Additional funding for the President's Malaria Initiative has been allocated under a Continuing Resolution from Congress for the remainder of FY07. USAID Malaria Programs were allotted $248 million ($25 million above the President's 2007 request) to allow the Agency to expand its bilateral global malaria initiative activities from the current 3 countries to 7. Country programs will expand access to long-lasting insecticide treated bed nets and indoor residual spraying, promote and support effective malaria treatment through the use of proven combination therapies; and increase prevention efforts targeted to pregnant women. With the additional funding FY 2007 Malaria Operational Plans (MOPs) will be updated. Revised MOPs will be posted soon.

PRESIDENT'S MALARIA INITIATIVE

Malaria Operational Plan (MOP)

RWANDA

FY 2007

January 5, 2007

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List of Abbreviations

ACT	artemisinin-based combination therapy
AL	artemether-lumefantrine
ANC	antenatal care
AQ/SP	amodiaquine-sulfadoxine-pyrimethamine
ARV/ART	anti-retroviral therapy
BCC	behavior change communications
BTC	Belgian Technical Cooperation
BUFMAR	Office for the Not-for-Profit Medical Facilities in Rwanda
CAMERWA	Central Drug Purchasing Agency for Rwanda
CBD	Community-based Distributor
CCM	Country Coordinating Mechanism
CHW	Community Health Worker
CNLS	National AIDS Commission
CSHGP	Child Survival and Health Grants Program
DDT	dichloro-diphenyl-trichloroethane
DHS	Demographic and Health Survey
EANMAT	East African Network for Monitoring Anti-malarial Treatment
EPI	Expanded Program for Immunization
FBO	faith-based organization
FOSA	Formation Sanitaire (public and FBO health facilities)
GFATM	Global Fund to Fight AIDS, TB, and Malaria
GOR	Government of Rwanda
HBMF	home-based management/of fever
HMIS	Health Management Information Service
HIPC	Highly-Indebted Poor Countries
IDA	International Development Association
IEC	Information, Education, and Communication
IMCI	Integrated Management of Childhood Illnesses
IPTp	intermittent preventive treatment for pregnant women
IRS	indoor residual spraying
ITN	insecticide-treated bed net
KfW	KfW German Development Bank
LSHTM	London School of Hygiene and Tropical Medicine
LLIN	long-lasting insecticide-treated bed net
LBW	low birth weight
MAC	Malaria Action Coalition
MCH	maternal and child health
MEWS	Malaria Early Warning System
MINISANTE	Ministry of Health
MINAGRI	Ministry of Agriculture
MNECOFIN	Ministry of Finance
MIP	malaria in pregnancy
MOH	Ministry of Health
MRC	Medical Research Council (South Africa)

NGO	non-governmental organization
NMS	National Meteorological Service
PBF	Performance-based financing
PEPFAR	President's Emergency Plan for AIDS Relief
PERSUAP	Pesticide Evaluation Report and Safe Use Action Plan
PLITM	Prince Leopold Institute of Tropical Medicine
PLWHA	people living with HIV/AIDS
PMI	President's Malaria Initiative
PMTCT	prevention of mother-to-child transmission
PNILP	National Malaria Control Program
PSI	Population Services International
PV	pharmacovigilance
QA/QC	quality assurance/quality control
RBM	Roll Back Malaria
RDT	rapid diagnostic test
RPM+	Rational Pharmaceutical Management Plus Project
REMA	Rwanda Environmental Management Authority
RTI	Research Triangle Institute
SBM	Standards Based Management
SEA	Supplemental Environmental Assessment
SPA	Service Provision Assessment
TRAC+	Treatment and Research AIDS Center (TRAC *Plus*)
U5	under-five years of age

Executive Summary

Rwanda has been selected as one of the four countries to receive funding during the second year of the President's Malaria Initiative (PMI). The objective of this Initiative is to assist African countries, in collaboration with other partners, to rapidly scale up coverage of vulnerable groups with four highly effective interventions: artemisinin-based combination therapy (ACT), intermittent preventive treatment for malaria in pregnancy (IPTp), insecticide-treated mosquito nets (ITNs), and indoor spraying with residual insecticides (IRS).

Malaria is the overall leading cause of morbidity and mortality in Rwanda and the government is highly committed to fighting the disease, with a strong National Malaria Control Program (French acronym, PNILP) and recently developed comprehensive five-year strategy. The PMI in Rwanda will work closely within this strategy, allowing programs and interventions to be rapidly scaled up and strengthened. Currently, the Belgian Technical Cooperation (BTC) is the largest external financier of malaria programs in Rwanda. Rwanda is also the recipient of Round 3 ($17 million) and Round 5 ($39 million) malaria grants from the Global Fund to Fight AIDS, Tuberculosis, and Malaria (GFATM). The grants from the GFATM cover many of the country's commodity needs (including ACTs for health facilities and a large portion of ITNs), though gaps exist, as are outlined in this document.

This PMI Year 1 Malaria Operational Plan for Rwanda was developed in close consultation with the PNILP and with participation of many national and international partners involved in malaria prevention and control in the country.

To achieve the targets of the PMI in Rwanda, the following major activities are proposed for the $17 million of funding during Year 1 of the Initiative:

1. Support IRS in 5 districts, including equipment, insecticide, building IRS capacity at sector, district, and national levels, preparation of IRS guidelines and protocols, and IEC/BCC (planned coverage of rural, urban, and periurban areas) ($4,358,000);
2. Increase coverage of target groups with long-lasting ITNs (LLINs) and develop capacity for evaluation of LLIN coverage in order to forecast replacement needs ($3,450,000);
3. Introduce home-based management of fever (HBMF) with ACTs into 14 districts (12 existing HBMF districts and two new) ($3,791,000);
4. Increase demand for strengthened and integrated antenatal care (ANC) services, improve quality of ANC services, and procure sulfadoxine-pyrimethamine (SP) and iron-folate for IPTp and ANC ($580,000);
5. Introduce provision of ACTs through the private sector ($1,498,000); and,
6. Strengthen drug quality assurance and commodity distribution systems ($543,000).
7. Strengthen and support laboratory diagnostics capacity for malaria through the National Reference Laboratory and the PNILP ($260,000).

The President's Malaria Initiative

In late June 2005, the United States Government (USG) announced a new five-year, $1.2 billion initiative to rapidly scale up malaria prevention and treatment interventions in high-burden countries in sub-Saharan Africa. The goal of this Initiative is to reduce malaria-related mortality by 50% after three years of full implementation in each country. This will be achieved by reaching 85% coverage of the most vulnerable groups---children under five years of age, pregnant women, and people living with HIV/AIDS---with proven preventive and therapeutic interventions, including artemisinin-based combination therapies (ACTs), insecticide-treated bed nets (ITNs), intermittent preventive treatment of pregnant women (IPTp), and indoor residual spraying (IRS).

The President's Malaria Initiative (PMI) began in three countries in 2006: Angola, Tanzania, and Uganda. In 2007, four countries were added: Malawi, Mozambique, Senegal, and Rwanda, with additional countries to be added in 2008. Funding began with $30 million in Fiscal Year (FY) 06 for the initial three countries, and will increase to $135 million in FY 07, $300 million in FY 08, and reach $500 million in FY 10 in 15 countries by 2010.

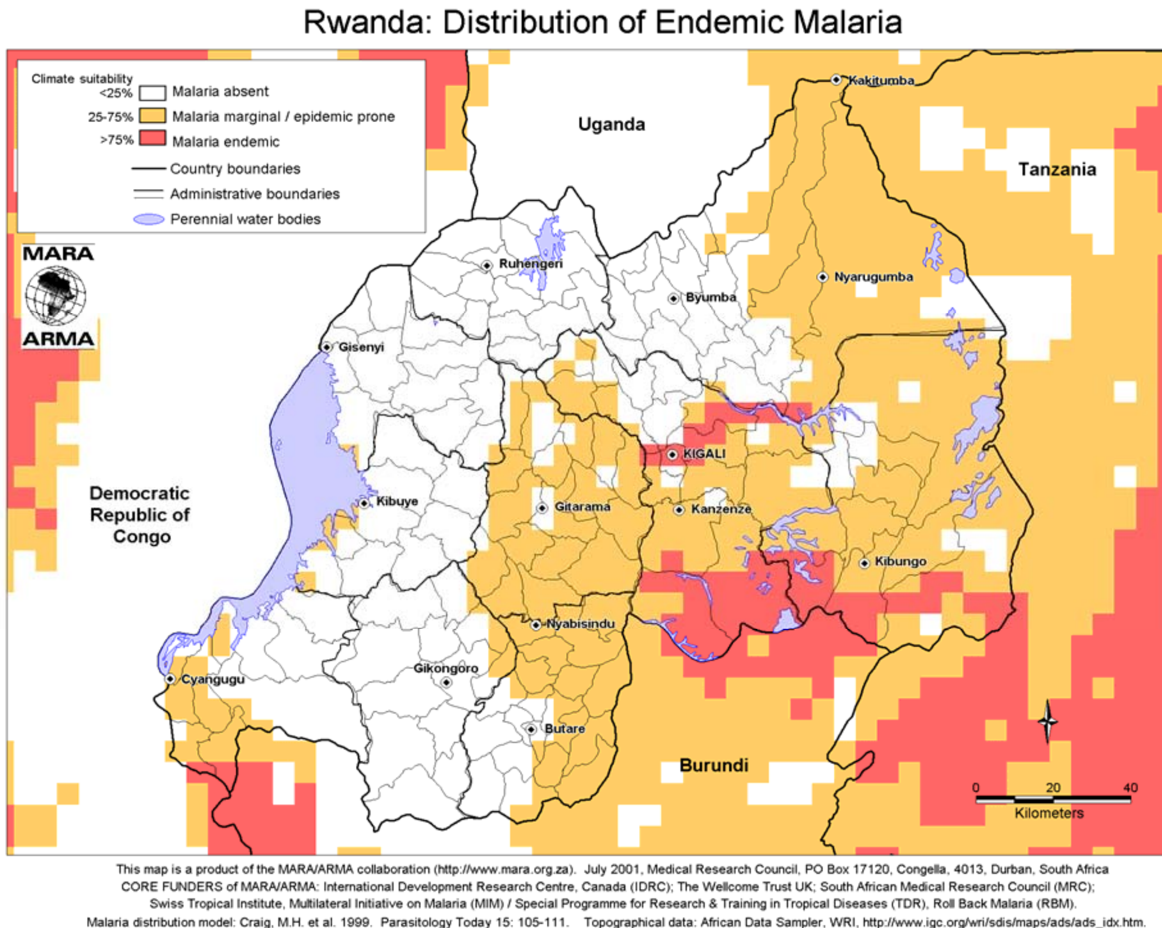
In implementing the U.S. Government component of this Initiative, the U.S. is committed to working closely with host governments and within existing national malaria control plans. Efforts will be coordinated with other national and international partners, including the Global Fund to Fight AIDS, Tuberculosis, and Malaria (GFATM), Roll Back Malaria (RBM), the World Bank Malaria Booster Program, and the non-governmental and private sectors, to ensure that investments are complementary and that RBM and Millennium Development goals are achieved. Country Assessment and Planning sessions for the PMI, as well as subsequent evaluations, will be highly consultative and held in collaboration with the national malaria control program and other partners.

This document presents a detailed one-year implementation plan for the first year of the President's Malaria Initiative in Rwanda. It briefly reviews the current status of malaria control and prevention policies and interventions in Rwanda, identifies challenges and unmet needs if the goals of the PMI are to be achieved, and provides a description of planned Year One activities under the PMI. The document was developed in close consultation with the National Malaria Control Program (PNILP) and with participation of many national and international partners involved in malaria prevention and control in the country. The total amount of PMI funding requested for Rwanda is $17 million for FY 2007.

Malaria Situation in Rwanda

Geographically, malaria transmission in Rwanda has increased over the last ten years for a myriad of reasons. The spread of transmission may be attributed to increased chloroquine resistance (previously the most common form of malaria treatment), greater population density and population movements, and human and economic activities such as rice farming, brick

making and mining, which increase breeding areas for mosquitoes and thus increase the risk of malaria transmission. Malaria is now evident in high altitude areas and other areas where the disease was not previously a public health problem. Often, inhabitants of these areas have little or no immunity to the disease and are therefore prone to severe forms of malaria. Since 1998, severe epidemics/upsurges of malaria have been observed nationwide almost every two years.



Health facility data show that malaria is the overall leading cause of morbidity and mortality in Rwanda, responsible for up to 50% of outpatient attendance. More than 1.2 million episodes of uncomplicated malaria were treated in public sector health centers during 2004. In 2005, this figure increased to over 1.5 million. However, this number significantly under-represents the total number of annual episodes in the population since only 32% of the population utilized health services during the same period. It is difficult to separate the extent to which growth in case load is attributable to an increase in malaria transmission levels or effective behavior change communication (BCC) campaigns and community health insurance schemes that have created greater demand for health service.

Based on the most recent country estimates, the number of children under five (U5) is 1,550,000 and the number of pregnant women per year is 390,000. In addition, according to PEPFAR figures, there are approximately 188,000 people living with HIV/AIDS (PLWHA). With 34.3% of health facility deaths among children under five attributable to malaria, the disease is the

leading cause of death for this age group. In 2004, over 23,790 cases of severe malaria were recorded in the district hospitals with 1,353 deaths. Fifty-four percent of hospital cases and 53% of the deaths occurred among children U5 [1]. Malaria is also a significant health risk for pregnant women and their unborn children, particularly women in their first and second pregnancies, and women with HIV infection.

Malaria is known to exact a significant financial toll on household income and government revenue. In Rwanda, the direct cost per episode of malaria treated is estimated to be $2.09 while the indirect cost is over $5.00. With the majority of children and many adults experiencing more than one episode per year, malaria impedes economic development. Financial calculations do not fully capture lost productivity and opportunity costs of the disease. A person suffering from malaria will miss an average of eight days of work or school.

The 2005 Demographic and Health Survey (DHS) conducted between February and July of 2005 showed weak case management practices for malaria in children U5. Among caregivers who reported having a child with fever in the two weeks before the survey, only 12.3% of children received an anti-malarial drug and only 2.5% had received treatment within 24 hours. In addition, only four to six percent of those children were given a recommended drug (combination amodiaquine-sulfadoxine-pyrimethamine (AQ/SP) or quinine). In three districts studied in 2005, only 21% of persons with uncomplicated malaria and 44% of patients with severe malaria were managed correctly in health facilities, and only 59% received a recommended drug.

Use of preventive measures at the household level is also inadequate. Rwanda experienced modest gains in ITN ownership between 2000 and 2005, but coverage remains relatively low. Overall ITN coverage increased from 6.6% to 14.7%, use by children U5 rose from 4.3% to 13.0%, and use by all women from 3.9% to 10.5%. In 2005, 17.2% of pregnant women slept under an ITN (not queried in 2000 DHS). The 2005 DHS found only 18.2% of households with at least one net of any type, and only 14.7% with at least one ITN.

The analysis of malaria-related funding in the 2003 National Health Accounts showed that 18% of all health expenditures in Rwanda (total Rwandan Francs, RwF, 11.1 billion) were spent on malaria prevention, treatment, and control. Sixteen percent of all donor health funds, 13% of all public health funds, and 26% of all private health funds went towards malaria efforts. Currently, the primary external supporters of the PNILP are the GFATM and the Belgian Technical Cooperation (BTC). UNICEF, WHO, the German Development Bank (KfW), and the Swiss Cooperation have also been engaged in malaria activities in Rwanda.

Rwanda is the recipient of Round 3 and Round 5 Malaria Grants from the GFATM. Implementation of Round 5 is underway and approval has recently been received to begin phase 2 of the Round 3 grant. The GFATM is funding prevention and treatment activities, including procurement of LLINs which were distributed primarily through the national measles campaign in September 2006 and of ACTs which were made available to all age groups in public sector health facilities as of October 2006.

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[1] Source : Ministry of Health, Health Information Management System (SIS), Planning Unit

Round	Grant Start Date	Total Funding Request	Phase 1 Approved	Phase 2 Approved	Disbursed
3	1 Oct 2004	$17,676,232	$13,045,293	$4,630,939	$13,045,293
5	1 Mar 2006	$39,649,362	$28,140,771	$0	$14,935,348

National Malaria Control Strategy and Plan

PNILP has strong leadership and has recently developed a strategic plan that will cover 2006 – 2010. The objectives of the National Plan, similar to those of the PMI, are to ensure:

- Prompt, appropriate, and affordable treatment for 80% of children <5 years of age with malaria within 24 hours of onset of symptoms, through health centers and home-based management of fever (HBMF).
- Access to IPTp for 80% of pregnant women.
- At least 80% of pregnant women and children under five sleeping under an ITN.
- At least 90% of malaria patients who attended health facilities are treated in conformity with the national policy.
- At least 90% of malaria epidemics are identified and controlled within 2 weeks of outbreak.

The current status of each key intervention is further explained in subsequent sections. The national plan also addresses the need to reinforce coordination with partners (both intra-governmental as well as international), develop human resource capacity particularly with the decentralization process and restructuring of the MOH at central level, strengthening IEC and advocacy, and supporting monitoring and evaluation and operational research.

Current Status of Malaria Indicators

At the time of the PMI plan development in July - September 2006, data on the national coverage of malaria interventions were available from the DHS 2005. However, the impact of activities supported by the PNILP that were rolled out after the DHS or were anticipated to begin in late 2006 was not reflected in these results. Such PNILP activities included the initiation of IPTp strategies at health facilities based on the new national policy, the nationwide distribution of ITNs through an integrated measles–ITN campaign, and the introduction of ACTs to all government health facilities nationwide. Hence, in order to develop the PMI strategy for year 1, yet anticipate that additional progress toward achieving the national malaria goals will have been made before the implementation of PMI supported activities, this PMI plan uses the DHS 2005 results to develop the plan framework, but will use other appropriate data sources (e.g., Multiple Indicator Cluster Surveys planned for 2007) as the baseline for the PMI.

Indicator	Urban	Rural	Total
% of households with at least one ITN	31.6	11.8	14.7
% of households with more than one ITN	13.9	2.5	4.2
% of children who slept under an ITN the previous night	25.7	10.9	13.0

% of pregnant women age 15-49 who slept under an ITN the previous night	28.6	15.5	17.2
% of women who received IPTp with at least two doses of SP during pregnancy	0.6	0.2	0.3
% of children under age five with fever in the two weeks preceding the survey	25.3	26.4	26.2
% of children under age five with fever who took antimalarial drugs same or next day	1.3	2.7	2.5

Source: DHS 2005

Goals and Targets of the PMI

The goal of PMI is to reduce malaria-associated mortality by 50% compared to pre-initiative levels in all PMI countries. By the end of 2010, the PMI will assist Rwanda to achieve the following targets in populations at risk for malaria:

- >90% of households with a pregnant woman and/or children under five will own at least one ITN;
- 85% of children under five will have slept under an ITN the previous night;
- 85% of pregnant women will have slept under an ITN the previous night;
- 85% of houses in geographic areas targeted for IRS will have been sprayed;
- 85% of pregnant women and children under five will have slept under an ITN the previous night or in a house that has been sprayed with IRS in the last 6 months;
- 85% of women who have completed a pregnancy in the last two years will have received two or more doses of IPTp during that pregnancy;
- 85% of government health facilities have ACTs available for treatment of uncomplicated malaria; and
- 85% of children under five with suspected malaria will have received treatment with an antimalarial drug in accordance with national malaria treatment policies within 24 hours of onset of their symptoms.

Expected Results – Year One

Prevention:

1. At least 500,000 LLINs will have been distributed by partners to families with children under five and/or pregnant women to support achievement of nationwide household ownership of ITNs of >50%.
2. At least 85% of houses (approximately 145,000 households) in geographic areas targeted for IRS during Year 1 will have been sprayed.
3. Intermittent preventive treatment with SP in pregnant women (IPTp) will have been implemented nationwide in all 30 districts reaching approximately 195,000 pregnant women (50% of target population) with 2 or more doses of IPTp.

Treatment:

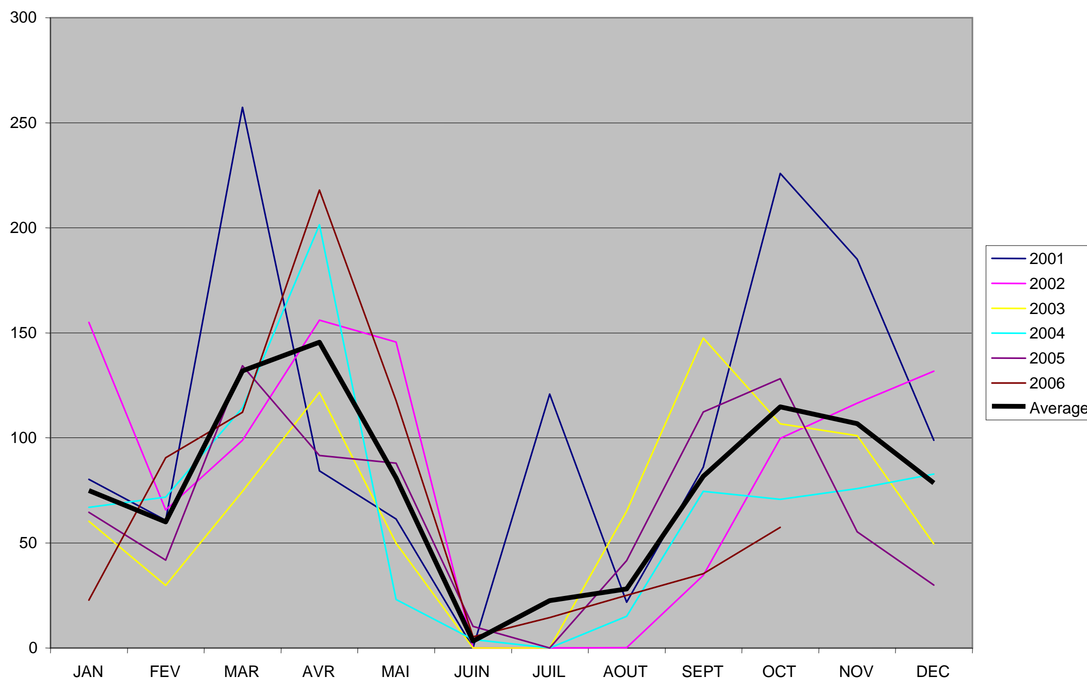
1. Sixty thousand treatments of injectable artemether will have been made available in public health facilities to cover the annual projected cases of severe malaria requiring referral to a higher level of care.
2. Malaria treatment with ACTs will have been implemented at the community-level through home-based management of fever in 5 districts.
3. Malaria treatment with ACTs will have been initiated in the private sector by reaching approximately 50 accredited pharmacies and drug outlets.

Interventions: Prevention

Indoor Residual Spraying (IRS)

Current Status:

PNILP supports the use of IRS although large-scale preventive IRS was not included in the national strategy due to cost considerations. IRS is, therefore, used on a limited basis in response to malaria epidemics and unusually high 'seasonal peaks' in malaria illness. There are two main rainy seasons in Rwanda; the first occurs between the months of February and April and the second falls between the end of September and beginning of November. Meteorological data provided by the Rwanda Meteorological Services (table below) illustrates the monthly precipitation for Kigali between 2001 and 2006.



Annex 1

Table 1: Rwanda Year 1 (FY06) Timeline of Activities

ACTIVITY	2006	2007											
	OCT-DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC
Hire PMI in-country staff													
Private Sector Provision of ACTs													
Private Sector Provision of ACTs													
PSI/PNILP PSP Retailer Survey													
Prevention and control of malaria during pregnancy													
Initiate purchase SP for IPTp													
Purchase iron/folate													
Strengthening integrated ANC services													
Home-Based Management of Fever													
Develop/adapt training and IEC materials and conduct training													
Procure Coartemfor phases 1 and 2													
Training, Start Coartem treatment													
Supervision, M&E													

Training, start Coartem treatment in phase 2 HBMF districts													
Supervision, M&E in phase 2 districts													
Facility-Based Case Management													
Purchase injectable artemether													
Vector Control													
IEE/PERSUAP for IRS activities													
Baseline data collection for IRS													
IRS commodities procurement													
IEC/BCC, IRS prep													
Round 1 of IRS (in 3 districts)													
LLIN procurement and distribution													
Training													
M&E													
IT network													

Table 2: Rwanda Planned Obligations for FY07 ($000)

Proposed Activity	Mechanism	Budget (*commodities*)	Geographic Area	Description of Activity	Relation to Interventions
PREVENTION					
IRS in 5 districts	RTI IRS IQC	4,358 (*1,939*)	5 Districts with 2 spraying rounds	Procurement of IRS equipment (insecticide, sprayers, etc.) implementation, data collection, protocols/guidelines, IEC/BCC, logistics support for July/August 2007 spraying	IRS
Entomology Training	Tulane Bilateral	150	PNILP/Kigali	Post graduate training in entomology, mid-level management	IRS
Purchase LLINs	PSI Bilateral	3,150 (*3,150*)	Nationwide	LLINs targeting children under 5, ANC, poorest of the poor, as well as one district formative evaluation of optimal IRS/ITN use.	LLINs
Strengthen LLIN transport systems	RPM+	150	Nationwide	Improve delivery of LLINs from district to community level	
BCC/IEC related to LLINs	PSI Bilateral	150	Nationwide	Develop capacity to improve low coverage levels	LLINs
SUBTOTAL: Preventive		**7,958** ***(5,089)***			
CASE MANAGEMENT					
Procurement of injectable artemether	RPM+	125 (*125*)	Nationwide	Procurement of injectable artemether treatment of severe malaria cases at health facilities	Facility Based Case Mngmt.
ACT treatment compliance	RPM+	200	Nationwide	Reinforcement of recent ACT transition training with job aids on ACT treatment protocols, counseling cards and language appropriate brochures for clients	Facility Based Case Mngmt.
Phased HBMF	Twubakane (1,562k), Concern with subs to World Relief & IRC (609k)	2,171	14 districts	Phase I, introduce HBMF w/ Coartem in 5 districts, Phase II, change 1st line drug in HBMF from AQ/SP to Coartem, Phase II procurement for 2008, BCC/IEC, supervision	Home Based Case Mngmt.
Procurement of ACTs for HBMF	WHO	1,620 (*1,620*)	14 districts	Procurement of Coartem for implementation of HBMF in 14 districts through NGOs.	Home Based Case Mngmt.
Performance-Based Financing for case referral	MSH	25	5 districts (overlap w/ HBMF districts)	Reinforcement of referral and emergency transport process from community to health facility using PBF model	Home Based Case Mngmt.
Private sector ACT implementation	TBD	1,140	Nationwide	Support PNILP with roll out of ACTs through distribution of pre-packaged branded Coartem through private channels, BCC/IEC, treatment and referral training, M&E	Pvt. Sector Provision of ACTs
Private Sector Mapping	PSI Bilateral	100	Nationwide	Conduct a mapping assessment of the private sector outlets	Case

Assessment and ACT Repackaging				and vendors and produce repackaged ACT treatments with PNILP for private sector and HBMF use.	Management
Procurement of ACTs	TBD	258 *(258)*	Nationwide	Procure Coartem for private sector delivery.	Case Management
Strengthening of commodity distribution system	RPM+, Concern with subs to World Relief & IRC	488	Nationwide	Improve commodity distribution system through training in warehouse management, QA in warehouses, and staff placement in warehouses, and support to district health centers.	Drug supply/ Management
Drug efficacy and pharmacovigilance	RPM+	55	Nationwide	Assess pharmacovigilance system development, workshop/ training for data monitoring and supervision, support one staff in each district	Drug supply/ Management
Malaria laboratory diagnostics	CDC	*244* *(4)*	Nationwide	QA/QC protocol and program development for malaria diagnosis, laboratory support including staff at the central level, transportation/fuel for supervisory visits, equipment/ supplies (Earl lights).	Malaria Diagnostics
National Reference Laboratory Supplies	Twubakane	16 *(16)*	MOH/Kigali	Urgent laboratory equipment and supplies, slides, and reagents	Malaria Diagnostics
PNILP Supervision	Twubakane	150	PNILP/Kigali	Support PNILP supervision and follow-up on prevention and case management activities through leasing of transportation.	Case management
SUBTOTAL: Case Management		**6,592** ***(2,023)***			
PREVENTION OF MALARIA IN PREGNANCY (MIP)					
SP procurement	Twubakane	50 *(50)*	Nationwide	Procure 2.3 million SP tablets for IPTp for use in 2008	MIP
Iron-Folate procurement	Twubakane	100 *(100)*	Nationwide	Procure 30 million iron-folate tablets for use in 2007/08	MIP
Quality improvement of FANC services	JHPIEGO Access	300	Nationwide	Evaluate current quality of ANC services, PBF schemes and SBM in improving quality, design pre-service training with new FANC package.	MIP
Quality improvement of district FANC services	Twubakane	140	12 Districts	Strengthening district level ANC services and community mobilization for IPTp uptake.	MIP
Build capacity for integrated ANC care	WHO	130	Nationwide	Development of integrated FANC training materials, job aids, IEC/BCC messages, refresher training, support for MIP Advisor .	MIP
SUBTOTAL: Prevention of MIP		**720** ***(150)***			
EPIDEMIC SURVEILLANCE AND RESPONSE (ESR)					
ESR Needs Assessment	RTI IRS IQC	50	Epidemic Districts	Needs assessment and gap analysis to strengthen district capacity for epidemic detection and response plans	ESR

Support to PNILP ESR strategic plan	RTI IRS IQC	100 (50)	Epidemic Districts	Support implementation of the PNILP ESR strategic plan, including procurement of additional equipment to respond to epidemics	ESR
SUBTOTAL: Epidemic Surveillance and response		**150** ***(50)***			
MONITORING AND EVALUATION					
PNILP Data Management	CDC	75	N/A	Support for a PNILP Data Manager to assist PNILP M&E team in data collection, coordination of activities among partners, QA of data and accessibility of data at central level; computer, equipment/supplies, travel.	M&E
Evaluation of ACT use in HBMF	BASICS III	50	5 HBMF Districts	Evaluate the 5 HBMF districts for quality of services after introduction of Coartem (Phase I)	M&E
Support to sentinel sites	Tulane (90k) RTI IRS IQC (100k)	190	10 sentinel sites dispersed nationwide	Collect malaria specific and all-cause mortality data disaggregated by age group/pregnancy status, including verbal autopsy. Strengthen 10 sites in entomology and surveillance for IRS.	M&E
National Health Facility Survey	ORC/MACRO (100k) JHPIEGO Access (50k)	150	Nationwide	Assess malaria case management, IPTp use, and health worker performance in sick child clinics, ANCs, in-patient facilities, lab assessments (part of nationwide SPA survey)	M&E
Community-Based Systems for M&E	Twubakane with sub to Tulane, Concern with subs to World Relief & IRC	100	Districts aligned with HBMF expansion	Community-based systems with community health agents to monitor ITN/ACT use, tracking comm. level indicators and treatment adherence	M&E
Support to Malaria Taskforce	Twubakane	5	Kigali	Coordination and logistical support (e.g. room rental, basic supplies/services) for meetings.	M&E
Develop Information Technology Network	Tulane (180k) CDC (30k)	210	Nationwide	10 PNILP sentinel sites with an information technology network including GPS/GIS/PDAs for real time evaluation of LLINS and IRS coverage. IT network support for PNILP.	LLINs/IRS
SUBTOTAL: M&E		**780**			
IN-COUNTRY MANAGEMENT AND ADMINISTRATION					
In-country staff and administrative expenses	CDC/USAID	800	Nationwide	Salaries, benefits of in-country PMI staff, support staff, office equipment, supplies, and vehicle.	Mngt. & Admin.
SUBTOTAL: Management and Administration		**800**			
GRAND TOTAL		**17,000** ***(7,312)***	***Commodities represent 43% of total budget (7,312)***		

Table 3: Rwanda Year 1 Targets Assumptions and Estimated Year 1 Coverage Levels

Year 1 PMI Expected Results:

1. At least 500,000 LLINs will have been distributed by partners to families with children under five and/or pregnant women to support achievement of nationwide household ownership of ITNs of >50%.
2. At least 85% of houses (approximately 145,000 households) in geographic areas targeted for IRS during Year 1 will have been sprayed.
3. Intermittent preventive treatment with SP in pregnant women (IPTp) will have been implemented nationwide in all 30 districts reaching approximately 195,000 pregnant women (50% of target population) with 2 or more doses of IPTp.
4. Sixty thousand treatments of injectable artemether will have been made available to cover the annual projected cases of severe malaria requiring referral to a higher level of care.
5. Malaria treatment with ACTs will have been implemented at the community-level through home-based management of fever in 5 districts.
6. Malaria treatment with ACTs will have been initiated in the private sector by reaching approximately 100 accredited pharmacies and drug outlets.

Assumptions:

Population of country (estimated): 9,100,000

Pregnant women: 4.3% of total population = 390,000 pregnant women
Infants (children <1): 3% of population = 273,000 infants
Children <5: 17% of population = 1,550,000 children under five
PLWHAs: 188,000 people

Average number of malaria-like episodes per year and cost per treatment:

Children <5: 3.5 episodes/year at $0.90 each
Older children (5-19): 2.0 episodes/year at $2.40 each (assume that the PMI will cover only one-third of older children episodes)
Adults (20-80+): 0.5 episodes/year at $2.40 each (assume that the PMI will cover only one-third of adult episodes)

Average of 2.5 nets per household needed to cover all pregnant women and children under five in family.

Average number of persons per household = 5

Inter-vention	Needs for 100% Nationwide Coverage over 3 Years*	Needs for 85% Nationwide Coverage over 3 Years*	Annual Needs to Achieve 100% Coverage	Needs to Achieve Year 1 PMI Targets	Year 1 Contributions
IPTp	390,000 pregnant women x 2 treatments/woman = ~0.77 million treatments/year x 3 years = 2.3 million treatments (=13..8 million SP tablets)	11.7 million SP treatments	0.77 million SP treatments	**Target:** 65 *% of pregnant women receive 2 doses of IPTp = 500,500 doses*	Purchase of 0.77 million IPTp treatment doses for use in year 2 (2008) **Thus 100% of SP needs are met in Year 1**
LLINs	1.82 million households x 2.5 nets/household = 4.55 million nets	4.1 million LLINs needed for >90% coverage or 3.86 million for 85% coverage	One-third of 4.55 = 1.5 million LLINs One-third of 90% of 4.55 = 1.36 million LLINs	**Target**: 50% *of households owning an LLIN* = 680,000 LLINs	4.55 million LLINs needed and 3.3 million LLINs available (from GFATM) with an estimated gap of 785,000 LLINs remaining to be filled over the next 3 years (261,000 LLINs per year). PMI will contribute 450,000 LLINs in Year 1 (cost factor is $7.0 per net= $3.15 million). **Thus 100% of LLINs needs are covered in the first year.**
ACTs – children < 5 ACTs – older children (5-19) ACTs – adults (20-80+)	1,547,000 million children under 5 x 3.5episodes/year = 5,414,500 million treatments/year x 3 years = 16,243,500 million 3,640,000 million persons x 2.0 episodes/year x 33% of treatments covered = 2,402,400 million treatments/year x 3 years = 7,207,200 million 3,913,000 million persons x 0.5 episodes/year x 33% of treatments covered =	16,243,500 million x 85% = 13,806,975 7,207,200 million x 85% = 6,126,120 1,936,935 million x 85% = 1,646,395	5,414,500 million treatments 2,402,400 million treatments 645,645 million treatments	Target: 30% of children under 5 receive ACTs = 1,624,350 treatments for 30%	It is anticipated that GFATM will contribute 3 million ACT treatments in Year 1 (9 million over 3 years). PMI will contribute 1,800,000 treatments with HBMF to children under five and 200,000 treatments for children under five through the private sector. **Thus 100% of ACT needs for children under five are covered in the first year.**

ACT TOTAL	645,645 million treatments/year x 3 years = 1,936,935 25,387,635 million treatments	21,579,490 million treatments	8,462,545 million treatments		
IRS			171,000 households	**Target**: *85% of targeted houses to be sprayed*= 145,000 households to be sprayed	PMI will support IRS activities in 3 districts or 171,000 households in the first year. **Thus 100% of IRS needs will be covered in Year 1.**

*These calculations are based on the assumption that the total population of 9.1 million is at risk of malaria.

Table 4: Year 1 (FY07) Budget Breakdown by Intervention ($000)

Area	Commodities (%)	Other (%)	Total
Insecticide-treated Nets	$3,150,000 (91%)	$300,000 (9%)	$3,450,000 (100%)
Indoor Residual Spraying	$1,939,000 (43%)	$2,569,000 (57%)	$4,508,000 ($100)
Case Management	$2,023,000 (31%)	$4,569,000 (69%)	$6,592,000 (100%)
Intermittent Preventive Treatment	$150,000 (21%)	$570,000 (79%)	$720,000 (100%)
Epidemic Preparedness & Response	$50,000 (33%)	$100,000 (67%)	$150,000 (100%)
Monitoring and Evaluation	$0 (0%)	$820,000 (100%)	$820,000 (100%)
Administration	$0 (0%)	$800,000 (100%)	$800,000 (100%)
Total	$7,312,000 (43%)	$9,688,000 (57%)	$17,000,000 (100%)

Annex 2

Three Year Strategy and Plan: Rwanda

GOAL AND TARGETS OF THE PRESIDENT'S MALARIA INITIATIVE (*by 2010*)

The goal of the PMI is to reduce malaria-associated mortality by 50% compared to pre-Initiative levels. By the end of 2010, PMI will assist Rwanda to achieve the following targets in populations at risk for malaria:

- >90% of households with a pregnant woman and/or children under five will own at least one ITN;
- 85% of children under five will have slept under an ITN the previous night;
- 85% of pregnant women will have slept under an ITN the previous night;
- 85% of houses in geographic areas targeted for IRS will have been sprayed;
- 85% of pregnant women and children under five will have slept under an ITN the previous night or in a house that has been sprayed with IRS in the last 6 months;
- 85% of women who have completed a pregnancy in the last two years will have received two or more doses of IPTp during that pregnancy;
- 85% of government health facilities have ACTs available for treatment of uncomplicated malaria; and
- 85% of children under five with suspected malaria will have received treatment with an antimalarial drug in accordance with national malaria treatment policies within 24 hours of onset of their symptoms.

PREVENTION

Indoor residual spraying (IRS)

Over the next three years, the focus for IRS activities will be on strengthening district-level capacity to implement routine spraying campaigns and gradually scaling up the approach. By year two, PMI will support routine spraying in five districts twice yearly, covering a population of approximately 1.26 million. Additional recommendations made through the initial environmental assessment in year one will assist with formulating a strategy for IRS activities in the future. The cost and frequency of IRS activities will determine the capacity and scale for expanded IRS activities over the next three years. PMI will work with PNILP and coordinate with other in-country malaria partners including BTC and the GFATM to plan and potential co-fund the next phasing of IRS activities to achieve broader national coverage. Districts targeted for IRS activities will continue to be chosen based on levels of malaria endemicity, LLIN coverage, etc.

Insecticide-treated nets

The 3.3 million LLINs available from the GFATM plus the 450,000 LLINs contribution proposed for year one are sufficient to provide greater than 90% coverage for the PMI target

Item/Activity	Annual Cost per Person	Annual Cost	3-Year Total	Assumptions/Comments
Prevention – insecticide-treated nets		$1,832,299	$5,496,897	9.1 m population = 1.8 m householdsx2.5 nets/hh x 90% coverage - 3.3m planned for distribution or distributed x $7/net
Prevention – indoor residual spraying		$11,475,000	$34,425,000	Targeting one-half the total population = 900,000 households x $15/hh x 85% coverage (approximate doubling of scale yearly)
Treatment – malarial illnesses		$12,470,456	$37,411,368	9.1 m pop at risk, 17% children under 5 with 3 febrile illnesses per year at $0.45/treatment. Remaining population with an average of 1.25 illnesses/year at $1.35/treatment. 85% coverage.
Prevention – SP for IPTp		$66,300	$198,900	390,000 pregnant women per year x $0.20/year x 85% coverage
Epidemic Preparedness	$0.08	$720,000	$2,160,000	Based on detailed calculations from Uganda plan
Implementation Support	$0.92	$8,280,000	$24,840,000	Commodity management, human resources, supervision, training, social mobilization, etc.
Monitoring and Evaluation		$2,000,000	$6,000,000	
Cost of Program			**$110,532,165**	
USG Implementation Support Costs		$800,000	$2,400,000	
Total funding needed (including USG program costs)			***$112,932,165***	
Government of Rwanda malaria budget		$1,650,000	$4,950,000	
Belgian Technical Cooperation			$4,050,000	
GFATM approved funding		$15,272,334	$45,817,003	
Available funding from other sources			**$54,817,003**	
PMI funds available (estimated):				Assumes PMI funding is divided between countries based roughly on their populations
Year 1		$17,000,000		Assumes 3 PMI countries
Year 2		$20,000,000		Assumes 7 PMI countries
Year 3		$20,000,000		Assumes 15 PMI countries
Years 1 through 3			**$57,000,000**	
Total Available funding			**$111,817,003**	
Remaining Gap			**$1,115,162**	3-year shortfall to meet total need