

RBM Partnership to End Malaria
Multi Sectoral Working Group (RBM MSWG)
4th Annual Meeting, Session 2: 29th June 2021
New and Emerging Opportunities of Multi-Sectoral Action
Hosted Online via Zoom

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Code of Conduct

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Day 2: Monday 29th June 2021

Session 2: New and emerging opportunities of multisectoral action

Co-Chairs: Graham Alabaster, Peter Mbabazi

Recap of day 1 and Introduction to the program of day 2 – *Graham Alabaster, UNHabitat, Peter Mbabazi, Ministry of Health Uganda, WHO*

Dr Graham Alabaster welcomed everyone for attending the program and gave an overview of the meeting. A brief overview of day 1's presentations and the work that has been completed by MSWG to date. Dr Peter Mbabazi gave an overview of day 2's presentations.

Overview of session 2, 29th June 2021:

1. Welcome
2. New and emerging opportunities of multisectoral action presentations from Working Group members:
 - a. Testing the Multisectoral Approach TDR Framework and tools for prevention and control of vector-borne diseases with a focus on the collaboration with the WASH sector: from the theory to the field
 - b. EaveTubes combined with house screening successfully reduces malaria transmission but is there a route to market?
 - c. Zero Malaria starts with me expanding the Private Sectors Role
3. Questions and answers
4. The refreshed Framework for Multisectoral Action on Malaria: context, priorities and where we go from here.
5. The Multisectoral Action Guide to End Malaria: how can it be adapted to different national contexts?
6. Healthy Cities, Healthy People: A framework for action for the Commonwealth and beyond
7. Round table discussion to enable the implementation of existing multisectoral tools - New and emerging opportunities of multi-sectoral action presentations from Working Group members

Testing the Multisectoral Approach TDR Framework and tools for prevention and control of vector-borne diseases with a focus on the collaboration with the WASH sector: from the theory to the field –*Florence Fouque, WHO TDR*

TDR are not currently members of a RBM's MSWG and their objectives may differ because of this.

In 2016, work was commissioned through workshops and events which led to a theoretical framework. It was identified that there wasn't any multi-sectoral framework for VBDs other than malaria. TDR have since started testing using the theoretical framework. Collaborations with the WHO WASH group through the use of case studies which will lead to new legislation. Findings from previous work, the commission review and the framework have been published in the Journal of Infectious Disease.

Currently, TDR are collaborating with WHO WASH group on preparing work packages including guides on 'how to' guides to educate stakeholders on NTDs. The focus of this work will be on the collaboration of WASH and health sectors. This body of work is being financially supported by the Swedish International Development Agency, TDR and WHO WASH group. Three deliverables will come out of this partnership: an update of the TDR MSA framework with WASH chapter, development of training packages and case studies of multi-sectoral approaches for VBD prevention and control.

Three objectives have been outlined for the case studies on multi-sectoral approaches for VBD prevention and control. The first is to support selected countries in the development of research for implementation of multi-sectoral activities to prevent and control WASH-related infectious diseases with a focus on VBDs. To conduct regional training workshops, the first of which was held a couple of weeks ago, convened by WHO regional and country offices and with partners. The final objective is to develop online courses to provide training and information and work as an exchange platform between the teams working on these projects.

Case study one was entitled, 'A pilot multisectoral intervention for controlling malaria vectors, involving Agriculture, Environment and WASH sectors, in selected coastal and Sahelian west African countries (PI: Nafomon Sogoba, Mali).' The general objective of this proposal was to address residual malaria challenges using a holistic multisectoral approach (MSA), bringing together partners from different sectors. The specific objectives of this project were to reduce malaria vector densities associated with changes to the landscape and riverbeds. Reduce agro-pesticide utilisation for low insecticide resistance selection in malaria vectors. To map out available WASH facilities and practices at health care units in selected villages. And finally, to establish a multisectoral advisory task force, which is one of the most important objectives.

The second case study is also focused on malaria control, 'improving access to vector control products among communities at risk of malaria in Cambodia & Vietnam.' The research objectives of this project are to assess the potential to improve the targeting of subsidised LLHINs and LLINs distributed by public partners. To assess the potential to improve access to WHO-PQ LLIN products manufactured within the Asian Pacific but not yet distributed or sold in Cambodia or Viet Nam. To address this need, research to inform plans for private-public partnership, within the broader multisectoral approach largely recommended to better control persisting malaria, including working with the WASH sector.

The next case study will look at other VBDs, 'Zika, Dengue and Chikungunya: multisectoral approach for developing solutions applicable in public health.' The research objectives to analyse the sanitation conditions in two different areas of Estrutural City, Brasilia, including waste selective collection and quality of water. Estrutural City is the biggest open-air dump in Latin America and second biggest in the world. The next objective is to improve the entomological surveillance of urban mosquitoes in relation with breeding sites. To carry out a qualitative research and health education with the population of Estrutural City to understand their needs and knowledge about sanitation. At least three sectors will be involved in this study, health and sanitation, water and education.

The fourth project that will be supported is the 'establishment of a multisectoral strategy in order to prevent transmission of *Aedes* - borne diseases in the city of Manta, a coastal region of Ecuador.' The objectives of the project are to create a multisectoral consortium will promote the participatory planning response activities, including entomological surveillance, chemical vector control, risk mapping, social communication, local authorities and private sector to address water supply, solid waste management, and other environmental and social determinants. The project also aims to establish a multisectoral working group that provides a detailed description of comprehensive approaches to environmental health issues and vector surveillance and control strategies. Identification of the current and improving the comprehensive management of waste, water and health in an area of high vulnerability in the city of Manta, in order to reduce the risk of transmission of *Aedes*-Borne diseases will also be carried out. The final objective is to promote community participation and social empowerment in the prevention of *Aedes*-borne diseases through education communication strategies aimed at the citizens, health committee and the Manta residents.

Community participation is not a classic sector, but it is important in the control and prevention of VBDs.

The final case study is entitled 'Ghamal Consortium: multisectoral approach to risk mitigation and control of arboviral diseases with the WASH sector in Ghana and Mali.' The project aims to provide answers to the following questions, what gaps and strength exist in the two partner countries with regards to the implementation of multisectoral approaches in relation to risk mitigation for *Aedes*-borne diseases? Stakeholder engagement through workshops will be carried out to identify and strengths, weaknesses, opportunities, and threats (SWOT) analysis on the use MSA in the WASH and health sector in both countries. The second question is how can we use the information that would lead to the development of a framework for the use of MSA mitigating the risk of *Aedes*-borne diseases? The identified stakeholders within the WASH and health sector will help to bridge the gap and strengthen the existing opportunities, through a MSA approach. The final questions are, how does water management behaviour of communities, and the design of WASH infrastructure impact on *Aedes* breeding in communities where they are being implemented? Modified WASH infrastructure will be deployed to determine the impact on *Aedes* breeding in the communities.

Florence thanked all the attendees for their attention and welcomed any questions about TDR's work. The results of these case studies may be presented at future MSWG meetings.

Questions

Florence then went on to address questions from the audience, *"Thank you for the question on training on multisectoral approaches at the country and policy level and yes for the first training we are working with individual countries and providing training to all levels of stakeholders in the countries with are working with. But we are also developing training materials for institutionalise these trainings. The training materials will be available online and/or on demand in the coming months."*

*"For the question on "which are the breeding sites of malaria and dengue vectors in these areas", the 5 research projects presented include about 15 countries worldwide, thus the breeding sites for the malaria vectors will be very different in different countries. For the arboviral diseases vectors, mostly *Aedes aegypti* and *Ae. albopictus*, the breeding sites are the classical domestic and discarded containers from very small to huge ones, everywhere."*

EaveTubes combined with house screening successfully reduces malaria transmission but is there a route to market? – Jackie Cook, London School of Hygiene and Tropical Medicine (LSHTM)

Eaves are common route for Anopheline mosquito entry into houses during the night. Blocking these gaps prevents mosquitoes from entering and adding insecticide kills the mosquitoes which in turn reduces malaria.

EaveTubes are PVC tubes which are blocked off by an insert impregnated with a high dose of insecticide. The tubes are place at eave height one metre apart with approximately four per room and work as a lethal house door. There are several advantages of EaveTubes as an intervention, they are passive technology so once they have been installed in the houses, not much further thought is needed. There is also minimal logistics once installed, the inserts can be washed and retreated when needed and they are easily removed and replaced. They provide ventilation in the house and allow for mosquitoes to be attracted by the host odours which works as a lure and kill system. As a vector control tool much smaller quantities of insecticides are required in comparison to IRS. The electrostatic netting provides enhanced bioavailability of insecticides. EaveTubes use a concentrated dose of pyrethroid which also kills pyrethroid-resistant mosquitoes as demonstrated in the testing

trials with the use of 10% beta-cyfluthrin. EaveTubes could potentially test insecticides that are not currently recommended for IRS or LLINs.

EaveTubes and window screens were installed as a combined intervention into approximately 300 solid houses across villages in Bouake, central Cote d'Ivoire. A range of 35-100% coverage per village was achieved. Villages where lower coverage was achieved was mainly due to tenants not being able to obtain permission from their landlords. During the trial Inserts of tubes were retreated every four months the screens also required maintenance. The trial lasted for two years and over that time period the epidemiological and entomological impact was assessed by looking at the malaria incidence in a cohort of 200 children. Malaria prevalence, anaemia, sporozoite rate and mosquito density were also assessed. The cost-effectiveness and community acceptance were also determined.

The results found that EaveTubes and house screening reduced malaria by 38%. The incidence of malaria was reduced but still remained high in the communities in this study. This study was done in conjunction with bed nets, everyone was given bed nets at the start of the trial. Reductions in anaemia were also seen. In clusters where coverage >70% (found 13 clusters), risk of a malaria case was 47% lower compared to control clusters (HR=0.53 (0.43-0.65), $p<0.001$). In clusters where coverage $\leq 70\%$, still evidence of a reduction (HR=0.79 (0.63-1.00), $p=0.05$). There was an indication of a community effect in children living in intervention village but without intervention, compared to control villages= HR 0.73 (0.54-0.99), $p=0.042$. This effect was not present if just looking in clusters where SET coverage was less than 70% (HR=0.96 (0.78-1.19), $p=0.733$).

The trial cost approximately US\$723,000 to complete, 40% on house screening, 39% on EaveTubes and 21% on maintenance. The cost-effectiveness of the study was assessed, and it was estimated that it will cost approximately US\$50 per house a year, US\$20 per person protected per year and US\$26 per person per year. These costs fall into similar ranges of other tools such as nets and IRS, however, if EaveTubes could work on their own, the cost-effectiveness would be much higher.

Currently there is not any epidemiological data to suggest that EaveTubes work alone. There is however entomological evidence as a study found (Barreaux *et al.* (2018) reduced mosquito entry in huts with EaveTubes only and an increased mosquito mortality both outside and inside the huts. Trials assessing impact of house screening have not consistently shown impact on epidemiological outcomes but may be the combination of the two interventions.

A few barriers for EaveTubes and other house modification tools have been identified, these include the suitability of house construction, the houses in this study were all brick houses. In2care, the manufacturer of the tubes has trialled them in mud brick houses which would be the next area of research. In this study, EaveTubes were placed in houses after they had been constructed but there is the potential for the tubes to be placed in the house during construction. They could also be slotted behind existing air ventilation bricks to reduce the installation time. Specialised drill bits for installing and retreatment of inserts took place in Cote d'Ivoire using a specialised machine, for this method of vector control to be scalable in the field less complicated methods such as retreatment by hand would be needed.

Public sector funding is currently limited and currently this trial alone does not provide enough evidence for the success of EaveTubes as a sole intervention. The WHO requires two trials in different settings in order to give a recommendation. Currently, there is only have evidence for combined intervention of EaveTubes and house screening. The private sector could also support the furthering of this work by tapping into the new housing market and how including these in homes would combat

VBDs. The existing literature provides evidence the combined technology works in Cote d'Ivoire and would support the product register in-country.

LSHTM are currently searching for funding to complete a factorial cluster randomised trial to generate evidence will enable WHO to give policy recommendation, look at house screening alone, EaveTubes alone, replicate the previous. Tanzania has been selected as a potential site as there are different vectors and house types. There is a focus on potential future scale up alongside the trial For EaveTubes with and without screening. The scale up of other public health house modifications can be explored with the potential for intersectoral collaboration.

Acknowledgements were given to LSHTM, Penn State, LSTM, IPR, In2Care and Universite Alassane Ouattara and Centre de Recherche pour le Development.

Questions

The question was asked, *"what are the main vectors here?"* to which Jackie Cook responded, *"The main vectors are An. gambiae, with some An. funestus and An. nili."* An additional question was posed, *"was there impact on Culex nuisance mosquitoes? - that may help in consumer acceptance."* The answer was given, *"We also had a really strong impact on Culex and other non-malaria vectors- about a 60% reduction in density. The population liked the product and most reported a noticeable drop in mosquitoes in their houses."*

Another question was about pertaining to whether IRS was used in conjunction with the EaveTubes. The response to this question was *"there was no IRS in our study area at the time- the main intervention in place were ITNs- we gave out new ITNs as part of the trial."*

Further questions and comments were made about house structure and the feasibility of EaveTubes installation in other house forms, *"The house in the image is a typical one. There are houses in Africa or elsewhere such method may find difficulty."* *"The tubes are good but generally for urban malaria control especially in the malaria endemic countries in Africa that have poor structures with some unsprayable during IRS. Good innovation though."* *"The majority vulnerable populations (in Uganda) live in tukuls (grass thatched round or square huts)."* Jackie responded, *"yes, all good points- the house structure is important. The tubes have been used in more typical houses in Kenya and Tanzania with mud walls- and there's currently a study going on in Uganda too. But we don't have data as to their effectiveness in those kinds of houses yet- very important to find out!"* An addition question was asked, *"if the windows and doors were not mosquito entry proofed, then how it is useful?"* Jackie responded, *"The screening was there to stop other entry points to the house- and therefore to funnel the mosquitoes towards the tubes- to hopefully increase impact."*

More questions were posed to Jackie Cook on the work that she presented, *"What was the density of the study population? Do you anticipate the impact of EaveTubes to change in urban vs peri-urban vs rural areas?"* Jackie answered, *"We were working in rural villages of about 150 houses- I'd expect the community impact might be greater in areas where houses are closer together- but it would be interesting thing to look at."* A further question was asked, *"how diverse are the house structures in rural areas considered in the study? It would be interesting to see if the intervention can be tailored. We got to now look at broader malaria within development."* The answer was, *"in the original study, the houses weren't particularly diverse- mostly concrete or brick- but In2Care have done some work looking at installing the tubes in different house types, such as mud walls, corrugated iron walls- I think it's a key part to ascertain whether they are equally effective in different house types."*

Zero Malaria starts with...expanding the Private Sectors Role – *Sherwin Charles, Goodbye Malaria*

A video was played which highlighted the multi-sectoral action that takes place between Nandos and Goodbye Malaria. As Nandos was inspired by street food in Mozambique, the founders have pledged to equip local farmers with the infrastructure to provide all the chillies required to cook the chicken. Mozambique, South Africa and Swaziland have formed a group to work on eliminating malaria from the Southern African region. The initiative began in the 1990s when South Africa and Swaziland were getting imported cases of malaria from Mozambique which posed as a challenge to elimination in their countries. In 2010 this initiation was halted but funding from Goodbye Malaria led to cross border policy and intervention alignment with the aim of eliminating malaria by 2030.

Goodbye malaria put together a group of private sector partners led by the Nandos restaurant group. Other partners include, the Global Fun, the Bill and Melinda Gates foundation, Vodacom, Airports company South Africa and Bayer. In 2012 the program was kicked off and in 2016 with a regional grant was obtained. US\$4 million was pledged to the global fund and was matched to give a total of US\$10 million to eliminate malaria in Mozambique, South Africa and Swaziland.

The goodbye malaria spraying program now employs thousands of sprayers across multiple regions which protects millions of lives each year. The program also works to empower women, 64% of the current spray operators are women. Goodbye Malaria works on equality and multi-sector action by educating and hiring local people.

COVID-19 slowed down the growth of the program as new sprayers were not able to attend in person training. Temporary training centres were put up to facilitate training on a smaller scale. Training has been adapted to include mobile training walls that will be used long after to the pandemic as a reusable resource.

Questions

The first question directed at Sherwin Charles and Goodbye Malaria was, *“Sherwin, Great piece of innovation and adaptation of IRS during COVID-19. Was there any change in IRS coverage compared to the previous spray cycle? Is it possible to describe the net catalytic effect of how Lubombo Spatial Development Initiative had on net investment in malaria in the three countries?”* Sherwin responded, *“Our coverage matched what was achieved in the previous year and more domestic investment has come in for malaria in southern Africa.”*

The refreshed Framework for Multisectoral Action on Malaria: context, priorities and where we go from here – *Dudley Tarlton, UNDP*

In 2013, the Multi-Sectoral Action Framework for Malaria was developed in collaboration between RBM and UNDP. This work was guided by a steering committee composed of UNICEF, Habitat, WHO, world bank and other members of MSWG. Significant inputs were given by governments and the developmental sector working on the frontline. In 2019-20, UNDP at the request of MSWG and working closely with RBM, an update and refreshment of the 2013 document was commissioned by UNDP. This work is accompanied by a rapid appraisal tool which will be useful in pathfinder countries.

In 2019, feedback, comments and suggestions on the 2013 version were obtained. Participation in a meeting of the RBM Advocacy & Resource Mobilisation Partner Committee in Geneva and participation in a high burden to high impact workshop in Ghana. The first draft was sent for review to all those who had responded in the first round plus nine UNDP country, regional and HQ staff. The draft framework document was reviewed by a panel of 10 members drawn from the membership of the MSWG. The draft framework is undergoing one more final review to align it with the RBM Guide

on multisectoral action – with a launch planned for the third quarter. A total of 36 responded in the two rounds and their comments and suggestions were reflected.

The multi-sectoral approach aims to increase the development of new tools to for vector control and malaria management in order to achieve the 2030 elimination goal. Currently, development focused solely on the health determinants of malaria which neglects the non-health factors that increase malaria incidence. UNDP aims to place more emphasis on the fact that it is multi-sectoral and multi-sectoral action is needed.

It is important to work with other sectors to ensure that none of their implementations increase malaria infections. Treating individual who has malaria is a core issue for the health sector however, finding a sustainable way to reduce the number of malaria cases in society requires synergetic interplay between different sectors. Multi-sectoral action has to take place on a political and institutional canvas in order for it to be successful.

Major determinants of malaria infections show what drives malaria with the aim of identifying potential entry points for action and corresponding sectoral matches. These include socio-economic factors, positions, social environment, physical environment, population group and households. A matrix of the main sectors and the societal determinants allows for a clear overview on where action is needed, and which sectors need to be involved.

The 5 steps to becoming malaria smart should implore the wider public to ask themselves four questions. Where can I contribute? Who do I go to? Where do I start? What can I contribute? How can I show that I am making a difference? And why should I engage?

The next steps of this work are to get a better understand of causality and thresholds. New technologies such as artificial intelligence need to be optimised to drive the needed interventions. To be able to calculate the cost-benefit questions is always required to ensure that interventions are working well.

The Multisectoral Action Guide to End Malaria: how can it be adapted to different national contexts? – Joshua Levens, RBM Partnership to End Malaria

RBM partnership has developed two new guides on multi-sectoral action to end malaria, one is a global guide and the second is a national, making it more specific to the needs of the country. Currently Zambia is the only country with a country-specific multi-sectoral guide.

Guides contain case studies and best practices over 8 sectors and are not limited to the outlined sectors. The 8 sectors selected are those that cut across malaria endemic countries. These sectors include agriculture, housing & infrastructure, primary education, tourism, telecommunications humanitarian emergency response special area of engagement, refugees, energy and extractive industries, defence, and security.

The guide takes a step-by-step approach on how to develop and implement a multi-sectoral strategy. The first step being to define multi-sectoral action, then to identify who at a global, regional, national and subnational level can support multi-sectoral action. The next step is to assess the investment case and broader health impacts on the other sectors, identify shared goals and build capacities and mobilise resources.

These guides are proposed to support conversations at the start of new multi-sectoral malaria-based programs. They will help users identify shared goals and mutual areas of opportunity across sectors and advocate for malaria-smart practices and policies outside of the health sector. The guides have been designed to support the creation of a policy framework conducive to multisectoral action and

promote multidisciplinary research to generate evidence supporting multisectoral action and to identify gaps.

Listeners were thanked and any questions were welcomed.

Healthy Cities, Healthy People: A framework for action for the Commonwealth and beyond – Sarah Beeching, Oshun Partnership

Following the last malaria summit held by the Commonwealth in London and in collaboration with the mayor of Freetown, a collaboration began to work on tackling malaria in urban and peri-urban areas. From 2000 to 2030 the world's urban population is expected to increase from 2.7 billion to 5.1 billion people which is 60% of the global population. The risk of urban malaria and other vector-borne diseases such as Zika, dengue and chikungunya varies according to types of construction, waste management, drainage, ditches, and water storage that can create breeding sites for vectors. WHO has recognised the different response required for the response to malaria in urban areas vs rural, to address rapid urban population growth and evolving malaria transmission dynamics in malaria endemic countries. A multi-sector response required to tackle malaria in cities will also help tackle other vector borne diseases, NTDs and TB. COVID-19 has highlighted the pressures that can be placed upon the health sector and the importance of prevention.

City leaders are important stakeholders as many of the non-health sector interventions required to tackle vector borne disease fall under the direct responsibilities of local governments for example improving drainage is an environmental modification that would reduce larval sites. Similarly, improving housing is a social measure that could reduce host availability by mosquitoes. The responsibilities can vary greatly across cities in the Commonwealth, but a top-down approach led by city leaders will be the best for malaria control and elimination at a community level.

The purpose of this initiative is to support a network of Commonwealth city leaders and link them with international health advocates. This initiative responds to the Commonwealth Local Government Forum 'Call to Action on Sustainable Urbanisation Across the Commonwealth' and the CHOGM Communiqué 2018. The initial objective is to agree a Common Position and Commitment to Action, with a focus on the role city leadership can play in galvanising action beyond the health sector. This will be launched on World Cities Day in October 2021. The longer-term aim is to mobilise substantial and sustainable support for urban health investment across the Commonwealth and create a network with a strong focus on vector-borne diseases and NTDs. Particular attention needs to be given to secondary cities which often lack the political power, resources and support of national capitals and commercial centres.

Oshun are currently partnering with BOVA, Catholic Relief Services, The Commonwealth, CLGF, RBM, UN-Habitat and Uniting to Combat NTDs on the Health City, Healthy People initiative. These organisations alongside local governments and leaders have met for a series of regional meetings which have highlighted the lack of current resources. Environmental factors need to be addressed and an investment in disease prevention is required. Oshun is keen to collaborate with Francophone mayors to expand the network to their cities.

UNHabitat and CLGF are seeking resources to support city leaders with technical assistance, enabling them to build the case for investment, identifying opportunities to access sub-sovereign finance and other resources for infrastructure development and capacity building. A group of Commonwealth Mayors are aware of this initiative and have contributed to developing the Common Position for formal endorsement in September 2021. A work plan is being developed under Commonwealth Sustainable Cities Network to link leaders with each other and with technical expertise. Widening the

network to collaborate with Francophone partners and beyond. Once the Commonwealth leaders meeting goes ahead, the hope is for city leaders to report back on the progress they have made and highlight the importance of collaborative work.

Questions and Comments

A comment was made on ensuring that responsibility for “manmade” urban areas is obtained and that the responsible sectors also take on responsibility for larval habitats and the control and elimination of malaria.

Round table discussion able the implementation of existing multisectoral tools – Dr Bayo Segun Fatunmbi - WHO, Dr Marion Natukunda – Uganda NMCD and Dr Emily Katarikawe – Uganda Civil Society Alliance Against Malaria. Chaired by Dr Peter Mbabazi

Dr Peter Mbabazi posed the question to Dr Bayo Segun, “*What in your opinion is the best way to implementation of multi-sectoral action? Please give an example.*” Dr Bayo responded, “*It is important that we know that one size does not fit all as we fight to end malaria. We first of all need to convince ourselves that we, malaria programs, the Ministry of Health, the health sector and the government sector do not have all the answers to these parasites and vectors. Once we are aware of this, we can move further toward our 2030 goal. In answer to the second part of the question, the experience from Uganda which has some parts. We first need to have some background to know where we are, we need to understand what the end game and there from with evidence convince other sectors in the spirit of multi-sectoral collaboration they need to know their role and responsibilities. Beyond that, what is in it for them, it is a win-win situation you can’t bring the Ministry of Finance to talks about malaria without letting them know what the need is. So, evidence and knowing what the current situation is in the country, this was the experience in Uganda in 2017, we monitored the situation in terms of progress between 2009 and 2016. We realised the stagnation that we are talking about now in 2020 when the world malaria report came, Uganda had already identified that stagnation in 2017. Due to that, we were able to do a comprehensive mid-term and we were able to come up with some recommendations. The conclusions of that meta-data evaluation process were that we need a mass action against malaria which was launched by the President. Having been convinced with evidence, he was able to say, “I with my whole government structure are going to fight malaria to a standstill” at all levels, from the presidency down to the 7.5million households learnt how to be empowered to fight malaria. In 2019, we came up with malaria indicator survey using evidence to convince the key players. Then we had the malaria program review also in 2019 where we formalised the multi-sectoral action in the Ugandan malaria reduction and elimination strategic plan 2021-2025. We did a root cause analysis and from there we went ahead in the process of developing the tool. We had a strong leadership structure that starts with heads of households and also with the highest level that came with commitment and accountability. We are monitoring our progress and using that to influence our further decisions.*”

Dr Peter Mbabazi posed the same question to Dr Emily Katarikawe “*What in your opinion is the best way to implementation of multi-sectoral action? Please give an example.*” Dr Emily responded, “*I will build on what Dr Bayo has said from the angle of the Ugandan Civil Society. Excellent work has been done but we need to do more as this is ultimately about people, the individuals we care about. So, while we have those structures, excellent documents, systems in place through the public and private sector, communities remain underserved, are underperforming and are not participating in what is going on. To me, an idea of multi-sectoral action is one that brings opportunities for participatory action and engagement of the communities we work with. An opportunity provided by civil society to act as a funnel to simplify the policies, the guidelines and to take down advocacy from a national level to a district level to a community level. To be able to understand the principles of multi-sectoral*

engagement, to hold duty bearers accountable and mobilise beneficiaries and communities to demand what are their rights to health. To be able to use the social structures they work with on a daily basis and to simplify these recommendations and interventions and transform them into actionable things on the ground. When talking about in the previous presentation, the determinants of malaria, you cannot run away from the fact that it is about individuals, it is about societies. So, the civil society has that room and space to occupy to act as a medium on the ground. To me, multi-sectoral action is one that is able to actually land on the doorstep of each household, it is able to empower people to take action on their own. I do appreciate that we have to work within the framework that is developed at national and global level, but their engagement is equally critical. The example right in front of us is what happened to us with HIV, until the private sector, the civil society and public sector started working together and engaging and bringing messages home. Until we empowered beneficiaries of services, we were not having quite an impactful response. You remember statements that started coming out when communities were empowered and people living with HIV saying, “nothing for us without us” and that’s what we need to see with malaria. Lately the reproductive health sector has picked the national documents, they are developing district development costing plans, they are leading with the civil societies and the communities in advocacy for resource allocation at a national level. They are leading with advocacy for increasing human resources in the facilities to provide services like family planning which were traditionally seen as clinical services. They are now being provided at household level with the agenda of selfcare. Until we get to such levels it can only be excellent documents, excellent policies and guidelines but actionable and implementable into transformative actions that eventually create habits that become norms about malaria prevention, we will not talk about a multi-sectoral response yet.”

Dr Peter Mbabazi posed the same question to Dr Marion Natukunda in the absence of Dr Jimmy Opigo, “What in your opinion is the best way to implementation of multi-sectoral action? Please give an example.” Dr Marion responded, “First of all the coverage of Rotary in Uganda is about 5000 Rotarians who I am joined with. Every rotary club is situated in this country and what we have done the last time we had a multi-sectoral engagement is that we tasked every club across the country to come up with someone to be awarded the club malaria officer. Why? Because every rotary club carries out what they call a family health day in the district they operate from. We said, if you can incorporate malaria activities, advocacies for malaria, maybe IRS or awareness of all the malaria interventions that will help us reach our goal. Like how rotary took on polio, it has now embraced the malaria fight. At the family health days, there is information sharing, test and treat and mosquito net distribution. Right now, we different stakeholders on board and we find most of these stakeholders are Rotarians in their own clubs, so it is easy for us to involve them on a business level to advocate for malaria. Every time there is a report of a rotary family health day or outreach, there is a component of malaria being reported. In terms of multi-sectoral, we have different sectors involved in rotary, if you list any of the sectors you will have it represented by someone in rotary. That is how we have brought them on board as they get to act as Rotarians and not CEO of companies.”

Questions and Comments

The question was posed to the panel, “Who should take responsibility for mosquito control in urban areas? Urban farming practices such as rice and maize production provide vast breeding sites for mosquitoes. Should rice and corn be banned in order to eliminate malaria?” Dr Emily Katarikawe responded, “It is not a question at that, I think it is a dilemma that all programmers are having to deal with. Urban farming comes with its own dynamics but people need to eat. There are other situations that we saw in the previous presentations, for example, garbage disposal in urban centres is quite a dilemma. Peter, you know how we have been talking about transport as a commercial business. How

mobility of mosquitoes is actually happening between cities, between urban centres because they [mosquitoes] travel on trucks. That is an issue in which we can't say how we are going to deal with it, the question is who hands out that message? Who is in charge of that risk communication? We cannot just deal with ordinances, policies and guidelines. I think the health education that comes with that and communities themselves may chose to solve their own problems if they are engaged and guided on what the issues are. Like any other disease, we may not be able to solve every problem, but we definitely have an opportunity to reduce it significantly. Those discussions happen when we have a multi-sectoral group, and we have everybody at the table."

Dr Bayo added, *"That is why we have another platform called the operational research agenda issue, it is a bottleneck dilemma. The idea is to engage the social researchers and engage the key stakeholders and through the bottom-up approach, we can address some of these issues. You will recall our engagement with the Ministry of Environment, there were many bottlenecks and closed doors but when we started communicating that this is what you stand to lose as a farmer, and we gained interest. This issue is not specific to malaria it is there for many of diseases who need to use the one health initiative."*

A comment was given by an attendee, *"I think with the multi-sectoral work, we have to make sure we don't just look at it from the top only. We have examples in Somalia where the malaria cases were being blamed on urban migration however, during a program review, it was released that the population as the result of a lack of clean water as a population pressure small wells were dug and acted as breeding sites to mosquitoes. An intervention was done with the water board, the town board and political governance to try and educate people on what to do. They also realised that if clean water was made available the population would not dig wells. In the time of two years, they had a significant decline in their malaria burden."*

Conclusion from the day 2

Graham thanked all the speakers and attendees for their engagement during the session.

List of acronyms

BOVA	Building Out Vector-borne disease in Africa
CEO	Chief Executive Officer
CLGF	Commonwealth Local Government Forum
GMP	Global Malaria Programme
GPIRM	Global Plan for Insecticide Resistance Management
GVCR	Global Vector Control Response
HBHI	High Burden to High Impact
HIV	Human immunodeficiency virus
HR	Hazard Ratio
ICIPE	International Centre of Insect Physiology and Ecology
IPR	Institut Pierre Richet
IRM	Insecticide resistance management
IRS	Indoor residual spraying
ITN	Insecticide-treated net
LLIHN	Long-lasting insecticidal hammock nets
LLIN	Long-lasting insecticidal net
LSHTM	London School of Hygiene and Tropical Medicine
MSA	Multi-sectoral action
MSWG	Multi Sectoral Working Group

NMCP	National Malaria Control Programme
NTD	Neglected Tropical Diseases
PAMCA	Pan African Mosquito Control Association
PVC	Polyvinyl Chloride
RBM	Roll Back Malaria
SOP	Standard Operating Protocol
SWOT	Strength Weakness Opportunities and Threats
TB	Tuberculosis
TDR	Research and Training in Tropical Diseases
UNICEF	United Nations Children’s Emergency Fund
UNDP	United Nations Development Program
VBD	Vector borne disease
VC	Vector Control
VCAG	Vector Control Advisory Group
VCWG	Vector Control Working Group
WASH	Water Sanitation & Hygiene
WHO	World Health Organisation
WHO-PQ	World Health Organisation Prequalification of Medical Products