

RBM MULTI SECTORAL WORKING GROUP (MSWG)

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## Discussion Paper

# **Challenges and Opportunities for Multi-Sectoral Action to control and eradicate Malaria and other vector-borne diseases**

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## **Introduction**

Malaria remains one of the world's worst health problems with 1.5 to 2.7 million deaths annually; these deaths are primarily among children under 5 years of age and pregnant women in sub-Saharan Africa. Of significance, more people are dying from malaria today than 30 years ago.

*"2016 marked the first time in over two decades that malaria cases did not fall year-on-year despite huge efforts and resources, suggesting we need more tools in the fight."*

[Nature Biotechnology](#), (reported BBC news 24 sept 2018)

It can be argued that we need more and better tools, but perhaps most importantly we also need more ways to deliver what we have more effectively, hence the need to broaden the approaches beyond health interventions.

We have also long been presented by the “experts” that a miracle cure is “just around the corner” and that efforts to invest in environmental management methods present a limited opportunity. Clearly this is not the case. History teaches us that eradication was achieved in many parts of the world through ensuring poverty was addressed through improved living conditions, and the local environment, especially housing and the peri-domestic environment.

Although blanket approaches to mosquito control built around use of insecticides and bed-nets, have varying levels of success, these approaches are beyond the resources of many endemic communities. There is clearly a need to save costs and time, while improving effectiveness through tailor-made, context specific solutions. In order to achieve this, we not only need better diagnostic facilities, better mapping of cases and better feedback from communities, but also an involvement of the other critical stakeholders, who have much to give, although they may not realise the impact Malaria and other vector-borne diseases are having on their sectors.

The main objective of this working group is to:

- explore the necessary gaps in the design and delivery of integrated multi-sectoral approaches, building on the RBM multi-sector framework;
- encourage a wider participation in malaria control and eradication from other relevant sectors, prioritizing the most important actors;
- to promote successful models and design and implement new approaches to multi-sectoral projects and programmes;
- To identify additional resources to support activities, both within existing programmes and in establishing new partnerships; and
- Establish some priority regions/countries where political will is high and piggy-backing on existing initiatives is useful

## Global Mandates for our work

These are principally driven by: The Sustainable Development Goals; Global Vector Control Response of WHO; and also some key sectoral mandates such as the New Urban Agenda. These higher-level mandates are key as a unifying approach for us to align with.

Efforts to prevent, control and eliminate malaria both contribute to and benefit from sustainable development. The objectives of reducing the disease burden and eliminating malaria are intrinsically linked to most of the Sustainable Development Goals (SDGs), and are central to SDG 3: *Ensure healthy lives and promote well-being for all at all ages* and its Target 3.3: “By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases.” We note here the linkages to other communicable diseases

The *Global vector control response 2017–2030 (GVCR)* provides a new strategy to strengthen vector control worldwide through increased capacity, improved surveillance, better coordination and integrated action across sectors and diseases.

In May 2017, the World Health Assembly adopted resolution WHA 70.16, which calls on Member States to develop or adapt national vector control strategies and operational plans to align with this strategy. Priority activities set out in the GVCR fall within 4 pillars that are underpinned by 2 foundational elements:

### **Pillars of action**

- Strengthen inter- and intra-sectoral action and collaboration
- Engage and mobilize communities
- Enhance vector surveillance, and monitoring and evaluation of interventions
- Scale up and integrate tools and approaches

### **Foundation**

- Enhance vector control capacity and capability
- Increase basic and applied research, and innovation

Successful implementation of the GVCR will require strong country leadership, advocacy, resource mobilization and partner coordination, along with regulatory, policy and normative support. The GVCR was developed through a fast-tracked and broadly consultative process co-led by the WHO Global Malaria Programme (GMP), WHO Department of Control of Neglected Tropical Diseases (NTD), and the Special Programme for Research and Training in Tropical Diseases (TDR).

The New Urban Agenda does mention some of critical health issues faced by cities: it specifically calls out the epidemics of AIDS, tuberculosis, and malaria and other vector-borne diseases, in addition to the need for better nutrition and food security. It is however clear the other challenges highlighted (like the reduction of social inequalities and the promotion of social inclusion, and the need to promote the environmental quality of cities and ensure access to basic services and affordable housing) have health impacts. The density of urban agglomerations makes it possible for policies to impact the environments and the health of many people at once. Because they are home to enormous social and spatial inequalities, cities also have the obligation and the opportunity to act decisively to reduce health inequalities. There is clearly here a good opportunity for RBM

A second critical point is that population health and environmental sustainability are inextricably linked. Policies that promote health, like active transportation and consuming less processed foods will also have beneficial environmental impacts. And vice versa, policies to enhance the environmental quality and sustainability of cities will improve population health.

## **Key Issues for discussion**

### **Enhanced engagement of community actors**

The complex social structures in society are often not fully understood. Most community sensitization, is frequently a required inclusion, but seldom goes deep enough to contribute to more efficient and effective project design, let alone implementation. The complex working habits and leisure practices, play a huge role in understanding transmission routes and designing effective interventions. Poor engagements with communities often result in false conclusions about how or why interventions fail to achieve positive outcomes.

*“on a recent visit to the Kagera region in Tanzania, the sporadic use of ITNs was questioned. Although the majority of households had been supplied with nets, in-depth discussions with the communities revealed that most parents did not allow their children to sleep under nets, as recently a house fire had injured some children. Many adults had thus rejected their use as hazardous ”*

Realising the untapped capacity that exists in communities, has not only been affected by “master plans” for malaria control and eradication, but has discouraged new, innovative community-based approaches to monitoring, surveillance and destruction of

#### **Box 1 Community Engagement & Control of Vector-borne Diseases in Malindi, Kenya**

The study was undertaken in Malindi town on the Kenyan Coast. The area was divided into grid cells measuring 1 km by 1 km. Each grid cell was assigned to a mosquito scout. The mosquito scouts were laypersons who are trained on aspects of mosquito biology, larval and adult sampling techniques and communication skills and data collection. Information on mosquito breeding areas, mosquito larvae and adult and promoting ITN use was collected and used to make decisions on mosquito control actions in the area. Participation in vector control was sought by local level involvement through community and/or inter-sectoral participation.

The resulting project triggered a further series of initiatives to share the knowledge. Using the community to identify malaria risk areas (positive larval habitats, presence of mosquitoes, children fevers), make decisions, and manage finances for malaria control, meant costs savings and a reduction in Malaria. Women provided ~ 60% of labour in the identification of ground pools of water and were well represented in the overall management (51%). Working in partnership with the Ministry of Health and local health officials, established local capacity for the longer term.

Adapted from Dr Charles M. Mbogo, Kenya Medical Research Institute

vector-breeding sites. Good examples do however exist (see Box 1)

### **Improving weak institutional structures at national and local level**

Weak institutional structures at national level have resulted in Malaria control and eradication relying exclusively on ministries of Health, where other sectoral ministries are better placed to support interventions. Ministries of public works and housing, construction, urban development and planning, education, agriculture etc all have a role

to play. But inter-ministerial co-ordination is easier said than done, with many turf-wars coming into play, particularly when resources are available. What is perhaps more important is the ability for line ministries to provide an enabling environment for other actors. For example, for local government bodies, communities and private sector to work together in innovative partnerships.

At the local authority level, a new dynamic, needs to be created to encourage multi-sectoral approaches in practice, building on existing capacity, complimented with community engagement. Multi-sectoral planning, housing design and construction, provision of drainage, water supplies and sanitation can be reviewed through a "vector-borne disease" lens with new or revisions to local by-laws, paving the way for strengthened capacity. The ultimate aim is to build malaria-wise communities, cities and towns, villages and agglomerations of all sizes.

### **Developing new tools to assess risk and assist in monitoring and surveillance**

Predicting the risk rather than waiting for outbreaks has always been sought by health officials. However, although many risk assessment tools have been developed, their practical application in local settings is often impractical. Many aspects of both the natural and built environments have, in the past, been difficult to monitor. With great opportunities now available using remote sensing, drones and other forms of data acquisition, not only can environmental conditions such as surface temperature, air temperature, precipitation, soil moisture, vegetation, and evapotranspiration. This information can be mapped with the known behaviour of disease vectors and movements and behaviours of affected populations. Even aerial photography, until-recently requiring the purchase of satellite imagery, is now available freely. The opportunities are obviously not limited to Malaria but include others such as, Dengue Fever, Zika, Schistosomiasis, West Nile fever, Chikungunya. [NASA](#) data sets can be used to identify environmental conditions that may result in the onset of vector-borne diseases. At the present time, some researchers are using these datasets but most operational users have not begun to take advantage of the availability of these data. Such assessment methods are an integral part of assessment and appraisal tools.

### **Identification of vulnerable populations in displaced communities due to natural disasters and conflict**

In a world where there are increasing numbers of displaced persons, due to disaster or civil strife, there are significant risks for transmission on Malaria and other VB diseases. Tracking VB diseases in such populations is difficult as they are often not registered in any formal system. With the increasing trends of the assimilation of refugees in existing host communities, new challenges are faced in the frequently low-income areas where they are hosted. In existing camps and settlements (where the average life span is, in

excess of 27 years) a new approach to the provision of basic services such as housing, water, sanitation, drainage and access to medical care is required.

### **New approaches to Improved project design**

Over the past several decades, a huge amount has been learned about vector habitats, behaviour and opportunities for control. This has not been well-captured in integrated projects. Many of the tools for effective interventions have been extensively researched, but like many other effective but isolated good practices, they never move to scale or are institutionalised in governance structures. Some suggested areas for innovation could be considered including:

- A more effective review of past successes, such as the pioneering work of the Tennessee Valley Authority and some of the military projects and interventions in South Pacific during WWII
- Better understanding the impact of new demographic changes brought about by urbanization and displaced populations. Malaria and other vector-borne diseases are often wrongly categorized as "rural diseases" In many parts of the world, urbanization patterns have seen explosive growth in smaller settlements. These settlements, although classed as "rural" by statisticians have predominantly urban characteristics. Housing and infrastructure provision must be designed with due consideration of the impact of vector-borne diseases.
- Malaria and other VB diseases do not recognise international and national boundaries. It is clear the further investigation of the transboundary issues, in relation of VB disease control, are needed. A good example is the designing of cross-border water resources projects.
- In terms of application of existing tools (such as IRS and ITNs), there is a need to consider how the efficiency of their use can be enhanced through additional environmental control methods, based on context could yield far greater impacts, often at reduced cost. Assessment and appraisal tools are therefore high on the list of priorities to contribute to such integrated projects.
- Developing project methodologies which establish a learning by doing approach, which is more participatory and less top-down may offer improved impacts. For example, establishing a multi-sectoral project design and implementation facility/team, sourced from local sector experts, to support municipal staff. Community participation needs to go far beyond cosmetic approaches and be institutionalised in local authority systems.

- Promoting the inclusion of multi-sectoral approaches to VB disease control and eradication in school and tertiary education curricula is most certainly missing in most malaria-endemic areas.
- There is much opportunity to use structures and approaches from other sectors which can be re-purposed to support VB disease management. Associations of agricultural workers, village water committees, HIV-AIDs advocacy workers all have lessons we can learn from.

### **Influencing increased investments**

Influencing new and major investments in preventative approaches to Malaria and other VB disease still lags other sectors. There are opportunities to influence the investments of the financial institutions and external support agencies, providing interventions are considered in a timely manner.

Engaging in the initial phases of project development to include malaria and other VB disease components can be achieved in several ways. As a first priority, understanding the type of lending/grant so-called blended financing available is critical. Some organisations are geared solely to bilateral lending, whereas others offer flexibility for a regional funding approach.

Recognizing that investments can include components both at local level and in larger scale national/regional interventions such as investments in roads, railways dams housing, urban development, settlements planning for displaced persons.

The use of catalytic funding to leverage large investments is also well received. For example, including a demonstration of VB disease control in the inception phase of a major infrastructure investment project can be replicated and expanded in later phases. The inclusion of vector-borne disease experts in pre-appraisal and appraisal missions is also important as this is where recipient governments can be persuaded to include VB disease management components.