

PMI

U.S. PRESIDENT'S MALARIA INITIATIVE

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This FY 2021 Malaria Operational Plan has been approved by the U.S. Global Malaria Coordinator and reflects collaborative discussions with national malaria control programs and other partners. Funding available to support outlined plans is pending final FY 2021 appropriation. Any updates will be reflected in revised postings.

U.S. PRESIDENT’S MALARIA INITIATIVE

RWANDA

Malaria Operational Plan FY 2021

The U.S. President’s Malaria Initiative (PMI)—led by the U.S. Agency for International Development (USAID) and implemented together with the U.S. Centers for Disease Control and Prevention (CDC)—delivers cost-effective, lifesaving malaria interventions alongside catalytic technical and operational assistance to support Rwanda to end malaria. PMI has been a proud partner of Rwanda since 2007, helping to decrease child death rates by 67 percent (PMI 14th Annual Report to Congress) through investments totaling almost \$235 million.

The proposed PMI fiscal year (FY) 2021 planning budget for Rwanda is \$18 million. This Malaria Operational Plan (MOP) summary outlines planned PMI activities in Rwanda for FY 2021. See accompanying **FY 2021 Budget Tables** (Tables 1 and 2) for activities and budget amounts, available on pmi.gov. Developed in consultation with the Rwanda Malaria and Other Parasitic Diseases Division (MOPDD) and key stakeholders, proposed activities reflect national and PMI strategies, draw on best-available data, and align with the country context and health system. Proposed PMI investments support and build on those made by the Government of Rwanda as well as other donors and partners. See **Annex A: Gap Analysis Tables**.

To accelerate the journey to self-reliance, PMI developed a programmatic inventory to assess the strengths and persistent challenges of the Rwanda program. See **MOP FY 2020 Rwanda, Annex B: Program Inventory**. The activities proposed in this MOP are tailored to draw on strengths and foster improvements.

Since the FY 2020 MOP was developed, the following new data, updated policy and/or strategic priorities relevant for the FY 2021 MOP have become available:

Development of the new Malaria National Strategic Plan 2020–2024

The MOPDD, along with PMI Rwanda and other key malaria stakeholders, updated the Extended Malaria Strategic Plan 2013–2020, which was developed in 2013 and updated in 2017, to refocus malaria resources from pre-elimination activities to enhanced prevention and treatment efforts for malaria control.

- The goal of the new Malaria National Strategic Plan (NSP) 2020–2024 is to reduce malaria morbidity and mortality by at least 50 percent of the 2019 levels by 2024.
- To achieve this goal, five specific objectives have been set out:
 - By 2022, at least 85 percent of population at risk will be effectively protected with preventive interventions;
 - All suspected malaria cases are promptly tested and treated in line with the national guidelines;

- By 2022, strengthen surveillance and reporting in order to provide complete, timely, and accurate information for appropriate decision making at all levels;
- Strengthen coordination, collaboration, procurement and supply management, and effective program management at all levels;
- By 2021, 85 percent of the population at risk will have correct and consistent practices and behaviors towards malaria control interventions.
- The main interventions in the NSP include vector control (long-lasting insecticide-treated nets, indoor residual spraying [IRS], larval source management); malaria diagnosis and treatment; monitoring, evaluation, and operational research (including epidemic preparedness and response); malaria social behavior change (SBC) and program management.
- The guiding principles for implementation of the 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.
- The NSP 2020–2024 was key in developing the Global Fund new funding request and the FY 2021 MOP.

Programmatic adaptations to complement the Global Fund new funding request

The PMI/Rwanda team worked with the MOPDD on the Global Fund new funding request in concert with the development of the FY 2021 MOP. The overall strategic priorities remain consistent; however, request for donor support for a few activities has shifted. Specific to the FY 2021 MOP, please note the following adaptations:

- Entomological monitoring (EM): The MOPDD also requested funding for EM from the Global Fund, and therefore reduced the FY 2021 MOP budget accordingly.
- Procurement of ITNs:
 - Continuous distribution: The MOPDD anticipates procuring a mix of standard ITNs for low burden and next generation ITNs, either synergist piperonyl butoxide (PBO) or dual insecticide, for high burden districts with support from PMI and the Global Fund.
 - Mass campaign: The MOPDD is requesting procurement of insecticide-treated mosquito nets (ITNs) to begin preparing for the next mass campaign, which is expected in 2022/2023.
- Case management
 - Procurement of diagnostic commodities: The Global Fund previously supported procurement of diagnostic commodities (e.g., slides, slide boxes, Giemsa stain, immersion oil, safety boxes, alcohol, and dry swabs). The MOPDD now is requesting full support for these items from PMI in the FY 2021 MOP. The MOPDD has provided cost estimates to support the request (see gap table).
 - Procurement of malaria rapid diagnostic tests (RDTs): The MOPDD has requested support from the Global Fund for all RDT needs.

For more information about the malaria situation, malaria control progress, and intervention-specific data in Rwanda, please refer to the FY 2020 MOPs available on pmi.gov.

Annex A. Gap Analysis Tables

Insecticide-treated Mosquito Net (ITN) Gap Analysis			
Calendar Year	2020	2021	2022
GOR Fiscal year	2019-2020	2020-2021	2021-2022
Total targeted population ¹	12,432,365	12,955,768	13,448,128
Continuous Distribution Needs			
Channel #1: ANC ²	472,430	316,090	389,996
Channel #2: EPI ³	472,430	316,090	389,996
Channel #3: Public and private boarding school and others	250,000	**	**
<i>Estimated total need for continuous channels</i>	1,194,860	632,180	779,991
Mass Campaign Distribution Needs			
2022 mass distribution campaign(s)	0	0	4,464,605
<i>Estimated total need for campaigns ⁴</i>	0	0	4,464,605
Total ITN Need: Routine and Campaign	1,194,860	632,180	5,244,596
Partner Contributions			
ITNs carried over from previous year ⁵	135,950	641,090	641,090
ITNs from Global Fund		0	3,289,483
ITNs planned with PMI funding ⁶	1,700,000	632,180	741,979
Total ITNs Available	1,835,950	1,273,270	4,672,552
Total ITN Surplus (Gap) ⁷	641,090	641,090	(572,044)

¹ The population projection is from the Census 2012. Based on the 20 year-growth projection of 46.9%, an annual growth rate of 2.3% was applied to the population figure of 2020 to obtain projected population of 2021.

² Pregnant women represent 2.9% of the general population as per the national Census 2012. Fewer nets will be required in 2021 for EPI and ANC as some PBO and G2 nets were set aside in 2020 to be used in routine distribution in districts that received the two types of nets in the mass campaign in 2019/20.

³ Children under one year of age represent 2.9% of the general population as per the Census 2012.

⁴ There will be a mass campaign in 2022/2023. The request for ITNs in 2022/2023 is for both routine and mass campaign distribution in 7 PMI districts.

⁵ The number of ITNs carried over from previous year in 2019 is not available. Based on the 2019/2020 mass campaign, 135,950 PBO and G2 nets were set aside for routine distribution in districts that received these types of ITNs during the mass campaign.

⁶ In 2019/2020 mass campaign, Rwanda distributed three types of ITNs (PBO, G2, and Standard) based on the epidemiology of malaria. PMI is expected to support seven districts and procure one of the three types of nets. The specific number of nets required of either PBO, G2 or standard will be determined during the actual planning for procurement.

⁷ Based on the planned mass campaign in 2022/2023, there is a gap of 572,044 ITNs. The GOR will seek to mobilize the additional resources

** No ITNs are required for boarding schools in 2021, as schools will receive nets as part of the mass campaign in 2019/2020.

Rapid Diagnostic Test (RDT) Gap Analysis			
Calendar Year	2020	2021	2022
GOR Fiscal year	2019-2020	2020-2021	2021-2022
RDT Needs			
Total country population	12,432,365	12,867,498	13,473,999
Population at risk for malaria ¹	12,432,365	12,867,498	13,473,999
PMI-targeted at-risk population	12,432,365	12,867,498	13,473,999
Total number of projected fever cases ²	10,567,510	10,551,348	10,779,199
Percent of fever cases tested with an RDT ³	60%	60%	70%
RDT Needs ⁴	6,340,506	6,330,809	7,545,439
Minimum Stock Needed to Remain at the End of the Year ⁵	4,755,380	4,748,107	5,659,079
Total RDT Needs ⁶	11,095,886	11,078,916	13,204,519
Partner Contributions (to PMI target population if not entire area at risk)*			
RDTs carried over from previous year ⁷	7,665,716	6,965,957	5,955,948
RDTs from Global Fund ⁸	5,640,747	5,320,800	
RDTs from other donors	0	0	0
RDTs planned with PMI funding ⁹	0	0	0
Total RDTs Available	13,306,463	12,286,757	5,955,948
Total RDT Surplus (Gap)	2,210,577	1,207,841	(7,248,571)

¹ The total country's population is at risk of malaria.

² Projected trend is based on historical number of fever cases from HMIS which represent 88% of the population at risk of malaria cases. This projected number of fever cases is estimated to decrease by 2-3% annually due to continued and enhanced control and prevention efforts (e.g., IRS expansion, next generation nets).

³ The trend in RDT use shows the average annual increase of approximately 5% over the past three years. The same percentage increase when applied to 57% of 2018-2019 give 62% for 2020. However, the program target is to increase the projected RDT coverage to 70% starting with July 2019 (source: 2018-2019 malaria annual report dissemination and priority setting workshop). The actual RDTs to be procured by the GF will be based on actual need (see footnote 8).

⁴ The RDT needs represent the estimated consumption for three years by applying the percentage of fever cases tested by RDTs to all fever cases. ⁵ To avoid stockouts, a minimum stock of 9 months at all SC levels (6 at central, 2 at district pharmacy and 1 at health facility) is considered when estimating the amount needed in warehouses along the supply chain.

⁶ The total RDT need represents the estimated consumption for three years by applying the percentage of fever cases tested by RDTs to all fever cases (row "RDT needs") plus the amount of stock that needs to be sitting in warehouses along the supply chain to avoid stock outs at the facility level (row "Minimum Stock Needed to Remain at the End of the Year"), a minimum of stock of 9 months at all SC levels (6 at central, 2 at District pharmacy and 1 at health facility).

⁷ RDTs carried over from previous year includes the minimum stock needed to remain at the end of the year (row "Minimum Stock Needed to Remain at the End of the Year") plus the Total RDT surplus (row "Total RDT Surplus (Gap)")

⁸ The GF new funding application has been submitted. The actual RDTs procured by the GF will be based on actual need.

⁹ The PMI planned contribution for 2019 was reprogramed to procure ACTs. All RDTs needs in 2021/2022 will be procured by GF and PMI will procure ACTs.

Reagent Gap Analysis		
Calendar Year ¹	2021	2022
GOR Fiscal year	2020-2021	2021-2022
Reagents Needs		
Total country population	12,867,498	13,473,999
Population at risk for malaria ²	12,867,498	13,473,999
PMI-targeted at-risk population	12,867,498	13,473,999
Total number of projected fever cases ³	11,426,338	8,464,035
Percent of fever cases tested with microscopy ⁴	40%	40%
Total Reagents Needs ⁴	4,570,535	3,385,614
Minimum Stock Needed to Remain at the End of the Year ⁵	0	0
Partner Contributions (to PMI target population if not entire area at risk)*		
Reagents carried over from previous year	0	0
Reagents planned with PMI funding ⁶	4,570,535	0
Total Reagent Available	4,570,535	0
Total Reagents Surplus (Gap) ⁷	0	-3,385,614

¹ This is the first time PMI is procuring reagents. Previously reagents were procured by the GOR. We do not have historical data for GOR procurement in FYs 2019 and 2020.

² The total country's population is at risk of malaria.

³ Projected fever cases are based on historical number of fever cases from HMIS which represent 88.8% of the population at risk of malaria cases.

⁴ The number of cases to be tested by microscopy is based on the current CHWs coverage for treatment of malaria cases which is around 60%. However, the program target was to increase the projected RDT coverage to 70% starting with July 2019 (source: 2018-2019 malaria annual report dissemination and priority setting workshop). Based on this target of (70%), the MOPDD will work GF/PMI on the actual numbers of RDTs and reagents required based on cases diagnosed by CHWs in 2020/2022.

⁵ The information is not available because we do not have data from previous years (FY 2019/2020).

⁶ The total estimated number of reagents is 4,570, 535 including: slides and other commodities such as examination gloves, alcohol swabs, dried swabs and lancets; Specifically, 5,377 Giemsa bottles with the assumption 1 bottle tests 850 slides; 22,853 bottles of immersion oil with the assumption that one 100ml immersion oil is used for 200 slides; and 45,705 slide boxes with the assumption that 1 slide box contains 100 slides.

⁷ There is a gap for the period 2021-2022. GOR will need to find a way to address the gap and procure the reagents if necessary.

Artemisinin-based Combination Therapy (ACT) Gap Analysis			
Calendar Year	2020	2021	2022
GOR Fiscal year	2019-2020	2020-2021	2021-2022
ACT Needs			
Total country population	12,432,365	12,929,660	13,446,846
Population at risk for malaria	12,432,365	12,929,660	13,473,999
PMI-targeted at-risk population ¹	12,432,365	12,929,660	13,473,999
Total projected number of malaria cases ²	3,539,298	3,008,403	2,520,988
Total ACT Needs ³	3,818,763	2,520,988	2,016,791
Minimum Stock Needed to Remain at the End of the Year ⁴		1,890,741	1,512,593
Partner Contributions (to PMI target population if not entire area at risk)			
ACTs carried over from previous year ⁵	108,083	1,154,038	1,633,049
ACTs from Government	0	0	0
ACTs from Global Fund	1,864,718	0	0
ACTs from other donors	0	0	0
ACTs planned with PMI funding ⁶	3,000,000	2,560,000	2,016,791
Total ACTs Available	4,972,801	4,154,038	3,649,840
Total ACT Surplus (Gap) ⁷	1,154,038	1,633,050	1,633,049

¹ Geographic coverage: The total needs covers the total country needs.

² Total projected number of malaria cases were updated based on the reduction of malaria cases recorded from October to December 2019 which reflects the impact of IRS to occur from 2020: 12 districts were sprayed and will continue to be sprayed in the following 4 years. The quantification team assumed that this number will reduce by approximately 15% annually as IRS will be maintained (National Quantification Report, 2019)

³ These are estimated as per the consumption-based forecast whereby the team assumed a decrease in consumption from the baseline of 2019 as IRS will be maintained (National Quantification Report, 2019). Since both logistic and consumption data accuracy were available and the service-based forecast uses more assumptions than the consumption-based forecast, the quantification team preferred to consider the consumption-based forecast to reduce possible forecast errors that might be linked to assumptions used for service-based forecast. Therefore, the consumption-based method was used for this gap analysis.

⁴ Minimum stock for 2019 not available.

⁵ These are estimates of stock expected to be carried over.

⁶ All ACTs in 2021/2020 will be procured with PMI support. RDTs will be procured with GF support.

⁷ The ACTs reflected are not surplus, rather this is the required minimum stock expected to remain at the end of the year to ensure there is no interruption of treatment in case of any change in consumption pattern compared to the initial forecast or increase procurement lead time. ACTs procurements will be based on actual needs.

Artemisinin-based Combination Therapy (ACT) Gap Analysis			
Calendar Year	2020	2021	2022
GOR Fiscal year	2019-2020	2020-2021	2021-2022
ACT Needs			
Total country population	12,432,365	12,929,660	13,446,846
Population at risk for malaria	12,432,365	12,929,660	13,473,999
PMI-targeted at-risk population ¹	12,432,365	12,929,660	13,473,999
Total projected number of malaria cases ²	3,539,298	3,008,403	2,520,988
Total ACT Needs ³	3,818,763	2,520,988	2,016,791
Minimum Stock Needed to Remain at the End of the Year ⁴		1,890,741	1,512,593
Partner Contributions (to PMI target population if not entire area at risk)			
ACTs carried over from previous year ⁵	108,083	1,154,038	1,633,049
ACTs from Government	0	0	0
ACTs from Global Fund	1,864,718	0	0
ACTs from other donors	0	0	0
ACTs planned with PMI funding ⁶	3,000,000	2,560,000	2,016,791
Total ACTs Available	4,972,801	4,154,038	3,649,840
Total ACT Surplus (Gap) ⁷	1,154,038	1,633,050	1,633,049

¹ Geographic coverage: The total needs covers the total country needs.

² Total projected number of malaria cases were updated based on the reduction of malaria cases recorded from October to December 2019 which reflects the impact of IRS to occur from 2020: 12 districts were sprayed and will continue to be sprayed in the following 4 years. The quantification team assumed that this number will reduce by approximately 15% annually as IRS will be maintained (National Quantification Report, 2019)

³ These are estimated as per the consumption-based forecast whereby the team assumed a decrease in consumption from the baseline of 2019 as IRS will be maintained (National Quantification Report, 2019). Since both logistic and consumption data accuracy were available and the service-based forecast uses more assumptions than the consumption-based forecast, the quantification team preferred to consider the consumption-based forecast to reduce possible forecast errors that might be linked to assumptions used for service-based forecast. Therefore, the consumption-based method was used for this gap analysis.

⁴ Minimum stock for 2019 not available.

⁵ These are estimates of stock expected to be carried over.

⁶ All ACTs in 2021/2020 will be procured with PMI support. RDTs will be procured with GF support.

⁷ The ACTs reflected are not surplus, rather this is the required minimum stock expected to remain at the end of the year to ensure there is no interruption of treatment in case of any change in consumption pattern compared to the initial forecast or increase procurement lead time. ACTs procurements will be based on actual needs.

Injectable Artesunate Gap Analysis			
Calendar Year	2020	2021	2022
GOR Fiscal year	2019-2020	2020-2021	2021-2022
Injectable Artesunate Needs			
Projected number of severe cases ¹	17,696	15,042	12,846
Projected number of severe cases among children	7,079	6,017	5,139
Projected number of severe cases among adults	10,618	9,025	7,708
Total Injectable Vials Needs (based on # of malaria cases) ²	135,630	115,286	80,753
Total Injectable Artesunate Vials Needs ³	186,212	167,591	73,886
Minimum Stock Needed to Remain at the End of the Year		125,693	55,414
Partner Contributions			
Injectable vials carried over from previous year	153,273	209,165	41,575
Injectable vials from Government	0	0	79,300
Injectable vials from Global Fund	100,000	0	0
Injectable vials from other donors	0	0	0
Injectable vials planned with PMI funding ⁴	80,000	0	50,000
Additional injectable vials procured with PMI funding	62,104	0	0
Total Injectable Artesunate Vials Available	395,377	209,165	170,875
Total Injectable Artesunate Vials Surplus (Gap) ⁵	209,165	41,575	96,989

¹ This number is both severe cases and simple malaria with minor digestive symptoms that require an injectable. It represents 0.5% of total malaria cases, the actual percentage from 2019 HMIS data. The same decrease of 40.2% and 5% was also applied as for the other malaria products.

² Key assumptions are that for the cases requiring injectable, 4% use quinine and 96% use artesunate. For artesunate injections, there are four categories based on the weight band: <25kg, 26-50kg, 51-70kg, and above 70kg which take in average 4,8,12, and 16 vials, approximately. Data by such weight bands are not available. The quantification team used the estimate of 40%, 20%, 25%, and 5% respectively for <25kg, 26-50kg, 51-70kg, and above 70kg as this method used many assumptions. The team did not consider this method, rather the team preferred to use the consumption data that shows the real quantities consumed by patients.

³ These needs are estimated as per the consumption-based forecast whereby the team assumed a decrease in consumption from the baseline of 2019 as IRS will be maintained and community management of malaria expanded (National Quantification Report, 2019). Since both logistic and consumption data accuracy were available and the service-based forecast uses more assumptions than the consumption-based forecast, the quantification team preferred to consider the consumption-based forecast to reduce possible forecast errors that might be linked to assumptions used for service-based forecast. Therefore, the consumption-based method was used for this gap analysis.

⁴ The procurement of injectable artesunate with GF and PMI funds in 2020 is expected to cover 2021. The GOR and PMI will procure injectable artesunate in 2022.

⁵ This is not surplus - but rather the minimum stock required to ensure that there are no stockouts. The procurements will be based on actual need.