Republic of Rwanda
Ministry of Health

EXTENDED RWANDA MALARIA STRATEGIC PLAN

2020-2027

Rwanda Biomedical Centre
Healthy People, Wealthy Nation

June 2024

Republic of Rwanda
Ministry of Health

EXTENDED RWANDA MALARIA STRATEGIC PLAN

2020-2027

Rwanda Biomedical Centre
Healthy People, Wealthy Nation

June 2024

PREFACE

The Ministry of Health and the Rwanda Biomedical Centre have made significant progress in reducing malaria incidence from 409 per 1,000 population in FY2016/17 to 47 per 1,000 population in FY2022/23. These achievements have been possible with visionary leadership and accountability which was enhanced by the implementation of high-impact preventive interventions based on IRS and the distribution of ITNs as well as innovations such as community-based interventions, access to community health insurance, and performance-based financing.

The main goal of this Extended 2020 - 2027 Malaria National Strategic Plan (NSP) is to reduce malaria morbidity and mortality by at least 90% of the 2019 levels by 2027. The focus, vision, mission, strategic objectives, and core values articulated in this MSP were discussed and agreed upon through a highly participatory and consultative country process that involved multi-sectoral stakeholders from government ministries and departments, development partners, the private sector, national and international non-governmental organizations, research/academia, local/urban authorities, and other sub-national stakeholders.

A recent comprehensive Mid Term Review of the previous malaria National Strategic Plan conducted earlier in 2023 informed the review and the development of the strategic direction, objectives, and targets of this Extended National Strategic Plan 2020-2027. This strategic plan builds on the lessons learned during the previous malaria strategic plan and aims to accelerate the nationwide scale-up of universal coverage of cost-effective malaria interventions to ensure programmatic impact by 2027.

Noting that the determinants of malaria have roots beyond the health sector and the roles of other sectors will be harnessed to prevent and control malaria in Rwanda. A multi-sectoral approach led by the Ministry of Health will have added value in promoting effective financing synergies between malaria control and other key development agendas. It is imperative that stakeholders i.e. the Government, Development Partner, private sector, Civil Society Organizations, Local Leaders, etc... will join hands to avail and commit the necessary resources and ensure effective community engagement to own and sustain achievements.

The Ministry of Health is committed to continuing to significantly reduce the burden of malaria in Rwanda with collaborative financial and technical support from key stakeholders.

Prof. Claude M. MUVUNYI

Director General/RBC

ACKNOWLEDGMENT

The Ministry of Health and the Rwanda Biomedical Centre wish to express deep appreciation and sincere thanks to all who participated in the recent Malaria Mid-Term Review (MTR) conducted in 2023 to inform the review of the Malaria National Strategic Plan 2020-2024. The commitment, technical support, and overall stewardship from the members of the Senior Management Team, the World Health Organization (Headquarters, Africa Regional Office, Inter-country Support Team, and the Rwanda Country Office), development partners, and implementing partners in malaria control are highly appreciated. The dedication, technical inputs, and participation of members of the Extended Malaria Technical Working Group was exceptional. The contributions and participation of District Representatives, Health Care Workers, the Ministry of Education, the Rwanda Correctional Services, as well as Civil Society and Faith-based Organizations, and the private sector have made the strategy a truly multisector response to the challenges of malaria in Rwanda.

_____

Prof. Claude M. MUVUNYI

Director General

ACRONYMS

AL	Artemether-Lumefantrine
ALMA	African Leaders Malaria Alliance
BIOS	Biomedical Services
CHWs	Community Health Workers
CPDS	Coordination Procurement, Distribution System
DHS	Demographic and Health Survey
DHIS2	District Health Information System
EAC	Eastern African Community
EIR	Entomologic Inoculation Rate
EMSP	Extended Malaria Strategic Plan
FY	Fiscal Year
GDP	Gross Domestic Product
GIS	Geographical Information System
GOR	Government of Rwanda
HBM	Home-Based Management
HBMA	Home-Based Management for Adults
HMIS	Health Management Information System
HRH	Human Resources for Health
i-CCM	Integrated Community Case Management
HSSP	Health Sector Strategic Plan
HDPC	HIV/AIDS, Disease Prevention and Control
IRM	Insecticide Resistance Management
IRS	Indoor Residual Spraying
ITN	Insecticide-Treated Bed Net
IVM	Integrated Vector Management
LLIN	Long-Lasting Insecticide-treated Net
MDG	Millennium Development Goals
MINECOFIN	Ministry of Economy and Finance

MIS	Malaria Indicator Survey
MPPD	Medical Procurement and Product Division
MOH	Ministry of Health
MOPDD	Malaria & Other Parasitic Diseases Division
MSP	Malaria Strategic Plan
MTEF	Medium Term Expenditure Framework
MTR	Mid-Term Review
NGOs	Non-Governmental Organizations
NISR	National Institute of Statistics of Rwanda
NMCP	National Malaria Control Program
NRL	National Reference Laboratory
NSP	Malaria Strategic Plan
PBF	Performance-Based Financing
PMI	President's Malaria Initiative
PSM	Procurement Supply Management
QA/QC	Quality Assurance/Quality Control
R-HMIS	Rwanda Health Management Information System
RBC	Rwanda Biomedical Centre
RBM	Roll Back Malaria Partnership
RDT	Rapid Diagnostic Test
RPPA	Rwanda Public Procurement Authority
SBC	Social Behavior Change
SDG	Sustainable Development Goals
SIS-Com	Systeme d'Information Sanitaire-Communautaire
SMS	Short Message Service
SMM	Senior Management Meeting
SPR	Slide Positivity Rate
TPR	Test Positivity Rate
WHO	World Health Organization

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

EXECUTIVE SUMMARY

The Extended Malaria National Strategic Plan (NSP) 2020-2027 articulates the interventions that will be put in place towards the improvement of the health status of Rwandans and the fight against poverty by reducing the significant socioeconomic burden due to malaria. The extended NSP was developed through consultations with health service providers at all levels of the health care system, development partners, experts and draws on the lessons learned and recommendations from the Malaria Program Review (MPR) undertaken in January to March 2023.

VISION

The Vision of the NSP 2020-2027 is Rwanda free from malaria as a way to contribute to the socio economic development.

MISSION

To contribute towards the social-economic development of Rwanda through malaria control by strengthening and implementing appropriate interventions and quality health delivery services in partnership with stakeholders.

GOAL

By 2027, reduce malaria morbidity and mortality by at least 90% of the 2019 levels.

OBJECTIVES

1. By 2027, at least 90% of population at risk will be effectively protected with preventive interventions;
2. All suspected malaria cases are promptly tested and treated in line with the national guidelines;
3. By 2027, strengthen surveillance and reporting in order to provide complete, timely and accurate information for appropriate decision making at all levels;
4. Strengthen coordination, collaboration, procurement & supply management and effective program management at all levels;
5. By 2027, 85% of the population will have correct and consistent practices and behaviors towards effective malaria control.

IMPLEMENTATION

The main interventions in the Rwanda Extended MSP Malaria NSP 2020-2027 are as follows:

1-Vector control (including Insecticide-treated Nets, Indoor Residual Spraying and, Larval Source Management); 2-timely malaria diagnosis and treatment; 3-monitoring, evaluation and operational research (including epidemic preparedness and response); 4-malaria social behaviour change communication and programme management. Their impact will be regularly monitored and evaluated, Integration using a multi-sectoral approach will be prioritised.

The guiding principles for the implementation of the Extended NSP are: person-centeredness; equity and accessibility, provision of quality health care services; ownership, leadership and political will through promoting a sense of stewardship, accountability and transparency; implementation of evidence-based interventions and; multisectoral involvement in implementation.

BUDGET

The detailed four-year costing of the extended Rwanda Malaria National Strategic Plan **(July 2023 to June 2027**) was conducted using the WHO MSP costing guidelines. The total cost of implementing this strategy is an estimated **RWF 369,191,384,202 (US$ 305,799,208)** to be met by the GoR, together with the Global Fund, development partners (USAID/PMI), and other international and local stakeholders **(Annex 4 and 5).**

Investments in Malaria Prevention has an allocation of **81,4%** of the total NSP budget, Malaria Case Management **(4,9%),** SBC **(5,6%)**, SMEOR **(5,9%)** and Program Management **(1,8%),** RSSH/HRH **(0,4%)** as shown in **Figure 14** below which summarizes the costed budget of this NSP.

CHAPTER 1 INTRODUCTION

1. POLICY AND PROGRAMMING ENVIRONMENT

Malaria remains a public health priority in Rwanda with the whole population at risk of malaria infection. Rwanda continues to make progress in malaria control through multifaceted evidence based approaches namely: information, education and communication; distribution of Insecticide Treated Nets (ITNs); Indoor Residual Spraying (IRS) and; early diagnosis and effective management of malaria cases as guided by the National Malaria Strategy. This strategic plan has been aligned to the Sustainable Development Goals (SDGs), the World Health Organisation (WHO)'s Global Technical Strategy (GTS) 2016-2030, RBM Partnership's Global Malaria Action Plan (GMAP) 2016-2030 and Action and Investment to defeat Malaria 2016-2030 (AIM). It is also in line at national level with: the Rwanda Health Sector Policy which provides the overall basis of national health planning and, aims to ensure universal accessibility (in geographical and financial terms) of equitable and affordable quality health services (preventative, curative, rehabilitative and promotional services) for all Rwandans; the Health Sector Strategic Plan Four (HSSP4) 2018-2024; the first pillar of Rwanda's Vision 2050 which addresses the quality of life for all Rwandans including universal access to healthcare and services; the Results Based Management Policy (RBM) and; the National Strategy for Transformation (NST1) 2017-2024. Rwanda stresses equality and universal access of health services as stipulated in the HSSP4 2018-2024 and Vision 2050. This Malaria National Strategic Plan has been extended to June 2027.

2. PURPOSE OF THE MALARIA NATIONAL STRATEGIC PLAN 2020-2027

The purpose of the Extended Rwanda Malaria National Strategic Plan (NSP) 2020–2027 is to provide key strategic direction that will accelerate progress towards malaria reduction in Rwanda. The extended NSP guides the implementation of key strategies by all stakeholders in malaria response in Rwanda with a common goal of reducing malaria morbidity and mortality by at least 90% of the 2019 levels. This document is outlined as a framework, guided and coordinated by the Malaria and Other Parasitic Diseases Division (MOPDD). With support from various stakeholders, this strategic plan will guide annual operational planning by the Ministry of Health (MOH) and key implementing partners and also guide the monitoring, and periodic evaluation of performance, based on the goals, objectives, and target areas outlined herein. The vision of this strategy is a Rwanda free from malaria as a way to contribute to Rwanda's socio economic development.

3. PROCESS OF DEVELOPING THE MALARIA NATIONAL STRATEGIC PLAN 2020-2027

This NSP builds upon the outgoing Malaria Strategic Plan (2020-2024), which was updated following a Mid Term Review (MTR) in 2023. The MTR was led by the MOPDD and supported by WHO and partners. The MTR was conducted in three phases: planning, desk reviews with the production of the thematic reports; and finally, the intensive field review with the support of external reviewers. Field visits were undertaken in selected districts, district hospitals, RMS District Branches, health facilities, Community Health Workers and private health clinics.

This strategic plan draws upon national experience and lessons learned from the MTR report, the new evidence from the Malaria Matchbox Assessment conducted in Rwanda, the Global Technical Strategies (GTS) and from the current country context. This NSP was developed through a process of intensive and participative analysis and planning led by the Rwanda Malaria and Other Parasitic Diseases Division through its Malaria Technical Working Group (MOH, Social Cluster Ministries, , facilitated by external WHO and GF consultants, and involving active representation from all key stakeholder groups including the representatives from the Ministry of Health/RBC, Ministry of Education (MINEDUC), Ministry of Environment and Natural Resources (MINIRENA), Ministry of Agriculture and Animal Resources (MINAGRI); Rwanda Correctional Service (RCS); development partners; implementing partners and; representatives from academia and research institutions. Further consultation with the regional, district and community stakeholders were held prior to finalization of this strategic planIts content ensures that Rwanda's response to malaria remains aligned with global malaria goals and guidance..

Costing of the strategic plan was conducted in line to the Government of Rwanda (GoR) fiscal years (which run from 1st July to 30th June) for the implementation period July 2023-June 2027 and based on the funding commitmemts from the GoR, PMI,and the Global Fund.

CHAPTER 2 COUNTRY PROFILE

1. OVERVIEW

FIGURE 1 MAP OF RWANDA

Rwanda is in the great lakes region of Central Africa situated South of the equator between 1°4′ and 2°51′ south latitude and 28°63′ and 30°54′ East longitude with a total surface area of 26,338 square km of which 24,668 sq km is land and 1,670 sq km is water. It is a landlocked country bordered by Uganda to the North, Tanzania to the East, the Democratic Republic of the Congo to the West, and Burundi to the South.

2. DEMOGRAPHIC DATA

In 2022, the Rwanda's population is estimated at 13.25 million according to census estimates. The population density of Rwanda is the highest in Africa at 503 people per square kilometer. Administratively, Rwanda consists of 4 provinces and Kigali City, composed of 30 districts, 416 sectors, 2148 cells, and 14,837 villages that are further divided into 14,837 villages ("Imudugudu") of 50-100 households each[1]. The population is largely rural with almost 72.1 percent of the country's residents living in rural areas. Among the total urban population, 41 percent live in City of Kigali (**3,701,245)**, the capital of the country. The population is predominantly young, with 60.2 percent of all Rwandans under age 16[2].

1 Fourth Population and Housing Census 2022
2 Rwanda Demographics profile, 2019

3. GEOGRAPHY

Rwanda forms part of the highlands of eastern and central Africa, with mountainous relief and an average elevation of 1,700 meters. There are three distinct geographical regions. Western and north-central Rwanda is made up of the mountains and foothills of the Congo-Nile Divide, the Virunga volcano range, and the Northern highlands. In Rwanda's centre, mountainous terrain gives way to the rolling hills that give the country its nickname, "Land of a Thousand Hills." Here the average elevation varies between 1,500 and 2,000 meters.

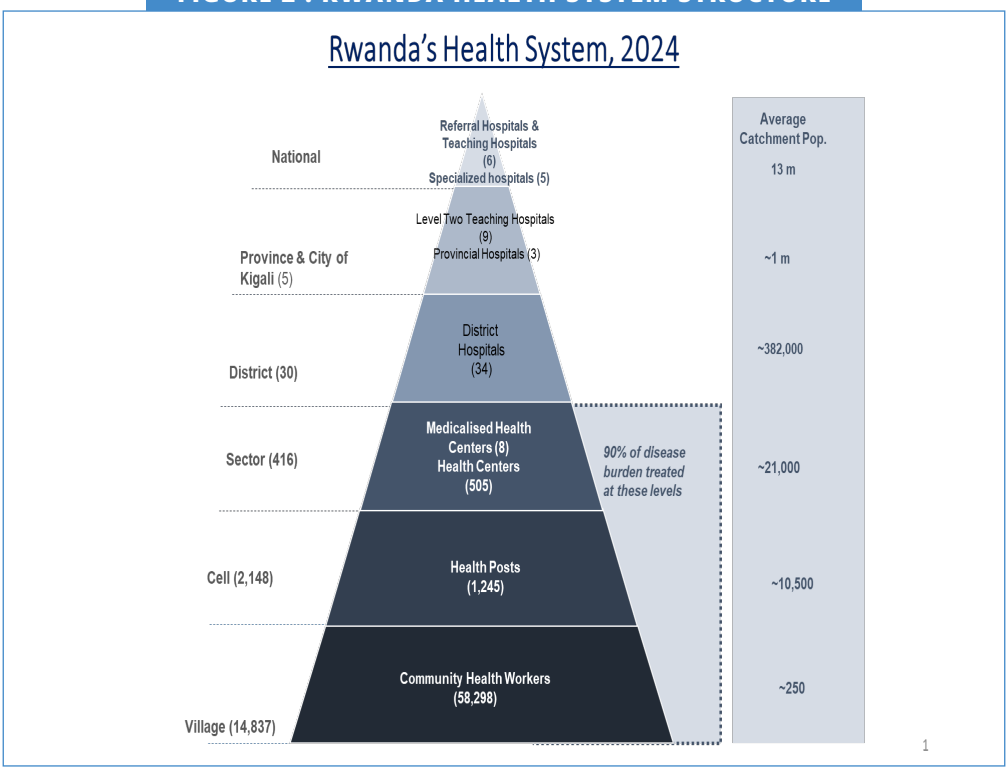
4. CLIMATE

Rwanda enjoys a temperate, sub-equatorial climate with average yearly temperatures of around 18.5°C. The average annual rainfall is 1,250 millimeters and occurs in two rainy seasons of differing lengths, alternating with one long and one short dry season. Rwanda has a dense network of rivers and streams, and several lakes surrounded by wetlands.

5. HEALTH SYSTEM IN RWANDA

Health services in Rwanda are provided through the public sector, government-assisted health (agrée) facilities, and the private sector. The public sector has 3 levels: the central level, the intermediate level and the peripheral level. The central level consists primarily of the MOH and the referral health facilities it manages. The intermediate level consists of the Level Two Teaching Hopitals, Provincial and District Hospitals while the peripheral level consists of the health centres, health posts and Community Health Workers (CHWs). ***Figure 2.***

FIGURE 2 : RWANDA HEALTH SYSTEM STRUCTURE



The MOH oversees, coordinates and regulates all programs aimed at improving the health status of the population. The MOH is responsible for the formulation of health policies, strategic planning, high-level technical supervision, monitoring and evaluation of the health situation as well as the coordination of resources at the national level. MoH consists of the core MoH and affiliated institutions including the Rwanda Biomedical Centre (RBC) , the Rwanda Medical Supply. Limited, and the FDA. The RBC coordinates health services provided through 2 main departments: the Biomedical Services (BIOS) and the HIV/AIDS, Diseases Prevention and Control (HDPC) which includes the MOPDD.

The country has a health development strategy that has a decentralized management and district-level care approach. Additionally, financial and logistic resource management has also been decentralized. The main role of each district is to improve quality of hospitals, enhance general hygiene, assist sectors to promote better nutrition and establish a health insurance scheme within its area.

The sector level aims to enhance the functioning of health centers by establishing health center executive committees, monitoring the functioning of health centers, mobilizing resources, building capacity, designating areas for the disposal of waste products, and directing the use community health workers and other community based associations for community outreach activities.

The cell level has the role of integrating and harmonizing cell and Umudugudu activities by monitoring the functioning of health counselors and other volunteers in the Umudugudu in delivery of basic health care services. The cell level also monitors how health insurance schemes are working and the frequency with which the population joins these schemes.

The Umudugudu or community implements health policies by providing community health workers; creating awareness of hygiene and primary health care (including distribution of insecticide repellants, mosquito nets, etc) in the community; mobilizing the communities to join health insurance schemes; giving children basic emergency health care before taking them to health facilities; sensitizing pregnant women of the need for antenatal care and facility-based deliveries; registering deaths and, submitting reports on death.

Services are provided by a variety of providers including public, faith-based, private-for profit, and non-governmental organizations (NGOs). The public health facilities represent about 65% of the total number of health facilities in Rwanda. Faith-based organizations (FBOs) play an important role in the health system. In 2018, 18% of primary and secondary health facilities were congregational structures (FBOs)[3] and 1% were managed by parastatal organizations. These authorized structures pledge to follow the policy of the Ministry of Health to which they are linked by an agreement.

The private sector, representing less than 35%, is involved mainly in treatment activities and is predominantly located in urban areas. The services offered do not always take into account the needs of the population as a whole, but rather the capacity of patients to pay for the care provided.

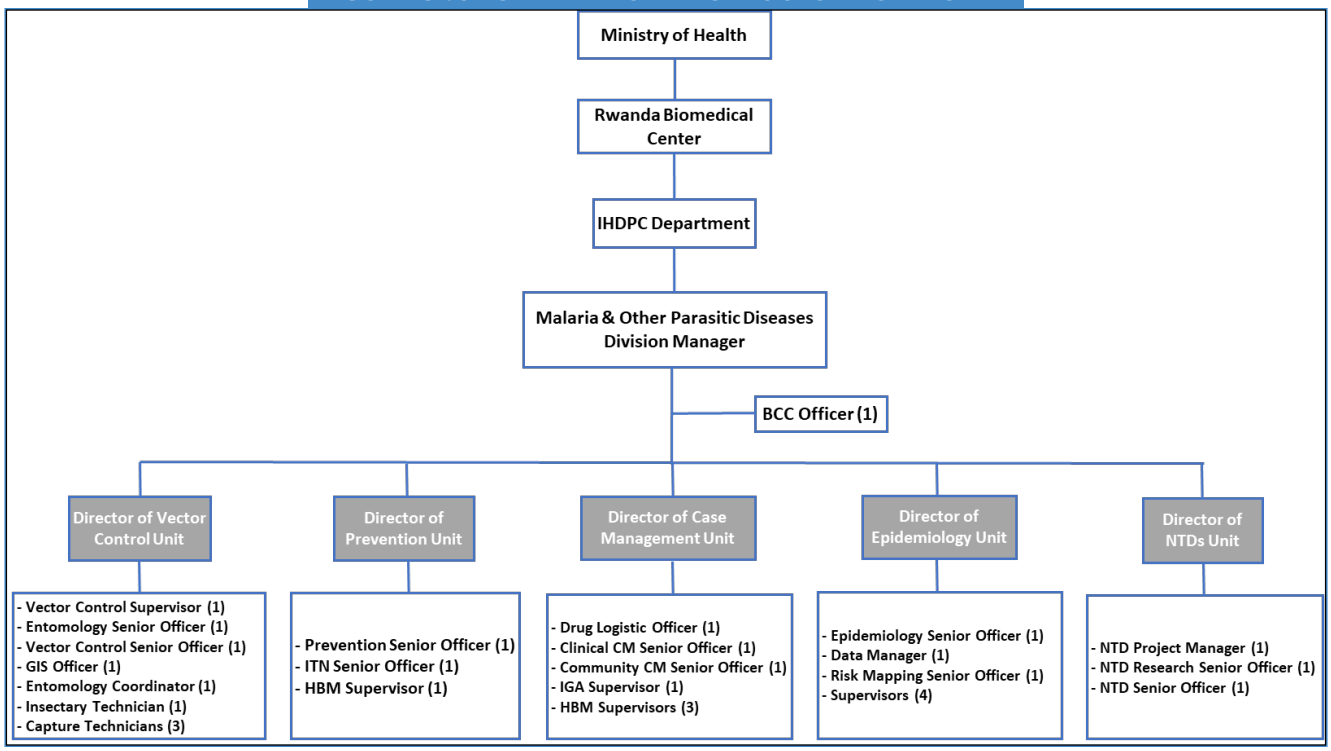
3 Rwanda Master Facility List, Planning & HFIS TWG meeting September 7, 2018

Rwanda made strides towards ensuring equality and universal access of health services through the introduction of Community Based Health Insurance (CBHI). Health insurance coverage is relatively high with 83.3 % and 82.6% of women and men having any health insurance respectively (2019-20DHS) and among those insured, 97% have CHBI (mutuelles).

6. MALARIA AND OTHER PARASITIC DISEASES DIVISION

The Malaria and Other Parasitic Diseases Division (MOPDD) is responsible for prevention, vector control and case management for malaria and curbing morbidity and mortality of Neglected Tropical Diseases (NTDs). In a well-defined organizational structure, MOPDD is housed as a Division within the Rwanda Biomedical Centre (RBC) which in turn falls under the purview of the MoH (Figure 3). Within the MOPDD Division, there are separate Units for malaria control, respectively: vector control, prevention, case management, epidemiology and NTDs.

FIGURE 3 :ORGANIZATIONAL STRUCTURE OF MOPDD



CHAPTER 3 MALARIA SITUATIONAL ANALYSIS

1. HISTORICAL PERSPECTIVE OF MALARIA IN RWANDA

From 2012 to 2016, malaria incidence increased every year in Rwanda from 48 per 1,000 population in 2012 to 409 per 1,000 in FY2016/2017. Rwanda saw more than an eight-fold increase in reported malaria cases, from 564,407 in 2012 to 4,8 M in F2016/2017, a 41% increase in mortality and 19% increase in test positivity rate. For a proper and effective response to this dramatic increase in malaria upsurge, the country conducted an in-depth national program data analysis to ascertain the potential causes of the increase in cases and design appropriate malaria control interventions. Among the different reasons identified were:

a. Climate change
   - Temperature increase
   - Rainfall increase
   - Increased water bodies/irrigation with increase in rice fields
b. Mosquito Behaviour Change
   - Spread of mosquito resistance to insecticide pyrethroid (ITNs, IRS)
   - Early and Outdoor Biting Behaviour
   - Trend of malaria vectors in biting domestic animals
c. Low coverage in high impact malaria control interventions
   - IRS (Cost)
   - ITNs
d. Increased malaria cases detection and improved reporting rates from Health facilities and the Community Health Workers into the system

In response to that upsurge, the country put in place a malaria contingency plan and started implementing evidence based intreventions at large scale resulting in a decrease in malaria incidence to 47 per 1,000 in the FY2022/2023.

2. MALARIA VECTORS

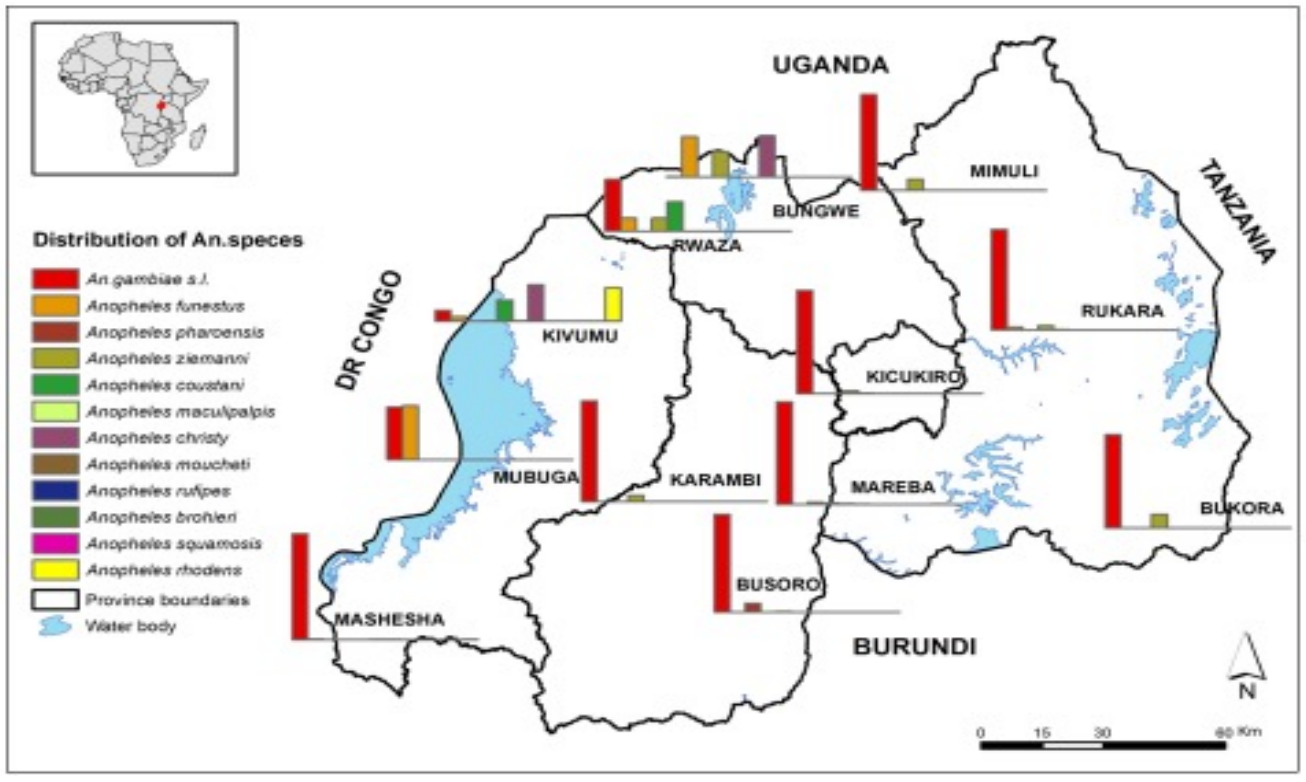
The species of *An. arabiensis, An. gambiae s.s* and *An. funestus* are the malaria vectors in Rwanda. *An. arabiensis* remains the dominant species in IRS districts (91%) while *An. gambiae* s.s. and *An. funestus* are the primary malaria vectors in non-IRS districts. Insecticide resistance monitoring in Rwanda is currently performed on the following insecticides: bendiocarb 0.1%, fenitrothion 1%, pirimiphos methyl 0.25%, DDT 4%, Deltamethrin 0.05%, Permethrin 0.75%, alpha-cypermethrin

0.05%), Chlorfenapyr 200µg and clothianidin 2%. In 30 surveyed sites carried out in 2021/2022, the highest susceptibility was found on fenitrothion 1% in 100%, chlorfenapyr 200µg in 85%, Clothianidin in 83% and bendiocarb in 73%. Pyrethroid resistance was found to be more prevalent in high malaria endemic districts in lowland areas than in highlands. Insecticide resistance was confirmed to deltamethrin 0.05% in 60%, Alpha- cypermethrin 0.05% in 80%, and permethrin 0.75% in 70% of the total surveyed sites. The highest susceptibility was found on Fenitrothion 1% (100%), Chlorfenapyr 200µg (84.6%) and, clothianidin 2% (77.8%).

3. PARASITE SPECIES

Three parasites species namely *Plasmodium falciparum*, *Plasmodium ovale* and *Plasmodium malariae* have been detected in Rwanda to date. *P. falciparum* is by far the most common contributing 97-99% of the parasite population. The second most common species is P. ovale with 0.5-2% and followed by *P. malariae* 0.5-1% as mono-infection. *P. vivax* has not been detected to date in Rwanda.

FIGURE 4 :DISTRIBUTION OF ANOPHELES MOSQUITOES IN ENTOMOLOGICAL SENTINEL SITES



4. MALARIA TRANSMISSION

In Rwanda, malaria transmission occurs throughout the year primarily during/after the rainy seasons with peaks in May/June and November/December each year. Malaria has predictable patterns in season and level of endemicity across Rwanda with the entire population at risk. However, geographic variation and magnitude of malaria transmission remains unstable,

correlated with human made breeding sites/water bodies (such as rice cultivation, irrigation scheme, mining, quarries), variable total rainfall and degree of implementation of malaria control interventions such as mass distributions of ITNs, and IRS intervention, etc.

5. MALARIA STRATIFICATION AND MAPPING

Rwanda can be divided into four main malaria epidemiological zones based on the Annual Parasite Incidence (API) per districts as follows: (1) High Endemicity Zone: > 450 API per 1000, (2) Moderate Endemicity Zone: 250-450 API per 1000, (3) Low Endemicity Zone 100-250 API per 1000 and (4) Very Low Endemicity Zone < 100 API per 1000. This epidemiological stratification was done based on malaria situation in 2016 when the country recorded its peak in malaria cases (HMIS 2016) and has been guiding malaria interventions deployment.

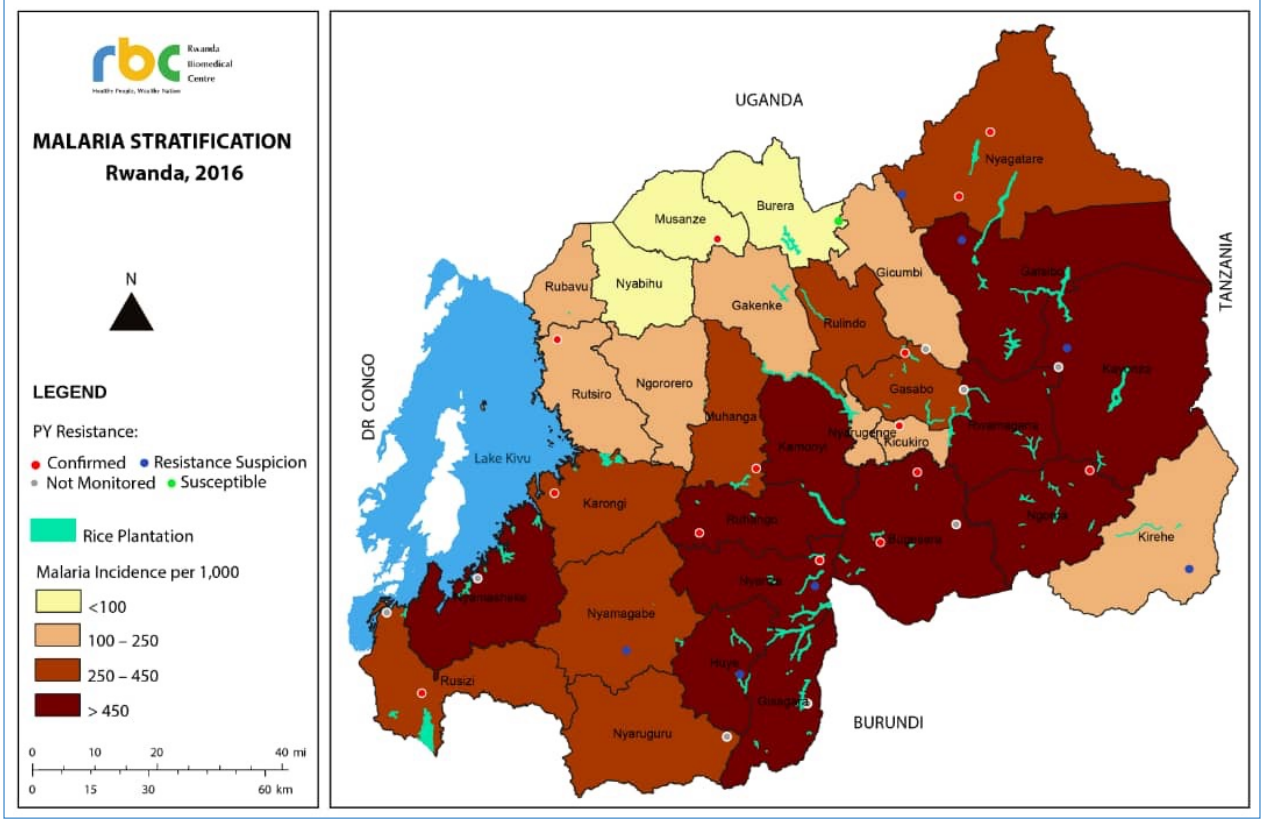
Further analysis showed that some possible factors have contributed to malaria transmission in most of high and moderate endemicity districts as documented by malaria program data. These factors included (1) the low altitude with high temperature in the central and eastern part of the country, (2) mosquito breeding sites mainly linked to irrigation such as as rice farming areas, mining activities and (3) Mosquito resistance to pyerethroids found in the Eastern, Southern, Central and South-Western parts of the country **(Figure 5and Table 1).**

Table 1: Populations at risk of malaria by API in 2016

API	Population	District Names	#District
<100	1,049,453	Musanze, Nyabihu, Burera,	3
100 <250	3,028,865	Gakenke, Gicumbi, Kicukiro, Kirehe, Ngororero, Nyarugenge, Rubavu, Rutsiro	8
250-450	3,389,247	Gasabo, Karongi, Muhanga, Nyagatare, Nyamagabe, Nyaruguru, Rulindo, Rusizi	8
>450	4,340,736	Bugesera, Gatsibo, Gisagara, Huye, Kamonyi, Kayonza, Ngoma, Nyamasheke, Nyanza, Ruhango, Rwamagana	11
	11,808,301		30

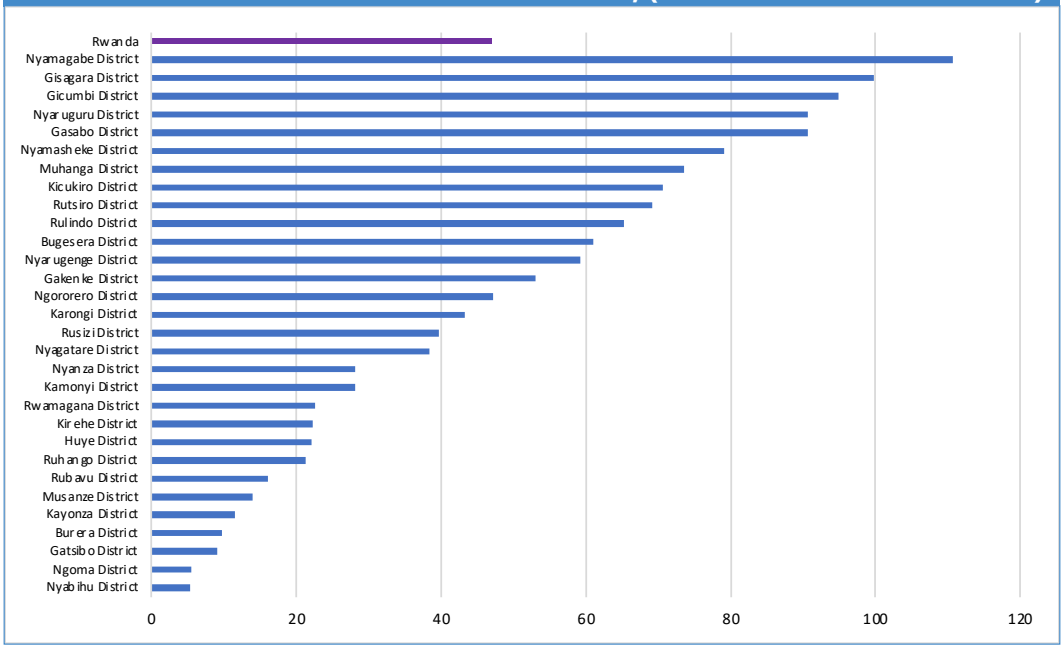
Source Rwanda MSP 2020-2024, page 11

FIGURE 5 : RWANDA MALARIA STRATIFICATION AND TRANSMISSION RISK FACTORS (2016)



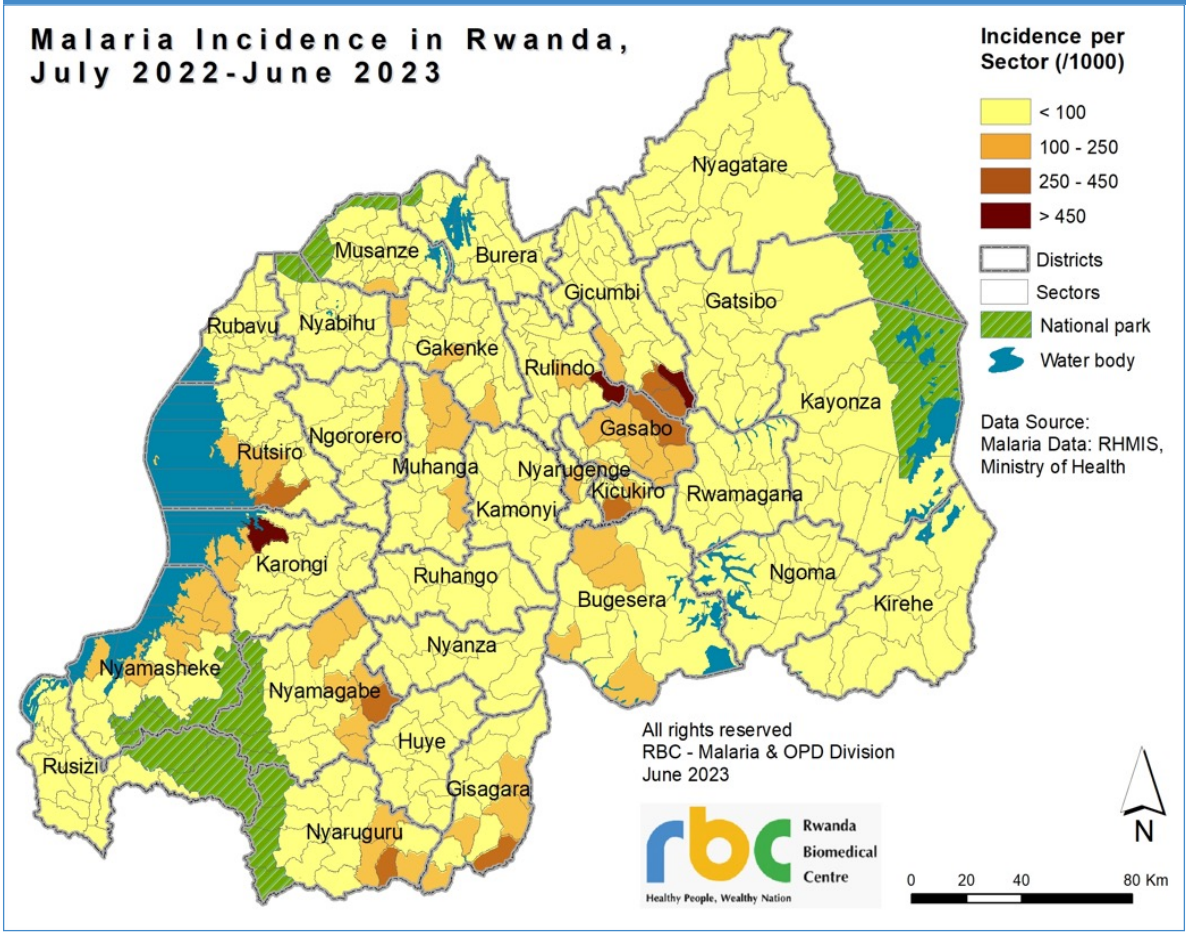
Since 2017, malaria burden has been declining as translated by a drop of malaria API of 409 per 1000 to 47 per 1000 in 2022/2023 and today, Nyamagabe district is the only one district with API above 100 cases per 1000 persons (110 per 1000).

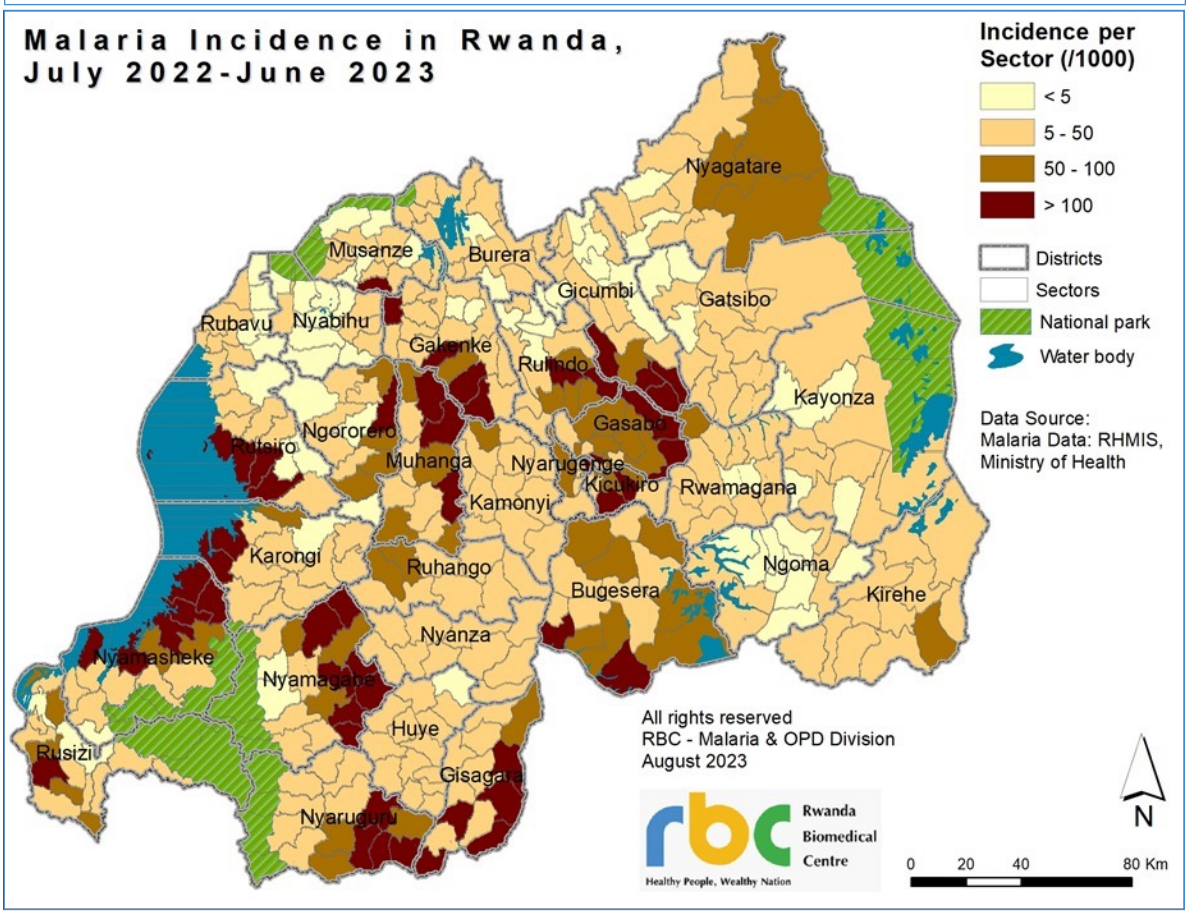
FIGURE 6 : MALARIA INCIDENCE PER DISTRICT, (ANNUAL REPORT 2022/2023)



However, within other 29 districts, there are still above 100 cases per 1000 persons as shown in the incidence figure 7 below.

FIGURE 7: MALARIA INCIDENCE PER SECTOR, (ANNUAL REPORT FY2022/2023)





The API analysis at sub-district (sector) level becomes more informative to identify subpopulations at risk of malaria. Malaria stratification at sub-district / sector level will be useful to identify and characterize the areas with highest malaria burden for better targeting of interventions and further bring down malaria burden in the country.

6. KEY VULNERABLE POPULATIONS

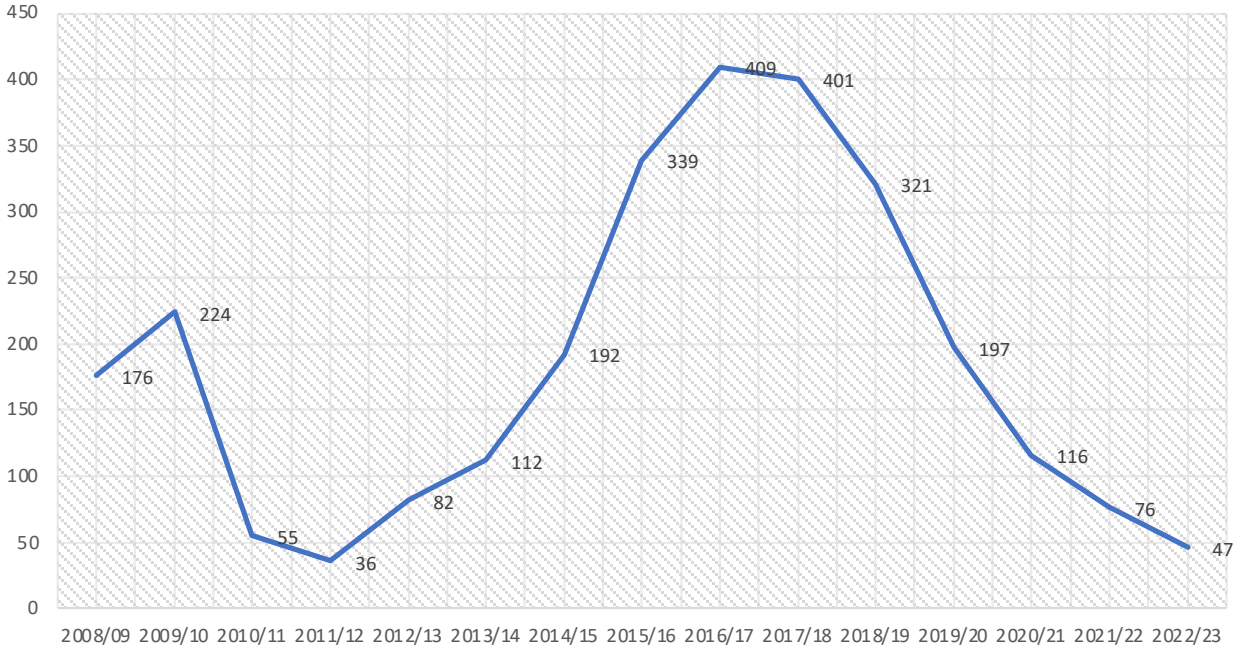
Key vulnerable populations in Rwanda considered to be at high risk of malaria or underserved include pregnant women, children under five years of age, refugees, prisoners, fishermen, mineworkers, rice farmers, security personel, truck drivers, hotel staff and guests as well as school going children (Malaria Matchbox Assessment June 2021). Malaria prevention and control interventions in Rwanda prioritise ensuring that these key populations have access to services, in adherence to the global principle of ensuring that no one is left behind. In order, to improve geographical accessibility to health care services and ensure universal coverage to the Rwandan population in 2008, Rwanda introduced integrated community case management (iCCM) of childhood illness nationwide ensuring children under 5 years have access to early diagnosis and treatment of malaria. This Home-based Management of Malaria (HBM) conducted by both male and female Community Health Workers (CHWs), was further expanded to include all ages (adults and >5 years) in 2016 for early diagnosis and treatment to most of vulnerable groups and hard to reach people.

Efforts have also been made to increase access and uptake of malaria prevention and treatment services by key vulnerable populations such as refugees, farmers and security personel through intra sectoral and inter sectoral action and collaboration. More efforts will be put in place to address persisting gaps in services provision to underserved groups and tailored/targeted interventions need to be designed accordingly.

7. MALARIA MORBIDITY AND MORTALITY

Rwanda has made steady progress towards the epidemiological and entomological impact targets set in the MSP, 2013-2020. Although overall, the malaria incidence increased from 36 cases per 1000 in FY2013/2014 to epidemic peak of 409 per 1000 in FY2016/2017, significant progress has been made following implementation of Malaria Contingency Plan 2016-2020 (MCP) aimed to support the MSP interventions. There has been a 22% reduction in the incidence of malaria from 409 cases per 1000 persons in 2016/2017 to 47 cases per 1000 persons in 2022/2023 *as shown in* ***Figure 8***

FIGURE 8 : MALARIA INCIDENCE PER 1000 POPULATION PER YEAR (2008-2023)



CHAPTER 4 REVIEW OF THE MALARIA STRATEGIC PLAN 2020-2027

1. OVERVIEW

In 2023, the Rwanda NMCP with support of malaria experts from WHO, RBM, ALMA, and partners in malaria response in Rwanda conducted a Mid Term Review (MTR) which led to the development of this extended 2020-2027 National Malaria Strategic Plan (NSP). The key achievements and challenges in the implementation of the Malaria NSP 2020-2024 are outlined in the MTR Report and highlighted below.

Successes: Overall Impact on Malaria Burden

- Overall, there has been a 76% reduction in the incidence of malaria from 321 cases/1000 persons in 2018/19 to 76 cases/1000 persons in 2021/22
- Severe malaria cases were reduced by 74% from 7,054 cases in 2018/19 to 1,831 in FY 2021-22
- Malaria mortality was reduced by 73% from 264 deaths at baseline 2018/19 to 71 deaths in 2021-22

Currently, 55% of all malaria cases are treated by CHWs at the community and the target is to increase this to 80% of cases being treated at community level.

Key Recommendations

- Increase and Sustain IRS Coverage in at least 12 High Endemic Districts
- Deploy New Generation of ITNs for mass distribution in non IRS districts and routine distribution countrywide
- Marketing of innovative vector control tools for both indoor and outdoor control
- Ensure the procurement and implementation of vector control interventions are synchronized and aligned for more impact on malaria transmission
- Strengthen IVM implementation at districts and lay community at village levels
- Advocacy for establishment of sustainable and innovative financial resource mobilization mechanisms to enable implementation of the MSP interventions at full scale
- Use of the sub-district / sector or village level stratification to identify different areas of malaria burden to better target interventions and maximize impact
- Investigate the drivers of malaria in hotspots and transmission foci to generate local evidence
- Test Community-based surveillance to understand specific risk factors and infection characteristics in malaria hotspots to inform effective and tailored SBC interventions
- Increase awareness at community level of consistent and correct use of ITNs
- Enhance the capacity of the national reference laboratory and surveillance
- Enhance stock management of malaria commodities at all levels including the community
- Develop a malaria epidemic preparedness and response (EPR) strategy
- Develop an operational malaria research agenda to inform programming needs and evidence-based deployment of interventions.
- Build capacity in M&E and data utilization at the decentralized level
- Address the malaria high risk groups as identified by Malaria Matchbox Assessment to deploy tailored interventions
- Review the CHWs Performance-Based Financing (PBF) and adaptation to epidemiological status of reduced malaria burden

2. EFFECTIVENESS OF THE HEALTH SYSTEM IN MALARIA SERVICES DELIVERY

2.1. VECTOR CONTROL

Vector control is the primary component of malaria control and prevention in Rwanda. It remains one of the key Malaria &OPDD responses to consolidate the gains in malaria control and drive down the transmission. Key vector control includes Long Lasting Insecticide Treated Nets (ITNs), Indoor Residual Spraying (IRS), and Larval Source Management (LSM), and innovative integrated vector control tools which will be deployed according to the country's epidemiological and risk stratification zones.

The vector control deployment plan is guided by malaria burden (incidence), mosquito resistance, environmental factors such as water bodies, etc.

Following the recent malaria matchbox assessment, specific vulnerable/high risk groups have been identified to have more risk of malaria infection due to exposure to outdoor mosquito bites. Specific vector control interventions such as mosquito reppellents will be needed.

A. INDOOR RESIDUAL SPRAYING

The Indoor Residual Spraying (IRS) strategy shifted from focal spraying to blanket coverage in high malaria endemic districts and was funded by GOR, GF and PMI. IRS was also conducted in selected facilities such as prisons and refugee camps in collaboration with different stakeholders (the Rwanda Correctional Service, UNHCR). In the districts where IRS was conducted, an operational coverage of above 98% was achieved during that period under review. Progress on IRS indicators was captured through annual and MTR 2020-2022 report /records. Overall targets for proportion of structures to be sprayed and population to be protected by IRS were achieved by 100% for 2020-2022 reporting period. A summary of the number of structures sprayed and the total population protected in targeted districts from July 2020 to June 2022 is provided on Table 3. There was a rotational use of insecticides from Fludora Fusion 56.25 WP (a combination of a deltamethrin and a clothianidin) to pirimiphos methyl 300 CS (an organophosphate), as part of insecticide resistance management strategy.

Table 2 : Progress towards IRS outcome targets, 2020-2022

IRS Indicators	Baseline 2018/19	Targets 2021/22	Results 2021/22	Achievement
Proportion of structures in targeted areas that received indoor residual spraying (IRS) during the reporting period	98%	98%	99%	100%
Proportion of population protected by indoor residual spraying within the last 12 months in targeted districts	98%	85%	99%	100%
Proportion of targeted districts covered by IRS.	83%	100%	100%	100%

Table 3 : Districts covered with IRS, 2019/20, 2020/21, 2021/22

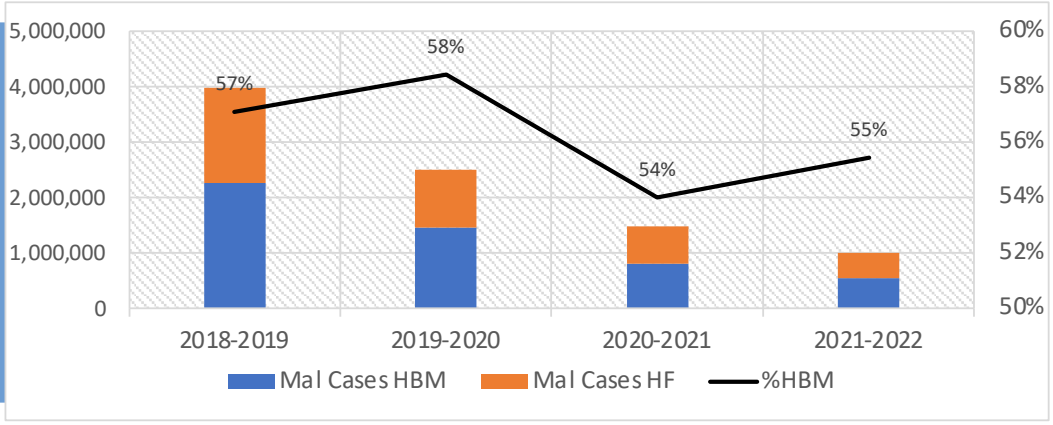
FY	District covered	Structures sprayed	Coverage	Population protected	Insecticide used
2019-20	Nyagatare, Kirehe, Ngoma, Ruhango, Kamonyi, Huye, Gisagara, Nyanza, Rwamagana, Kayonza, Gatsibo, Bugesera, Rusizi: 13 districts (12 Blanket, 1 Foci control)	**1,231,070**	99.3	**4,867,811**	Fludora Fusion
2020-21	Nyagatare, Kirehe, Ngoma, Ruhango, Kamonyi, Huye, Gisagara, Nyanza, Rwamagana, Kayonza, Gatsibo, Bugesera, Rusizi: 13 districts (12 Blanket, 1 Foci control)	1,308,889	99.5	5,043,795	Pirimiphos methyl 300 CS + Fludora Fusion 56.25 WP
2021-22	Nyagatare, Kirehe, Ngoma, Ruhango, Kamonyi, Huye, Gisagara, Nyanza, Rwamagana, Kayonza, Gatsibo, Bugesera, Rusizi, Nyamagabe, Nyaruguru: 15 districts (12 Blanket, 3 Foci control)	1,376,832	99,2	5,170,303	Pirimiphos methyl 300 CS

B. MALARIA DIAGNOSIS AND TREATMENT

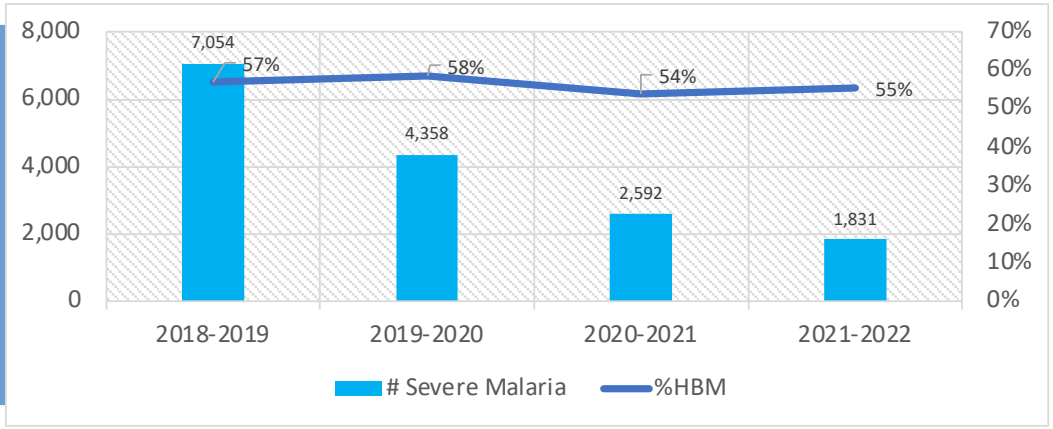
The expansion of Home-Based Management of malaria (HBM) to all ages and free malaria diagnosis and treatment to the most economically vulnerable populations (Ubudehe 1 and 2) from 2016, led to an increase in timely diagnosis and treatment of malaria by CHWs at community level and subsequently Severe malaria cases were reduced by **74%** from 7,054 cases in 2018/19 to 1,831 in FY 2021-22 whike malaria mortality reduced by **73%** from 264 deaths at baseline 2018/19 to 71 deaths in 2021-22 with currently 55% of malaria cases managed by CHWs

FIGURE 9 : MALARIA CASES BY LEVEL OF SERVICE DELIVERY (A), AND THE IMPACT OF HBM ON SEVERE MALARIA (B) AND MORTALITY FOR UNDER 5 YEARS AND ADULTS (C)

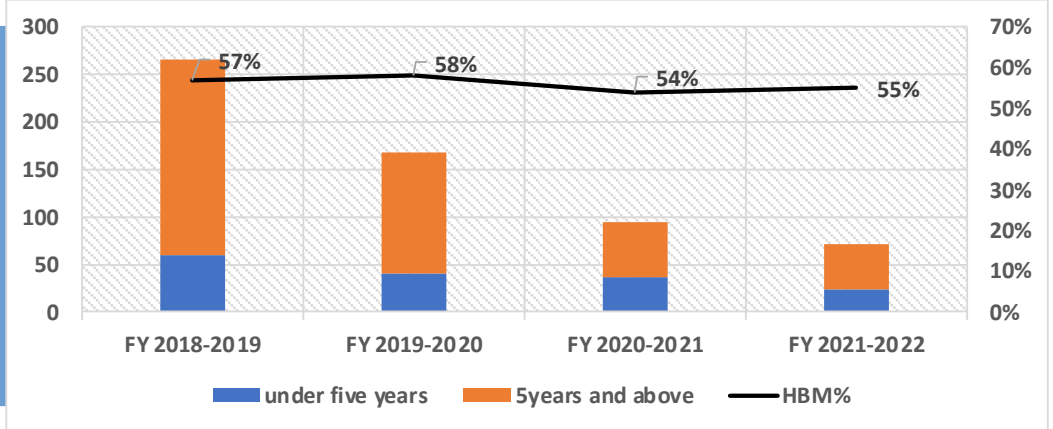
A. DECLINE IN UNCOMPLICATED MALARIA CASES.



B. DECLINE IN SEVERE MALARIA CASES



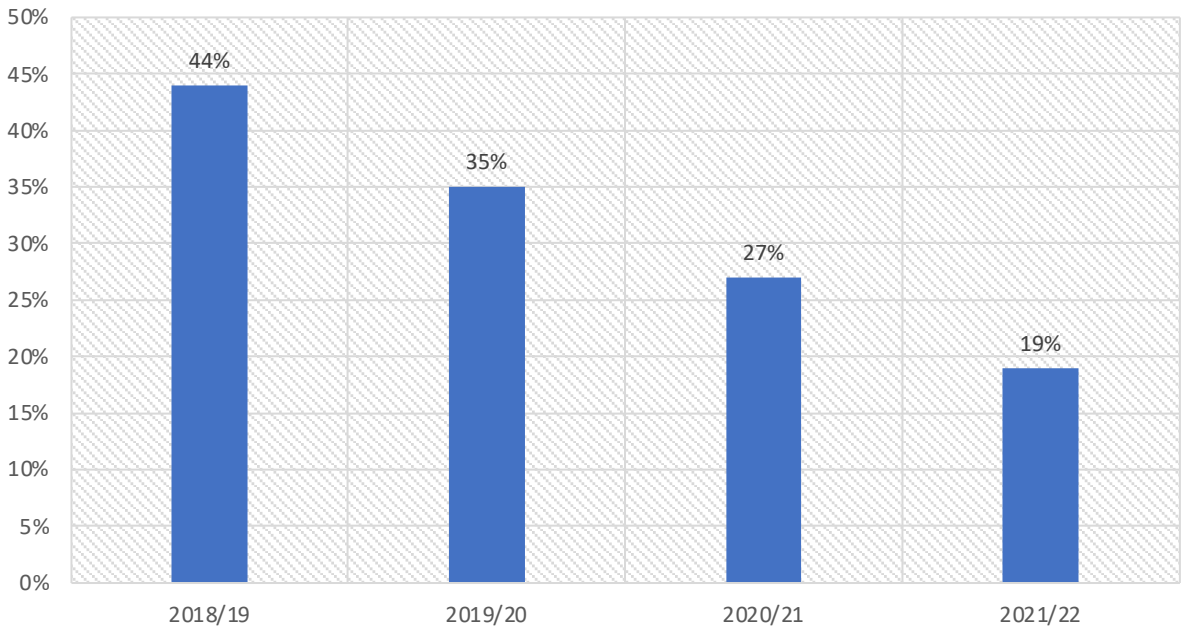
C. DECLINE IN MALARIA RELATED DEATHS



Malaria Test Positivity Rate (TPR)

There has been a decline of national TPR from 44% (2018/19) 27% (2020/21) and 19% (2021/22) which is expected with the continuous decrease in malaria cases over the same period (Fig. 10).

FIGURE 10 : MALARIA TEST POSITIVIY RATE (%) FY 2018/19 TO FY 2021/22



C. SURVEILLANCE, M&E AND OPERATIONAL RESEARCH (SMEOR)

There is a well-functioning Health information management system which includes HMIS, RapidSMS, eLMIS and, SISCom. The completion and timeliness of reporting rates are high from public health facilities at 98% however, reporting rates from private health facilities remain lower at 50%. Data analysis at the decentralized level is low and it led to some evitable inconsistencies in terms of malaria reported cases compared to reported diagnosed cases and drug consumption. Utilization of data for decision making at this level is also low.

The country lacks an epidemic preparedness and response (EPR) policy and guidelines for malaria. There was limited coordination in the monitoring and evaluation activities of the programme at the district level. Although during the review period research studies including therapeutic efficacy studies were conducted, there was no guiding malaria specific research agenda.

D. PROGRAMME MANAGEMENT

MOPDD operates within an environment of strong political will and committed funding for malaria control and elimination by the Government of Rwanda and partners. Oversight and guidance of the malaria program is provided by the MOH and RBC leadership, with the malaria program as a mainstream program in the RBC structure. The programme has skilled and committed human resources, and development partners are engaged to assist with technical

aspects of the program delivery. However, there is an inadequate number of entomologists and epidemiologists to support. There is inadequate funding to fully implement some activities. TWGs meet only intermittently on ad hoc basis and thus function at a sub-optimal level. The bulk of malaria case management is now delivered at the community level through volunteer community health workers (57% of malaria cases). This increase in workload for volunteer CHWs creates a risk for reduced retention in the service. There is no formalized structure for ongoing collaboration with intersectoral stakeholders and, there is need to strengthen coordination in implementing planned cross-border activities with neighboring countries.

E. FINANCING OF THE RWANDA MALARIA PROGRAM

The malaria program in Rwanda is primarily financed by the Government of Rwanda (GOR), the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFTAM) and PMI.

The MTR 2023 found an improvement in the funding level of malaria activities compared with the last Malaria Program Review. The national Government allocation to the health sector increased over the period under review from 14.7% in 2019/20, 14.9% in 2020-21 and 16.5% in 2021-22, in line with the Abuja Declaration 2000 target of 15%.

3. WAY FORWARD

Based on the extensive mid term review the following recommendations were submitted by the external and internal review teams:

A. MALARIA PROGRAMME FINANCING

- Increased and sustainable financing is needed to move the country towards achieving malaria morbidity and mortality reduction targets.
- Advocate for establishment of sustainable and innovative financial resource mobilization mechanism to implement MSP interventions at full scale.

B. VECTOR CONTROL

- Mobilize more funds (local and external). To increase and sustain coverage with effective vector control interventions requires significant financial resources from both internal and external sources, there is a need to tap on domestic resources, especially from the private sector, and to establish malaria funds for malaria control broadly, and specifically for vector control (prevention). Linking resource mobilization with the Zero Malaria Starts with Me approach is also recommended.
- There is a need to ensure that procurement and implementation of vector control interventions are synchronized and aligned to achieve the greatest impact on malaria transmission. This is not only the responsibility of the NMCP but also of the suppliers of malaria commodities.
- There is a need to use a standardised stratification map of all the malaria risk areas so that vector control interventions – including the use of new tools and approaches are cost effectively deployed where they are most needed.

C. CASE MANAGEMENT

- Strengthen mechanisms to maintain the competency of health workers in diagnosis and malaria case management through robust refresher training and supportive supervision that includes private sector facilities.
- Review, update and disseminate diagnostic and treatment guidelines to all levels including the private sector facilities.
- Pilot multiple first line treatment (MFT) in line of drug resistance mitigation
- Strengthen the capacity of the national health laboratory to support malaria diagnosis QA/QC activities.
- Revise forecasting/quantification of commodities adequately addressing issues of decreasing malaria burden and IRS spraying period.
- Strengthen the capacity of the district hospital to support malaria case management at lower level – health centers & posts.
- Strengthen quality assurance and control of malaria case management at community level – re- fresher training and training of new CHWs, supportive supervision and mentoring.

D. PROCUREMENT AND SUPPLY MANAGEMENT

- Revise the procurement process of commodities to adequately address the risk of commodity expiration and ensure timely and efficient returns of malaria commodities at risk of expiry to the central level.
- Strengthen training and supervisory visits at all levels to address data inaccuracies and low utilization of the eLMIS.
- Finalize and publish the Coordination Procurement, Distribution System (CPDS) document and quantification SOPs to address issues of lack of funding and delays in disbursements of funds for timely procurement and distribution of commodities.

E. SURVEILLANCE, MONITORING, EVALUATION AND OPERATION RESEARCH (SMEOR)

- Develop malaria surveillance guidelines including an EPR plan in collaboration with the Epidemiological Surveillance and Response division.
- Develop an operational research agenda to inform programming.
- Strength the malaria surveillance, monitoring and response at decentralized level through capacity building for data use in decision making
- Initiate health facility malaria case based reporting to identify the origin and factors related to malaria residual cases in IRS district and low endemic district.
- Reinforce the existing platforms (facility data validation meeting, monthly coordination meeting and quarterly district health management team meeting) for data review, validation, and use for decision making
- Design and test Community-Based Malaria Surveillance and Response in selected districts to accelerate malaria elimination
- Identify malaria infection characteristics and risk factors in Rwanda in malaria foci and high

risk/vulnerable groups to inform tailored interventions
- Improve data availability and use at all levels for tailored interventions
- Microstratification of data up to village level and mapping malaria hotspots

F. ADVOCACY AND SBC

- Advocate for increased funding to support regular and sustained implementation of SBC activities at all levels

- Increase participation of CSOs and FBOs specialized in SBC to enhance continuous implementation of SBC interventions

- Strengthen human resource capacity for SBC at all levels

- Produce, distribute adequate SBC tools and materials with standard messages for use at all levels.

- Address the malaria high risk groups as identified by Malaria Matchbox Assessment to deploy tailored interventions

- Use needs assessment and HRG Mapping Reports available to inform interventions deployment

- Targeted and tailored interventions (easy/hard to reach groups)

- Design and implement Community Lead Monitoring (CLM) and support Community Engagement in malaria respons

- Innovative Case Management for underserved groups

G. PROGRAM MANAGEMENT

- The MOPDD should strengthen annual review and planning meetings to deliberate and document progress made and outline priorities and milestones for the following year, this will help to critically review all factors that lead to under-achievement of strategy implementation across all objectives.
- Coordination and collaboration of RBC division and units and relevant partners should be enhanced through TWGs.
- MoH to continue to support and coordinate East African Community efforts to develop the structures and operationalization of the Great Lakes cross border malaria initiative.
- Expand the sources of financing for malaria including private sector and sustainable domestic funding to ensure increased coverage with interventions such as IRS and full implementation of strategic plan activities.
- Expand the performance based financing (PBF) to community health workers providing malaria case management services.

- MoH to designate a focal point person for SBC to coordinate activities and actions with all stakeholders including the health promotion unit on malaria messaging for impact.
- For sustainability, the Ministry of Health should consider partnering to promote cooperatives beyond health services as a business model for retention of health workers at both health facility and community level. MoH to continue to support and coordinate East African Community efforts to develop the structures and operationalization of the Great Lakes cross border malaria initiative
- The program should continue the establishment of the End Malaria Council
- Enhance and engage decentralized level in data use for timely response
- Establish collaborations with local and international research/academic institutions for capacity buildings, research and dissemination of findings

CHAPTER 5 EXTENDED MALARIA STRATEGIC PLAN 2020-2027

The 2020-2027 Extended Rwanda Malaria Strategic plan was developed under the guidance of recommendations from the MTR of the MSP (2020-2024) conducted in October- November 2019.

1. VISION

Rwanda free from malaria as a way to contribute to the socio economic development.

2. MISSION

The mission for the program is to contribute towards the social- economic development of Rwanda through malaria control by strengthening and implementing appropriate interventions and quality health delivery services in partnership with stakeholders.

3. GUIDING PRINCIPLES

a) **Person-centered:** It will be ensured that, the experiences of populations in need of services actively inform the design and delivery of malaria interventions. The malaria prevention and treatment will be structured and implemented taking into consideration the communities' values, social circumstances, including decisions about community versus facility-based deployment and the dynamic of interactions between service provider and client.

b) **Equity and Accessibility:** Provision of quality and equitable services will be emphasized, ensuring that vector control, diagnosis and treatment services reach all populations at risk of malaria, taking into consideration the hardship that certain populations may face in accessing services and vulnerabilities faced by others (including children under the age of five years, pregnant women, people living with HIV/AIDs, internally displaced populations-IDPs, refugees, special forces, prisoners, migrants etc).

c) **Quality:** Provision of quality services will be emphasized. Quality assurance (QA) measures are in place and will ensure implementation is in line with the defined national and international standards and norms. Where required accreditation will be obtained.

d) **Ownership, leadership and political will:** The Government will lead the implementation of malaria interventions and will be at the forefront of promoting a sense of stewardship, accountability and transparency;

e) **Evidence-based interventions:** All malaria control interventions and strategies will be evidence based, derived from research findings at international and country level. Their impact will be regularly monitored and evaluated;

f) **Integration:** Malaria prevention and control will not only be addressed by the health sector as a health issue but, multi-sectorally, as a developmental, economic, political, environmental, agricultural, educational, biological, legal, security and social issue.

4. GOAL

By 2027, reduce malaria morbidity and mortality by at least 90% of the 2019 levels.

5. STRATEGIC OBJECTIVES

The following objectives will lead to achievement of the goal:

1. By 2027, at least 90% of population at risk will be effectively protected with preventive interventions;
2. All suspected malaria cases are promptly tested and treated in line with the national guidelines;
3. By 2027, strengthen surveillance and reporting in order to provide complete, timely and accurate information for appropriate decision making at all levels;
4. Strengthen coordination, collaboration, procurement & supply management and effective program management at all levels;
5. By 2027, at least 85% of the population at risk will have correct and consistent practices and behaviors towards malaria control interventions.

6. STRATEGIC INTERVENTIONS

Objective 1: By 2027, at least 90% of population will be effectively protected with malaria preventive interventions

IRS

- Blanket IRS coverage in targeted malaria endemic districts.
- Use effective insecticides and sustain effectiveness throughout the transmission period
- Implement IRS in response to emergencies and reactive response to high agglomerated areas (public/private settings including refugee camps, security/military barracks, prisons, boarding schools, hotels, health facilities, etc...) or abnormal malaria outbreaks
- Conduct focal IRS in malaria hotspots (incidence above 100 cases/1000 population) in non-IRS districts
- Build Capacity for IRS implementation and monitoring and integrate it into the development plans of the targeted districts and private operators

ITNs

- Continue distribution of effective ITNs through mass campaigns every 3 years in 21 districts
- Conduct routine distribution of ITNs through EPI and ANC in 30 districts
- Ensure timely procurement and distribution of ITNs
- Support distribution of ITNs in the private sector through social mobilization

Innovative Vector Control Tools

- Larviciding in selected areas targeting urban and localized rural areas
- Implementation of new and innovative vector control tools including insecticide wall paints, spatial and personal repellents guided by stratification mapping and standardized criteria
- Community level modification of human habitations and behaviors and environmental manipulation (community based interventions)
- Multisectoral collaboration towards mitigation of creating/sustaining larval habitats

FIGURE 11: RWANDA MALARIA CONTROL INTERVENTIONS DEPLOYMENT FOR 2020-2024

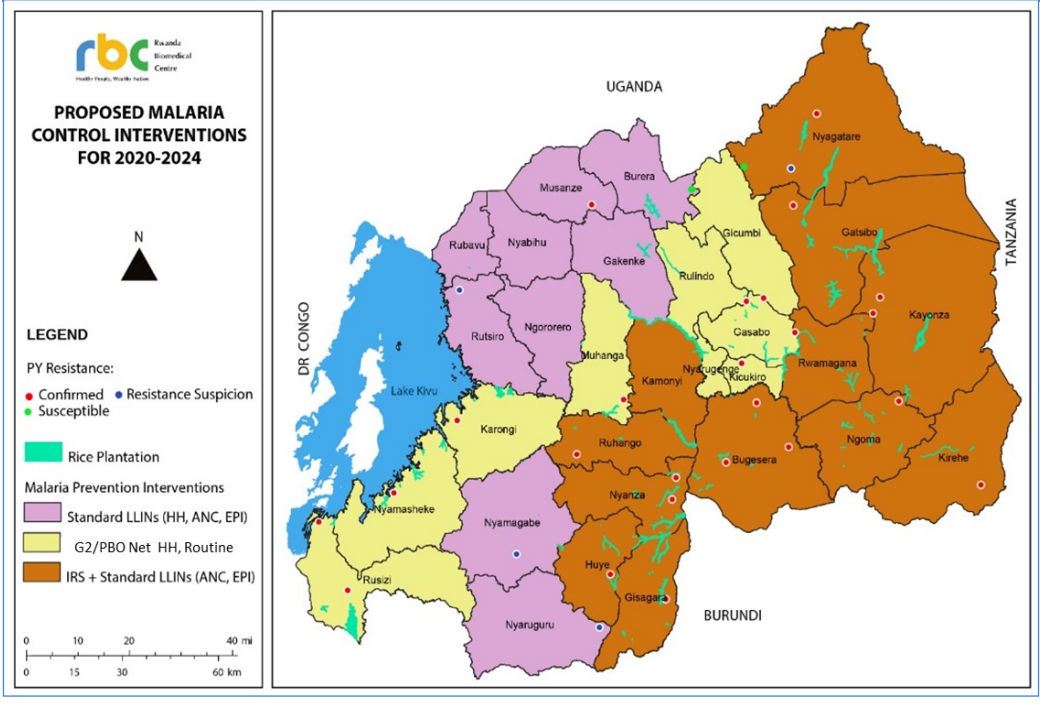
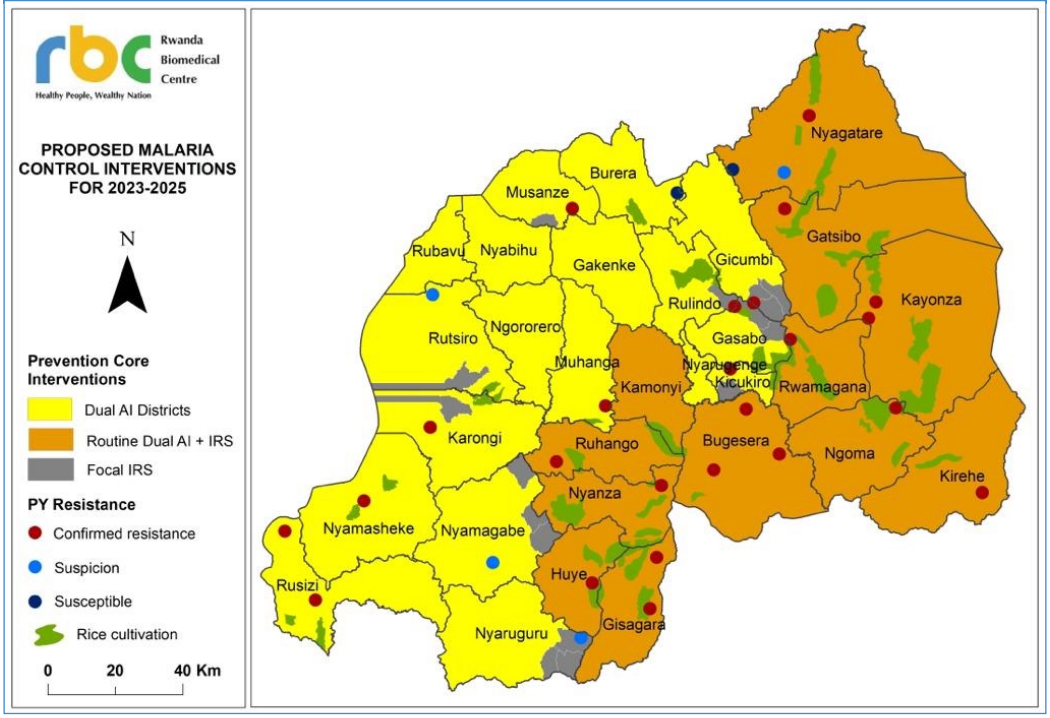


FIGURE 12 : RWANDA MALARIA CONTROL INTERVENTIONS DEPLOYMENT FOR EXTENDED PERIOD 2024-2027



Vector control is the primary component of malaria control and prevention in Rwanda. It remains one of the key MOPDD responses to consolidate the gains in malaria control and drive down the transmission. A strong integrated vector management approach based on its five pillars (capacity building, evidence based, collaboration, social mobilization and awareness, and integration) will be implemented through this Extended malaria strategic plan (2020-2027). The effectiveness of vector control tools that are deployed will be safeguarded against the rising threat of insecticide resistance and behavior changes in malaria vectors with a focus on cost - effectiveness. Indoor Residual Spraying (IRS), Long Lasting Insecticide Treated Nets (ITNs) and Larval Source Management (LSM), and innovative integrated vector control tools will be deployed according to the country's epidemiological and risk stratification zones.

STRATEGY 1.1. SUSTAIN IRS IN TARGETED HIGH MALARIA INCIDENCE DISTRICTS

Recognizing that Indoor Residual Spraying (IRS) contributes to a greater reduction in malaria incidence in areas of intense malaria transmission and with an aim to optimize the impact with existing interventions, MOPDD will implement one round of blanket IRS in targeted high malaria endemic districts every year. The goal of this strategy is to sustain operational IRS coverage of 98% in all targeted districts in a timely manner, in line with the transmission seasons. To consolidate the gains made in malaria control and to further drive down the transmission, IRS will be maintained in all the 12 previously sprayed districts until FY2024/25. Taking into consideration the existing limited resources, the Rwanda malaria program (MOPDD) prioritises use of effective more sustainable interventions and therefore aims to gradually transition from IRS to new Dual AI ITNs in selected optimal districts as guided by evidence. In FY2025/26 a transition from blanket IRS to Dual AI ITNs will be initiated in 3 districts (Ngoma, Gatsibo and Kayonza). The remaining 9 IRS districts will be sprayed annually through

out the implementation period of this extended strategic plan. To mitigate the reported vector resistance to insecticides, WHO approved insecticides will be used in rotation as per Rwanda's national Insecticide Resistance Management Plan (IRM), 2019-2024.

To address human rights and gender related barriers to vector control programmes IRS will also be implemented in specific appropriate public settings such as refugee camps, security/military barracks, prisons, boarding schools, hotels, health facilities etc. where identified as a need. The program will provide technical support towards the implementation of IRS in the identified institutions.

The burden of malaria has been stratified up to sector level and this stratification will be used to guide Focal or Reactive IRS in areas of malaria incidence of >100 cases per 1000 population in districts that are not receiving blanket IRS (ITN districts including those having shifted from IRS to ITNs). Focal IRS will also be conducted in response to malaria epidemics, resurge or outbreaks.

Capacity building for IRS implementation and monitoring will be carried out in all the districts eligible for IRS and future local management of potential residual foci in targeted areas of moderate and low malaria transmission. This will include supporting the development of district micro plans, conducting training of trainers (TOT) for management teams, training of IRS personnel to implement IRS activities, monitoring and evaluation of the IRS activities, and training health workers to manage insecticide adverse events. Capacity building in vector control and entomology surveillance will be conducted through training of entomologists and enhancement of existing infrastructures and equipment.

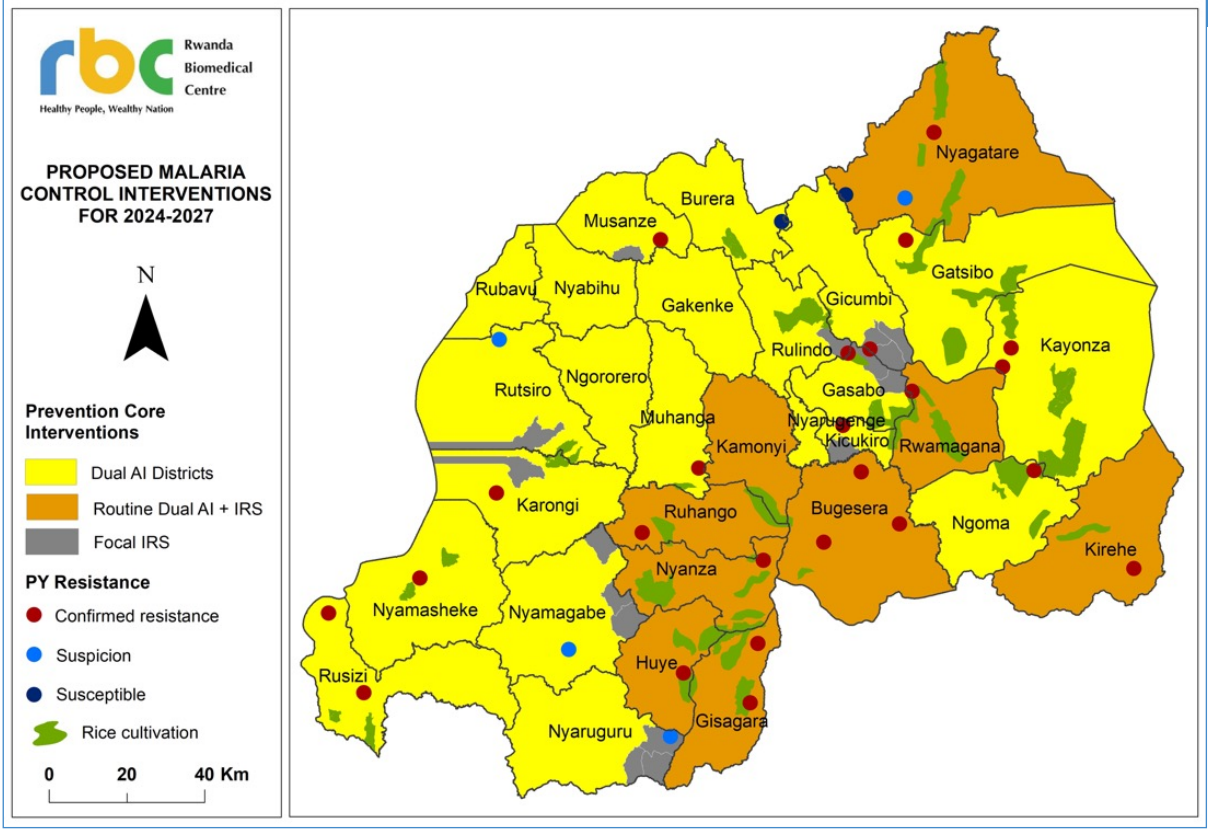
STRATEGY 1.2: ACHIEVE AND SUSTAIN UNIVERSAL ACCESS TO ITNS IN TARGETED DISTRICTS

Universal coverage of ITNs will be scaled up from 18 districts to 21 non-IRS districts through mass distribution campaigns every 3 years. Routine distribution through EPI and ANC and to other targeted vulnerable populations (prisoners, refugees, schools, etc.) will be maintained in all disticts across the country.

The 2022-2023 universal LLIN campaign was completed in June 2023 and to maintain ownership achieved, ITNs will be procured and distributed in all 18 districts and to an additional 3 districts (transitioning from IRS) through another mass campaign in FY2025/2026. Continous ITN distribution in all previous 18 Non-IRS districts and 12 IRS districts will be conducted through ANC, EPI distribution and targeted private provider channels during the entire period of this strategic plan.

The mass distribution campaigns will be undertaken in line with WHO guidance based on one ITN for every two persons in the general population, sepial groups and in routine to pregnant women attending ANC and to children attending EPI services. New generation nets (DUAL AI) will be distributed according to the deployement plan below.

THROUGH PUBLIC-PRIVATE-PARTNERSHIPS USING A SOCIAL MARKETING APPROACH.



STRATEGY 1.3: INTRODUCTION OF INNOVATIVE INTEGRATED VECTOR CONTROL TOOLS

While IRs and ITNs will remain the core malaria vector control interventions during this MSP period, innovative integrated vector control strategies will be piloted/introduced on a small scale in exclusive areas to supplement the management of insecticide resistance, to address the observed behavior changes of mosquito vectors in Rwanda (Annual program report 2018/19) and, to advance interruption of transmission. The implementation of new and innovative vector control tools beyond ITNs and IRS, such as larviciding, insecticide wall paints, spatial and personal repellents, community based environmental management will be guided by the stratification map and set standardized criteria.

Under the framework of Integrated Vector Management (IVM) and in collaboration with other stakeholders, the country intends to promote *larval source management* using bio-control of mosquito larvae, *insecticide wall paints* and, spatial and personal protection *repellents*.

The bio-control of mosquito larvae will be implemented using the larvivorous fish (Clarias spp, Tilapia spp and Carpe Spp) in selected rain water dams and water channels in collaboration with the Ministry of Agriculture and Animal resources (MINAGRI), the Rwanda Agricultural Board and the fishing cooperatives. Bio-larvicides will also be used in targeted breeding sites which are few, fixed and findable as recommended by WHO guidelines, such as rice paddies, mining pits, vegetable weltering pits and, inter-crop drains. Despite the high coverage and usage of both ITNs/ ITNs and IRS, there are currently evidences that the core vector control interventions are not able to interrupt malaria transmission (less than one infective bite per year) in tropical regions. It

was shown that the residual malaria transmission mainly occurs in areas where malaria vectors acquired resistance to existing insecticides or developed behaviors such as outdoor resting, earlier and outdoor biting, host preferences to domestic animals and avoiding the contact with treated materials with insecticide. Similarly, also human behaviors contribute to the residual transmission by living in or frequent visits to forest or farming areas, sleeping away from protected houses or spending a major part of the night outdoors without any protective measures (WHO, 2014a). The above factors have been reported in Rwanda through entomology surveys. In addition and following the scale up of indoor residual spraying, it was reported the shift of mosquito species with the selection of the known opportunistic malaria vector species, Anopheles arabiensis and also the emergence of secondary malaria vectors in term of density and infection with Plasmodium parasite. The above factors justify the needs of introduction of innovative new vector control interventions or technology with the aim to address the above mentioned challenges and achieve interruption of transmission.

To enhance the impact on larval and adult stages of mosquitoes by the existing hand application of larvicides and to improve coverage, an innovation of Bti application using drones will be piloted in targeted areas.

Insecticide wall paints will be promoted in collaboration with the private sector mainly targeting hotels, boarding schools, health facilities, military barracks, prisons, private houses and newly constructed model villages.

Spatial and personal repellents will also be promoted through social marketing in collaboration with public and private operators in the areas of manufacturing, procurement and distribution. Community based organization and specifically Community Health Workers will be supported in initiatives such as planting of potent mosquito repellent plants, the extraction of essential oils and locally manufacturing mosquito repellents. The primary places for their distribution to the end users of mosquito repellents will be the community health workers and pharmacies. Other innovative technologies and tools will be experimented through operational research to generate local evidence before they are scaled up.

The following actions will be implemented and regarding strengthening vector control capacity and research:

- Conduct entomology surveillance in sentinel sites
- Maintain central entomology laboratory and insectarium
- Maintain experimental huts established in Ruhuha for semi-fields evaluation of new tools
- Maintain meteorological stations for monthly collection of meteorological data in sentinel sites
- Organize the refresher trainings of entomology officers and technicians

- Establish collaborations with local and international research institutions for implementation of operational researches

- Develop capacity for dissemination of vector control findings/best practices through local and international platforms/for a (ASTMH, PAMCA)

STRATEGY 1.4: COMMUNITY BASED ENVIRONMENT MANAGEMENT

The community based mosquito larval control will contribute to the abatement of mosquito density and thus the entomological inoculation rate. This strategy will enhance the impact of core malaria vector control interventions.

The program will conduct environmental management through *environmental modification, environmental manipulation,* and *modification of human habitations and behaviors.*

The program will build capacity at district level in larval source management by environment management through conducting TOTs for district staff. Cascade trainings of targeted implementers of larval source management (EM) at community level will then be conducted. The training will include *environmental modification* such as drainage, land leveling, and filling small ponds or water-collecting depressions with soil and *modification of human habitations and behaviors*. Training on *environmental manipulation* methods including flushing streams or canals, practices of intermittent irrigation in agricultural fields, flooding or temporarily dewatering of swamps or man-made standing water will also be included.

In collaboration with the Ministry of Agriculture, intermittent irrigation (rotation of wet and dry irrigation systems) will be introduced in rice-growing fields so as to prevent the mosquito larvae complete their development cycle.

The control of resting sites of mosquitoes by removing peri-domestic vegetation and stagnant water will be implemented in collaboration with community.

The implementation of this strategy will involve the prior engagement of community based organizations, community health workers, the local leaders of villages, and other targeted groups such as cooperative of rice farmers, miners, schools, health facilities, security forces and others. The empowerment of the above groups will be undertaken through cascade trainings combining both theoretical and practical training on mosquito larvae identification and control.

The districts will establish action plans for implementation through monthly community works in the last week of every month or during other selected community events. A routine reporting template on the implemented actions will be developed, to ensure monitoring in collaboration with other stakeholders.

Follow up meetings and supervision on the implementation of community based larval source management will also be conducted by the district.

Objective 2: Maintain 100% prompt testing and treatment of all suspected malaria cases in line with national treatment guidelines

- Ensure availability of malaria commodities for diagnosis and treatment at all levels of the health facility and in the community
- Ensure universal access to malaria diagnosis and treatment services including the most vulnerable and high risk populations
- Ensure that all suspected malaria cases are tested at all health facility levels and, in the community, using appropriate, quality assured diagnostics (RDTs and/or microscopy)
- Ensure that all confirmed uncomplicated and sever malaria cases are effectively managed in a timely manner with correct treatment

Prompt diagnosis and effective treatment of malaria remain a primary component of malaria control in Rwanda and will be achieved with implementation of the following strategies:

STRATEGY 2.1: STRENGTHEN THE QUALITY OF MALARIA DIAGNOSIS AT ALL LEVELS INCLUDING THE PRIVATE SECTOR

This strategy aims to ensure that all suspected malaria cases are tested at all health facility levels in both public and private sectors, and in the community using appropriate, quality assured diagnostics (RDTs and/or microscopy). The program will conduct training of lab technicians (at all levels) in advanced microscopy testing and training in RDT testing for clinicians and CHWs. Supportive supervision will also be conducted to strengthen malaria diagnostic capacity.

To ensure the availability of diagnostic commodities at all times, and at all levels, MOPDD in collaboration with Rwanda Medical Suppy (RMS) will conduct annual quantification meetings and ensure timely procurement and distribution of commodities. External competency assessment for Malaria microscopy will also be conducted, in addition to malaria molecular diagnosis (malaria PCR) at the NRL. MOPDD will also procure commodities for malaria molecular diagnosis (Malaria PCR) at NRL.

STRATEGY 2.2: STRENGTHEN PROMPT AND CORRECT TREATMENT OF SIMPLE (UNCOMPLICATED) MALARIA AT ALL LEVELS INCLUDING THE PRIVATE SECTOR

The fifth edition of the national Malaria guidelines on malaria case management (with the inclusion of multi first line treatment and ACTs in the 1st tremister of pregnancy) is under revision. Once user friendly formats are published and distributed to all levels, MOPDD will conduct cascade training of CHWs, and health workers at health posts, health centers, district, provincial and, referral hospitals, district pharmacies and private health facilities, on malaria case management in line with the guidelines. Updated standard operating procedures, job aids and treatment algorithms will be produced, disseminated to all health facilities and provided to health workers during training and supportive supervision visits. Annual workshops on updated malaria case management guidelines for final medical (interns and residents) and nursing students will be also conducted.

In line with malaria diagnosis and treatment policies, the district hospitals will monitor the availability of malaria commodities and the quality of treatment practices in the facilities under their catchment areas. Mentorship and supportive supervision on malaria case management and

supply chain management will be provided to health workers at all levels. Smartphones for CHWs will be procured and distributed to CHWs to enhance malaria case notification and stock out notification.

The malaria program will support the digitalization of the eMR system, ensure procurement and availability of reporting tools (registers, algorithms, stock cards, code cards and digital tools) for CHWs and health facilities.

The national malaria program will maintain quarterly internal and external assessment of malaria case management. The RBC will also undertake external quality assessment to evaluate the quality of integrated community case mangment annually and continue to provide technical input through existing channels such DQA /ISS.

In line with WHO recommendations and in response to emerging partial resistance to ACT, the program will strengthen surveillance to inform decision making and will pilot the use of Multiple First Line Treatment Strategy in Rwanda to mitigate increasing drug resistance.

STRATEGY 2.3: STRENGTHEN REFERRAL AND MANAGEMENT OF SEVERE MALARIA CASES AT HEALTH FACILITY LEVEL

To ensure the appropriate diagnosis, referral and treatment of severe malaria refresher training of healthcare providers in the community (CHWs), at health centres, and hospitals will be conducted. Weekly follow up of severe malaria case managment and malaria deaths will also be conducted. Quarterly QC and DQA on severe malaria diagnosis in the public and private sector will provide guidance for routine supportive supervision and mentorship of health workers. During supportive supervision onsite training on the management of severe malaria will be conducted in addition to auditing patient files on severe malaria case management. The notification of all severe malaria cases and malaria deaths will be strengthened.

STRATEGY 2.4: STRENGTHEN MECHANISMS TO MAINTAIN COMPETENCY OF HEALTH WORKERS IN MALARIA CASE MANAGEMENT AT ALL LEVELS INCLUDING PRIVATE SECTOR

In order to maintain the competency of health workers in malaria case management, the NMCP will ensure that they are all regularly updated on malaria case management though refresher trainings, onsite training, e-learning courses, pre-service trainings, and supportive supervision visits.

In a cascade manner, the program will support competency-based mentorship of care providers at all levels of care provision and monitor the transfer of knowledge and skills at lower levels.

In addition, the training of lab technicians on QA/QC and accreditation (WHO guidance) will be conducted every two years.

STRATEGY 2.5: ENSURE QUANTIFICATION AND DISTRIBUTION OF QUALITY ASSURED MALARIA COMMODITIES

The NMCP, through CPDS /MoH will undertake annual quantification of malaria commodities in the private and public sector and monitor the distribution of commodities at RMS branches, HFs and the community.

Bi-annual quantification reviews to assess the use of procured commodities as forecasted will be conducted alongside quarterly monitoring of stockouts.

Bi-annual meetings with RMS branches, will be conducted to enhance continuous monitoring of the distribution and stockouts of malaria commodities and will include sharing best practices and identifying solutions for gaps in the malaria supply chain management.

The program will conduct supportive supervisions on malaria commodities supply chain at all levels to strengthern health facilities and the community supply management.

In addition, QC of antimalaria drugs and RDTs will be done, annually to ensure that drugs and tests used in country maintain their quality along the supply chain from their point of arrival to the end user point.

Finally, the program will strive to enhance stock management of malaria commodities at all levels including the community given that more than 50% of cases are now managed at community level. The program will collaborate with planning division at MOH to track malaria commodity stocks at community level, by including a data element on the number of CHWs who reported no stock out in HMIS.

STRATEGY 2.6. STRENGTHEN EARLY DETECTION AND TREATMENT IN PREGNANT WOMEN

Under this strategy, the NMCP will update, validate and disseminate the guidelines and job aids on malaria prevention and treatment in pregnancy.Integrated malaria training of health workers will include messages on prevention of malaria in pregnancy. The program will also produce and disseminate integrated data collection tools for MiP, procure and distribute ITNs and engaging communities on antenatal care attendance in collaboration with local leaders and CHWs.

The NMCP will support the detection of fever during antenatal clinic for all pregnant women and ensure testing of malaria for all suspected cases.

The program will ensure supportive supervisions are conducted at all levels to strengthern providers capacity in prompt and correct treatment of malaria in pregnancy.

Objective 3: By 2027, Strengthen Surveillance and Reporting for Complete and Timely Accurate Information for Appropriate Decision Making at all Levels

- Develop malaria surveillance/epidemic preparedness and response guidelines
- Establish early warning, early detection and response systems
- Strengthen capacity in data quality, analysis and use at all levels through training, supportive supervision, and health facility data quality audits
- Continue routine malaria surveillance through routine reporting systems at the health facility and community levels (DHIS2 and SISCOM)
- Conduct impact assessment of malaria control interventions through surveys and evaluations
- Provide support in digitalization process of Community Health and health facility Packadge and other tools used in providing malaria services.

The establishment of a robust malaria surveillance and reporting system through strengthening routine HMIS and SISCOM reporting systems, improving monitoring and evaluation of the program implementation and promoting the generation and use of evidence to inform malaria programming is essential for the success of this strategic plan. Inclusion of the private sector will also be key. The following strategies are aimed to achieving this objective.

STRATEGY 3.1: STRENGTHEN MALARIA ROUTINE SURVEILLANCE AND EPIDEMIC PREPAREDNESS AND RESPONSE (EPR) AT ALL LEVELS

In collaboration with the Epidemiological Surveillance and Response division, WHO and other partners, the programme will develop malaria surveillance/epidemic preparedness and response guidelines which, will provide outbreak thresholds for the epidemic prone districts. Early warning, early detection and response systems will be established, SOPs developed and disseminated to assist in identification, notification and timely response to outbreaks. Capacity for EPR will be built at all levels and data will be used to inform potential or existing outbreaks.

In addition, the digitalization of community and health facilities services package will be established to support routine services provision, reporting, stock management, malaria surveillance and decision making. In low malaria transmission districts based reporting of malaria cases and deaths will be established.

As part of the operational research, Malaria Program will design and test Community-Based Malaria Surveillance and Response in selected districts to accelerate malaria elimination. This is in line with the current country context where some districts are approaching malaria elimination but however, transmission foci or malaria hotsposts are still found in some sectors or cells even within IRS districts. During this exercise, reactive case detection and treatment will be tested combined with identification of malaria infection characteristics and risk factors in the general population, malaria foci and high risk/vulnerable groups to inform tailored interventions selected sites (Community Based Surveillance and Response).

STRATEGY 3.2: STRENGTHEN CAPACITY BUILDING IN DATA QUALITY, ANALYSIS AND USE AT ALL LEVELS

The program will support training, support supervision and data quality audits, at public and private health facilities and at community level on the collection of routine health data, data cleaning, analysis, validation, reporting and the use of data for decision making. Data use for decision making at district level will also be strengthened. The capacity at health facility level to manage the health information systems and, address health information gaps and issues will also be enhanced. The program will also support strengthening the capacity of malaria prevention and ownership at community level.

STRATEGY 3.3: CONDUCT REGULAR MALARIA SURVEYS AND EVALUATIONS

Data collection, collation and transmission through the routine health information system, will be used to monitor malaria indicators related to malaria cases and deaths and accessed through the DHIS2. There will be regular meetings within the SMEOR TWG to develop a grid of core indicators for regular monitoring of malaria status across the country.

Malaria program performance in line with outcomes and impact will be evaluated using periodic surveys and studies. Population based surveys including DHS and MIS will be conducted in 2025 and 2027 respectively. Other evaluations will include surveys on malaria prevalence, impact of malaria interventions, ownership and use of ITNs, drug resistance, insecticide resistance and other program priority studies. The program will also conduct annual health facility (public and private) assessments on the quality of malaria case management.

STRATEGY 3.4: STRENGTHEN SEVERE MALARIA NOTIFICATION AND MALARIA DEATH AUDITS

Severe malaria cases reporting as well as severe malaria and malaria death audits will be strengthened through conducting refresher training of healthcare providers at the community (CHWs), health centres, and hospitals). Case based malaria death reporting will also be integrated into the DHIS2 system in order to achieve timely confirmation of malaria deaths. This will inform the program and all stakeholders on prevention of and correct management of severe malaria cases.

STRATEGY 3.5: IMPROVE REPORTING FROM THE PRIVATE SECTOR AND SUSTAIN PUBLIC SECTOR REPORTING

The country made good progress in reporting of private clinics into HMIS database but the performance in terms of completeness and timeliness achieved is still around 70%. This strategy will help to increase reporting rates, completeness and timeliness of private health facilities by providing the health providers and data managers in private health facilities training in data management, data quality, analysis and information use. MOPPD will conduct regular supportive supervisor, mentorship and DQA to ensure all health facilities (public and private) submit complete and timely monthly reports. To further support this, HMIS will update the list of active private health facilities in DHS2 on an annual basis. The district hospital and district health unit will also integrate private health facilities in quarterly data review meetings, regular DQA and DHMT meetings.

STRATEGY 3.6: DEVELOP AND IMPLEMENT AN OPERATIONAL RESEARCH AGENDA

The program will annually develop an operational research agenda for malaria and this will be implemented in collaboration with national and international academic/research institutions and partners. This research will be aimed towards generating evidence to inform policies, interventions and programmatic decisions. The program will also provide a forum for research results dissemination/sharing.

The following actions will be implemented and regarding strengthening vector control capacity and research:

- Conduct entomology surveillance in sentinel sites
- Maintain central entomology laboratory and insectarium
- Maintain experimental huts established in Ruhuha for semi-fields evaluation of new tools
- Maintain meteorological stations for monthly collection of meteorological data in sentinel sites
- Organize the refresher trainings of entomology officers and technicians
- Establish collaborations with local and international research institutions for implementation of operational researches
- Develop capacity for dissemination of vector control findings/best practices through local and international platforms/for a (ASTMH, PAMCA)

Objective 4: Strengthen Coordination, Collaboration, PSM and Effective Program Management

- Develop and strength collaborative and partnership initiatives
- Stakeholder engagement and coordination strengthened through functional TWGs
- Mobilization of adequate and sustained financial resources required for implementation of this strategic plan
- Ensure efficient and cost-effective utilization of resources
- Ensure full implementation of malaria strategies and activities
- Provide Salaries and PBF for RBC and District Level Staff
- Provide PBF/Incentives for CHWs

The focus of the program in this plan is to maintain the achievements so far and move forward to further reduce the burden of malaria. The program will focus on developing and strengthening collaborative and partnership initiatives so as to accelerate malaria prevention and control in Rwanda. The program will also focus on mobilization of adequate financial resources through sustainable means, to ensure efficient and cost-effective utilization of such resources for implementation of malaria strategies.

STRATEGY 4.1: MOBILIZATION OF ADEQUATE FINANCIAL RESOURCES

MOPDD will produce a costed investment case for maintaining and increasing government and external resources for malaria interventions as well as target and attract new source of funds including private sector for malaria control in Rwanda. Under this strategy, funding proposals to national and international funding mechanisms/agencies will be prepared.

Despite the achievements recorded over the past years, Malaria control program still faces financial gaps in covering high program priorities interventions such as innovative malaria control tools, focal IRS, SBC etc.

In the year 2022/2023, the Rwanda Ministry of Health proposed to establish a Multi-sectoral Integrated Diseases Control Council (IDCC) to support integrated diseases control approach across the health sector. This IDCC would operate as an Advisory and Resource Mobilization Council, while the implementation would remain under existing RBC programs

STRATEGY 4.2: STRENGTHEN THE INTRA- AND INTER- SECTOR COLLABORATION AND COORDINATION FOR MALARIA CONTROL AT ALL LEVELS

Under this strategy, the program will strengthen multi-sectoral platforms gathering different Ministries, institutions and stakeholders that play a role in fight against malaria such as MINAGRI, MINALOC, MINIRENA, MINEDUC etc.

The program will also revitalize the malaria technical working groups and provide technical support to existing decentralized level platforms such as DHMTs and coordination meetings for malaria control.

MOPDD will strengthen program planning and reviews to continue facilitate and provide direction and guidance in planning and monitoring of all strategies outlined in the Extended NMSP 2020-2027. Regular planning and review meetings will be organized at different levels.

At central level, Malaria Technical Working Group (TWG) meetings which gather the Ministry of Health, other RBC divisions linked to malaria such as the National Reference Laboratory, the Maternal, Child and Community Division, WHO, CSOs, PMI and Implementing Partners, representatives from district hospitals ,academic institutions and other malaria stakeholders will be meeting twice a year to review and discuss on important malaria strategies, interventions and updates and agree on what should be adopted for the fight against malaria in the country

STRATEGY 4.3: SYNCHRONIZATION AND ALIGNMENT OF MALARIA COMMODITIES PROCUREMENT AND SUPPLY MANAGEMENT

This strategy will put an emphasis on the development of comprehensive malaria commodities need assessments and timely implementation procurement plans to avoid stock outs, expiries or delays in implementation of key malaria interventions such as IRS or ITNs mass distributions. Conducting regular data and supply chain review meetings, enhancing data use through triangulation between HMIS and eLMIS will build a strong and efficient malaria procurement

and supply chain management. The program will also strengthen pharmacovigilance system for malaria commodities from public and private health facilities

STRATEGY 4.4: STRENGTHEN REGIONAL COLLABORATION

The Great Lakes Malaria Regional Strategy was developed in 2019-2020 and is currently undergoing Mid Term Review. Rwanda will continue the implementation of the strategic interventions such as IRS at the borders, Case management interventions provided through health posts at the borders, data sharing etc. As defined in the GLMI Strategic Plan, there is a need to organize bilateral meetings to harmonize/synchronize interventions. In addition, studies tours to share best practices between countries will be organized.

STRATEGY 4.5: STRENGTHEN HUMAN RESOURCES AND MATERIAL CAPACITY OF THE MALARIA PROGRAMME

The Malaria program will continue to ensure the availability of sufficient staff and strengthen their capacity to better manage malaria activities with a special focus on strengthening human resource capacity of the vector control and epidemiology units. The program will expand the performance based financing (PBF) to community health workers providing malaria case management services in addition to providing salaries and PBF for RBC and district level staff

The program will avail equipment for routine activities and effective running of the program. The program will ensure that staff participate in key international meetings and conferences to learn and share best practices.

STRATEGY 4.6: CONDUCT COORDINATION AND PLANNING SESSIONS FOR THE MALARIA PROGRAM AND KEY STAKEHOLDERS

The program will organize regular planning meetings, review meetings as well as development of annual work plans according to the Ministry of Health requirements. This strategy will help the program in coordination of partner's activities to avoid duplication, to ensure harmonization of activities and optimal use of resources. The program will ensure Malaria program reviews at mid-term and at the end of the implementation of the Malaria strategic plan.

STRATEGY 4.7: UPDATE AND DISTRIBUTE THE INTEGRATED MALARIA GUIDELINES

Currently the integrated malaria guidelines are being updated based on the recent WHO Guidelines. This is a comprehensive document with all malaria strategies implemented in Rwanda such IRS, LLINs, Treatment etc.... designed to serve as a clinical guide as well as an educational tool for health professionals and all stakeholders involved in the fight against malaria at public and private sector. The integrated malaria guidelines will be finalised, printed and distributed to all public and private health facilities.

Objective 5: By 2027, at least 85% of the Population Will Have Correct and Consistent Practices and Behaviors towards Malaria Control Interventions

Through appropriate SBC strategies outlined below, MOPDD aims to address the barriers towards uptake and utilization of the malaria prevention and control interventions implemented at all levels.

- To empower communities for their engagement in increasing demand and ensure at least 85 % seek early Malaria diagnostic and treatment services by 2027;
- To empower vulnerable groups with knowledge to ensure that at least 85% of them adopt correct and consistent behaviour and practices toward Malaria prevention and control by 2027;
- To increase effective use of Malaria prevention products and reach at least 85% through community engagement activities by 2027;
- Strengthen coordination, inter-sectoral collaboration, and linkages of Malaria SBC interventions
- Ensure adequate financial support for timely and effective implementation of SBCC activities as outlined Provide SBCC interventions on malaria prevention and control to all populations at risk of malaria using strategies defined in the National Malaria Related Strategic Plans
- Ensure adequate financial support for timely and effective implementation of SBCC activities as outlined in the National Malaria Related Strategic Plans.
- Advocate for malaria to remain high on the national agenda and at all levels

Through appropriate SBC strategies outlined below, MOPDD aims to address the barriers towards uptake and utilization of the malaria prevention and control interventions implemented at all levels.

STRATEGY 5.1: STRENGTHEN THE MALARIA SBC FRAMEWORK

In 2022, the MOPDD developed the Rwanda Social and Behaviour Change Communication Strategy for malaria prevention and control (2022-2024) as recommended by the MPR 2019 and the Malaria Matchbox Assessment. The malaria program with support from the implemenating partners and CSOs will ensure the impemenation of this strategic plan to address the needs of the general population and vulnerable/high risk groups.

STRATEGY 5.2: INCREASE AWARENESS ON THE COMMUNITIES' ROLE IN MALARIA PREVENTION AND CONTROL

The SBC unit will develop integrated messages to sensitize communities and high risk groups so as to ensure use of malaria preventive services, early treatment seeking behavior and support of environmental management including larva source management. These messages will be shared with the communities through mass media campaigns, radio and TV, educative drama, songs, Innovative communication channels like drome community messaging,community dialogues, distribution of IEC materials and interpersonal communication with community health workers. With support from CSOs and local leaders, effort will be put in Community Led Monitoring and Response for the general population and vulnerable/high risk groups.

STRATEGY 5.3: INCREASE ADVOCACY FOR HIGH LEVEL SUPPORT TO SUSTAIN MALARIA PREVENTION AND CONTROL INTERVENTIONS

The Mal&OPDD will organize high level advocacy meetings with parliament, socio cluster ministries/ policymakers, donors, civil society, faith based organizations and private sector representatives to enhance ownership and seek continued support for malaria prevention and control interventions. This strategy also aims to mobilize stakeholders involved in health care in Rwanda to integrate malaria prevention and control messaging in their health communication interventions. MOPDD with it's parthners will also collaborate with differents Broadcasting Agencies to provide support in malaria advocacy at the national level and community level through radio and/or TV talk shows.

Advocacy will be increased to not only maintain malaria high on the national agenda but also to increase malaria funding and support from development partners, private sector, civil society organizations especially in malaria SBC and community mobilization.

STRATEGY 5.4: PROMOTE COMMUNITY ENGAGEMENT IN MALARIA PREVENTION AND CONTROL INTERVENTIONS

The malaria program will collaborate with it's partners to engage communities to actively participate in malaria prevention and control through existing structures such as parent forums, monthly community works , weekly community meetings and community gathering .

SBC activities will be implemented in partnership and collaboration with NGO's, FBOs and CBOs implementing at the community level.

Explore the use of school based malaria diagnosis and treatment through School Health Program (SHP) implemented by the Ministry of Education (MINEDUC), The Ministry of Health (MOH) and Partners, educational and participatory malaria prevention and control programs will be scaled up in schools. This will include providing information, education and communication materials aimed at increasing students and teachers' awareness, knowledge and stimulating demand for malaria prevention and treatment as well as establishing malaria school clubs. It will also include training representatives /peers of Malaria high risk groups to screen and treat malaria .

Leaders from faith based organizations will be engaged to actively participate in health promotion of malaria prevention and control interventions. Religious leaders will also serve a crucial role in promoting malaria prevention messages and health clubs within the churches, will be established and maintained to enhance the health promotion among church and members especially on malaria prevention and control.

MOPDD will also engage with Malaria high risk groups representatives ,cooperatives to raise awareness on their roles and contribution .To further enhance community engagement and mobilize resources, the "Zero Malaria Starts With Me" campaign will be maintained and serves as opportunity to combine efforts in the community mobilization to fight against malaria through an increased awareness of the community and all stakeholders in malaria response.

STRATEGY 5.5: PROMOTE COMMUNITY BASED INTEGRATED VECTOR MANAGEMENT IN GENERAL POPULATION AND MALARIA HIGH RISK/VULNERABLE GROUPS

Malaria and other vector borne diseases continue to upsurge and jeopardize the efforts of their effective control and elimination. Additionally, within the framework of Integrated Vector Control through local government collaboration, capacity building and entomology surveillance, evidence shows that stagnant water bodies from different environment settings such as the rice paddies, the channels,pit from mining sites, unused or old containers and land depressions are described as the mosquito breeding sites that cause the spread of malaria infection. Thus, there is a need to support existing strategies and propose the innovative interventions with a focus on those that may involve non-health sectors and primary community and local stakeholders. Through SBC, capacity building and knowledge transfer to the community at the sector and village level intends to provide a mix of theory and practice skills based on learning by seeing or doing. The community will be able to identify the aquatic stages of malaria vectors and hosts of the parasite. The community will be recommended to apply knowledge to serve as an agent of change targeting representatives of villages, cells, primary and secondary schools, security forces, cooperatives of rice farmers, miners, and fish farmers, and all identified high-risk groups will be considered. The above force while empowered, will help to achieve the goal of elimination of malaria and other vector-borne diseases. The following actions will be the key pillars of future community-based solutions :

- Larval source management using environmental management through monthly community works “Umuganda”
- Community-Based Larval Source Management targeting peri-domestic breeding sites through CHWs Home Visit
- Enhance community behavior changes and adoptions for the appropriate usage of core interventions for the prevention and control of malaria and other Vector Borne Diseases.

STRATEGY 5.6: IMPLEMENTING MALARIA COMMUNITY-LED MONITORING (CLM) IN TARGETED HIGH-RISK AND VULNERABLE POPULATIONS

Rwanda recognizes that placing the communities at the center of its malaria response is critical to achieving impact and sustainability. To improve access, quality, and impact of services, it is essential to get a high level of community involvement and ownership in addition to ensuring that the concerns of the communities are reflected and prioritized. With support from the C-19 grant (2023-2025), the NMCP in collaboration with CSOs will support targeted communities in the design and pilot community-led monitoring platforms. Achieving a better understanding of the gaps and challenges in malaria prevention and treatment service delivery in high-risk and underserved populations is aimed to enable the NMCP to address and prioritize the real issues, barriers, and gaps to malaria services.

STRATEGY 5.7: SUPPORT THE INTEGRATION OF NTD IN VECTOR CONTROL AND SBC FOR EFFICIENCY

Evidence shows that some NTDs share the same risk factors and therefore the same risk groups. These include vector-borne NTDs and water-related NTDs (Soil-Transmitted Helminthiasis, Schistosomiasis,..). Groups at risk are most of the time the same with malaria including those under 5, students at schools, rice farmers, mining staff, prisoners, refugees, etc.

Integrated awareness targeting both malaria and NTDs would create an effective approach to reaching high-risk groups with few resources. As Local NGOs already support malaria program in addressing malaria in easy and hard reach high-risk/vulnerable groups in Rwanda, integrating NTDs and malaria SBC interventions will be explored during this grant cycle.

CHAPTER 6 IMPLEMENTATION FRAMEWORK

1. MALARIA STRATEGIC PLAN WORK PLAN

The implementation plan of this national malaria strategic plan is detailed in **Annex 3**.

2. IMPLEMENTATION ARRANGEMENTS

This strategic plan will be implemented at different levels of the health care system including National, District, health facility, and community level, and through a wide multi-sectoral partnership framework. The plan will be implemented within the established policy, regulatory, institutional, and M& E frameworks as outlined below.

A. OVERALL MANAGEMENT

Oversight leadership and coordination of the malaria program is provided by the MOH and RBC with the Malaria and Other Parasitic Diseases Division being a mainstream entity in the RBC structure.

The local government ensures the provision and management of health services including financial and human resources. It also ensures the coordination, accountability, implementation and management of health activities at decentralized level in order to improve service delivery, greater coverage of health services, improved quality, cost effectiveness and ownership.

Institutions in charge of managing and allocating resources (such as HRH, infrastructure and equipment, medical products) and ensuring quality of service provision (QA, Clinical Services) collaborate regularly with the malaria program to support implementing their respective services. MOPDD also collaborations with other key divisions within RBC, including the following: National Referral Laboratory (NRL) (for malaria diagnostics, QC/QA of diagnostics, microscopy training, and special studies such as therapeutic efficacy studies to monitor for resistance to antimalarial medication); Maternal ,Child and Community Health (for MiP, and delivery of the Community Health package for iCCM); Medical Products Procurement and Distribution Division (MPPD) (for supply chain support including regular quantification of anticipated commodity needs, as well as procurement, distribution and quality control of malaria commodities); Epidemic Surveillance and Response (ESR) division (for disease surveillance and response); Rwanda Health Communication Center (for SBC activities); Single Projects Implementation Unit (SPIU) and RBC Corporate (for budget planning and support for implementation); Planning Monitoring Evaluation and Business

Strategy (PMEBS) (for data systems (HMIS) and planning and monitoring of activities (ISS, DQA)) and; Rwanda Food and Drugs Authority (RFDA) (for product registration, regulation and import).

The overall health planning process is guided by the Planning Department of the MOH in close collaboration with the Planning division in RBC. Specific operational planning for the malaria program is done by MOPDD in line with the planning cycle and HSSP 4 priorities. This strategic has aligned its priorities and interventions to the HSSP4 and annual plans will be developed on the basis of its log frame. District based planning will be done annually in bottom-up fashion in line with set financial budget ceilings as per the defined priorities in the HSSP4 and the Malaria strategic plan. The District Health Unit is responsible for the development of annual district plans by HCs and district hospitals that respond both to the District Development Strategies (DDS) under the responsibility of the vice-mayor, in charge of social affairs, as well as responding to the relevant priorities of the malaria strategic plan and overall priorities of the HSSP4.

Regular meetings between MOH, RBC, MOPDD, other departments and the malaria program through the HSWG and the TWGs provide all stakeholders with the opportunity to raise policy-related issues and give technical inputs on the achievements and challenges met during implementation.

B. INSTITUTIONAL FRAMEWORK OF THE MOPDD

The MOPDD is a division within the Institute for HIV/AIDs, Diseases Prevention and Control (IHDPC) Department of the an affiliate of the Ministry of Health. MOPDD has the primary responsibility of coordination, planning, capacity building and technical oversight over the implementation of malaria activities at all levels including implementing partners. The division collaborates with different divisions within the RBC, MOH, line ministries, development partners, academia, private sector and the community at large

C. MOPDD FUNCTIONAL ROLES

MOPDD develops and updates the malaria policies, strategic plan and guidelines. In addition, MOPDD provides technical support including building capacity, supervision, monitoring and evaluation of implementation at all levels.

MOPDD also establishes collaborations and partnership with relevant malaria stakeholders including research institutions and the private sector.

D. NATIONAL FISCAL PLANNING CYCLE AND ALIGNMENT WITH MALARIA PROGRAMME

The timeline for budgeting, planning and reporting of malaria annual work plans is aligned with the Ministry of Economic Planning and Financing (MINECOFIN) financial cycle which runs from 1st July to 30th June of each year. This Extended Malaria strategic plan 2020-2027) is also aligned to the HSSP 4.

E. PARTNERSHIPS AND COORDINATION

MOPDD will work closely with Development Partners, donors, NGOs, FBOs and CSOs who are malaria stakeholders. Partners will also include departments in relevant ministries such as MINALOC, MINAGRI, MIGEPROF and MININFRA. Partnerships will range from technical consultations to joint implementation, monitoring and evaluation of malaria interventions. The MOPDD will also works closely with each implementing partner to co-develop annual workplans aligned with national priorities, strategies and available funds including PMI, CDC and WHO. Technical Working Groups (TWGs) comprising partners will be formed with assignment to assess and advise MOPDD on technical and policy malaria issues .

F. CROSS-BORDER MALARIA INITIATIVES

A new Great Lakes Malaria Initiative has been initiated to establish cross-border malaria collaboration among the East African Community members and the Democratic Republic of Congo. MOPDD will support efforts towards member country validation of the collaborative framework and the Great lakes Malaria Initiative Strategic Plan and where applicable synchronized implementation of interventions, with neighboring countries.

G. PROCUREMENT AND SUPPLY MANAGEMENT SYSTEMS

The national procurement system is supervised by Rwanda Public Procurement Authority (RPPA) which is an agency affiliated to the Ministry of Economy and Finances (MINECOFIN). The quantification of malaria commodities is done by a committee that is composed the MoH (LMO); RBC/Malaria Division; PMI/ Supply Chain Implementing Partner; USAID Supply chain Office; Rwanda Medical Supply.Ltd ; RBC/MCCH and; RBC/NRL MoH under the guidance of the Coordinated Procurement and Distribution System (CPDS) document.

H. FINANCIAL RESOURCES MANAGEMENT AND AUDITS

The national financial management is under the authority of MINECOFIN supervising and providing technical assistance to the budget entities. Each entity submits its annual budget to MINECOFIN on the basis of its negotiation with donors.

The Office of the Auditor General (OAG) conducts audits of all budget agencies and government projects. The Office of the Ombudsman also ensures transparency and deals with corruption and fraud, the Office of the General Prosecutor monitors implementation of audit findings and follow up of mismanagement reported. The Parliamentary Public Fund Committee oversees the implementation of audit recommendations on reported mismanagement. The MoH and the public institutions under its authority (including RBC) follow all the required Rwanda financial management mechanisms.

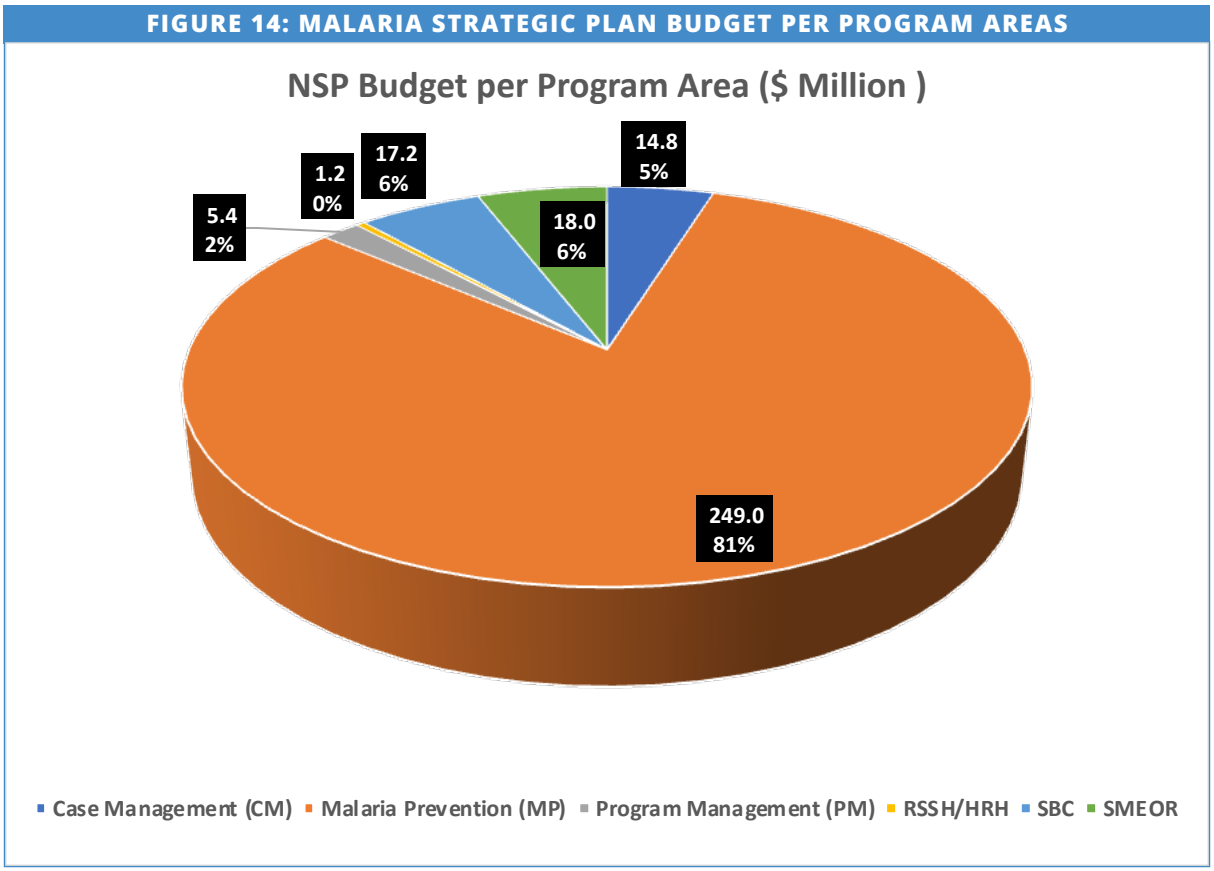
The MOPDD shall evaluate all the malaria interventions to make sure that value for money is obtained. By using malaria stratification information, resources shall be used for interventions that are considered to be appropriate in those areas.

I. BUDGET OF THE MALARIA NATIONAL STRATEGIC PLAN 2020-2027

The detailed four-year costing of the extended Rwanda Malaria National Strategic Plan **(July 2023 to June 2027**) was conducted using the WHO MSP costing guidelines. The total cost of implementing this strategy is an estimated **RWF 369,191,384,202 (US$ 305,799,208)** to be met by the GoR, together with the Global Fund, development partners (USAID/PMI), and other international and local stakeholders **(Annex 4 and 5).**

Investments in Malaria Prevention has an allocation of **81,4%** of the total NSP budget, Malaria Case Management **(4,9%),** SBC **(5,6%)**, SMEOR **(5,9%)** and Program Management **(1,8%),** RSSH/HRH **(0,4%)** as shown in **Figure 14** below which summarizes the costed budget of this NSP.

FIGURE 14: MALARIA STRATEGIC PLAN BUDGET PER PROGRAM AREAS



Considering the commitments as of July 2023, a total of **$216,261,204** out of **$305,779,208** needed to support the Extended National Malaria Strategic Plan is available (71%) leaving a gap of **$89,538,004** (29%) to be mobilized **(Figure 15&16)**.

FIGURE 15: NSP BUDGET PER SOURCE OF FUNDS

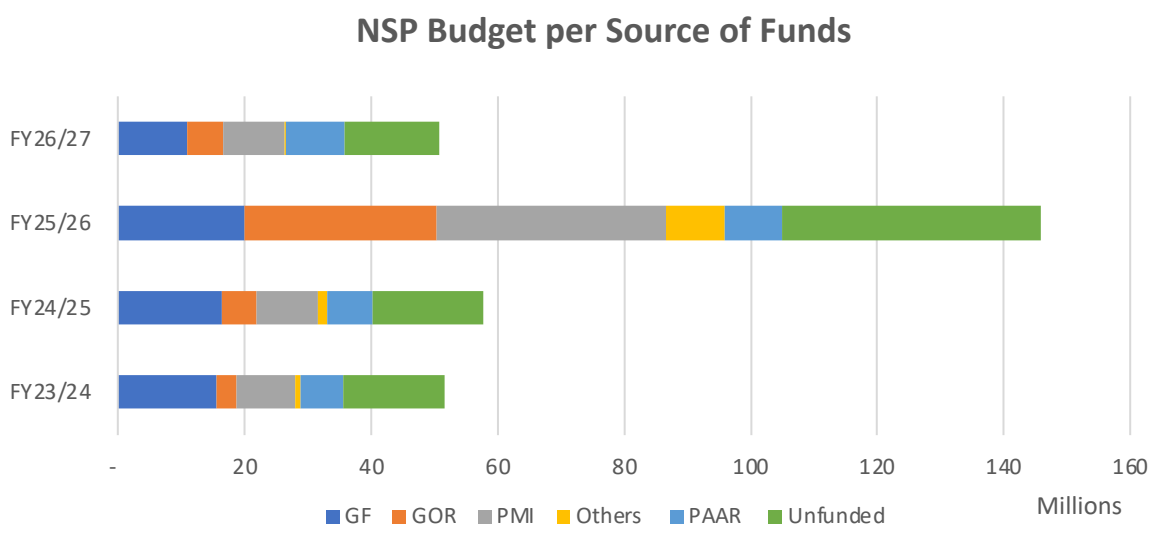
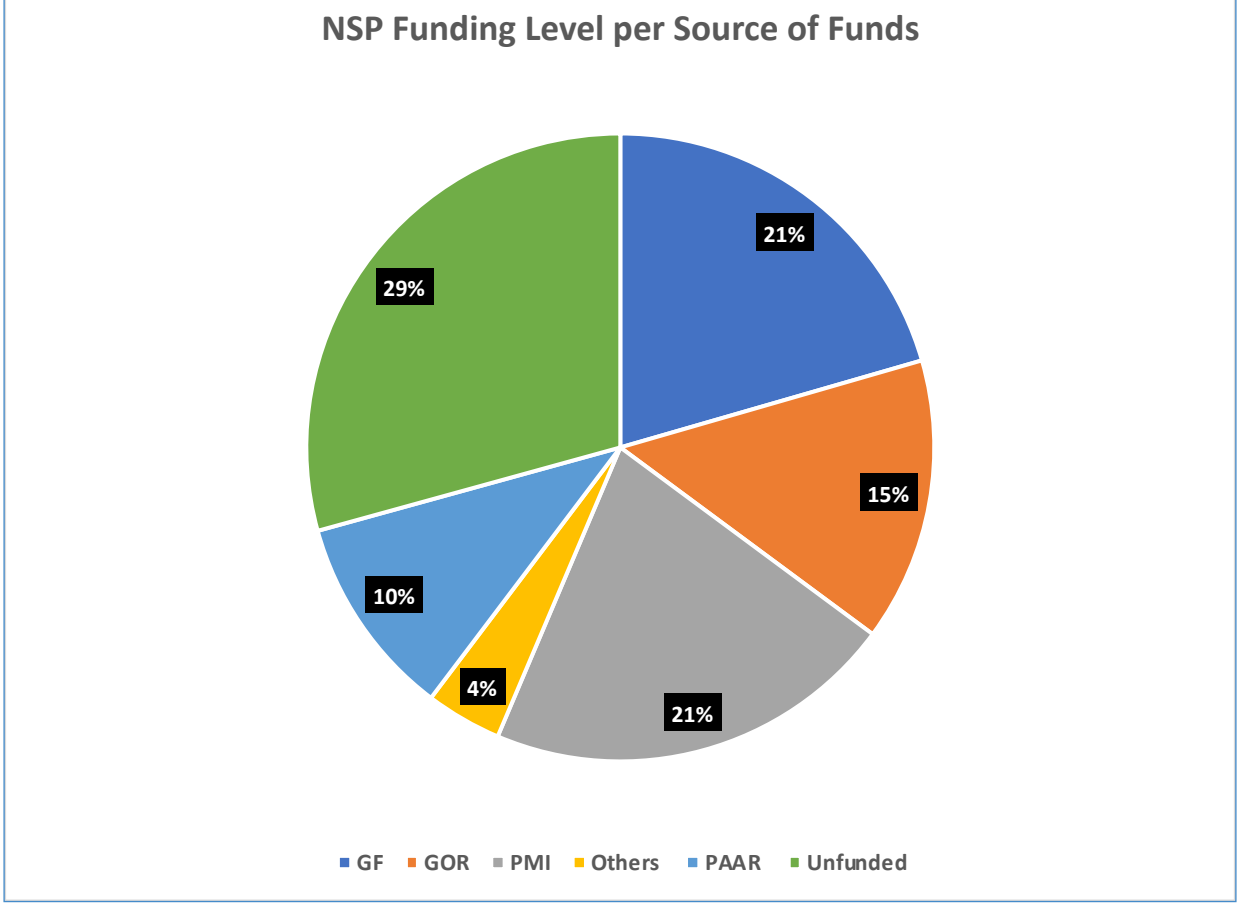


FIGURE 16: NSP FUNDING LEVEL PER SOURCE OF FUNDS



CHAPTER 7 MONITORING AND EVALUATION FRAMEWORK

Implementation of the Rwanda malaria strategic plan will be monitored and evaluated at regular intervals using the existing M&E systems and mechanisms.

1. TRACKING IMPLEMENTATION PROGRESS

The operational aspects of the programme will be monitored and the impact or process indicators measured to ensure that the activities implemented are yielding the desired results and moving the programme towards achieving its operational targets and objectives. Changes in epidemiological indicators resulting from the activities implemented will also be monitored.

Evaluation of the implementation of this Strategic Plan will be conducted through a Malaria Program Review (MPR) planned in 2025 and will be aligned to the HSSP V to be developed.

In addition, national joint annual assessments will be conducted. Every year a malaria action plan will be developed in collaboration with partners and an annual malaria implementation report disseminated to key stakeholders. Quarterly review meetings will also be held in line with the multisectoral approach to assess progress with partners at national and regional levels. Appropriate interpretation and utilization of results to inform policy and strategic revisions, when needed, will ensure progress (**Annex 3**).

The HMIS (morbidity and mortality), RapidSMS, eLMIS, SISCom, and the weekly IDSR system will serve as the key tools for data collection for monitoring the implementation of the programme activities. Population-based surveys (DHS and MIS) and other surveys such as health facility surveys, therapeutic efficacy studies, insecticide resistance and entomological monitoring studies will also be conducted. Operational research studies will be undertaken to inform specific technical and intervention implementation as well as programme annual reports, technical support supervision and activity reports.

2. PERFORMANCE FRAMEWORK

The Performance framework will be used in measuring progress in the implementation of this plan detailed in **Annex 1**. This will track progress on the implementation of planned interventions evaluated using a selected set of indicators. The methods for tracking progress will be fully detailed for process, input, output, outcome and impact.

3. DATA MANAGEMENT SYSTEM

The country's Health Management Information System (HMIS) is based on the electronic platform DHIS2 version 2.29 which records and reports all diseases including malaria and is established at all healthcare levels. All hospitals and health centers are equipped with internet to support the entry of data into the HMIS system, and data managers at these facilities have been trained on the management of data.

Integrated into the HMIS is SISCOM used for Community health worker reporting, RapidSMS is a Mobile application for SMS notification available to all public sector healthcare workers. In addition, is the DQA which is available for use on a tablet through the ODK platform.

In addition to the data from HMIS , the program uses other data sources for its monitoring and evaluation including surveys (DHS, MIS, Health facility survey, KAP survey) program evaluations eg. I-CCM evaluation and, program reports.

Routine data is collected continuously and systematically and can be accessed directly from the health management information system. Using this data for evaluative purposes is efficient and effective as it is collected from existing national data systems and provides more comprehensive coverage. In Rwanda, routine data is collected from patient records usually entered in a register and subsequently recorded in the Health Management Information System available at all health centers and hospitals. Community health workers submit manual results to the health centers to be recorded in the HMIS. All data entered in the HMIS reflects the national performance because of the high reporting rate of the health facilities. Almost all health facilities report their results on time.

Data is collected on a monthly level for CHWs and on a weekly level at hospital level this allows for programme analysis of data to show trends of cases and deaths throughout the country. Ongoing efforts to digitalize the community and health facility package will allow real time individual data collection and reporting for timely response.

Initiatives are in place to improve the reporting of private facilities. Private sector health facilities reporting into HMIS it is now mandatory and a commitment to this is a requirement before a private health facility is granted approval to open. A standardized reporting tool for private sector has also been developed.

4. M&E COORDINATION MECHANISM

At national level, MOPDD works in collaboration with the districts and partners to coordinate and implement M&E activities.

CHAPTER 8 ANNEXES

ANNEX 1: PERFORMANCE FRAMEWORK

ITEMS	Indicators	Baseline			Y1	Y2	Y3	Y4	Y5	Y6	Y7	Remarks
		Value	Year	Source	2020/21	2021/22	2022/23	2023/24	2024/25	2025/206	2026/27	
GOAL			Impact Indicators									
By 2027, reduce malaria morbidity and mortality by at least 90% of the 2019 levels	Malaria Parasite prevalence: Proportion of population with malaria infection	7	2017					1.5			0.7	
	Malaria Prevalence in U5s	7	2017	MIS2017	2.7			1.5			0.7	
	Malaria Prevalence in PW	5	2017	MIS 2017	1.2			1.0			0.5	
	Annual Parasite Incidence per 1000 persons	321	2019	HMIS	114	76	47	45	40	35	32	
	Number of Malaria Deaths	264	2019	HMIS	94	71	51	40	35	30	26	

ITEMS	Indicators	Baseline			Y1	Y2	Y3	Y4	Y5	Y6	Y7	Remarks
		Value	Year	Source	2020/21	2021/22	2022/23	2023/24	2024/25	2025/206	2026/27	
Objective 1			**Outcome Indicators**									
By 2027, at least 90% of population at risk will be effectively protected with preventive interventions	Proportion of population effectively protected by either IRS or LLINs	68	2017	MIS	>90	>90	>90	>90	>90	>90	>90	
	IRS coverage in targeted districts	98	2017	Malaria Annual report	98	98	98	98	98	98	98	
	Proportion of targeted districts covered by IRS	83	2017	Malaria Annual report	100	100	100	100	100	100	100	
	Percentage of U5 who slept under an LLIN	68	2017	MIS2017	56	NA		70			80	
	Percentage of pregnant women who slept under and LLIN	69	2017	MIS2017	56	NA	NA	70			80	
	Percentage of population aged 5-14 who slept under an LLIN	57	2017	MIS2017		NA	NA	65			75	
	Proportion of households with at least one insecticide-treated net for every two people	72%	2017	MIS	34							
	Proportion of total population who slept under an LLIN the previous night	64	2017	MIS2017		NA	NA	70			75	

ITEMS	Indicators	Baseline			Y1	Y2	Y3	Y4	Y5	Y6	Y7	Remarks
		Value	Year	Source	2020/21	2021/22	2022/23	2023/24	2024/25	2025/206	2026/27	
Objective 2:			**Outcome Indicators**									
All suspected cases are promptly tested and treated in line with national guidelines	Proportion of fever cases that receive a malaria parasitological test at all levels (public, community, private).	NA		HMIS	95	96	98	99	99	99	99	
	Proportion of confirmed malaria cases that received malaria treatment according to national guidelines at all levels.	99	2018-19	HMIS	99	99	99	99	99	99	99	
	Malaria mortality rate per 100,000 population	2.10	2018-19	HMIS	1.3	0.7	0.6	0.5	0.4	0.3	0.2	
	Proportion of health providers trained on malaria case management	98	Program report			91	95	95	95	95	95	
	Percentage of CHWs that reported no stock out of ACTs and RDTs.	NA	2018-19	iCCM evaluation (DQA Community)	85	87	88	90	90	90	90	

ITEMS	Indicators	Baseline			Y1	Y2	Y3	Y4	Y5	Y6	Y7	Remarks
		Value	Year	Source	2020/21	2021/22	2022/23	2023/24	2024/25	2025/206	2026/27	
Objective 3:			**Outcome Indicators**									
By 2027,strengthening surveillance and reporting in order to provide complete and timely accurate information for appropriate decision making at all levels	Proportion of health facilities reporting on malaria indicators on time (Public and private).	80	2018-19	HMIS	60	70	75	>90	>90	>90	>90	
	Proportion of health facilities submitting complete reports on malaria indicators (Public and private).	85	2018-19	HMIS	90	95	95	>90	>90	>90	>90	
	Annual Blood Examination Rate	71.8	2018-19	HMIS	57	43	39	37	35	34	33	
	Number of community and health facilities evaluations conducted	2	2018	Malaria Annual report	4	3	3	4	1	1	1	

ITEMS	Indicators	Baseline			Y1	Y2	Y3	Y4	Y5	Y6	Y7	Remarks
		Value	Year	Source	2020/21	2021/22	2022/23	2023/24	2024/25	2025/206	2026/27	
Objective 4:			**Outcome Indicators**									
By 2027, strengthen coordination, collaboration, PSM and effective program management	Proportion of malaria coordination meetings planned at national and district Level	NA	2018-19	MOPDD and HDs	4	4	4	4	4	4	4	
	Number of annual plan developed	1	2018-19	Malaria Division Annual Report	1	1	1	1	1	1	1	
	Number of Joint review and planning meetings conducted	1	2018-19	Malaria Division Annual Report	1	1	1	1	1	1	1	
	Proportion of public HFs that reported no stock outs of ACTS and RDTs	97	2018-19	Malaria Division Annual Report	98	98	99	99	99	99	99	
	Proportion of malaria commodity tenders executed (on time) according to procurement plan	1	2018-19	Malaria Division Annual Report	1	1	1	1	1	1	1	
	Proportion of activities implemented as per action plan	62%	2018-19	Malaria Division Annual Report	75	75	75	75	80		80	
	Proportion of disbursed fund versus MSP budget	Check in MPR Report	2018-19	Malaria Division Annual Report	90	95	95	95	95	95	95	
	Proportion of executed budget versus planned funds	Check in the MPR report	2018-19	Malaria Division Annual Report	90	95	95	95	95	95	95	

ITEMS	Indicators	Baseline			Y1	Y2	Y3	Y4	Y5	Y6	Y7	Remarks
		Value	Year	Source	2020/21	2021/22	2022/23	2023/24	2024/25	2025/206	2026/27	
Objective 5:			**Outcome Indicators**									
By 2027, 90% of the population will have correct and consistent practices and behaviours towards malaria control interventions	Proportion of women who recognize fever as a symptom of malaria	81%	2017	MIS	90%	NA		90%			90%	
	Proportion of women who reported mosquito bites as a cause of malaria	87%	2017	MIS	90%	NA		95%			95%	
	Proportion of the population who recognize signs of malaria	91,3%	2017	MIS	95%	NA		95%			95%	
	Proportion of the population who knows the mode of transmission of malaria	95%	2017	MIS	95%	NA		95%			95%	

ANNEX 2: IMPLEMENTATION PLAN

OBJECTIVE 1: BY 2027, AT LEAST 90% OF POPULATION AT LEAST WILL EFFECTIVELY PROTECTED WITH PREVENTIVE INTERVENTIONS

Strategies	Activities	Responsible	FY July 2020 and June 2027							
			20	21	22	23	24	25	26	27
Strategy 1.1: Sustain and extend IRS in high malaria incidence districts	1.1.1 Conduct IRS blanket coverage in targeted high malaria endemic districts		X	X	X	X	X	x	x	x
	1.1.2 Conduct focal IRS in moderate and low malaria endemic districts in response to management of malaria outbreaks/epidemics in non IRS districts		X	X	X	X	X	x	x	x
	1.1.3 Conduct the IRS for the management of emergencies and reactive response to malaria outbreaks, or abnormal resurgence		X	X	x	x	x	x	x	x
	1.1.4 Evaluate the quality and residual efficacy (bioassays, entomological monitoring in selected districts implementing IRS.		X	X	X	X	x	x	x	x
	1.1.5 Develop the capacity of IRS implementation and integrate it into the development plans of targeted districts		x	x	x	x	x	x	x	x

Strategies	Activities	Responsible	FY July 2020 and June 2027							
			20	21	22	23	24	25	26	27
1.2: Universal coverage in ITNS (mass distribution and routine distribution through EPI, ANC, PPP	1.2.1 Organize ITNs mass distribution campaigns				X					
	1.2.2 Conduct routine distribution of ITNs using ANC channels		X	X	X	X	X			
	1.2.3 Conduct routine distribution of ITNs using EPI channels		X	X	X	X	X			
	1.2.4 Distribute ITNs through public-private sector, based on social marketing		X	X	X	X	X			
	1.2.5 Perform quality control of ITNs on arrival and under field conditions		X	X	X	X	X			
1.3 Introduction of innovative Integrated vector control tools to supplement the core interventions	1.3.1 Conduct pilot larval source management interventions in selected areas targeting the urban and localized rural areas		X	X	X	X	X	x	x	x
	1.3.2 Conduct pilot larval source management using larvivorous fish in water dams and channels of irrigated agricultural systems		X	X	X	X	X	x	x	x
	1.3.3 Conduct social marketing and distribution of personal protection tools such as spatial and personal repellants to prevent human mosquito contact		X	X	X	X	X	x	x	x

Strategies	Activities	Responsible	FY July 2020 and June 2027							
			20	21	22	23	24	25	26	27
1.4 Community based environment management through community works/ meetings	1.3.4 Develop the capacity of districts to effectively implement environmental management by larval source management		X	X	X	X	X	x	x	x
	1.3.2 Conduct follow up meetings and supervisions of the implementation of community based environmental management			X	X	X	X	x	x	x

OBJECTIVE 2: BY 2027,STRENGTHENING SURVEILLANCE AND REPORTING IN ORDER TO PROVIDE COMPLETE AND TIMELY ACCURATE INFORMATION FOR APPROPRIATE DECISION MAKING AT ALL LEVELS

Strategies	Activities	Responsible	FY July 2020 and June 2027							
			20	21	22	23	24	25	26	27
Strategy 3.1:Strengthen malaria routine surveillance and epidemic preparedness and response (EPR) at all levels	3.1.1: Elaborate malaria epidemic preparedness and response plan	MOPDD	X					x		
	3.1.2: Train the health provider, data manager officer and M&E officer to malaria epidemic preparedness and response	MOPDD		X		X		x		x
	3.1.3: Conduct quarterly SMEOR SUB-TWG meeting	MOPDD	X	X	X	X	X	x	x	x
Strategy 3.2:Strengthen capacity building in data management, data quality, analysis and use at all levels	3.2.1: Strengthen mentorship and supportive supervisions activities	MOPDD	X	X	X	X	X	x	x	x
	3.2.2: Conduct bi annual health facility malaria data quality audit at decentralized level	MOPDD	X	X	X	X	X	x	x	x
	3.2.3: Conduct bi annual malaria community data quality audit	MOPDD	X	X	X	X	X	x	x	x
	3.2.4: Conduct monthly data analysis of malaria indicators to support decision making	MOPDD	X	X	X	X	X	x	x	x
	3.2.5: Conduct bi annual malaria data validation workshop at decentralized level	MOPDD	X	X	X	X	X	x	x	x
	3.2.6: Conduct quarterly Coordination meeting to review malaria data quality and Analysis	MOPDD	x	x	x	x	x	x	x	x
	3.2.7: Organize a training of health provider , data manager and M&E officer in data management, data quality, analysis and information use	MOPDD	X	X	X	X	X	x	x	x

Strategies	Activities	Responsible	FY July 2020 and June 2027							
			20	21	22	23	24	25	26	27
Strategy 3.3: Conduct community and health facilities evaluation	3.3.1: Conduct the MIS	MOPDD			X					x
	3.3.2: Contribute the DHS preparation and implementation	MOPDD						x		
	3.3.3: Conduct the HFS	MOPDD		X		X		x		
	3.3.4: Conduct Malaria ICCM evaluation	MOPDD		X		X		x		x
	3.3.5: Conduct insecticide resistance monitoring	MOPDD	X	X	X	X	X	x	x	x
	3.3.6: Conduct an ITNs durability evaluation	MOPDD		X		X		x		x
	3.3.7: Conduct a KAP survey	MOPDD			X					
	3.3.8: Conduct the therapeutic efficacy survey	MOPDD	X		X		X		x	
Strategy 3.4: Strengthen severe malaria notification and conduct malaria death audits	3.4.1: Improve Implementation and follow up of SMS notification for severe malaria cases	MOPDD	X		X		X			
	3.4.2: Conduct training of Health providers (CHWs, HCs, Hospitals)on Community Health digital solution	MOPDD	X		X		X	x	x	x
	3.4.3: Conduct regular severe malaria and malaria deaths audit	MOPDD	X	X	X	X	X	x	x	x
	3.4.4: Integrate the malaria deaths audit into DHIS2 system	MOPDD	X				x			

Strategies	Activities	Responsible	FY July 2020 and June 2027							
			20	21	22	23	24	25	26	27
Strategy 3.5: Improve reporting from the private health sector	3.5.1: Training of health care providers and data managers in data management, data quality, analysis and information use in private health facilities	MOPDD	X		X		X		x	
	3.5.2: Conduct supportive supervision and DQA of private health facilities	MOPDD	X	X	X	X	X	x	x	x
	3.5.3: Update the list of active private health facilities in DHS2	MOPDD	X	X	X	X	X	x	x	x
	3.5.4: Integrate private health facilities in quarterly data review meetings	MOPDD	X	X	X	X	X	x	x	x
Strategy 3.6: Develop and implement an operational research agenda for malaria	3.6.1: Establish strong collaboration initiative with local and international research institutions	MOPDD	X	x	x	x	x	x	x	x
	3.6.2: Define and update malaria operational research agenda	MOPDD	X	X	X	X	X	x	x	x
	3.6.3: Implement malaria operational research	MOPDD	X	X	X	X	X	x	x	x
	3.6.4: Dissemination of malaria finding through local and international platform	MOPDD	X	X	X	X	X	x	x	x

ANNEX 3: DISSEMINATION PLAN

#	Activities	2022/23				2023/ 2024				2024/ 2025				2025/ 2026				2026 2027			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	Annual Reports	■				■				■				■				■			
	Mid-term review Report			■																	
1.	End-term review report																			■	
	World Malaria Report		■				■				■				■				■		
2.	Monthly malaria reports	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Malaria scorecards	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	KAP Studies									■			■						■		

#	Activities	2022/23				2023/ 2024				2024/ 2025				2025/ 2026				2026 2027			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	Therapeutic efficacy study reports																				
	Technical Supervision reports																				
	IRS Report																				
	Entomological report																				
	Malaria Indicator Survey report																				
	DHS																				
	Health Facility Survey reports																				

ANNEX 4: BUDGET SUMMARY BY SOURCE OF FUNDS

PERIOD						
Source of Funds	**FY23/24**	**FY24/25**	**FY25/26**	**FY26/27**	**Total 2023-2027**	**%**
GF	15,490,253	16,363,317	20,001,943	10,920,041	62,775,554	21%
GOR	3,114,848	5,435,783	30,414,982	5,710,970	44,676,583	15%
Others	827,612	1,574,634	9,331,807	238,023	11,972,077	4%
PAAR	6,604,755	7,092,032	8,944,034	9,214,342	31,855,162	10%
PMI	9,418,649	9,705,955	36,144,742	9,712,483	64,981,829	21%
Unfunded	16,074,271	17,517,251	40,981,218	14,965,264	89,538,004	29%
Grand Total	**51,530,388**	**57,688,973**	**145,818,726**	**50,761,122**	**305,799,208**	**100%**