaria cases available by all districts in Uganda (see “*Vol I PIICs Synthesis Report*”).

3by3 pct. distribution of the 136 districts (tertiles)				
SDG Average score				
	Low	Middle	High	Total
High	20%	10%	3%	33%
Middle	9%	10%	15%	34%
Low	4%	13%	15%	33%
Total	33%	33%	34%	100%

RR= 7

RR= 5

Each district with high malaria incidence was then categorized as low, middle or high SDG-score, the same for middle and low malaria incidence districts.

Of the one-third (33%) of the

Figure 2: Relative Risks (RR) – for more information, please see Vol. 1. districts with High malaria, 20% had low SDG-score, 10% middle and only 3% low SDG-scores, see the 3by3-table (figure 2).

This means that if a district has high malaria incidence it is seven times more likely to have low SDG than high SDG-score (RR= 7). If a district has low SDG-score it is five times more likely to have high than low malaria (RR= 5). This strongly suggests a vicious cycle between lack of development and malaria where one negatively intersects with the other, causing the district to be left behind.

The Pathfinder Impact and Investment Cases (PIICs) focus on the 20% of districts where the vicious cycle between lack of development and malaria grinds the hardest, i.e., that are left the furthest behind. From these, three districts, i.e., Kapeleyong, Kitgum, and Moyo were selected for Component Two (see the map in figure 3).

Recognizing that addressing these intersections

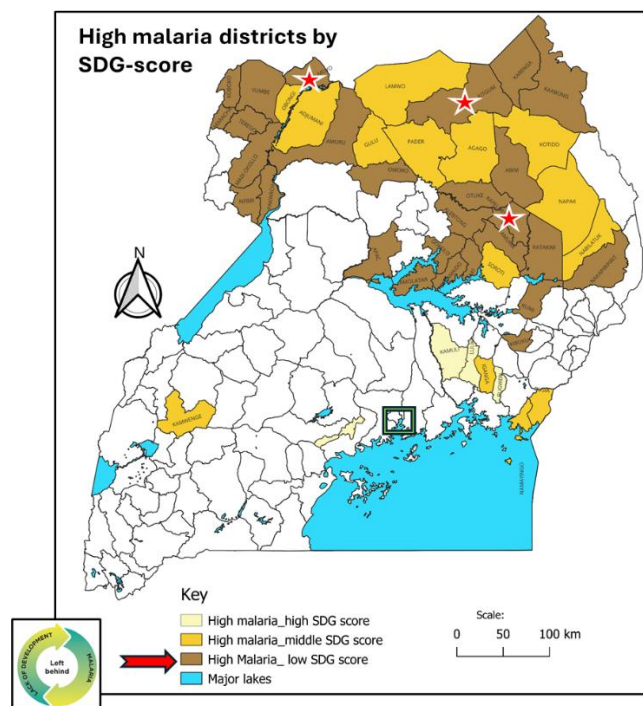


Figure 3: Map of districts in the highest third malaria incidence rate by SDG-score (see also figure 2)

requires a comprehensive approach that tackles the root causes of the situation, the Pathfinder Endeavour embarks on a *try, learn, and share* process taking on new transformative ways of thinking and implementing on the ground through *three concurrent pathways from vicious to virtuous*⁴. The PIICs is an attempt to build the case for rolling out *The Comprehensive Multisectoral Action Framework – Malaria and Sustainable Development* to address the vicious cycle of lack of development and high incidence of malaria, NTDs, and enteric diseases. We recognize that this vicious cycle is complex and multi-faceted and that there are likely to be more questions than answers but by undertaking these PIICs we provide insights on locally relevant causes of and strategies to halt/invert the situation.

1.1 PIICs Objectives

General Objective:

To assess the situation in Moyo district with respect to sustainable development, malaria, NTDs and enteric diseases and build the impact and investment case for comprehensive multisectoral action grounded in existing structures and resources.

Specific Objectives:

1. To understand where within Moyo district the vicious cycle of slow progress in development and high burden of malaria, NTDs and enteric diseases grinds the hardest.
2. To understand why there is this vicious cycle of slow progress in development and high burden of malaria, NTDs, and enteric diseases in Moyo district.
3. To explore with local stakeholders, ways to halt/invert the vicious cycle of slow progress in development and high burden of malaria, NTDs, and enteric diseases in Moyo district.

1.2 Methods

The case-building used an exploratory mixed-methods approach and was conducted in three steps, i.e,

Step I: Analyzing data on malaria, NTDs, and enteric disease patterns by sub-county

Step II: Conducting structured interviews with key informants

Step III: Conducting structured focus group discussions with the key informants



2.0 Patterns of malaria, NTDs and enteric diseases by sub-county

The numbers provided in this section were obtained from a review of the Health Management Information System (HMIS) records of reported cases at the public health facilities within Moyo district. Note that the actual numbers might be considerably higher, as not all public facilities report, and private clinics as well as over-the-counter drug-sellers are currently excluded from reporting.

Burden of malaria

Within the Moyo district, the reported malaria burden was highest in Laropi and Lefori sub-counties at respectively 1.052 and 955 cases per 1,000 population in 2023. The lowest reported malaria incidence rates were reported from Metu sub-district (668 per 1,000) and Moyo town council (464 per 1,000), see figure 4 and annex 1.

It was mentioned by the district health officers that indoor residual spraying (IRS) in recent years has lowered the number of malaria cases. However, this cannot be seen from the 2023 case numbers. In addition to these numbers, there is reportedly a considerable number of people seeking care from the co-called clinics that are not covered in any reporting (see section 3.1)

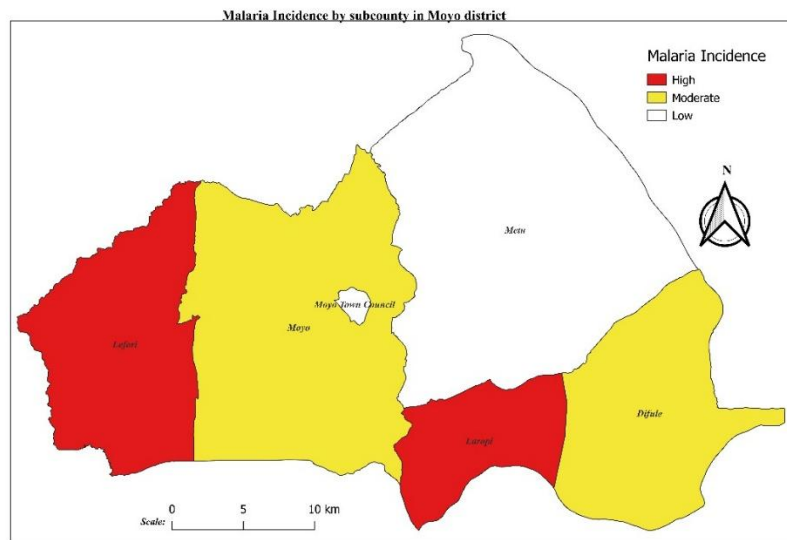


Figure 4: Incidence of malaria by subcounty 2023

Burden of enteric diseases

With the exception of Laropi, enteric diseases were reported from all sub-counties. The highest rates were reported by Moyo sub-county (8 per 1,000) and Moyo Town Council (3,4 per 1,000). This might be due to considerable underreporting of the other sub-counties, or that it is an urban phenomenon. The interviews suggest the former (see section3.1)

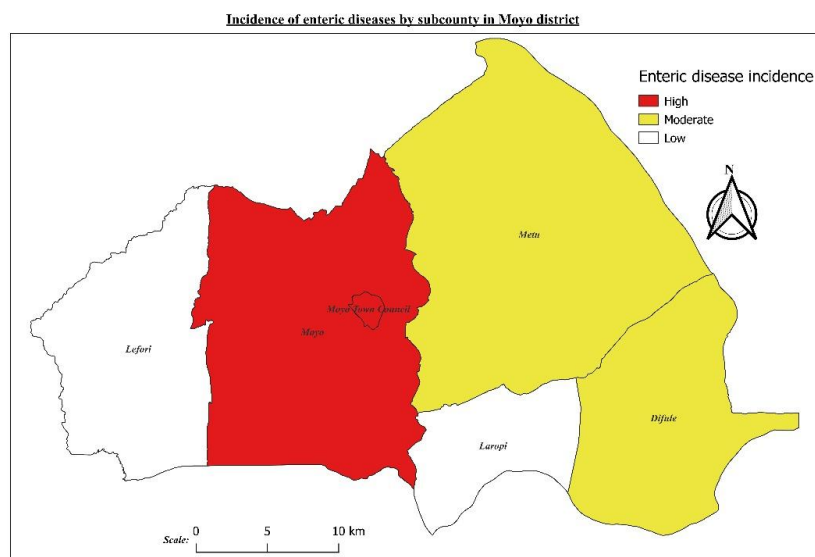


Figure 5: Incidence of enteric diseases by subcounty 2023

Burden of NTDs

A total of 37 NTD-cases were recorded in 2023 for Moyo district. The vast majority of these, 29 (78%) were reported from Moyo sub-county. Whether this is a true reflection of the prevalence of

these diseases is not clear. The watery and swampy environments of some parts of the district combined with low coverage of health facilities might suggest some degree of underreporting.

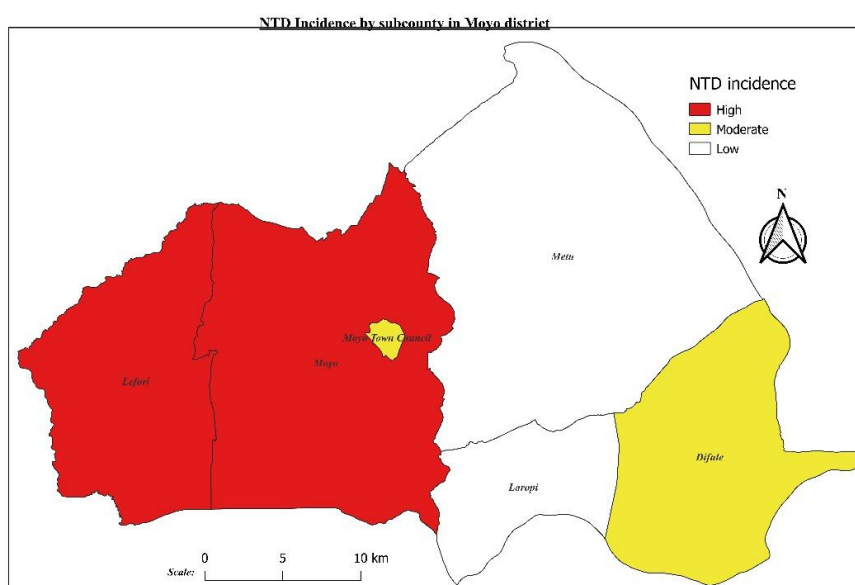


Figure 6: Incidence of NTDs by subcounty in 2023

3.0 Why is there so much disease and what's the impact?

3.1 Semi-structured interviews

Semi-structured interviews were held with 12 key informants: political and administrative leaders, technical officials, and one development partner (see Annex 4). Items that were discussed included: type and reach of operation, effect of malaria, NTDs and enteric diseases on operations and why there were so many of these diseases in the district.

Secretary for Health, Gender, and Community Based Services LC V

The Secretary highlighted that while government programs like Indoor Residual Spraying (IRS) have helped reduce malaria, the disease remains a major challenge, particularly in geographically disadvantaged areas such as Laropi and Lefori. Poor sanitation and cultural beliefs worsen transmission in these areas. Other diseases like TB, leprosy, hepatitis, and typhoid further hinder progress, creating a vicious cycle where illness leads to economic loss and slows development.

“In my role as a leader, secretary, community and member of the district I always emphasize and make awareness about the dangers of malaria. We always create awareness to the community about the programs of government about anything of malaria.”

The Secretary reports that the government has been emphasizing ways to prevent malaria, spending significant resources on treatment. The introduction of IRS has notably reduced malaria rates in Moyo District. The Secretary encourages the community to embrace all government programs aimed at eliminating malaria, stressing that a healthy family is productive

“So as a line minister for health in the district I always encourage my community to embrace every program and to work towards eliminating malaria in the whole district, yes.”

The prevalence of malaria is high in sub-counties like Laropi and Lefori, which are located along the Nile and have rampant breeding places for mosquitoes. In contrast, areas like Motokaso and Oche have lower prevalence rates. The Secretary attributes these differences to geographical locations, with forests and water bodies being prime breeding grounds for mosquitoes. Additionally, cultural attitudes and poor sanitation contribute to higher infection rates.

“In that regard you know we have different geographical locations like when you take those areas of for Oche, Duffe and Laropi; those are areas which are located along the Nile. You know the breeding places for malaria are so rampant in such cases. Our people along those areas get infected more than those in town-councils. And also, Oche is a mountainous area and is forested. You know mosquitoes breed in areas where there are forests and water bodies. You know and also apart from that our attitude, yeah, our attitude and our mindset. You know we have a belief that when a child does not fall sick, he actually is not growing but when a child falls sick, meaning the child's growth is okay. So that is the mentality that we do have as communities in other areas. But above all, the biggest problems are about the maintenance. I mean our sanitation is another challenge because if you don't clear around your homestead when there are bushes around your homestead, that one acts as a breeding space for mosquitoes.”

High malaria prevalence leads to economic losses, as the limited resources are spent on treatment rather than productivity. The community faces poverty because the little they earn is spent on treating malaria.

“Yes, I think the district will achieve more when the burden of malaria is reduced because as we say we know malaria still remains a burden on our community and I continue to repeat that when the prevalence rate of malaria has reduced also, economically people become more productive in participating in different activities. Yeah, and it will be a very good step up for the district.”

The Secretary recommends that researchers share their findings with local leaders to improve awareness and develop better control strategies for malaria, enteric diseases, and neglected tropical diseases.

“Yes, because we have a lot of diseases that are hindering our development apart from malaria, we have TB, we have leprosy, we have hepatitis, we have typhoid. These are other diseases really that need the attention of the government.”

Chairman LC III, Laropi sub-county

The chairman describes Laropi as located along the Nile, bordered by other sub counties, and consisting of five parishes. The area has a population of approximately 11,000, with four primary schools and no secondary school. The sub county leadership includes administrative, agricultural, community development, and health representatives, all working collaboratively across the parishes. The chairman's primary responsibility is to ensure the health, sanitation, and economic well-being of the community.

“I need to empower them to do economic activity – people cannot survive.”

Malaria emerges as the most pressing health issue in Laropi. Unlike cholera, which has been well-controlled through improved sanitation and hygiene efforts led by village health teams, malaria remains rampant. Only two health center IIs serve all five parishes, and frequent drug shortages force residents to pay out of pocket at private clinics. This financial burden and recurring illness reduce school attendance and community productivity.

“Laropi sub-county is leading in malaria. Unfortunately, we only have health centers in Laropi town council and in Laropi sub-county. When our patients fall sick, taking them to Moyo General Hospital needs money. That's one of the challenges and the malaria drugs. These drugs in health center II's in Laropi gets finished very quickly. Going to buy drugs from clinics makes most of our community lose money. That's a major issue, and when they fall sick, they cannot go for activities that can bring them money.”

The chairman attributes the higher levels of malaria in Laropi and Lefori sub-counties compared to other areas of the district to differences in environmental factors (abundant streams and swamps and limited community awareness about mosquito net use. Cooler temperatures in Oche make it less suitable for mosquito breeding, while urban residents in Moyo Town Council can afford preventive measures.

“It's only Laropi and Lefori that have a lot of streams and swamps where the breeding places for mosquitoes are very many. And, secondly, the community is not well sensitized on how to sleep under mosquito nets. That's the only two reasons I can think of why these two sub-counties are leading in malaria.”

However, the chairman further added that fishing (especially at night), early morning cultivation, and nighttime bricklaying are widespread in Laropi and contribute significantly to malaria exposure, as these times correspond with peak mosquito activity. These necessary economic activities are difficult to alter given the community's livelihoods.

“The problem especially in my sub-county here is, you cannot control the community going fishing, you cannot control the community for brick laying. You cannot stop coming for cultivation early in the morning at that time the mosquitoes are there too. What I tell is to get the drugs for malaria to be available in all health facilities and tell the community to use mosquito nets at night. Yeah, because some of our activities cannot be stopped.

Let me tell you, going fishing in the daytime, when the mosquitoes are sleeping. No! Even the fish are caught at night hours. So, laying traps at night when the temperature is cool that gives the workers energy to work more. So, it's very impossible, yeah!”

The chairman emphasizes the need for consistent mosquito net distribution, enhanced health facility access, and ongoing community sensitization about hygiene and prevention. While economic routines are essential and hard to change, education and support can gradually reduce malaria's toll. He commends ongoing government programs like indoor residual spraying (IRS) for their positive impact and advocates for continued stakeholder collaboration to improve health and development outcomes in Laropi.

“I recommend that we community encourage, at least more people to be educated to come and sensitize our communities on the ground here so that they will get knowledge about the spread of the infection. At least in future the malaria cases will be reduced but not be eliminated.”

Chief Administrative Officer (CAO)

“My area is the head of civil service, and I oversee all the staff and implementation of service delivery.”

Malaria and other diseases such as cholera and neglected tropical diseases (NTDs) significantly hinder both service delivery and economic progress in Moyo district. Frequent illness impacts the productivity of both staff and residents, as resources that could be invested in development are diverted toward medical treatment. This creates a downward cycle: a sick populace yields lower productivity, resulting in lower tax revenue and stalling district development. The local government struggles to generate sufficient revenue as a consequence of this persistent health burden.

“They must spend money on treatment. That money they could have used for other development work. So that means they are not able to invest in themselves. For us local governments, because if they were working, they would be doing creative things. That would bring money which we could tax. So, you find that the tax base is low. The people are sick. They're not able to work and earn and are spending more on treatment. But also, they're not bettering their own lives. So, it becomes very difficult for such a district to even develop. Yeah!”

There are notable differences in malaria incidence between sub-counties. For example, Laropi sub-county, with a population of about 4,445, reported over 7,177 malaria cases in 2023, indicating a high incidence rate. In contrast, more urban areas like Moyo Town Council recorded fewer cases relative to their larger populations. Geographic features, such as proximity to water bodies and bushy farmland, contribute to these differences. Behavioral factors are also significant: fishing communities face higher risks due to their exposure near water, while farming communities may sleep outside without mosquito nets. Village homesteads often have overgrown grasses around houses, providing additional breeding grounds for mosquitoes.

“For me, that would be because if you look at the hill, maybe the mosquitoes don't want to stay in a cold place. But for Town Council, I think people could have adopted the use of mosquito nets. So, they are mindful about their environment, that in itself can be, but also, they know the mosquito repellents. But if you go to a place like Lefori, for example, it is a very bushy place. Yeah, because it's a farmland and there are a lot of water bodies there. Laropi is near the water. It is a fishing community because now, the father will go to the water, get their malaria there and then the same mosquito will come and bite him, and then the sequence. For me those could be some of the reasons, yes.”

“Just like I said in Laropi they are fishermen. So that, you know the life of a fisherman, he stays in the water and unfortunately, when they come back, they're just thinking about drinking. They could go back late, so they had a bad lifestyle. Now go to Lefori, they are farmers, these people when they feel tired, sleep outside, not in a mosquito net. But also, really our homesteads, you find the grasses grown up. They're not like in town where people want to put their grass level down – in the villages is the reverse. You find that around that around the house, just a small bit in front is well levelled but behind with a lot of bushes. So, for me that, yes, the livelihood, the farming attitude, the fishing attitude vis-à-vis the commercial setting in town, for me, I think really plays a bigger role, yes.”

The interplay between lifestyle, occupation, and environmental management directly affects disease risk and overall community health and development.

“Of course, production will go high, like I said. If they could change, OK. I'm not saying they shouldn't farm, but if they could begin cleaning around there, they would fall less sick because the place where mosquitoes breed would reduce. Like if people, I don't know how you do it – for the fishermen because they have to go to the water anyway, maybe they need repellents. But still, I think their productivity would go up. But also, they would be a healthy community, yes.”

The CAO advocates for persistent sensitization, focusing on daily habits and the necessity of protecting children. Adjusting behaviors around home and work can reduce disease incidence and foster a healthier, more productive district.

“Sensitization, sensitization! I still think a lot of sensitizations because our people, although the mosquito nets are given – but who is using it is the old people, not the children. And yet, if you look at the data properly, it is the children who are mainly affected by this malaria.

So, I think sensitization really should focus on behavioral change. Because yes, I really agree that elderly people also need it, but most times we deprive the children. Also, IRS comes with less of that, it makes the sprayed mosquitoes die and reduce the role of the individual. Not like a mosquito net where somebody must first put it up. With this heat of ours, you know, people say I can't sleep under mosquito net with the heat. So, for IRS it is better. For me, really, I won't lie – I think we should focus on the message on the way we live our lives, yes.”

Business owner / Farm manager

The St. Thomas Demonstration Farm is located in Gwere West village in Gwere parish in Moyo district at the border with Yumbe district and primarily aims to provide food for St. Thomas College and the surrounding community. It serves as a model for modern farming practices, offering employment opportunities to various categories of workers—skilled, semi-skilled, and casual—from the local area and beyond. The farm also operates as a learning center for students and local farmers, training them in resilient agricultural techniques suited to changing climate conditions and limited resources.

“Our goal is also to provide extra food for the community. In that way people and the community are food secure. We also have a goal to raise some funds. That is in terms of the monetary value which in return circulates around and I think it can alleviate the poverty levels and then not only that, provide employment opportunities for the locals around. And that way they're able to support themselves, yeah. Basically, that's some of the few things we do.”

Malaria and other neglected tropical diseases (NTDs) have a significant negative effect on farm operations. The farm is located in an area with limited health facilities, leaving staff and workers vulnerable to illness. When workers fall sick, productivity drops, which in turn affects both income and food security. This cycle can lead to increased poverty and decreased employment opportunities. The presence of malaria is exacerbated by environmental factors such as nearby water bodies and dense bush, providing ample mosquito breeding grounds.

“When diseases, like malaria, hit our employees, it puts them down for days which in turn can affect the production at the farm level. That means it even affects the income at the end of the day. If income stops flowing, well there's a loss somehow. First, as a farm or a company, if things are not being done well, that means it reduces our capacity to keep on producing, which in turn affects the employment opportunities that we intend to give these people. Then not only is production reduced even the goal of making sure this food security is affected, and you know when people are not food secure.”

There are notable disparities in malaria incidence across different sub-counties in Moyo district. Areas like Laropi and Lefori sub-counties, which are near water bodies and have more bush, report much higher malaria cases compared to urban centers like Moyo Town Council. Accessibility to health services and public health information also plays a role, with rural and remote populations being less informed and less able to protect themselves.

“So, you find these other places, for example Laropi which has been reported to have the highest, it is first of all located thing near the water bodies and then there are a lot bushes. So, you find there are a lot of breeding grounds in some of these places compared to Moyo Town Council that has a lower rate. Then also I see access to services, most things are accessible, besides that they are informed, let's say. Yeah, that aspect of knowledge is also there. So, people here are more informed and have an upper hand on how to prevent these things compared to someone who is from a distant place like a Lefori.

The interview highlights both behavioral and occupational factors in disease transmission. Poor use of mosquito nets, lack of environmental cleanliness, and risky nighttime activities (like fishing) increase vulnerability to malaria. Economic activities that require people to be outdoors at night further heighten the risk.

“Well, I will begin with the behavioral pattern, I see the lifestyle people live. Especially in these high-risk places is that people, let's say they take things for granted. For example, like I mentioned earlier, people can sleep in it. But you find someone leaving the net open and then at the end of the day he just comes and sleeps or brings down the net without trying to chase the mosquitoes within the net first. So that means it's a behavioral pattern like you're living carelessly. Let's say your surroundings are not kept clean. It provides a lot of breeding ground for the mosquitoes. It predisposes them to all this.

And then concerning activities you find most of these people are their work. They do physical work. Let me relate to Laropi – their main activity there is mostly fishing. You find that you go fishing at night but at night you're not protected. So, what they're doing. It puts them at the risk because now at night, I don't think you have protective cloth, and that's how they get exposed.”

The informant notes gradual improvement, citing increased information flow, comprehensive government interventions, including as indoor spraying, regular public health efforts, closer health facilities, better support for institutions, and the provision of basic drugs. The anticipated outcomes include improved productivity, reduced poverty, and better educational opportunities, all benefiting from reduced disease burden.

“Yes, if those things are done, I'm sure people are going to be more productive like I say. That means poverty will be reduced, and people even can send their children to school to learn more. And when there are more learnt people in the community some of these things will reduce at family level and even at community level, which can extend up to the district.”

District Community Development Officer – DCDO

The DCDO in Moyo plays a central role in mobilizing communities towards development, with health as a prerequisite for development. The position involves coordinating with community development officers across the district's town councils and sub-counties to encourage participation in development initiatives and promote good health practices.

“My main role as a district community development officer is to mobilize members of the community so that they embrace development. Where there is sickness, development cannot progress very well, so the diseases like malaria that affect larger part of the community.”

“In Moyo District, we have 10 lower local governments, out of these, three are town councils and seven are sub counties. Now it is only in these sub counties and town councils we have community development officers. These are the people with whom I work to mobilize the community.”

Malaria is a major impediment to development in Moyo District. The DCDO notes that frequent illness disrupts community activities and reduces the effectiveness of development programs. Mothers often miss meetings or leave early to care for sick children, hampering both their personal and community growth. The resources spent on treatment, transportation, and lost work time could otherwise contribute to local development.

“The impact of malaria affects members of the community and my work directly. Because you call everyone to this meeting, a mother is supposed to be there. They will tell you this mother has taken a child for treatment. Sometimes in the middle of the meeting, a mother will say I've received the communication, my child is sick. I'm going to take her for treatment. They are mothers who cannot fully participate in development activities because their children are so frequently sick. So, this makes my mobilization very difficult, yeah.”

There are significant variations in malaria incidence across different sub-counties. Areas like Laropi and Lefori experience much higher rates compared to others such as Oche and Moyo Town Council. Factors contributing to this variation include environmental conditions (presence of swamps and proximity to the Nile), differences in housing quality, and varying health-seeking behaviors. In high-incidence areas, people are less likely to use mosquito nets or seek timely medical care, further increasing the burden.

“When we look at Oche, Oche is mostly hilly and there are fewer swarms meaning the ground for malaria multiplication is low. When you go to Lefori, it is swampy. In Moyo, most of our rice we grow our rice in these swampy places and Lefori also has much of the rural community. This rural community is not going to follow instructions as given. We are saying sleep in the net, you find the people don't sleep in the nets. The housing structures are not very good.”

“For Laropi, it is just like Lefori. It is along the Nile, so, there is ground for breeding of malaria that is widespread, and the people equally don't follow instructions. Their health seeking behavior is low, and that gives the room for that level of infection. And you can see their burden is two times in one year, meaning more than half of the population were infected twice.”

“But when you come to Moyo Town council, at least people understand the importance of following those guidelines. And when somebody becomes sick, immediately this person is rushed to hospital, so mosquitoes don't get the parasites from one patient and transfer them to another, at least they are treated immediately.”

Farming is the predominant economic activity, often carried out in swampy areas that are breeding grounds for mosquitoes. Many residents are not aware or concerned about how their agricultural practices contribute to the proliferation of malaria. Poor housing construction, with gaps that allow mosquito entry, and inconsistent use of mosquito nets, especially during the hot, dry season, exacerbate the problem.

“Majority of the people are farmers and those who do go far and bring the baby in the swamps. They must be sensitive to not creating pools here, and as they farm to think of destroying those sites where malaria mosquitoes can multiply. But it's like the local people are not bothered about that.”

“The way we even build our houses is a problem, because there is a detachment between the wall and the roof. The common practice is to close the doors and windows in the evening. Local houses, even if you close the doors and windows, still, the mosquitoes have room to go in, so there is a need to change in the way we build our houses so that we block all spaces completely. When we say close, mosquitoes will not be able to go into the room.”

“These nets were given out by the government, but their use is still a problem because especially in dry season they say it's very hot and mosquito nets increase the level of hotness in the bed, so they remove it. But we have to stick to the guidelines building good house and. We must sleep in insecticide treated mosquito nets, yes.”

The DCDO emphasizes the need for and benefits of improved housing, consistent use of insecticide-treated nets, and greater community sensitization on the links between daily practices and malaria transmission.

“In the absence of the diseases, it will have a lot of gain for the community because the energy being wasted in chasing medical treatment will be directed to development. The money spent on boda-boda and buying medicines will be directed to development.”

Sharing knowledge and strategies with other districts facing similar challenges is seen as a valuable step through collaborative efforts to reduce malaria and foster sustainable development.

“I think, to me – the research you are carrying out is unique and different in this. Please, we would be happy if you shared those findings with us. How are the other district working to reduce the level of malaria infestation in the area so that we could also learn and use that knowledge to help us.”

District Agriculture Officer - DAO

The DAO oversees agricultural activities across Moyo District, coordinating a team of six agricultural officers and four assistants. The role involves education and outreach to farmers and extension staff, promoting improved farming practices, managing natural disasters, ensuring proper land use, and monitoring and evaluating agricultural projects for quality. The office covers all ten sub-counties in the district, aiming for district-wide agricultural development.

Malaria and similar diseases pose a significant challenge to agricultural productivity. The DAO highlighted that illness reduces participation in essential activities such as training, meetings, demonstrations, and field days. It negatively affects farm productivity and yields. Since most farmers rely on household labor rather than hired workers, sickness within families directly lowers farm output, food security, and household income, contributing to persistent poverty.

“Of course, once there is somebody who is sick. And now when we are talking about sickness, it is malaria. It affects our work in participating in our activities, say trainings, meetings or field days then also attending demonstrations. So, you may find the participation may be low as a result of some members of the community being sick. And those who don't attend don't get their skills to do better family and ultimately then the yields will not be as good as expected.”

“But again, now if in the family there are sick and you know the labor in their farms is from the households, these peasants rarely hire laborers, so they use their household labor so that means few people will go to the farm. Of course, production would be low and eventually that means if production is low, food will not be enough, households will be insecure regarding food and household income. And if those two things are not there, the standard of living is low, and it causes poverty.”

Malaria incidence varies across sub-counties. Laropi and Lefori sub-counties have notably higher rates due to environmental factors such as waterlogged areas and proximity to the Nile, creating ideal mosquito breeding grounds. Socioeconomic factors also play a role—poorer and less educated communities are less likely to use preventive measures like mosquito nets. In contrast, sub-counties at higher altitudes or with better education and income levels, such as Oche and Moyo Town Council, report lower malaria rates, benefiting from cooler climates and greater awareness of disease prevention.

“Yeah, I think, first, particularly for Laropi, there are many areas that are waterlogged within the community, including the Nile River itself, so, the breeding grounds for mosquito along the Nile is quite big.

Secondly, it's also related to poverty. Those who are poor cannot access those preventive services that may make them not get malaria. And then the mindset is also not good because when the government gives out mosquito nets, they never mind and don't use mosquito nets as required. They think and say that their grandparents have been in that environment, and they have survived. To me those are the major reasons. And also, they do other economic activities that expose them to mosquitoes, for example fishing, which they usually go for in the evening and throughout the night. Then also drying the fish itself necessitates you to be around (all night) and you cannot use a mosquito net while outside. “

“And now, for Oche sub-county there is a high-altitude and cooler and cases of water accumulating within the community are not there since most of the water comes to the lowlands so their low incidents could be because of that. And the level of education in Oche is higher compared to Laropi and that can cause a positive mindset about malaria control. So, for the high burden of malaria in Laropi we can talk about the education level. In the town council, these are highly urban areas, and they are highly educated and informed, and they have a bit of money, even if the government doesn't give nets. Some even go for prophylaxis, so they informed, and they have money.”

Certain local agricultural and economic practices increase disease risk. Farmers often travel long distances and camp in their fields without protective nets and increased vulnerability to mosquito bites. Fishing and fish drying—often conducted overnight near water—also heighten exposure. In urban areas, social and economic activities in the evenings can pose risks, though higher education and income tend to mitigate these.

“Not much, but with the farming of some communities, because of land shortage they go very far. And it makes them not come back home, sometimes they camp in the gardens and there are no preventive measures there. They are exposed for the time they garden, even if it is one week or two weeks.”

“Of course, in the evenings there are people who go out. They are not at home. And that happens everywhere. Most of the evenings people use for social activities and some for economic activity.

In the rural areas you still find people sitting around the fire. So those are some of the things that predispose them.”

“Farming is our main economic activity. The majority of households are farmers, and they earn through farming. So, if the majority are poor because they are sick, they cannot do work and they are not productive, and it means the whole of the district will be poor.”

The DAO advocates for increased community education, consistent use of distributed mosquito nets, and deeper engagement by local leaders, including religious and community heads, to change health behaviors. Improved disease control would enhance agricultural productivity, food and income security, and overall development. Addressing negative mindsets and resistance to malaria prevention is seen as essential for achieving better livelihoods and reducing poverty in Moyo District.

“There is this other mindset which is negative about malaria control. Like there are some communities that are resisting it. The leadership of the district should give ample time to mobilize when they're mobilizing and sensitizing the communities. They should start implementing now. They should involve the religious leaders and the community leaders down at the local councils and have meetings in the villages. This will reduce the burden, and of course eventually improve the lives of the community.

When I say better lives, I mean there's food security, income security because the burden of malaria would have been lowered and people would be productive. Whoever is doing this work should do it uninterrupted because it's not affected or infected by malaria.”

Head Teacher, Laropi sub-county

At Idrimari primary school, the Head teacher works with ten government employed teachers. Three quarters of the staff live within the school, while the rest come from their homes - but within the sub-country where the school is.

“As Head teacher, my specific role is to allocate responsibilities to teachers who work under me. Then also, share the school challenges with stakeholders, especially the management committee, the PTA executives and sensitize the learner's as well as breaking some of the challenges, shared by the stakeholders to be addressed by the PTA general meeting with the parents.”

The headteacher describes malaria as a significant challenge to both students and staff. Frequent episodes of illness lead to missed classes for learners and absences among teachers, disrupting the teaching and learning process. Students who miss even one or two days of school due to malaria struggle to catch up, which negatively affects their academic performance. Similarly, when teachers are ill, lessons are either delayed or not delivered at all, compounding the educational setbacks. The result is a cumulative negative effect on overall school outcomes.

“It is true that malaria is one of the dangerous diseases that affects the learners during their learning process. It makes them a bit unstable to attend the classes fully. They can go for treatment and sometimes after treatment the child may not come back on that very day. Then you realize, one day or two days missed here and there by the learner, this learner will not catch-up with the time that the child lost.”

“It affects their attendance when the teachers fall sick. They will not deliver the lessons expected to adequately. Learners, once they feel sick and they are affected with the disease, you realize

they will not be attending the lesson. With time, the gaps will keep accumulating and will affect the performance of learners and the teachers as well.”

Laropi sub county records one of the highest malaria incidences in the district, with the headteacher attributing this partly to its geographic location along the River Nile. This proximity provides ample mosquito breeding grounds, especially during rainy seasons when stagnant water is common and not well managed. The lack of adequate knowledge on controlling mosquitoes, improper or infrequent use of mosquito nets, and poor hygiene in the community further exacerbate the problem. Comparisons with other sub-counties like Oche and Moyo town council reveal that better management of stagnant water, higher levels of public sensitization, and improved hygiene practices are associated with lower malaria rates.

“That is true, when you look at the location of Laropi sub-county, it lies along River Nile belt. As it lies along the river, the prevalence for the mosquitoes to breed is high. As a result, where the mosquito breed highly, it will also bite people frequently and cause more diseases. And it is a bit difficult to control looking at the knowledge gap in the control of the mosquitoes.”

“When it rains, there are stagnant waters within the community, that are not being managed well. This gives breeding ground for the mosquitoes to produce more. Where the mosquitoes produce more, the female mosquito that spread the malaria will also be many. And along the Nile, the level of hygiene, especially in cleaning the area around the homes, is also not proper. This also gives some opportunity for the mosquitoes to breed, and definitely it also triples to bite.”

“In Lefori, you look at the stream Yii which is a bit wide. The areas covered with grass are also bigger compared to the wide area where the water flows. Where the grass along the stream banks is more, it gives higher chances for the mosquitoes to breed in.”

Peasant farming and fishing are the main economic activities in Laropi and Lefori, but these practices inadvertently increase malaria risk. Farming often leaves containers in which water accumulates, fostering mosquito breeding. Fishing, especially at night when mosquitoes are most active, exposes individuals to a higher likelihood of bites. The headteacher emphasizes the need for behavioral changes, such as fishing during the day and keeping farming areas clear of stagnant water, to mitigate malaria transmission.

“Also, you realize although mosquito nets were distributed previously. There might be some gaps in using the mosquito net. And the management of these nets in certain homes is not proper. When the nets are torn, they don't mend and all those are gaps which cause high malaria cases in the sub-county especially in my primary school-area.”

“In Moyo town council, the level of management of hygiene and stagnant water is good. The majority of the people in Moyo town council are learned compared to the community in Laropi sub-county. In Oche sub-county, sensitization and understanding that they put into action is generally good compared to the other sub-counties. But look at the Laropi area. The water amounts are big. They cannot control the stagnant water effectively. Unless other methods are used to control the spread of mosquitoes, this malaria will continue to exist.”

“One of the economic activities is the farming. And as they do the farming, within the farming areas, you realize there are some containers that water can accumulate in. And that gives an additional opportunity for the mosquitoes to breed. Then there is fishing. The majority of people who go fishing don't mind protecting themselves against bites from mosquitoes. They go there and

remain the whole day, sometimes even at night and yet at night the rate which mosquitoes' bites is higher compared to the daytime."

The Head teacher recommends reducing malaria burden through regular community sensitization on proper and consistent use of mosquito nets, environmental management (especially controlling stagnant water), and targeted outdoor spraying of mosquito breeding sites. The headteacher suggests that these interventions should be supported by dedicated budgets and increased staffing at local health centers. If successfully implemented, these measures could lower household healthcare spending and improve school attendance and performance, enabling families to better invest in education rather than disease treatment.

"Low cost of spending would be realized, and it will also give us an opportunity to pay school fees for the learners. I would suggest, sensitization to be done on a quarterly basis. But at the same time, I would ask for specific budget be put for running of the program, where there are shortages of personnel, this must be taken care of, and the number must be increased."

District Health Officer - DHO

The DHO in Moyo district is responsible for strategic planning, ensuring timely procurement and distribution of medical supplies, staff management, supervision of health facilities, and participation in research to inform policies. The DHO's work spans all sub-counties and town councils, emphasizing the importance of cohesive health services across the district.

"Once we receive this medicine and it is not moving, we need to do some re-allocation. I'm also supposed to support supervision of all the facilities to ensure that they abide by the set standards at all levels. It's also my office to ensure that where we have staff issues in terms of filling, I report to CAO."

"Just before we began indoor residual spraying around 2022, if you went to any of our government facilities, you would find that at an outpatient department out of 100 people, half of them, were coming because of malaria. Then also in the in-patient, about 20% of our in-patient admissions are due to malaria. Then also the transfusions at Moyo General Hospital for children and also maybe pregnant mothers mostly are due to malaria. It was also OK because it was leading in terms of morbidity and in terms of mortality, it ranks as number one. You know all this attracts our attention to doing work."

Malaria, along with neglected tropical diseases (NTDs) and enteric diseases, significantly affects the DHO's ability to focus on broader health system improvements. Malaria was the leading cause of both morbidity and mortality, resulting in additional workloads for health personnel and diverting resources from other critical services. The implementation of IRS has led to a notable reduction in malaria cases and related deaths.

"If malaria did not attract all the attention, I would be moving to the health facilities to do my support supervision roles and many others. Secondly, I would also reduce the time wasted, you know, these burials we should go and attend. And yet for us as the health department we do not have much role there but because of the medical report we waste unnecessary time there. So that's also not good for the community. Also, that these out-of-pocket expenditures because, at times, you have to transport yourself. If this kind of money was not spent on those other things, you would have used it profitably to improve our socio-economic status. As you can see, Moyo is among the poverty-stricken districts."

Malaria incidence rates vary significantly across Moyo district's sub-counties. Laropi and Lefor sub-counties report some of the highest rates, influenced by environmental and socio-economic factors. Lefor's fertile lands and swamps encourage farming, leading to temporary housing and less use of bed nets. Swamps and proximity to the Nile offer ideal mosquito breeding sites. Refugee populations also contribute to higher case numbers. In contrast, Moyo town council experiences lower malaria rates due to better economic status, higher education, access to preventative tools, and fewer breeding sites. Oche sub-county also has lower incidence, likely due to its hilly, cooler climate and lack of large water bodies.

"Now let me start with Lefor, this is our fertile region in terms of farm produce. This area produces a lot of food. So, because of that people tend to go there to farm. They go far and stay in the garden. They don't have a proper structure to sleep in. They just construct something that resembles a house, where they can sleep. Because of that, they don't sleep in the net. And so, they're exposed to mosquito bites and in the process, they get malaria coupled with the hard work that they're doing in their farm. Apart from that, people who don't settle there go to the farm. Lefor also has a lot of swamps, and that's why we get a lot of rice here because of these swamps. It offers a good breeding ground for the female anopheles' mosquitoes. So, no wonder why they have those high cases. Besides that, Lefor has also self-settled refugees who also come to the facility to also get services. That's why the numbers are shooting up."

"And when it comes to Laropi, it is near the river Nile, and this river Nile also offers a good breeding ground for the vectors. Besides that, you know, River Nile has not yet been designated, there's no beach, so people cross using ferries and these ferries have time for operation. So, you find that travelers, people who are truck drivers, are sometimes forced to sleep at Laropi and some who have financial issues will sleep in their vehicle. And because of heat, they lower the windows, and they also tend to get malaria, and these cases are detected there. So, I think basically those reasons could account for the high malaria in Lefor and Laropi compared to Moyo town council."

Moyo town council experiences lower malaria rates due to better economic status, higher education, access to preventative tools, and fewer breeding sites. Oche sub-county also has lower incidence, likely due to its hilly, cooler climate and lack of large water bodies.

"Because of their income status, people in Moyo town council can afford to buy mosquito repellent and other insecticides that can spray the house and other methods of malaria prevention, yes. So, we expect zero cases here."

"Then like you know, Oche sub-county which is in the remote setting, but still also will be low malaria cases. You know, Oche is in the hilly place and so the higher you go, the cooler it becomes. Such places also don't offer a good breeding ground for the vector so, maybe perhaps it will account for them because most of the community wait for these free nets. So, that could be the reason to account for the few cases that they have apart from also not having big water bodies where the vectors could breed."

Self-medication, improper use of bed nets, poor health-seeking behavior, and behaviors such as brick-making (which creates standing water) contribute to persistent malaria and disease burdens. Community members sometimes use nets for purposes other than personal protection, reducing their effectiveness. Delayed treatment leads to wider transmission within households.

“Now if you consider people in Moyo town Council. These are people who, in terms of finance, are at least somehow stable, so, they don't only wait for government to get the mass distribution nets. I. Because of the education level, once sensitization may be conducted at community level or on radio, they tend to have good attitude towards sleeping in a net and also once a child has the fever, the child is taken very fast before that child could infect the rest of the family.”

“One of my concerns is self-medication. Self-medication in the sense that once a child develops a fever, the first thing I think is malaria. So, people go to nearby drug shop or pharmacy and buy some little medication. So, it is not a complete dose. And because of that, we are breeding a resistant form of malaria which will disorganize the population. Another issue is the other thing that I think is not good, is the net use. If you do a survey on net use, you will find that some people prefer using the net to protect chicken. Others surround their plants like onion, cabbage and so forth and this is not good. And then so at our community level, we have now this dry season, people lay bricks. And once they lay these bricks, they create holes, which during rainy season provide room for water to accumulate, and because they don't level after laying the bricks, all this provide breeding ground for the vectors which is not good.”

“Another thing is poor health seeking behavior among some community members. A child will fall sick, and they take their time to bring this child for treatment. In the process all the other children that are at home will get infected because the mosquitoes will bite the sick child and again bite those healthy ones. That's not good, yes.”

Improving community behaviors and disease prevention practices would reduce healthcare workers' burdens, lower out-of-pocket expenses for families, and allow resources to be redirected to other priorities. This would enhance socio-economic development, reduce poverty, and allow health facilities to strengthen responses to other communicable and non-communicable diseases.

“Once we are able to do the good practices, we are going to see a reduction in malaria cases and this will reduce the workload for health workers, which will make them focus their energy in doing other things.”

“For the community, there'll be reduced or no out-of-pocket expenditures. All those will be will not be there and the little money they have together with now this one of PDM. They can be able to put these monies into projects that that will be generating income and change our livelihood, yeah.”

“Then also to the facilities. Because, you know, these malaria commodities are quite expensive. If we can reduce the cases, then the money that we normally use on those RDT, Coatem the artesunate, we can use it to target other communicable and non-communicable diseases. We will have enough resources for those other areas other than using the resources for diseases that we can prevent.”

Assistant District Health Officer – ADHO-MCH

The ADHO-MCH plays a multifaceted role. The main responsibilities include planning, leading, and overseeing maternal and child health programs—such as immunization, nutrition, and gender-based violence prevention. Other major duties involve quality assurance, budgeting for health services, reporting on program progress and challenges, and supervising frontline healthcare workers. These roles extend across all areas in the district.

“The biggest target groups are pregnant woman and children under five years, that have been affected by malaria and the reason behind this is because of their vulnerability.”

The ADHO-MCH highlights the significant burden malaria and neglected tropical diseases (NTDs), such as bilharzia, lymphatic filariasis, and hookworm, place on vulnerable groups—especially pregnant women and children under five. The lack of immunity in these groups increases their susceptibility. For children, malaria leads to reduced school attendance, risk of death, compromised nutrition, and potential disabilities. For mothers, the economic burden of repeated treatment diverts resources from food, education, and investments, perpetuating poverty at the household level.

“Children are first of all young but more importantly, they have not developed enough immunity to resist malaria; and for pregnant women, once you become pregnant your immunity is reduced, and as a result, you can easily be affected by malaria. Then, when it comes to the neglected tropical diseases, the commonest we have are bilharzia, lymphatic filariasis, but also hook worms.”

“As we talk, you can see from there (points to charts on the wall) our malaria cases have now gone in low and because of that our outpatient, you know, so has the number of people coming to outpatient clinic. It has reduced the workload for the health workers somehow. Then, as I said another gain is that communities, individuals and families should be saving on treatment and on the death. I want to give you a statistic like for the last nine months we have not lost a child – not only a child, but anybody to malaria. So, the cost of treatment, the cost of burying has now been eliminated. We see that as a gain.”

A reduction in malaria cases brings tangible benefits. The district has recently seen a decline in malaria-related deaths and outpatient cases, resulting in a reduced workload for healthcare staff. Household resources can be redirected from medical treatments to development needs. Improved school attendance is another positive outcome, as healthier children are more likely to stay in school and perform better academically.

“We don't have the good statistics yet. But I think that because students are not falling sick, we could get from the education department that attendance to school has increased because if a child is sick, it will not go to school. And so, failure rates will be reduced in school. So, I think we see that as big gain. But also, overall, the households will develop eventually because we don't spend money on treatment, we don't spend money on other things for malaria and so on.”

Malaria incidence varies significantly across sub-counties. Areas near water bodies, like Laropi and Lefori, experience higher malaria rates due to mosquito breeding grounds provided by wetlands and humid climates. Rural areas tend to have less access to information and healthcare services, compounding the problem. Conversely, colder or more urbanized areas such as Oche and Moyo subcounty have lower malaria incidences, attributed to less favorable mosquito habitats, improved housing and better mosquito net use.

“Well, when you look at Laropi. Laropi is along the Nile belt, and the Nile belt has water that provides breeding ground for mosquitoes. In Lefori, that place has a lot of wetlands where people grow rice and other things. So, the presence of water ponds explains the burden.”

“The other thing is the humid weather because you know mosquito breeds well, where there's a lot of humid areas, warm areas and Lefori and Laropi provides for that. But also, for Laropi, I would think that the lifestyle of people who go fishing in the waters because if you go there, you don't go with mosquito net. So, while in the lake the mosquito-bites in the night are also a little bit high. Another thing, Laropi and Lefori are rural and there is little access to information, but also services could be limited as compared to Moyo sub county which is a peri-urban.”

“What I am not sure of is the behavior and practice in terms of use of nets because this is another thing that could determine the malaria burden depending on whether communities there are using net consistently or not, that requires a study on its own. But what I can confidently be sure of is the presence of the water bodies and the humidity among others.”

Local economic activities, such as brick laying and fishing, increase exposure to mosquitoes by creating stagnant water and encouraging nighttime outdoor activity. Misuse of mosquito nets further undermines prevention efforts.

“The community, I think you see where communities are a little bit urban, and civilization comes with urbanization it changes the way people think but also importantly is possibly here the housing structure could also influence, because maybe in the town council the houses are better compared to those other places. Well, even where to hang the nets could be better compared to the rural places. Maybe in the rural areas it is difficult to hang the nets well. And so those are some of the factors that might influence the distribution pattern for malaria.”

“One other thing is brick laying. When people lay bricks, they create open ditches where if it rains, water accumulates. Then, the other thing is the people in town here tend to stay out long, and mosquitoes can bite them from those drinking places, among others. Then there are practices like instead of using the mosquito nets adequately for sleeping, they use it for something else which is not intended purpose which is something not nice.”

However, there has been a dramatic decline in malaria cases, to the point where unused antimalarial drugs were sent to other districts.

“Let me give you an example, last quarter we came to realize that our antimalarials like Coatem is about to expire and the reason being cases are not there. So, what we did was retrieve all of them from the facilities. We left, just very few. And we distributed them to other districts like Gulu, Arua and so on. Because even if you kept them here, they would expire because the cases are not there. So, you can say, that this medicine is ours and we should not give it away – but you don't have the malaria cases.....”

The interview concludes with the hope that continued community compliance with malaria prevention will sustain these gains and the ADHO-MCH underscoring the collective benefit of persistent vigilance and proper practices in combating the disease.

“That is the benefits we will anticipate, and our desire is if the communities can adhere, we don't want to have a resurgence of malaria cases again, we may not completely eliminate but we can keep the cases low. That is what we want to get.”

But

“Today I was not feeling well, I have malaria also but also adding flu and cough and I am still on treatment and when they sprayed recently, I reacted to the IRS so I'm still recovering a little bit, so my apologies for keeping you waiting for all this time.”

Assistant District Health Officer Environmental Health – ADHO-EH

The ADHO-EH oversees environmental health and malaria control across 32 health facilities, supervising 25 health assistants and inspectors, coordinating planning, supervision, commodity monitoring, disease surveillance, and stakeholder sensitization district-wide.

“My coverage is district-wide. I assist the DHO in planning and coordinating health services. I participate in supervision of health facilities. I participate in stock monitoring of medicine commodities for health facilities. I participate in developing work plans and budgets for the department. I participate in technical coordination meetings. I also participate in a performance review of the department where all the facilities are called into to review their performance. I participate in disease surveillance monitoring. The facilities submit their reports on a weekly basis every Monday, so once they submit them, I do follow-up. I also participate in sensitizing and in coordinating health related stakeholders in the district. There are so many”

“And also, I have an assignment as the District Allied Health supervisor, so I supervise the staff in the private clinics, this has been established by the allied health professional’s council.”

Malaria was previously the leading cause of illness and death in the district, but indoor residual spraying over two years has significantly reduced the burden, with no malaria deaths reported in the last financial year.

“Malaria in the previous years has been the number one cause of illness in the district and the number one cause of death in the district. But following the two consecutive years of indoor residual spraying, malaria burden has reduced. It's now no longer the number one cause of death. And all last financial year, we have not registered any death due to malaria so meaning we are progressing well.”

Malaria causes loss of productive time averaging four to five days per illness episode, financial strain on households due to treatment costs, and contributes to poverty, especially affecting children under five and pregnant women.

“Our vision is very clear, to have a healthy and productive population that contributes to social and economic growth, and national development. The reason malaria has got impact on the population is loss of productive time. When they fall sick, the treatment takes around four or five days on average. So, all those days are lost, productive years are lost. Then in previous years also there was a loss of life due to malaria that mostly affects children under 5 and pregnant mothers.”

“Due to malaria, we also register issues of poverty. If in a family 2 or 3 people fall sick, on average a person is treated at about 50,000 Ugx. So, if all these households spend a lot of money on treatment of malaria, then it is possible it brings poverty within that household.”

Reduced malaria would increase income through savings on treatment costs, eliminate deaths, reduce absenteeism in schools, and improve agricultural productivity by minimizing time lost to illness.

“There'll be increased income cause of from the savings if at all this disease is not there will be no death. There will be no time lost for production because there are no sick people. If people don't fall sick due to malaria, then they have all that time available to go to the field and produce food. Then also there will be good performance in school. So that you can also record that absenteeism in school due to malaria will fall and the kids will be able to perform any further work in school and concentrate fully to attend lessons.”

Laropi and Lefori have high malaria rates due to low-gradient swampy areas providing mosquito breeding grounds, poor housing structures with gaps allowing mosquito entry, and lower education levels reducing uptake of preventive measures.

“These are low gradient areas and a lot of swamps. Most of these swamps are stagnant and hence offer adequate breeding room for mosquitoes. Hence, causing the high disease burden. The second thing is housing, most of these are rural sub-counties. If you see the construction mode, there is a big gap between the roof and the wall. That part is not covered, so it allows easy access to mosquitoes into the house. Also, I may say there is a low education level because they are rural communities. Even if you intensify sensitization about protecting themselves and keeping the environment clean –because of the low education level, they don't take it seriously.”

Moyo Town Council and Oche subcounty have fewer swamps, better housing with permanent structures limiting mosquito entry, and higher education levels, contributing to lower malaria incidence. Oche is hilly with limited breeding sites.

“Also, the housing structures in the town council are mostly permanent houses. So, once they close the windows in the evening it provides good blockage and a barrier to the mosquitoes. Also, the education level within the town council is high. So, once they sensitize them, they take it seriously because of the expenses related within the town, especially since the treatment and feeding cost are high. So, they take it seriously.”

Agricultural activities like rice growing in swamps increase exposure to mosquitoes and neglected tropical diseases.

“If you take the economic activities that predispose the community to malaria and NTDs diseases. First, there is agriculture in those high burden sub-counties as rice growing in the swamps that give exposure to NTDs. And also, since these are potential breeding grounds it also means exposure to mosquito bites.”

Lifestyle factors such as late entry into houses, sitting outside at night, and inadequate housing increase mosquito exposure.

“Yeah. Lifestyle practices like delay entering houses and sitting outside for a long hour can expose people to mosquito bites. Also, the lifestyle of late closing windows, most people close their windows when they're going to sleep. So that offers entry to mosquitoes. Then also the style of the houses. When you see these grass thatched houses, the space between the wall and the roof offers an entry point for the mosquitoes.”

“Then also, if the education level is improved, there will be good health seeking behavior. Because if we improve on the housing structures then we shall be able to eliminate entry of mosquitoes like if they would also improve on their practices by sleeping daily under the insecticide treated nets, which serves as barrier, then they can be able to reduce the burden of malaria. These two can also reduce the effect on the population.”

According to the ADHO-EH, continued indoor residual spraying is effective, but outdoor interventions like larviciding are needed to target breeding sites. Clarification on malaria vaccination rollout is necessary. Improved education, housing, and consistent use of insecticide-treated nets would reduce malaria burden further.

“When the community members improve their lifestyle and practices, first malaria illness will reduce; second, if they improve on their educational level, the messages, especially the

informational communication and education message, IEC materials are well adopted and then followed strictly.”

“I have been hearing that the ministry's target is to eliminate malaria by 2030. But all these efforts we are seeing may not take us to achieve the target because we have so many integrated factors. Even if we continuously spray indoors, we don't attack the breeding ground and we are still at risk.”

“And the minister has been talking about vaccination. When will the vaccination be expanded to all districts and which category of people will be vaccinated is not clear yet whether children under 5 or everybody, so, the ministry needs to clarify on that.”

Development Partner – CEFORD

The interviewee who is the head of programs officer at CEFORD¹ explains that their activities cover the entire Moyo district, focusing on early childhood education, sexual reproductive health in schools, livelihood programs, and addressing issues of gender-based violence (GBV). They work in all sub-counties and town councils, targeting various community stakeholders

“Our activities cover the entire district. Our focus in Moyo district is in early childhood education and then sexual reproductive health in the schools. Under sexual and reproductive health, we have 58 target schools. I ECD², our focus is strengthening community constructing. For this community that has already started showing something. So far, we have done eight areas of livelihood strengthening. We are also supporting villages through saving-loan association. Basically, empowering the community and seeing how to develop saving culture so they can support themselves and their household and children.”

Malaria significantly impacts the community, and the activities run by CEFORD. It affects children's school performance, drains household income, and reduces productivity in the livelihood sector. The development partner highlights that malaria is a common killer in the country and its treatment is expensive, affecting the overall income of families

“It has a lot of impact, particularly in areas where we're implementing activity in the school. If malaria attacks a child, we know that for at least 3-4 days this child will be home. Therefore, that affects his or her performance by the end of the day. And then secondly, you see the child once they are sick and at times when they don't get proper treatment, you find they end up getting things like mental health issues.”

“You find when your child is sick, they rush to the clinics, and these clinics are where they pay money. Therefore, when they pay this money, it drains the household income, so that is where malaria is also dangerous. Thirdly, in our livelihood sector when these people are sick, that means they cannot go to their farms to cultivate, to check their farms. And therefore, the income or the product that should be coming from the fields for the gardens is reduced because it affects the human resources that should be doing the work here. So, this area affects our activities.”

The development partner believes that if malaria were eradicated, educational performance would improve, household income would increase, and the overall welfare of the community would be

¹ Community Empowerment for Rural Development (CEFORD) <https://ceford.or.ug/>

² ECD – Early Child Development

better. The absence of malaria would help achieve 100% of the project's target objectives, including increased enrollment and transition to primary schools.

“First of all, educational performance will improve. Because if you see Moyo district is where performance is poor. Again, if we go back to analyzing the sub-counties, like Laropi, their performance is worse than other places. Now it means if you are sick 4-6 four times and the treatment for malaria you go is 25,000, you say 30,000, yes. That means 100,000 you are spending on malaria in a year or plus. Now that money will improve household, it can improve welfare in terms of nutrition in the home. The parents will be able to pay a child's school fees, maybe for two terms in a primary.”

“Yes, because of malaria, because the father leaves money for buying food and then the wife diverts this money for treating a child so that can bring a domestic violence for someone who does not understand.”

The interview discusses why certain areas like Laropi have higher malaria incidence rates compared to others like Moyo town council. Factors include proximity to riverbanks and swamps, hot climate, low income, and poor hygiene practices. It is noted that people in these areas often sleep without mosquito nets due to discomfort and cannot afford proper treatment.

“Laropi for example we know that it is along the riverbanks, and the river produces a lot of mosquitoes –but also the swamps. That could be one factor why malaria is very high. Secondly, my observation is that this is a hot area so, when you sleep inside the mosquito net, it's even hotter and uncomfortable. Therefore, people prefer to sleep outside or to sleep without the mosquito net. And therefore, give an opportunity for the mosquito to bite and then get malaria. Thirdly, it can also be in terms of income. If you look at the areas, these are areas with low income and therefore the acquisition of mosquito nets and treatment for malaria is not affordable, so one might take Panadol – and if they feel okay, they think they are okay. And then the same mosquito goes and bites the other people and the whole family gets sick if malaria is not treated fully. So, income can affect. And, above all, these are areas that are remote and rural. People don't always clean their homes properly. So, you may find there is stagnant water in the compound or somewhere. Those are some of the observations that I have.”

The respondent points out that lifestyle choices and poor health-seeking behaviors contribute to the high malaria risk. People often stay out late, exposing themselves to mosquito bites, and do not seek medical checkups regularly. Poor hygiene practices, such as improper disposal of garbage, also create breeding grounds for mosquitoes.

“As I mentioned, in some areas of these people, hygienically, some of them are very poor. In the towns you may find the areas of garbage and the rest are not very dedicated. People throw polythene and plastic bottles anywhere. And those plastic bottles become a breeding place for mosquitoes because when it rains, water gets inside. So that is one way those activities expose them.”

“In towns people stay out to maybe up to 8PM or up to 10 PM-11PM. And those are the times when mosquitoes become very active. So, you sit outside here chatting with a friend or others. You get bitten by mosquitoes in that period. But then the other thing is also poor health seeking behaviors. People don't want to go out and do checkups. They stay healthy when they are sick and thrown down that's when they start thinking the hospital, yeah.”

“If people change their behavior, for example hygiene in their homes, you avoid many other sicknesses apart from malaria and cholera. If the home is hygienically good or moderate, then we can avoid those sicknesses. Secondly, if people can clean around their places and do away with stagnant water. By draining away then they can do away with malaria and help us to develop.”

“And then of course in homes, the government has been giving out mosquito nets so people should sleep under mosquito nets. Unfortunately, I see sometimes people use this for making grass thatched houses, which is not okay. Then sometimes in certain homes you see it used for protecting chicken from getting killed by other birds or some other things like that.”

“Then of course, of late, government is fumigating the houses, if everyone can accept his or her house to be fumigated then we are not getting malaria for 6-7 months. In one of the platforms, I saw malaria cases in Moyo reduced after the first fumigation of houses.”

The development partner suggests that improving hygiene, using mosquito repellents, and sleeping under mosquito nets can reduce malaria cases, and recommends that the government invest in creating awareness about malaria and involve men more.

“I think what I can add is government needs to make a lot of investment in terms of creating awareness in the community about malaria, and its dangers. I still encourage the government to do more for the mothers and the pregnant, OK! And, in the village, something should be done for these people here. Some pregnant women only come to attend antenatal once or twice and that is not right. Encourage or involve the men to do this because – if you see in the health seeking behavior it is women who are always in hospital and if we can involve the men, maybe we can do something better. Yeah.”

3.2 Focus Group Discussion

With a few exceptions the focus group discussion involved the same people who had previously been interviewed individually (see Annex 4). The discussion began with a general reflection on three maps on malaria, NTD and enteric diseases by sub-counties (see figures 4, 5 and 6) that had been prepared using the most recent data from the district biostatisticians based at the District Health Office.

It was mentioned that a low reported level of disease might be due to absence of or incomplete reporting, e.g., due to lack of facilities in some geographical and administrative areas of Moyo. Those people living in these areas would not be treated or are treated in ‘clinics’ and thus do not get recorded – or they might be treated in facilities situated in other areas.

The participants worked in pairs of two to fill a three-by-five table with three to five words of explanation for differences across sub-counties for each of the Pathfinder’s five SDG-groups (see figure 7). These three-by-five tables were collected and consolidated after the workshop. The result is shown in Table 1.



3.3 Commented results

The development challenges recorded in table 1 show differences according to the level of malaria ‘High’, ‘Middle’, and ‘Low’ that might help explain both the persistence and distribution of malaria within Moyo district.

SDG-Group 1: Political/ institutional

The discussion highlights the lack of participation from political leaders and low enforcement of regulations as significant issues that might contribute to the differences between those areas of the district with higher and lower levels of malaria. The political approach to community sensitization and the differences in institutional partnerships are also mentioned as factors influencing malaria prevalence.

“For us, we came up with a political way of sensitizing people about malaria. In high places they are not doing that. That's the reason why people are not aware.”

“I think it's similar because we just said low participation from leaders.”

SDG-Group 2: Economic

The residents’ economic activities were also highlighted as a factor contributing to the higher level of malaria in some sub-counties. This, in particular, includes fishing at night, farming in swamps and farming far from homes and thus requiring staying overnight in the fields. Further, sub-counties with lower malaria burdens tend to have better and more stable economies, allowing residents to afford improved living conditions and preventive measures like mosquito nets and medications

“And the other thing is such communities are working throughout the night. Yes. Some stay sleepless at night.”

“One of the things is connected with the poverty. These areas, most of them are able to, economically they are moderate, they are stable. They are able to purchase medications. They are able to purchase – maybe mosquito nets. So that gives them that power.”

SDG-Group 3: Social

Social determinants of high malaria were indicated to include higher level of poverty, lower level of education, and gender inequality. It was further mentioned that in areas with high malaria indicators, residents tend to spend a lot of time on social events and activities that expose them to mosquito bites. The social life and practices of the community, such as staying up late and participating in outdoor activities, were seen as significant contributors to the differential malaria burden

“For us, we look at social events. In these areas where there's high malaria indicators, people do see us spending a lot of time in social events. Where it is dead, people stay outside for some days. Marriages, people spend time in areas where there's flooding centers, people sit and play cards late. So those social events are going to increase this malaria.”

“So even to the LC II race and those other areas. So, you find it's only men who are standing for those positions, for them to go for. So, if we can strengthen them also to be for that at all.”

SDG-Group 4: Environment/climate

The environment is seen as a crucial factor in the distribution of malaria within Moyo district. Both natural and man-made. The many natural swamps, rivers and streams, and bushy environments were pointed out as breeding grounds for mosquitoes partly explaining the high malaria burden in several areas. Further, poorer hygiene, sanitation and environmental management also contribute to the differences. Climate, such as cold temperatures in some areas, can also affect mosquito breeding and malaria prevalence. High temperatures in other areas were said to make it very uncomfortable to sleep under a mosquito net.

“Breeding grounds. Hmm! There are so many breeding grounds. Like in Laroki. But, but, yes, if you compare it with Oche. Oche has fewer breeding grounds. But Oche, in Oche, most people are from us. All places are almost predominantly cold. It's cold, so the malaria doesn't breed so much. Yes! Yes, cold temperature.”

SDG-Group 5: Health/system

The health system's role was discussed in terms of the availability of diagnosis, prevention, and treatment. Sub-counties with better access to healthcare resources, such as mosquito nets and treatment, have lower malaria burdens. Absence of health care facilities combined with high cost of medicines and poverty pushes some population groups to non-treatment, self- or incomplete medication. The latter, of course, mostly affects those areas and populations are already disadvantaged.

“The other one is, sometimes we have distant places from where communities get treatment so, if one feels sick, sometimes they don't get the right treatment. You realize that they go to these drug shops, they call them clinics. They buy what they can afford and not the complete dose. So, if one person gets this malaria now, there are three of them who get infected thereafter because the disease keeps on circulating within them. That is why we have so much burden there.”

Table 1: Development challenges in sub-counties versus malaria incidence rates

“**High-malaria**” = the third of the sub-districts with the *highest* malaria incidence rates; “**Middle-malaria**” = the third of the sub-districts in-between the lowest and the highest malaria incidence rates; “**Low-malaria**” = the third of the sub-districts with the *lowest* malaria incidence rates

Groups of SDGs	Development challenges in sub-district (<i>three to five words in each cell</i>)		
	High-malaria	Middle-malaria	Low-malaria
1. Political / Institutional  	a) Inadequate public sensitization b) Inadequate enforcement of regulations on malaria	a) Routine sensitization of masses on malaria control	a) Adequate implementation of malaria regulations b) Political people under the good benefit of law c) High population
2. Economic    	a) Economic activity - fishing exposes them	a) Moderate income generating activity status	a) Economic activity doesn't expose them
3. Social      	a) High poverty level b) Malnutrition and gender inequality c) Low lever of education d) Many social events	a) Moderate poverty b) Moderate illiteracy levels	a) Low poverty rate, can afford treatment b) High level of education and knowledge of dangers of malaria
4. Environment    	a) Many mosquito breeding places streams, rivers and swamps b) Low hygiene, sanitation.	a) Low mosquito breeding ground, terrain don't allow stagnant waters b) Keeping surrounding clean	a) Low mosquito breeding places b) High knowledge of WASH
5. Health 	a) Low level of service coverage and adoption of malaria prevention practices b) Poor health seeking behaviour	a) Availability of health centres II and III b) Moderate level of malaria prevention practices c) Organizing groups in handling health issues	a) Available VHT, health assistants, and mosquito nets b) Good health-seeking behaviour, adoption of prevention practices, and timely malaria treatment

4.0 How can the vicious cycle be halted?

Having discussed the WHY (see section 3), the focus group continued with addressing HOW. The discussion was structured along the three Pathfinder Pathways and guided by a Pathfinder Excel Simulation Model (see table 2).

The rules of discussion included that ‘*additional*’ resources would be very limited or non-existent within the foreseen two- to three-year Pathfinder roll-out period. Consequently, each direct change would be small. The simulation model caps each individual improvement to 5%. However, concurrent and comprehensive synergetic actions across all three Pathways would amplify the overall yield measured in economic, social and disease reduction gains.

The results of the effort-impact simulation are commented upon in section 4.4 and shown in table 2

4.1 Pathway A – Indivisible SDGs

The five malaria-critical SDG indicators discussed in the focus group – one from each of the five SDG-groups were predefined in Component One of the PIICs. They represent SDG indicators expressed as proportions for which disaggregated data were available for all districts in Uganda and use in the analysis underlying figures 2 and 3 and the selection of Kapelebyong, Kitgum and Moyo districts for Component Two of the PIICs (see also Volume 1). Thus, they are not necessarily representing priorities for Moyo district in particular.

Malaria-critical indicators

SDG-Group 1: *Proportion* of individuals using the Internet (17.8.1)

SDG-Group 2: *Proportion* of informal employment in non-agriculture employment, by sex (8.3.1)

SDG-Group 3: *Proportion* of seats held by women in (a) national parliaments and (b) local governments. (5.5.1)

SDG-Group 4: *Proportion* of population using (a) safely managed sanitation services and (b) a hand-washing facility with soap and water (6.2.1a)

SDG-Group 5: *Proportion* of the target population covered by all vaccines included in their national programme. (3.b.1)

In the actual roll-out of the Pathfinder, each participating district will select and focus on one or ideally two priority malaria-critical indicators in each of the five SDG-groups.

The focus group was asked to discuss and put a percentage improvement to two lines for each of the five SDG-groups

- **Actionable by district** – ‘*yes-we-can-do-it*’ ourselves with own resources
- **Actionable by central** – if we can ‘*articulate*’ why the central levels should reallocate resources towards Moyo. It was stressed that the national resource envelope is finite and more resources to Moyo means less to other districts in the country.

The cap was 5% improvement for each line and SDG-group. The results are shown in table 2.

Group 1: Political and Institutional Challenges (SDG 16 and 17)

The group discussed the importance of increasing internet access in the district. Participants suggested lobbying for internet service providers to establish networks in areas without internet, equipping resource centres for internet access, creating awareness about the importance of the internet, and setting a deliberate budget for internet support. The group emphasized that internet access is crucial for education, business, and overall community development

“I think they can lobby for the internet service providers, yes, to come to the district and establish in those areas, because as you speak now, the areas where there are no internet networks.”

“They should also, they could also equip the resource centers, that’s where people can access internet. Yes. They could equip the available resource centers for internet access.”

Group 2: Economic challenges (SDG 8, 9, 10, and 12)

The focus of the discussion was on reducing the number of people in informal employment, particularly in non-agricultural sectors. Suggestions included sensitizing the community about the low income in informal employment, forming groups to manage resources more effectively, and providing skills training. The estimated reduction in informal employment was 1% without extra resources and 2% with additional support. The group highlighted the need for government policies to support formal employment and the importance of vocational training to equip individuals with marketable skills.

“If maybe they give an extra startup kit. I think it's up to the government. Because even this category that came up, after they supported them with the tools, they are there, they will be there with the tools.”

Group 3: Social Challenges (SDG 1, 2, 4, 5, 7, and 11)

This part of the discussion addressed increasing women's representation in local councils and parliament. They proposed implementing women-specific programs, building women's capacity to take on leadership roles, and strengthening their participation in governance. The group stressed the importance of mentorship programs and the need for societal change to support women in leadership positions.

“And also, to build the capacity of women or strengthen their capacity to take certain roles. Yes! Because now at the moment, for example, in the councils, you never see a woman standing to

5-SDG Groups



Figure 7: The arrangement of the 17 SDGs into five groups that the Pathfinder uses.

the position of member of parliament, head of parliament. They would prefer going for women member of parliament. Yes, yes!”

“If the district does this, you said maybe they will be increased by five percent, right? That is a full-scale increase. Do we agree? Maybe a full-scale increase of five percent in two years?”

Group 4: Environmental and Climate Challenges (SDG 6, 13, 14, and 15)

The group discussed improving access to safe sanitation services. The participants suggested mobilizing and sensitizing the community, enforcing sanitation laws, providing clean water points, and recruiting public health officers. The group also mentioned the importance of community involvement in maintaining sanitation facilities and the role of education in promoting hygiene practices.

“You can even arrest people who don't want to have safe sanitation facilities, isn't it? Yes! Yes, this is what I said, the district could do it.”

“2%, because people don't listen ... If the district has only three, and they are getting more, so ... Is it not four at least. Like when this will use its own resources, see, is it through the department, is it through Works? Is it Education? Is it Human resources? Is it community development? If they do something, like maybe raising awareness in communities, maybe enforce laws like public health, maybe arrest those who are not allowed to have clinics and personal services, and something like that.”

Group 5: Health system challenges (SDG 3)

The focus here was primarily on increasing the proportion of the population that is fully vaccinated. They discussed using the district's resources to ensure higher vaccination coverage across all national vaccination programs, including children's vaccinations, yellow fever, and COVID-19. The group emphasized the need for public awareness campaigns to educate the community about the benefits of vaccination and other public health measures. The importance of reaching remote areas to ensure everyone has access to vaccines and other quality health services was underscored.

“The ways that I'm thinking as head for the sub-county is to collaborate with the healthy team, the district level, the subcommittee level, especially the health assistants and VHTs to go down to the community to sensitize them on the importance of hygiene and sanitation, and to tell them that at least they cover the water, which can bring the malaria and if possible, they should keep the children sleeping under mosquito nets.”

4.2 Pathway B: Five steps to become malaria-smart

This part of the discussion was introduced with reference to the individual interviews with most of the focus group participants (see section 3).

The *first step* to becoming malaria-smart involves engaging public and private employers to realize their own vested interest in bringing down the disease burden and demand actions that reduce barriers to effective coverage of conventional disease interventions for their staff and families. This can be the private sector, district offices, as well as government agencies.

The *second step* is ensuring public and private providers of goods and services also safeguard their clients, customers, and their families. These providers can be public institutions, such as schools, extension services, etc., as well as businesses, including hotels, shops, private clinics, etc.

The *third step* involves mapping and analyzing areas or activities that are high malaria-producing (*do-harm*). This includes identifying environmental factors, such as stagnant water, or activities, such as agricultural practices, road construction and maintenance, ‘marram-mining’, ‘brick-making’, etc., that predispose communities to higher disease prevalence.

The *fourth step* focuses on mapping, analyzing, and encouraging activities that have the potential to reduce malaria (*do-good*). For instance, promoting agricultural, gardening, clear bushes, regulate water flows, latrines, housing and building improvements, etc. that reduce vector load, shield from, or repel rather than attract mosquitoes.

Finally, the *fifth step* addressing the root causes that contribute to malaria inequalities is crucial. These root causes propel the vicious cycle; keeps it grinding, and leaves districts, sub-counties and communities further and further behind.

The discussion covered all the five steps to become a malaria-smart district. The initial focus was on engaging public and private employers and service providers to reduce barriers for their staff, families, and clients. This includes safeguarding their staff and families and addressing the root causes of inequities in the malaria burden.

“So, we are focusing on employers, focusing on service providers that do this for their clients, and also do no harm in those areas, do good in those processes and activities, and also addressing the root causes of inequities.”

This requires accurate and updated mapping of areas with high malaria incidence and of activities that produce, respectively reduce malaria. The discussion also stressed the district's role in ensuring public and private engagement in malaria reduction efforts, even without external support. The discussion highlighted the importance of using district resources more effectively and the potential amplifying impact of additional support from the central government.

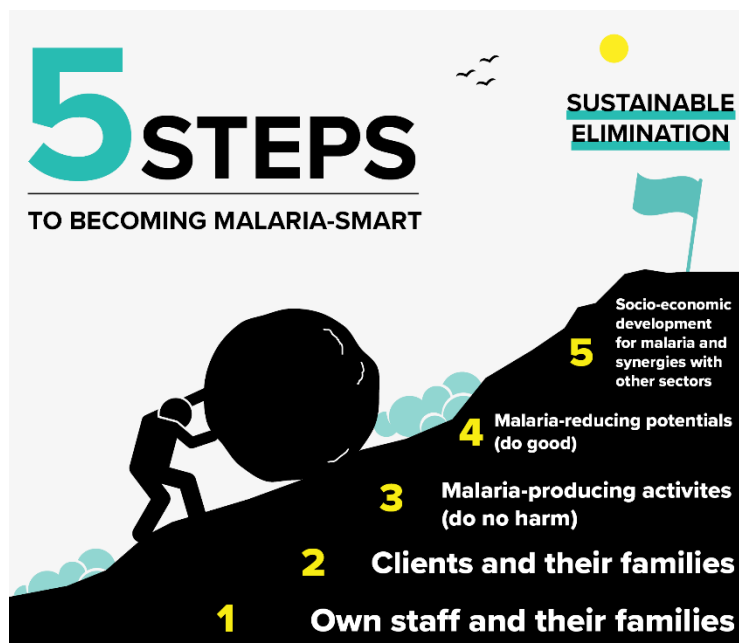


Figure 8: Pathway B - The five steps to become malaria-smart.

Frequent engagement with communities is highlighted as crucial for understanding and addressing the particular risks and barriers each of them face. This includes identifying and acting on the root causes of inequities and ensuring deliberate and direct outreach.

“We need to engage with the communities frequently. To understand that they are at risk, more at risk than the rest of the sub-counties. And where the risk is coming from. But above all else, we need to identify the barriers, the service providers, and all this need to identify the root cause. Yes!”

4.3 Pathway C: 360° Accountability

The group now moved into discussing accountability in three dimensions: political, technical, and public across the SDG-groups and the five steps to become malaria smart. For each, three different cumulative resource scenarios were considered, i.e.: ‘actionable by district without any additional resources’, ‘actionable by district with an additional small amount’ (UGX 36 million (USD 10,000)), and ‘actionable by district with a further similar amount’ (UGX 36 million (USD 10,000)) (see figure 9 and table 2).

By following these directions, the discussion on accountability revolved around ensuring the effective utilization of catalytic funding scenarios across the three accountability dimensions political, technical, and public.

Political Accountability

Political accountability focuses on the oversight and monitoring by senior government officials, councils, and others representing the people to ensure effective use of resources and implementation of development and malaria response activities.



- **Political** // *local councils* to act, monitor, and hold district and national players accountable.
- **Technical** // *analyze and act* on GTS, NTD, enteric disease, and SDG indicators.
- **Public** // direct and real-time *engagement of citizens*, including through digital platforms.

Figure 9: Pathway C – 360o Accountability

The group discussed the role of politicians in enhancing the effective utilization of the catalytic as well as funding in general. Politicians are expected to engage in community mobilizations and lobby for private partnerships to ensure the successful implementation of the development as well as malaria-focused activities. The group also highlighted the importance of political accountability in ensuring that the funds and other resources are used effectively to improve the malaria-critical SDG indicators in the district.

“Politically, they have to do community mobilizations and things like this Yes. They can also lobby for private partnership. Yes, private partnership.”

Technical Accountability

Technical accountability deals with the responsibilities of those whose jobs include improving malaria-critical SDG-indicators, malaria, NTD or enteric disease outcome indicators – and, to act and call attention in cases when progress does not happen as intended.

From technical perspective, the discussion outlined the need for budget analysis and approval to ensure the proper allocation and utilization of resources. It also emphasized the importance of technical accountability in achieving performance indicators across various Sustainable Development Goals (SDGs), such as increasing internet usage, improving sanitation, and reducing the number of people relying solely on informal employment. The group suggested that technical measures, such as digital applications and conducting training, are essential for achieving these goals.

“So, I think, to close with we have given our views on how the industry can perform better when they use their own resources. So, I’m always looking to see what we have achieved in two years.”

Public Accountability

Public accountability emphasizes individuals, families, communities, community leaders, civic society, and public and private services and businesses, etc. all to become malaria-smart – to take responsibility and be accountable. And, in addition to engage directly and real-time with those politically and technically in-charge through digital platforms and other communication channels.

The discussion stressed the importance of public accountability in the utilization of funds. It mentioned that the public needs to accept and support the actions and programmes undertaken by the district and its partners. The discussion also highlighted the role of the public to take responsibility and participate in community mobilization efforts, to act malaria-smart, and to actively engage in strengthening accountability across all three accountability dimensions to ensure the intended economic, social and health outcomes.

“So, the politicians can do community mobilization, they can lobby for private partnership. So technically, we do budget analysis. They do the budget approval. Yes. That is technical. Then from the public. They need to accept the program. They should also be willing to buy digital records, like phones, and others. Yes.”

4.4 Commented results

During the discussions reported in sections 4.1 to 4.3, an Excel comprehensive effort-effect simulation model was displayed on a screen, and the ‘green’ cells were filled as the discussions moved forward. The model’s time-horizon is two years of ‘pathfinding’. Thus, the model has built-in ‘realism caps’ of maximum five percent improvements (see table 2). Due to a misunderstanding, the results for Pathway C were afterwards calibrated to fit the sub-total within the 5% maximum, while maintaining the balance between the green cells.

The *first part* of the model addresses potential no-cost improvements across Pathways A and B, i.e., ‘Actionable by the district (*yes-we can do it*)’ and ‘Actionable by central’ provided the district can articulate and get some central response to its needs.

The *second part* of the model provides for three cumulative resource scenarios for *Pathway C 360° Accountability*. In the base scenario, there are no additional funds. In the next scenarios, there is a small catalytic funding, i.e., each, a cumulative total of UGX 36 million (USD 10 thousand) per half-year for the duration of the '*pathfinding*'.

Overall, the simulation model as filled in Moyo shows a potential health gain of 14.2% through slowing the vicious cycle by small incremental improvements across the SDG-groups and the five steps to become malaria-smart. The slowing of the vicious cycle also spins off economic and social gains of respectively 11% and 11.7%.

Where the Moyo FGD participants see they can make the greatest improvements are with respect to SDG-Group 3 Social (5.5.1), SDG-Group 4 Environment and Climate (6.2.1a) and SDG-Group 5 Health (3.b.1). Here potential improvements are 12-11-12% respectably.

The least improvement is seen to be with respect to SDG-Group 2 Economic (8.3.1) where they only see a total possible improvement of 5%. While still significant and contributing to slowing the vicious cycle, it is also reflection of the feeling that their room to make change on this indicator is narrower.

With respect to SDG-Group 1 Political/institutional (17.8.1) the FGD sees a potential overall improvement of 8%. Finally, the participants find that it is within reach to make Moyo 11% more malaria-smart.

It is noticeable that the FGD participants see that their own action ('*yes-we-can-do-it*') is relatively limited while calling on central action ('*articulate*') and receiving the minimal '*additional resources*' will contribute to significant overall improvements.

The direct financial investments by the Pathfinder Endeavour in both of the '*additional resource*' scenarios are small and catalytic. However, the Pathfinder offers a process that will release and bring into play already existing structures, human and financial, and efforts for greater synergy and enhanced effects.

Table 2: Result of comprehensive effort-effect simulation

Simulation: Two years of Pathfinding Improvements along " <i>The three pathways from vicious to virtuous (ABC)</i> " and the resulting economic, social, and disease reduction gains		A: Indivisible SDGs					B: Malaria-smart	Maximum (limit)
No-cost improvements Actionable by district (<i>Yes, we-can-do-it</i>) Actionable from central (<i>articulate</i>)		1 Internet use 17.8.1	2 Informal employment 8.3.1	3 Women representation 5.5.1	4 Use safe sanitation 6.2.1a	5 Fully vaccinated 3.b.1	1 Staff 2 Clients 3 No harm 4 Do good 5 Inequity	
							0	
		2%	1%	3%	3%	3%	2%	5%
		3%	2%	5%	4%	5%	5%	
Additional resources improvement scenarios								
		C: 360° accountability						
		Political, technical, and public						
Per ½ year	Actionable by district (<i>Yes, we-can-do-it \$0</i>)	0%	0%	1%	1%	1%	1%	
	Actionable by district (UGX 36,000,000)	1%	1%	1%	1%	1%	1%	
	Actionable by district(UGX 36,000,000 + UGX 36,000,000)	2%	1%	2%	2%	2%	2%	
	Sub-total	3%	2%	4%	4%	4%	4%	5%
Total		8%	5%	12%	11%	12%	11%	
Gain1 Extra bonus Total gain		Economic gain				Social gain		
		9,7%				10,4%		
		1,3%				1,4%		
		11,0%				11,7%		
		Health gain Sustainable malaria, NTD, enteric disease reduction						
		14,2%						

5.0 Closing discussion

The closing discussion was meant to provide answers to three general questions: *Why has it not already happened? For what would additional resources be used? Does the district want to join why or why not?*

5.1 Why has it not already happened?

The FGD did not answer this question conclusively. However, it was suggested that while the district certainly has capacities it was held back by lack of performance indicators and proper facilities. The numbers in the simulation (table 2) suggest that considerable improvements across the board could materialize with empowerment through some gentle push and guidance.

5.2 For what would additional resources be used?

This question was not addressed explicitly. However, the simulation (table 2) suggests that the modest amounts if applied to Pathway C (*360° Accountability*) can contribute between 30 and 45% of the overall improvements across SDG-Groups and malaria-smartness.

5.3 Does the district want to join why or why not?

Yes, the district FGD participants are willing to join the Pathfinder endeavour. They believe that the support from Pathfinder and its comprehensive multisectoral approach with peer countries and districts will be beneficial for their efforts to augment economic, social and health gains in Moyo district.

“Yes! The support will be able to facilitate the other activities involved in controlling malaria. Yes. Alright.”

Annexes

Annex 1: Recorded malaria incidence by Sub-County

SNO	Subcounty	No. of cases	Population	Incidence/ 1,000
1	Laropi	12,551	11,935	1,052
2	Lefori	14,706	15,406	955
3	Difule	10,444	13,236	789
4	Moyo sub-county	19,965	26,016	767
5	Metu	23,884	34,719	688
6	Moyo Town Council	8,112	17,488	464

Annex 2: Recorded incidence of enteric diseases by Sub County

SNO	Sub-county	No of cases	Population	Incidence/1,000
1	Moyo sub-county	207	26,016	8.0
2	Moyo Town Council	60	17,488	3.4
3	Metu	6	34,719	0.2
4	Difule	2	13,236	0.2
5	Lefori	1	15,406	0.1
6	Laropi	0	11,935	0.0

Annex 3: Recorded incidence of NTDs by Sub County

SNO	Subcounty	No of cases	Population	Incidence / 1,000)
1	Moyo sub-county	29	26,016	1.1
2	Lefori	3	15,406	0.2
3	Moyo Town Council	3	17,488	0.2
4	Difule	1	13,236	0.1
5	Metu	1	34,719	0.0
6	Laropi	0	11,935	0.0

Annex 4: List of key informants

Designation	Affiliation	Interview	FGD
Secretary for health Moyo DLG	Moyo District Council	✓	✗
District Councilor	Moyo District Council	✗	✓
Chairman LC III	Laropi Sub-county	✓	✓
Chief Administrative Officer (CAO)	Moyo District Council	✓	✗
Business Owner / Farm manager	Moyo District	✓	✓
District Community Development Officer	Moyo District Council	✓	✓
Assistant District Community Development Officer	Moyo District Council	✗	✓
District Agriculture Officer	Moyo District Council	✓	✓
Assistant Agriculture Officer	Moyo District Council	✗	✓
Head teacher	Laropi sub-county.	✓	✓
District Health Officer (DHO)	Moyo District Council	✓	✓
Assistant District Health Officer - MCH	Moyo District Council	✓	✓
Assistant District Health Officer – EH and malaria	Moyo District Council	✓	✓
District Vector Control Officer	Moyo District Council	✗	✓
Development partner	Community Empowerment for Rural Development (CEFORD)	✓	✓