PRESIDENT'S MALARIA INITIATIVE

Malaria Operational Plan – Year Two (FY07)

ANGOLA

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ABBREVIATIONS

ACT – artemisinin-based combination therapy
AM-LUM – artemether-lumefantrine
ANC – antenatal clinic
AQ – amodiaquine
AS – artesunate
CDC – Centers for Disease Control and Prevention
CQ – chloroquine
DDT – dichloro-diphenyl-trichloroethane
EDP – Essential Drugs Program
GFATM – Global Fund to Fight AIDS, Tuberculosis, and Malaria
GRA – Government of Angola
IEC – information, education, communication
IPTp – intermittent preventive treatment for pregnant women
IRS – indoor residual spraying
ITN – insecticide-treated net
JICA – Japanese International Cooperation Agency
LLIN – long-lasting insecticide-treated net
MICS – Multiple Indicator Cluster Survey
MIS – malaria indicator survey
MoH – Ministry of Health
NMCP – National Malaria Control Program
NGO/FBO – non-governmental organization/faith-based organization
OVC – orphans and vulnerable children
PMI – President's Malaria Initiative
PSI – Population Services International
PVO – Private voluntary organization
RBM – Roll Back Malaria
RDT – rapid diagnostic test
RTI – Research Triangle Institute International
SP – sulfadoxine-pyrimethamine
UNDP – United Nations Development Program
UNICEF – United Nations Childrens' Fund
USAID – United States Agency for International Development
USG – United States Government
WHO – World Health Organization

EXECUTIVE SUMMARY

In June 2005, Angola was selected as one of the first three countries in the President's Malaria Initiative (PMI). The goal of this Initiative is to rapidly scale up malaria prevention and treatment interventions in high-burden sub-Saharan African countries and reduce malaria mortality by 50%.

Successful implementation of large-scale malaria control activities in Angola faces serious challenges. Angola's health infrastructure was severely damaged during the civil war and it is estimated that only about 30% of the population has access to government health facilities. Malaria is a major health problem, accounting for an estimated 35% of the overall mortality in children under five, 25% of maternal mortality and 60% of hospital admissions for children under five. Malaria transmission is highest in northern Angola, while southern provinces are epidemic-prone.

Up-to-date information on nationwide coverage of key malaria prevention and control measures does not exist. Although use of artemisinin-based combination therapy (ACT) and intermittent preventive treatment for pregnant women (IPTp) were adopted as official policies in late 2004, they were only implemented in mid-2006. Insecticide-treated bed net (ITN) coverage rates are estimated to be less than 10% nationwide and the first large-scale indoor residual spraying (IRS) activity in more than ten years were carried out from December 2005 to March 2006.

Activities supported by the PMI in Angola began rapidly in December 2005 with a large-scale IRS campaign covering a population of 590,000 in southern Angola. The PMI contributed 420,000 long-lasting ITNs (LLINs) towards a nationwide measles immunization-ITN distribution campaign in July 2006, in which a total of 826,000 bed nets were distributed to children under five. More than 100,000 subsidized or full-cost LLINs were distributed through health facilities and markets in the capital Luanda. In addition, ACT implementation has started in five provinces, including all government health facilities in Luanda Province.

Other than PMI funding, Angola is recipient of a three-year $40 million malaria grant from the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM); the first two years of funding were approved in January 2005. The United Nations Childrens' Fund (UNICEF) and the World Health Organization (WHO) have also provided funding and technical assistance to the National Malaria Control Program (NMCP) and the Japanese International Cooperation Agency (JICA), and ExxonMobil have supported malaria control efforts as well.

On May 8 and 9, 2006, a planning meeting for Year 2 of PMI was held in Luanda. The Planning team included representatives from the U.S. Agency for International Development (USAID), the Centers for Disease Control and Prevention (CDC), WHO, and UNICEF. A total of 50 people attended the meeting, including representatives of the NMCP, United Nations Development Program (UNDP), the World Bank, the Embassy of Japan, Esso Angola, the Brazilian construction firm, Odebrecht, and 20 national and international non-governmental organizations (NGOs). On the second day of the meeting, an additional 22 provincial National Program Officers (NPOs) and malaria supervisors attended. The Year 2 Malaria Operational Plan was developed in close consultation with the NMCP and with the active participation of

nearly all national and international partners involved with malaria prevention and control in the country. Planning for Year 2 PMI activities was done in the context of current Year 2 funding under the GFATM Round 3 grant and other partners' malaria funding and took into account the NMCP's plans to submit a Round 6 Global Fund proposal.

Based on these discussions and further meetings with the NMCP, the following major activities are proposed for the second year of the PMI in Angola:

1. Increase support to the nationwide implementation of ACTs by procurement of artemether-lumefantrine (Coartem®) ($4,000,000);
2. Continue support to all aspects of the Ministry of Health antimalarial drug management system to ensure safe and effective use of ACTs and SP ($500,000);
3. Support distribution of free LLINs to economically disadvantaged families in rural areas through health facilities and community-based organizations ($2,700,000)
4. Continue support to social marketing of subsidized and full-cost ITNs to persons who can afford them in urban and periurban areas of the capital, Luanda ($500,000);
5. Conduct IRS in three epidemic-prone provinces of southern Angola ($2,200,000);
6. Continue efforts to improve access to and strengthen the quality of malaria laboratory diagnosis at central and peripheral levels ($775,000);
7. Increase delivery of malaria preventive and curative services, including ACTs, IPTp and ITNs, through non-governmental/faith-based organizations in areas that are underserved by the Ministry of Health ($1,700,000).

PRESIDENT'S MALARIA INITIATIVE

The goal of the President's Malaria Initiative (PMI) is to reduce malaria-related mortality by 50% by the end of 2010. 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 nets (ITNs), intermittent preventive treatment of pregnant women (IPTp), and indoor residual spraying (IRS).

Following approval of the PMI Year One Malaria Operational Plan by the Interagency Steering Group in December 2005, control activities got off to a rapid start with an IRS campaign covering more than 100,000 households in two southern provinces. Distribution of 813,000 free LLINs, of which PMI contributed 420,000, was carried out as part of a nationwide measles immunization campaign in July 2006. Large-scale implementation of ACTs and IPTp began in mid-2006.

This document presents a detailed implementation plan for the second year of the PMI in Angola based on the PMI 5-Year Strategy and Plan. It was developed in close consultation with the NMCP and with participation of nearly all national and international partners involved with malaria prevention and control in the country. The activities that the PMI is proposing to support fit in well with the National Malaria Control Plan and builds on investments made by PMI to improve and expand malaria-related services. It briefly reviews the current status of malaria control policies and interventions in Angola, identifies challenges and unmet needs if the targets of the PMI are to be achieved, and provides a description of proposed Year 2 activities.

MALARIA SITUATION IN ANGOLA

Angola recently emerged from almost three decades of civil war that severely damaged its development, particularly the health sector. The country has an estimated population of 15 million people in 18 provinces and 164 municipalities (districts). It is estimated that 80% of the health facilities were damaged or destroyed during the war and that the existing health system covers only about 30% of the Angolan population. The remaining health infrastructure is limited by a lack of qualified and motivated health staff outside the capital, weak drug and medical supply and management systems, and a weak primary health care network. Under five mortality is one of the highest in the world, 250 deaths per 1,000 live births, and maternal mortality is estimated to be 1,280 per 100,000 live births.

Malaria is hyperendemic in northern of Angola and along coastal lowlands of the Atlantic Ocean. The extent of malaria transmission in Luanda City is uncertain: while anophelines are abundant in some peripheral areas, only culicine mosquitoes were collected in five municipalities of Luanda in April-May 2006. The highlands of central and the southern provinces of Angola have a lower incidence of malaria, with a mesoendemic unstable profile. The southern provinces bordering Namibia are epidemic-prone. In the north, the peak malaria transmission season extends from March to May, with a secondary peak in October/November. *Plasmodium*

falciparum is responsible for more 90% of all infections. The primary vectors are *Anopheles gambiae ss* and *A. funestus*.

Malaria accounts for 35% of the overall mortality in children under five, 25% of overall maternal mortality and is the cause of 60% of hospital admissions for children under five and 10% for pregnant women. The Government of Angola (GRA) has prioritized 59 of the 164 municipalities (districts) in the country, which account for 70% of the total population, as priority areas for improving health care (Figure 1).

NATIONAL MALARIA CONTROL PROGRAM STRATEGY AND ACTIVITIES

Malaria diagnosis and treatment: The treatment of malaria in most MoH facilities in Angola is based on clinical diagnosis. Malaria microscopy is only available in hospitals and larger health centers and the quality of diagnosis varies considerably between sites. Rapid diagnostic tests (RDTs) are used in some health facilities supported by non-governmental organizations (NGOs). The National Malaria Control Strategy for 2005-2009 proposes to make malaria microscopy available for the diagnosis of patients with fever and suspected malaria in all health facilities with a laboratory and electricity. As yet, there is no firm national policy about the use of RDTs, but it is expected that their use would be reserved for situations where microscopic diagnosis is not available. As recommended by the WHO, children under five with symptoms suggestive of malaria will be treated presumptively.

Artemether-lumefantrine (AM-LUM; Coartem®) and amodiaquine-artesunate were adopted as joint first-line drugs for the treatment of uncomplicated *P. falciparum* malaria in September 2004, but the new policy was only implemented in May 2006. Recently, the NMCP announced that AM-LUM was the only first-line drug and that all other ACTs would be phased out over the next two to three years. Quinine is the first-line drug for the treatment of severe malaria and for treatment of malaria in pregnant women.

Intermittent preventive treatment of pregnant women: IPTp with two doses of sulfadoxine-pyrimethamine (SP) was approved as a national policy in September 2004. This policy currently applies to the entire country, including Luanda City and the epidemic-prone areas in the south. Although IPTp has already been used by some NGOs/faith-based organizations (FBOs) in the health facilities they support, implementation in MoH facilities began in a phased fashion in May 2006.

Insecticide-treated nets: The NMCP ITN strategy supports a market segmentation approach, consisting of free distribution of nets to pregnant women and children under five, with subsidized distribution to the general population and commercial sector distribution in urban areas. It is planned that 70% of nets will be distributed free of charge; 20% through subsidies, and 10% at full price through commercial markets, mainly in urban areas. Because of very low re-treatment rates for conventional nets, the GRA encourages the distribution of long-lasting insecticide-treated nets (LLINs). Nets are classified as luxury goods and are subject to a tariff of up to 50%; however, UNICEF and Population Services International (PSI) have waivers and do not pay any tariffs. The GRA has agreed to waive taxes and tariffs on antimalarial drugs and

ITNs; a decree has been signed by the Minister of Health and, while accepted in principle, is awaiting the signature of the Minister of Finance.

Indoor residual spraying: Only limited IRS was being carried out by some NGOs in Huambo and Zaire Provinces before the PMI- and GFATM began spraying in December 2005 and January 2006. The National Malaria Control Strategy for 2005-2009 supports the use of IRS for malaria prevention in epidemic-prone areas of the southern provinces of Namibe, Cunene, Huila, and Cuando Cubango and in the capital, Luanda. Synthetic pyrethroids are the insecticides of choice. The Government of Angola has banned the use of DDT, although an exception could be made along the Angolan-Namibian border, as the Namibian National Malaria Control Program currently relies on dichloro-diphenyl-trichloroethane (DDT) for IRS. The Angolan NMCP is open to a trial of DDT in these areas to assess the effectiveness and practicality of using it on a larger scale.

Epidemic detection and containment: The National Epidemiological Surveillance System collects weekly reports on clinically-diagnosed cases of malaria from the four epidemic-prone provinces in the south. Since not all districts report on a regular basis and there are delays in releasing reports to the NMCP, these data are of limited use for the detection and containment of epidemics. None of the provinces or districts has an epidemic control plan or stockpiles of drugs, supplies, and equipment for a rapid epidemic response.

Funding of malaria control activities: In January 2005, Angola received approval for the first two years ($27.5 million) of a $40 million malaria grant from the GFATM Round 3. This grant focuses on the 59 high priority districts targeted by the MoH for improved health care (70% of Angola's population). The objectives are to increase coverage with ACTs, IPTp, and ITNs to 60% of the population in those 59 districts and to build capacity within the NMCP. Price-Waterhouse-Cooper is the Local Funding Agent and UNDP is the Principal Recipient, with WHO, UNICEF, and PSI as Sub-Recipients. The table below, shows a timeline for funding from the three major external donors, PMI, GFATM, and JICA and highlights the importance of Year 3 funding under the Round 3 grant as well as a successful Round 6 GFATM proposal, which should provide funding by mid- to late 2007:

Funding for Malaria Control in Angola, 2006-2008

	2006												2007												2008					
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J
PMI	Year 1 ($7.5 M)									Year 2 ($15 M-proposed)												Year 3								
GFATM Round 3	Year 1 ($14.3M)			Year 2 ($12.7 M)												Year 3 (if approved)														
GFATM Round 6																							Projected funding cycle (if approved)							
JICA – Benguela				Year 1 ($1 M)												Year 2 ($1 M)														

CURRENT STATUS OF MALARIA INDICATORS

When the PMI began work in Angola in December 2005, no accurate, up-to-date information was available on nationwide coverage of key malaria prevention and control measures. The following table provides the best estimates of nationwide coverage with the key interventions as of December 2005:

Intervention	Estimated national coverage
Artemisinin-based combination therapy (ACT)	<1-2%
Bed nets (any net)	<10%
Insecticide-treated nets (ITNs)	<5%
Intermittent preventive treatment (IPTp)	<1-2%
Indoor residual spraying (IRS)	<1-2%

Since work began under the PMI, considerable progress has been made in scaling up coverage with all interventions. By September 2006, 1.1 million treatment courses of AM-LUM purchased by the GFATM Round 3 grant had arrived in country. Implementation of ACT has now begun in all government health facilities in Luanda and in health facilities with laboratory diagnostic capabilities in five other provinces. At the same time, IPTp with sulfadoxine-pyrimethamine (SP) is being implemented in the same facilities. Following the nationwide measles-ITN campaign in July 2006, ownership of ITNs is estimated to have increased significantly in the seven highly malarious provinces where ITN distribution was targeted. The PMI- and GFATM-supported IRS carried out in three southern provinces between December 2005 and March 2006, which protected more than 750,000 residents, was the first large-scale IRS in Angola in more than 10 years.

The lack of reliable baseline data on the status of malaria indicators will be remedied in October/November 2006, when a nationwide Malaria Indicator Survey (MIS) funded by the PMI and other partners will be conducted. Although this survey will be carried out approximately nine months after PMI-supported IRS began in southern Angola and three to four months after the large-scale measles-ITN campaign, the design of the survey instrument and the analysis will make it possible to retrospectively determine baseline coverage rates for the four major interventions as of early 2006. It is expected that national coverage with ACTs, IPTp, ITNs, and IRS will have increased significantly by the time this survey is carried out.

GOAL AND TARGETS OF PRESIDENT'S MALARIA INITIATIVE

Although it is reported that 100% of Angola's population is at risk of malaria, malaria transmission is low or non-existent in the heavily urbanized areas of the capital, Luanda, where 20-25% of the country's population resides. Thus, until more definitive information becomes available, it is reasonable to assume that about 85% of the population of approximately 15 million is at risk of malaria.

By the end of 2010, reduce malaria-associated mortality by 50% compared with pre-Initiative levels.

By the end of 2010, the PMI will assist Angola is to achieve the following targets in populations at risk of malaria:

1. More than 90% of households with a pregnant woman and/or child under five will own one or more ITNs;
2. 85% of children under five (in areas not targeted for IRS) will have slept under an ITN the previous night;
3. 85% of pregnant women (in areas not targeted for IRS) will have slept under an ITN the previous night;
4. 85% of houses in geographic areas targeted for IRS (in areas not covered by ITN distribution) will have been sprayed;
5. 85% of pregnant women and children under five will have slept under an ITN the previous night or in a house that has been protected by IRS[1];
6. 85% of women (in areas determined to be appropriate for IPTp use) who have completed a pregnancy in the last two years will have received two or more doses of SP for IPTp during that pregnancy;
7. 85% of government health facilities have ACTs available for the treatment of uncomplicated malaria; and
8. 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 the onset of their symptoms.

EXPECTED RESULTS – YEAR TWO

By the end of Year 2 of the PMI in Angola (31 March, 2008), the following targets will have been achieved:

Prevention:

- A total of 1.2 million additional LLINs will have been distributed by partners to families with children under five and/or pregnant women. (This is expected to translate to >60% household ownership of ITNs nationwide;
- At least 85% of houses in geographic areas targeted for IRS in the Provinces of Cunene, Huila, and Namibe (approximately 140,000 houses) will have been sprayed;
- Intermittent preventive treatment of pregnant women with SP will have been implemented in public health facilities all 59 MoH priority districts. (These districts contain 70% of Angola's population).
- In Huambo Province and three to four other provinces (to be selected), IPTp will have been implemented in all government health facilities.

Treatment:

- Malaria treatment with ACTs will have been implemented in health facilities with malaria laboratory diagnosis in all 59 MoH priority districts (these districts contain 70% of Angola's total population); and

[1] Since transmission in southern Angola is highly seasonal, spraying will be done within three months before the malaria transmission season.

- In Huambo Province and three to four other provinces (to be selected), malaria treatment with ACTs will have been implemented in all government health facilities and will be piloted among community health workers.

PREVENTION ACTIVITIES

General Epidemiology/Entomology - Targeting Use of IRS and ITNs

Progress to Date/Challenges and Needs:

The risk of malaria transmission in the more highly urbanized areas of Luanda, where 20-25% of the total population of Angola resides, may be so low that malaria prevention and control measures (ITNs, IRS, and IPTp) are not warranted. The same may be true of some areas in the four southern provinces of Namibe, Huila, Cunene, and Cuando Cubango, which have a history of highly seasonal or epidemic malaria. To target the use of IRS and ITNs in the most cost-effective fashion in Angola, the Centers for Disease Control and Prevention (CDC) and Research Triangle Institute International (RTI), a U.S.-based non-profit, non-governmental organization, are working with the NMCP to collect up-to-date epidemiologic and entomologic information on the geographic distribution and seasonality of malaria transmission in the city of Luanda and the province of Huila, one of the four southern provinces.

For the epidemiologic survey, a sample of hospitals and health facilities will be selected. The purpose of this survey is to assess the malaria burden and trends within the health care system in Luanda and four southern provinces. For that purpose, information on malaria cases and deaths and the number of malaria laboratory-confirmed cases is being collected. In addition, data will be collected to allow an assessment of the accuracy of malaria laboratory diagnosis at the selected sites. This activity will be continued during Year 2 of PMI until 12 months of data collection is completed.

In an initial entomologic survey carried out in April/May 2006 (peak malaria transmission season) in five of the nine districts (municipios) that make up Luanda, no anopheline mosquitoes were found and no suitable breeding sites were identified. In a survey of four sites in and around Lubango, the capital of Huila Province, *An. gambiae* was found in non-sprayed areas but not in any that had been sprayed. Borrow pits appear to be a major breeding site for anopheline mosquitoes in the southern provinces. These entomologic surveys will need to be repeated, but the preliminary results suggest that malaria transmission either does not occur or is less intense in the central areas of Luanda. If this is confirmed by further surveys, vector control efforts may not be needed in central Luanda. The finding of one anopheline mosquito in central Lubango City suggests that the urban population does not receive complete protection from spraying a cordon around the city. These epidemiologic/entomologic studies should be completed by the end of 2007.

Proposed USG Component: ($250,000)

In collaboration with the NMCP, PMI-supported entomologic investigations led by the CDC with logistic and supervisory support from RTI will be completed in Luanda and selected districts representative of the southern provinces. At the same time, epidemiologic studies will focus on defining the seasonal incidence of clinical and laboratory-confirmed malaria infections in the same areas. This information will make it possible to target, in a more rational and cost-effective fashion, the use of IRS and the distribution of ITNs in these areas. These baseline data will also be helpful in evaluating the effectiveness of future interventions directed against the mosquito vector and/or parasite in these areas.

Since funding is limited during the first two years of the PMI in Angola and the goal is to achieve maximum coverage with interventions, the two major preventive measures, ITNs and IRS, will not be used in the same sites. In Years 3-5, as a better understanding is gained of the epidemiology and transmission of malaria in Angola and the impact of control activities can be assessed, a decision will be made on the most effective and cost-effective approach for using ITNs in combination with IRS.

Proposed activities during Year 2 are as follows:

1. Complete studies of the risk of malaria transmission in the city of Luanda and the four southern provinces to allow better targeting of IRS and ITN distribution. This will include identifying the anopheline mosquito vectors and their seasonal abundance over a 12-month period encompassing both rainy and dry seasons in the two sites. Meteorological data will also be collected and health facility records reviewed to relate to previous malaria epidemics. Baseline insecticide resistance data will be collected using bottle bioassays. Parallel epidemiologic studies will be carried out to determine the incidence of clinically- and parasitologically-confirmed malaria infections in the same sites over a 12-month period. Data will be analyzed together with NMCP program and will serve to allow better understanding of transmission patterns in the selected areas. This activity will be managed jointly by CDC and RTI ($150,000);
2. Establish entomologic expertise within the NMCP capable of monitoring vector populations and resistance to insecticides in areas where LLINs and/or IRS are used. This training in physiological resistance testing by bottle bioassay will be provided by CDC with RTI assistance after refurbishing an insectary in Luanda and establishing a susceptible mosquito colony ($100,000); and
3. Together with the NMCP and other partners, complete work on a rational and sustainable malaria vector control plan with appropriate objectives and targets (no additional cost to the PMI).

Insecticide-treated nets (ITNs)

Progress to Date/Challenges and Needs:

A nationwide measles immunization campaign, which included delivery of oral polio vaccine, vitamin A, and anthelminthics, took place in July 2006. A total of 826,000 long-lasting ITNs (LLINs) (including 420,000 provided by PMI) were donated by UNICEF/Global Fund, the PMI, and ExxonMobil. ITN distribution focused on seven provinces with hyperendemic or

mesoendemic malaria (Cabinda, Zaire, Malanje, Moxico, Lunda Norte, Lunda Sul and Uige). One ITN was provided free to each child under five coming for immunization. Based on a report by the consortium of partners responsible for the campaign, an estimated 85% of targeted children under five in the seven provinces received an LLIN. In addition to these ITNs distributed during the measles campaign, during the past year, PSI distributed a total of 106,000 subsidized ITNs through antenatal clinics (ANCs) and full cost ITNs through local markets in the greater Luanda area.

To ensure that messages related to proper hanging, care, and use of ITNs (including the differences between Permanet® and Olyset® nets following washing) were appropriately emphasized as part of the IEC component of the immunization campaign, PSI (with funding provided under the $1 million ExxonMobil grant to USAID-Angola to further PMI objectives) carried out pre- and post-campaign promotion and IEC related to ITNs. Information on ITN ownership and usage following this campaign is being collected by the CORE group of NGOs as part of a PMI-WHO supported post-campaign survey. More detailed nationwide information on ITN ownership and usage will be collected as part of the MIS survey in October/November 2006.

In Year 2 of the GFATM Round 3 grant, UNICEF has procured approximately 750,000 LLINs with GFATM support, in addition to 100,000 donated by the World Food Program, and 90,000 by JICA for Benguela Province. In addition to the measles-ITN campaign, several NGOs, such as Episcopal Relief and Development, are distributing smaller numbers of nets as part of community-based activities.

Proposed USG Component: ($3,200,000)

Since poverty is so widespread in Angola, the PMI will continue to support the existing MoH strategy of providing 70% of nets free of charge to highly vulnerable groups (pregnant women, children under five, persons living with AIDS), 20% to those same groups through subsidies at health facilities in urban areas, and 10% at full cost through the commercial market in urban areas. The goal of this market segmentation approach is to ensure that free nets go to the neediest populations, while persons who can afford to pay some or all of the cost of a net do so. Although there is an import tax on ITNs in Angola, UNICEF, PSI, and USAID have a waiver and do not pay any tax.

Outside of Luanda, only 30% of the population has access to health facilities. Consequently, partners will make use of child health days and similar health activities to target ITN distribution to pregnant women and children under five.

The adult prevalence HIV/AIDS is estimated to be 3.9% (1.6-9.4%) and is highest in Luanda and along the northern and southern borders with Zaire and Namibia. The National AIDS Program manages clinics in most cities where voluntary testing and counseling are offered. The WHO 3 x 5 Program intends to have 5,500 patients on treatment by the end of 2005. The PMI will work with the MoH and the Global AIDS Program to ensure that all patients attending AIDS treatment clinics receive a free LLIN at the time of one of their regular visits.

Due to very low net re-treatment rates, priority under the PMI will be given to the purchase of LLINs, preferably Permanet nets, which do not require reactivation after each wash. Since most conventional bed nets distributed before 2004 in Angola are now at least 3 years old, efforts to retreat those nets would not be cost-effective.

The Malaria Indicator Survey (MIS) scheduled for October/November 2006 will provide nationwide information on both ITN ownership and use by pregnant women and children under five. This will help in targeting of Year 2 and Year 3 PMI ITNs. For ongoing monitoring of ITN distribution, information will be collected quarterly on the number and type of ITNs distributed by all partners and the provinces covered by these activities.

Proposed activities during Year 2 are as follows:

1. Assist other partners in completing the post-measles-ITN distribution campaign evaluations to assess ownership, acceptance, and correct usage of the bed nets (Year 1 PMI funding);
2. In the seven provinces targeted by the 2006 measles-ITN campaign, distribute free LLINs to children <u>under one year of age</u> through child health and immunization clinics. In the remaining provinces with moderate levels of transmission, ITNs will be distributed free to all <u>children under five</u> and pregnant women through child health and ANCs. If provincial-level child health days are held, PMI will consider contributing ITNs to these efforts as a way of more rapidly scaling up net ownership ($2,700,000);
3. Continue to support PSI in the purchase and distribution of subsidized LLINs through health facilities and full-cost nets through commercial sources in urban and periurban areas of Luanda, where residents are better able to afford the cost of an ITN. This will include general support to IEC related to ITNs nationwide ($500,000);
4. Work with the MoH and the Global AIDS Program to ensure that all patients attending an AIDS treatment center receive a free LLIN at the time of one of their clinic visits (No additional cost; these ITNs will be purchased as part of activity #2 above); and
5. Support efforts of the MoH and other partners to improve ANC utilization rates through improved service delivery and IEC, with the aim of increasing outlets for free ITN distribution (<u>Note</u>: this will also facilitate improved IPTp coverage, diagnosis and treatment of acute malaria in pregnant women, and monitoring and evaluation of interventions related to malaria in pregnancy). In Huambo and the other provinces where PMI is directly supporting ACT and IPTp roll-out through NGOs/FBOs, PMI will also support IEC related to the correct care and use of ITNs. (No additional cost; IEC covered elsewhere in this plan – pages 21-22)

<u>Indoor residual spraying (IRS)</u>

<u>Progress to Date/Challenges and Needs</u>:

Although IRS activities have been very limited in Angola in the last ten years, two large-scale spraying campaigns were carried out in collaboration with the NMCP during the last six months in the southern provinces of Huila, Cunene, and Namibe. The IRS campaign in Huila and

Cunene Provinces carried out by RTI in collaboration with the NMCP between December 2005 and March 2006 covered 107,000 households and approximately 550,000 residents. In addition it is estimated that an additional 100,000 residents who live in central Lubango City benefited as spraying was conducted in a cordon around the city. WHO/Global Fund-supported spraying in Namibe Province began on 15 February; approximately 25,000 houses were sprayed and 176,000 residents protected. More than 90% of the houses targeted for spraying in the three provinces were sprayed. As part of this effort, 350 locally-hired spray men and women, spray team leaders, and supervisors were trained in the management and conduct of large-scale IRS operations. In addition, printed IEC materials describing the benefits of IRS and responsibilities of homeowners were prepared, field tested, and distributed through a sub-grant to Christian Children's Fund.

Lambdacyhalothrin (ICON® wettable powder) was the insecticide used in all three provinces. More than 300 Hudson backpack sprayers and protective clothing from the IRS activities in Huila and Cunene have been securely stored in a 40-foot metal container in Lubango until the next round of spraying.

An integrated epidemiologic-entomologic investigation of the risk of malaria in Luanda and the four southern provinces is already underway as described above. The purpose of these studies is to ensure more cost-effective use and better targeting of IRS, ITNs, and other vector control measures in the future. As part of these surveys, epidemiologic and entomologic capacity within the NMCP is being strengthened.

Insecticides are not subject to tariffs in Angola, but a clearing agent's fee must be paid at the port of entry.

Proposed USG Component: ($2,200,000)

Since IRS is included in the National Malaria Strategic Plan for 2005-2009, activities funded by the PMI will be coordinated with those of the NMCP. There is no funding for IRS in Namibe Province under Year 2 of the GFATM grant and the PMI has agreed to cover this area.

Since the proposed 2006-07 second round of spraying in the three southern provinces of Huila, Cunene, and Namibe does not cover all households in those provinces, PMI will work with the NMCP on plans to provide protection and improved diagnosis and treatment of malaria for those who do not benefit directly from the spraying.

More than 90% of houses outside urban areas in the southern provinces are constructed with mud walls. Studies in South Africa have shown that the effective lifetime of pyrethroids on such surfaces is significantly shorter than that of DDT. For this reason, high priority will be placed on conducting comparative trials of the effective lifetimes of insecticides on local structures. If the effective lifetime of DDT is significantly longer than that of alternative insecticides, the PMI will work with the NMCP, the MoH, and other partners to reconsider the current GRA ban on DDT. Another alternative is a new formulation of lambdacyhalothrin (ICON® ES), which according to studies carried out by the Medical Research Council in South Africa, has a longer duration of action on mud (unfinished) walls than the wettable powder that was used for the last round of

spraying. This product has been approved by the WHO Pesticide Evaluation Scheme for use on ITNs but not yet for IRS, although this approval is expected within the next few months.

Proposed activities during Year 2 are as follows:

1. Assist the NMCP and other partners with an IRS campaign with lambdacyhalothrin in epidemic-prone areas of the Provinces of Huila, Cunene, and Namibe from December 2006-February 2007. The exact areas to be sprayed will be based on the areas covered during the Year 1 spraying campaign supplemented by information from the entomologic/epidemiologic studies currently underway in Luanda and the southern provinces ($2,200,000); and
2. Conduct studies on the longevity and duration of effectiveness of DDT, ICON wettable power, and ICON ES on mud walls in southern Angola to assist in making a decision about the most appropriate insecticide for future IRS activities in this area (No additional cost – covered under entomologic activities – pages 11-12).

Intermittent preventive treatment of pregnant women (IPTp)

Progress to Date/Challenges and Needs:

Intermittent preventive treatment (IPTp) with two doses of SP was approved as a national policy in September 2004. The current policy applies to the entire country, including Luanda and the epidemic-prone areas in the south, which have much lower levels of transmission. Training for IPTp is being carried out as part of the ACT training and it is expected that IPTp will be rolled out in a phased fashion throughout the country in coordination with ACT implementation.

It is estimated that only 40% of pregnant women living in Luanda attend an ANC at least once, but attendance rates are probably much lower in rural areas. Coordination with maternal health services is improving, although problems still exist. For example, prenatal visit cards have not been modified to reflect doses of IPTp or receipt of an ITN. Between the MoH and the GFATM sufficient quantities of SP are available to cover all needs in 2006-07.

Proposed USG Component: (Funding for this activity is included under the Case Management budget)

During Years 2 and 3, the PMI will place a high priority on strengthening overall antenatal care in Angola, including prevention, diagnosis, and treatment of malaria in pregnant women. Studies have shown that introduction of an integrated package of antenatal services in health facilities can result in a significant increase in ANC attendance. In areas of Angola where health care delivery is currently being provided by NGOs, an opportunity exists to significantly increase access to IPTp through the PMI. Providing free ITNs, IPTp, and improved case management of malaria to pregnant women together with IEC messages about the importance of malaria prevention and prompt and appropriate treatment in pregnancy through NGOs/FBOs should increase demand for ANC services and improve the delivery of malaria interventions. Efforts will also be made to ensure that pregnant women have access to prompt and accurate diagnosis and appropriate therapy when they present with symptoms suggestive of malaria. Since improving ANC attendance alone is unlikely to reach sufficient numbers of pregnant women to

attain the PMI target of 85% coverage with IPTp, PMI will begin to explore alternative approaches for reaching pregnant women. These may include distribution of IPTp through community health workers at the village level, mobile clinics, and other innovative approaches.

Proposed activities during Year 2 are as follows:

1. Continue to support NGO/FBOs to introduce IPTp with SP (together with ITN distribution and improved case management for pregnant women) in ANCs in Huambo and three to four additional provinces using NMCP-approved training, IEC materials, and monitoring and evaluation guidelines. These activities will be closely linked to the implementation of ACT in the same health facilities. (Funding for this activity is included under that for ACT implementation by NGOs/FBOs [pages 21-22]); and
2. Work with the NMCP and other partners to identify alternative approaches to reach pregnant women with IPTp and develop plans to field test one or more of these methods.

CASE MANAGEMENT

Malaria diagnosis and treatment

Progress to Date/Challenges and Needs:

Malaria diagnosis: Fewer than 20% of all malaria diagnoses in Angola are based on microscopic examination and the quality of those diagnoses is variable from one facility to the next. The new National Malaria Control Strategy for 2005-2009 will expand malaria microscopy to all health facilities with a laboratory and electricity. In areas with stable transmission, children under five with symptoms suggestive of malaria will be treated presumptively; laboratory diagnosis will be required in older children and adults.

Experience with the use of rapid diagnostic tests (RDTs) for malaria diagnosis in Angola is very limited at present, although 492,000 ($524,000) of these tests (Paracheck F®) are being procured through the GFATM Round 3 (Year 2) grant. In addition, the GFATM is purchasing 60 additional microscopes and 100 microscopy "kits," each of which contain materials for 10,000 diagnoses (although it appears that the kits do not contain sufficient quantities of all supplies). These kits were also under-budgeted and only about 25 will be arriving during the first year.

In March 2006, a CDC consultant reviewed the existing infrastructure and approach for the laboratory diagnosis of malaria in MoH facilities. He has recommended several ways the PMI can strengthen laboratory diagnosis and quality control, including refresher training for existing microscopists, development of a standardized training module for new microscopists, and a system for quality control. A plan for training over the next 24 months has been developed, with preference given to personnel from provinces where ACTs are being implemented.

Pharmaceutical management: Many of the essential entities and processes required for ensuring access to safe, effective and affordable quality medicines in Angola, such as a national drug registration and pharmacovigilance systems, do not exist or are non-functional and procurements are often delayed. The four National Hospitals in Luanda, provincial hospitals, and provincial

governments receive their budgets directly from the general budget and can use these funds to purchase medicines. In addition, lower-level health facilities supplement their MoH stocks with locally-available medicines purchased using funds generated from service fees. There are no controls over the quality of drugs purchased from these private sector vendors. The NMCP would like to move towards centralized procurement of antimalarial drugs by the national and provincial hospitals. A group of consultants hired by UNICEF have recently completed an evaluation of the MoH logistics system.

No formal distribution plan for essential medicines currently exists, probably contributing to the periodic shortages of essential medicines. Storage facilities for medicines at the provincial and district levels are often inadequate. Essential medicines, including antimalarials (currently amodiaquine and quinine), are provided in kits. Health facilities receive a given number of kits according to expected utilization of services, which is based on past drug distribution, rather than actual drug consumption. The European Union, through its Programa de Apoio ao Sector de Saúde, is revising the existing system of drug and stock management of the Essential Drugs Program (EDP). The plan is to implement the new system in five provinces, Luanda, Bie, Huambo, Benguela, and Huila, starting in September 2006.

A consultant from the Rational Pharmaceutical Management Plus Project (RPMplus has recently visited Angola to review the current status of pharmaceutical management, with a focus on ACTs. He recommends working through the revised EDP as much as possible, but pointed out three major gaps that would need to be filled to manage ACTs and other malaria supplies effectively:

1. in contrast to the kit system, in which kits are pushed out to health facilities based on the number of consultations, malaria drug stocks should be monitored by health facilities so that they can send in replacement orders in a timely fashion;
2. since the EDP system is set up for use only at the provincial store and health facility level, drug management at the central level will need to be strengthened; and
3. the EDP system will only extend to health facilities that receive kits; some hospitals are outside the kit system and will have to be dealt with separately.

Since ACT implementation has already started, the NMCP, PMI, and GFATM will also need to coordinate closely with the EDP during the months leading up to the launch of the revised EDP. The consultant also recommended maintaining no more than a three-month stock of ACTs at each participating health facility. Because of a lack of adequate storage facilities, no drugs would be kept at the district level, but a supply would be stored at the provincial level. Twenty-five to 30% of the total available drug would be kept centrally as a buffer to deal with unexpected increases in demand. After about six months if the forecasted needs prove to be accurate, the buffer stock could be released and AM-LUM implemented at additional facilities.

Malaria treatment: Although AM-LUM and artesunate-amodiaquine (AS-AQ) were approved as joint first-line drugs for uncomplicated malaria in Angola in October 2004, the new policy only recently began to be implemented in MoH facilities. In addition, not all provinces or districts are implementing the same first-line drug. In Benguela Province, where JICA planned their project before the GFATM purchase of AM-LUM, AS-AQ is being implemented as the first-line drug. In Bie Province, where MSF has been implementing AS-AQ, the NMCP has

decided to continue with this combination for the time being. In Zaire Province, AS-AQ is being used in three districts where the NGO, MENTOR, is working, but AM-LUM will be implemented in the remaining districts. In spite of this somewhat confusing picture, the NMCP is committed to moving to AM-LUM nationwide within the next two to three years.

The stated objective of the GFATM Round 3 proposal is to ensure access to ACT treatment for 60% of the at-risk population in the 59 priority districts by the end of the first two years. Implementation of AM-LUM began in Luanda in May 2006 in major health facilities with laboratory diagnostic capabilities; at the present time, there are no plans for use of AM-LUM in health facilities without laboratory diagnosis of malaria or at the community level. In the first phase of implementation during 2006, AM-LUM has already been introduced by the MoH in all health facilities with laboratories in the nine districts of Luanda Province and in the provincial capitals of Huambo and Uige Provinces.

It is expected that in September 2006 PMI will award a contract to one or more NGOs/FBOs under a newly competed mechanism to expand the roll out of AM-LUM and IPTp in Huambo Province. The NGO/FBO will work closely with the provincial staff, including the provincial malaria officer, to improve pharmaceutical management and monitoring and evaluation capacity. Since the AM-LUM procured by PMI has not yet arrived in country, the PMI has negotiated an arrangement with the UNDP-GFATM office to use AM-LUM procured by them to expand and speed up the roll out to all health facilities Huambo Province. This will be done through two NGOs, which will work closely with the MoH staff in the province. The PMI is also negotiating with Esso-Angola, which has been supporting another NGO in Zaire Province to expand implementation of AM-LUM in that province.

Quantification of ACT needs under the GFATM grant was based on the expected number of malaria episodes in different age groups, using an estimated national population of 15 million, and 60% coverage. A total of 1.1 million treatment courses of AM-LUM purchased through the WHO-GFATM grant (Year 1) have already arrived in country. At present, there are no plans for use of AM-LUM at the community level, although Angolan law permits trained community health workers to administer treatment for malaria.

Estimates of Artemether-lumefantrine Needs (2006-07)
(based on 60% coverage of the population in the 59 priority districts [5,880,000] and planned Global Fund Round 3 purchases)

Patient Weight	Packaging	Estimated total no. of treatments needed	No. of blisters procured under Y1 Round 3	Projected Gap	No. of blisters procured under Y2 Round 3	Projected Gap
5 to 14 kg	(under 3 yrs)	1,528,800	256,107	1,272,693	385,160	1,143,640
15 to 24 kg	(3 to 7 yrs)	1,058,400	731,733	326,667	1,097,600	-39,200
25 to 34 kg	(8 to 11 yrs)	720,300	80,000	640,300	120,000	600,300
Above 35 kg	(above 12 yrs)	1,719,900	80,000	1,639,900	120,000	1,599,900
Totals		**5,027,400**	**1,147,840**	**3,879,560**	**1,722,760**	**3,304,640**
Proportion of needs met			**23%**		**34%**	

The GFATM is planning to purchase $2.4 million of AM-LUM (1.7 million treatments), $417,000 of quinine for the treatment of severe malaria, and $27,000 of SP during Year 2 (April 2006-March 2007). The GRA has also agreed to purchase approximately 60,000 treatments of AM-LUM and 40,000 of AS-AQ to help meet the gap in drug stocks; the AS-AQ will be used in those provinces and districts not covered by the GFATM AM-LUM.

Draft guidelines exist for ACT implementation through IMCI and at the community level, but it has not yet been decided whether ACTs will be made available through community health workers. Little or nothing is known about prescribing and dispensing practices in the public and the private sectors.

The status of chloroquine (CQ) and AQ stocks in MoH facilities is unknown and it is not clear how these stocks will be phased out from those facilities. Similarly, no plan exists for phasing out CQ from the private sector, and virtually all malaria products, including AM-LUM and other ACTs, can be found in private pharmacies.

Proposed USG Component:

Diagnosis: ($775,000)

With the cost of AM-LUM treatment 15-20 times higher than that of CQ, accurate diagnosis will be critical to target the administration of AM-LUM to infected patients and reduce the unnecessary use of antimalarials that can occur when patients are presumptively treated for malaria. The PMI views malaria laboratory diagnosis as a key component of good case management and will continue to support strengthening of malaria diagnosis in both MoH facilities and those currently managed by NGO/FBOs.

Proposed activities during Year 2 are as follows:

1. Work with the MoH and other partners to update the official strategy and plan for the use of microscopy and RDTs at different levels of the health system and in different epidemiologic settings in the country (e.g., children under five vs. older children and adults; areas with seasonal transmission vs. those with year-round transmission, etc.) (no additional cost to the PMI).
2. Purchase compound microscopes (n = 25), malaria microscopy kits (n = 25 kits sufficient to diagnosis 1,000 people), and RDTs ($450,000 or approximately 750,000 tests) to supplement those procured through the GFATM Round 3 and the JICA grants ($575,000);
3. Continue to provide technical assistance to support establishment of a malaria diagnosis reference and training center by upgrading the Malaria Laboratory at the National Institute of Public Health ($200,000). This effort began with the visit of the CDC consultant in Year 1 of the PMI and during Year 2 will include the following:
    - support to on-the-job training for MoH laboratory workers in malaria microscopy and the use of RDTs;
    - establishing a standardized training course for new laboratory workers and refresher training; and,

- developing and implementing a plan for quality assurance of microscopy and RDT diagnosis, including regular supervisory visits, a systematic review of a predetermined percentage of positive and negative blood smears, and simultaneous use of both tests in a small percentage of cases to check accuracy.

Pharmaceutical management and treatment: ($6,360,000)

Ensuring prompt, effective, and safe ACT treatment to a high percentage of patients with confirmed or suspected malaria in Angola represents the single greatest challenge for the NMCP and the PMI, given the weaknesses in the country's pharmaceutical management system and the poor access to health care. The complexity of AM-LUM implementation must not be underestimated with the short shelf-life of the drug (18-24 months), the high cost of ACTs in commercial markets in Angola ($30-40 per treatment), the risk of counterfeits, and the high levels of coverage that need to be attained.

As the WHO-GFATM and the PMI plan to work within the MoH/EDP system for the distribution of ACTs, it is important that the weaknesses in that supply system be addressed as soon as possible. In addition, given the very low access to health care in Angola, and the fact that Round 3 GFATM support is targeted to areas directly served by the MoH in the 59 priority districts that contain about 70% of the population, the PMI will also place a high priority on supporting NGO/FBOs to facilitate ACT implementation in areas that are currently underserved by the MoH. This will be coordinated with efforts to improve case management and malaria prevention of pregnant women in ANCs within the same health facilities, and will include assistance with training and supportive supervision of health care workers, IEC, and monitoring of progress.

Since the initial GFATM roll out of ACTs in Angola will focus on large hospitals and health centers with malaria diagnostic facilities, PMI will support the introduction of these drugs at lower levels of the health care system, including at the community level in Huambo and three to four additional provinces. The information gathered through this activity will inform future expansion of AM-LUM distribution to the rest of the country. At the same time, PMI will work with the NMCP and other partners to begin exploring ways of engaging the private sector in increasing access to safe and effective treatment, since more than 50% of malaria patients probably receive their first treatment from small shops and pharmacies.

Proposed activities during Year 2 are as follows:

1. Procure supplies of AM-LUM through a central mechanism ($4,000,000).
2. Together with the MoH, European Union, and other partners, continue to provide technical assistance to the MoH and EDP at the central, provincial, and district levels in pharmaceutical management and implementation of ACTs that will address:
    a. importing, quality control, storage, and inventory management;
    b. coordination with the MoH on quantification and distribution;
    c. appropriate use;
    d. training and supportive supervision of health workers at provincial, district, and lower levels to ensure good ACT prescribing and dispensing practices;
    e. IEC for patients;

   f. surveillance for adverse drug reactions and rapid response to reports/rumors of severe reactions;
   g. monitoring of implementation/evaluation of coverage;
   h. promoting correct use of ACTs in the private sector through IEC efforts; and
   i. monitoring antimalarial drug quality in the public and private sectors;

   This will be provided by an expert in pharmaceutical management based in country, as well as through short-term technical assistance ($500,000).
3. Continue to support IEC for ACT implementation by hiring a communications expert through a contract with UNDP. This person will work to develop and implement a single, comprehensive IEC plan related to ACTs, IPTp, and ITNs for the country, including promoting a rapid and appropriate response to fever by patients and their families, recognition of danger signs, correct use of ACTs, and appropriate follow-up if patients do not improve (this activity will be coordinated with IEC for ITNs and IPTp)($160,000);
4. Continue to assist with implementation of ACTs in the areas served by the MoH in the 59 priority districts through NGOs/FBOs (see No. 5 below; no additional cost to the PMI); and
5. Support ACT implementation (together with IPTp and distribution of LLINs) through national and international NGO/FBOs working in areas that are currently underserved by the MoH. This support will be used to rapidly scale up the use of AM-LUM in:
   a. <u>all</u> public sector health facilities in Huambo Province;
   b. pilot communities with networks of community health workers in Huambo Province; and
   c. <u>all</u> public sector health facilities of the MoH targeted districts in 3-4 other provinces in the country (not to include Benguela Province or Luanda City, which are already covered) ($1,700,000).

INTERVENTIONS – EPIDEMIC SURVEILLANCE AND RESPONSE

<u>Current Status/Challenges and Needs</u>:

The four southern provinces of Namibe, Kunene, Huila, and Cuando Cubango bordering Namibia are regarded as epidemic-prone, but careful mapping of the epidemic risk in this area has never been carried out. Centers for Disease Control and Prevention staff are currently carrying out an epidemiologic-entomologic investigation of malaria transmission in this region to better understand the risk and seasonality of transmission. These studies will help inform the decision about the most appropriate malaria control approach for these areas: IRS, ITNs, a combination of both, or strengthening malaria surveillance and rapid response to meteorologic, epidemiologic, and/or entomologic conditions that indicate an approaching epidemic.

Although the National Malaria Control Strategy for 2005-2009 includes early detection and rapid containment of malaria epidemics as one of its objectives, district- and provincial-level epidemic control plans do not exist and existing systems for epidemic detection and response are generally weak and poorly organized. Limited supplies of drugs, insecticides, backpack sprayers,

shortages of trained personnel, and poor communication and road conditions compromise a timely response.

Proposed USG Component: ($200,000)

Malaria epidemics in the four provinces bordering Namibia have the potential of causing considerably morbidity and mortality with very little warning. The single greatest obstacle to mounting an effective response to malaria epidemics in the four southern provinces is the lack of detailed and reliable epidemiologic and entomologic information about the geographic and seasonal risks of malaria there. This problem should be largely resolved by the results of the investigations of malaria risk described above.

Proposed activities during Year 2 are as follows:

1. Together with the NMCP and WHO, develop epidemic containment plans for southern Angola ($100,000); and
2. Set up an epidemic response stockpile of antimalarial drugs, insecticides, spray pumps, and protective IRS gear in one (or at most two) provincial level sites in the four southern epidemic-prone provinces. Lubango, the capital of Huila Province, is an attractive site due to its central location and good roads to both Cunene and Namibe Provinces ($100,000).

CAPACITY BUILDING WITHIN THE NATIONAL MALARIA CONTROL PROGRAM

Current Status/ Challenges and Needs

The NMCP suffers from a lack of trained staff and weak organizational and management capacity at all levels. Although National Program Officers for malaria have been hired in 15 of the 18 provinces with GFATM support, these workers are in need of training, regular supervision, and support from the central level. There are no malaria control workers at the municipal or lower levels.

Proposed USG Component: ($250,000)

With its poor roads and communications and weak health infrastructure efforts to improve malaria control operations in Angola will depend on a well-trained and active malaria staff at the provincial level. Unfortunately, due to its lack of organizational and management capacity at all levels, the NMCP cannot function as a fully effective partner for the PMI or other donors. While the PMI will contract NGOs and FBOs to implement ACTs and IPTp and build management and monitoring and evaluation capacity at provincial and district health facilities, these groups are not well placed to provide the institutional management, coordination, planning and administrative capacity building that is needed in the central and provincial-level malaria programs. For the PMI (and GFATM) to have a lasting effect in Angola, it will be crucial that these deficiencies be corrected.

The UNDP, with GFATM support, has been involved over the last year in a highly successful effort to build capacity within the National HIV/AIDS Program that has focused on financial and program management, procurement, and monitoring and evaluation. The PMI proposes to extend the ongoing UNDP capacity building activities to malaria. This program will link with the European Union Health Sector Support Program (Programma de Apoio ao Sector de Saude) and use already tried and tested tools to improve the organization, management, coordination, and planning capacity of the NMCP at both the central and provincial levels, as well as link those two levels together more effectively. In addition, they would ensure that the provincial malaria control officers are fully equipped to enable them to carry out their duties.

The proposed activity during Year 2 is as follows:

1. Provide funding through UNDP to carry out a needs assessment and support capacity building in financial and program management, procurement, and monitoring and evaluation within the NMCP at both the central and provincial levels ($250,000).

COMMUNICATION/COORDINATION

Current Status/Challenges and Needs:

Coordination and communication among partners involved in malaria prevention and control in Angola continues to be a challenge. A Malaria Task Force has been formed around the GFATM proposal made up of MoH, WHO, UNICEF, PSI, and GFATM staff. Although this group holds monthly meetings, other potential partners and NGO/FBOs working on malaria usually do not participate. As part of the Task Force, malaria technical working groups exist, but they meet only irregularly.

Proposed USG Component (no additional cost to PMI):

If the NMCP is to fulfill its leadership role in the malaria control effort in Angola, more efficient mechanisms for communication and coordination among the variety of different groups involved in malaria activities in Angola will need to be developed. The success of the 2005-2009 National Malaria Control Strategy, the GFATM Round 3 grant, future GFATM grants, and the PMI in Angola will depend on a close and effective working relationship between the NMCP and its partners.

The Malaria Task Force, which the NMCP should coordinate, provides an ideal venue to share information with all other national and international partners and ensure good coordination of malaria control activities. The PMI, especially through its in-country staff, should support the partnership by providing administrative support to the regular meetings of the Malaria Task Force, and participating actively in its various working groups.

Proposed activities during Year 2 are as follows (no additional cost to the PMI):

1. In-country PMI staff will continue to provide administrative support to the NMCP in the monthly meetings of the Malaria Task Force, which should be made up of representatives of the NMCP, WHO, UNICEF, GFATM, private sector, NGO/FBOs and the PMI;

2. Support and participate in working groups within the Malaria Task Force on:
    a. surveillance and monitoring and evaluation;
    b. diagnosis and treatment;
    c. malaria in pregnancy;
    d. vector control;
    e. epidemic detection and response; and
    f. behavior change and communication.

PUBLIC-PRIVATE PARTNERSHIPS

ExxonMobil, through its Africa Health Initiative and the ExxonMobil Foundation has been a major contributor to malaria control efforts in Angola.

Proposed USG Component: (No additional cost to the PMI)

Public-private partnerships are a highly attractive means of leveraging additional support and expertise for priority health programs. The ExxonMobil Foundation made a $1 million donation to USAID in March 2006 to further the efforts of the PMI in Angola. Half of this funding has supported IEC activities related to ACTs, ITNs, and IPTp through PSI. These activities are being planned and carried out in coordination with the NMCP and other partners to ensure uniformity of approaches and messages and avoid duplication. Another $350,000 will be used for strengthening the MoH pharmaceutical management system and the remaining $150,000 will be used to build national monitoring and evaluation capacity for malaria.

Proposed activities during Year 2 are as follows:

1. Oversee execution of activities under the ExxonMobil grant and discuss opportunities for future funding to fill gaps in GFATM and PMI support to the NMCP; and
2. Offer to provide technical reviews and/or assist with external evaluations of malaria-related proposals presented for funding to ExxonMobil/Esso-Angola.

MONITORING AND EVALUATION

Progress to Date/Challenges and Needs:

The health information system in Angola is very weak and the quality of available information is unknown. The last large-scale health survey was a Multiple Indicator Cluster Survey (MICS) conducted in 2001. The NMCP has been working to establish a National Malaria Information System, which is intended to support the larger National Epidemiological Surveillance System by collating data from existing or on-going municipal- and household-level surveys. The GFATM Round 3 grant only provides limited funding for strengthening the monitoring and evaluation capacity of the NMCP.

Planning is already well underway by the Measure/DHS Project in collaboration with the NMCP and two local NGOs for a nationwide Malaria Indicator Survey (MIS) that will take place in

October/November 2006. A total of 3,000 households will be surveyed. Additional details of this survey are given below.

Proposed USG Component: ($965,000)

Monitoring and evaluation to measure progress against project goals and targets, to identify problems in program implementation and allow modifications to be made, and to confirm that those modifications are having their desired effect are be a critical component of the PMI. In Angola, rapid scale up of malaria prevention and control interventions and achieving high coverage rates with ACTs, ITNs, IPTp, and IRS are priorities not only for the PMI, but also for the NMCP, the GFATM, and other national and international partners working on malaria.

The PMI has adopted a general monitoring and evaluating framework that has been adapted to the context of each country. According to this framework, specific activities are monitored on a regular basis to allow in-country program managers to assess progress and redirect resources as needed. Activities within four main intervention areas, ITNs, IRS, IPTp, and case management with ACTs, will be tracked through periodic reports from groups providing commodities, health facilities, and international and local partners. Types of activities that will be monitored will include procurement and distribution of commodities, availability of commodities for prevention, diagnosis and treatment of malaria, health worker performance, IEC efforts, supervision and training for health care workers, and monitoring drug and insecticide efficacy and effectiveness.

The evaluation framework is based on the PMI goal to reduce malaria deaths by 50% and to achieve coverage targets with specific interventions over the course of the program. The framework is aligned with the standard methodology for malaria program evaluation that is being adopted and promoted by WHO Roll Back Malaria. Program evaluation will be based on coverage outcomes that will be measured at baseline, midpoint and the end of the Initiative, and impact on malaria mortality, which will be measured at baseline and the end of the Initiative. Information used to evaluate program outcomes and impact in PMI will be collected primarily through household surveys of a representative sample of the national population. All-cause mortality and malaria-specific mortality in children under five (collected through verbal autopsies) will be interpreted together with data on anemia, parasitemia, available information on malaria cases and deaths reported from health facilities, rainfall and PMI coverage indicators to consider changes in mortality at the population level that can be attributed to reductions in malaria over the course of PMI.

Evaluation of Progress toward the President's Malaria Initiative Goal and Targets:

Coverage of interventions and impact on malaria mortality ($465,000)

Baseline data on coverage of the proportions of children under five and pregnant women who slept under an ITN the previous night, pregnant women who have received two or more doses of SP for IPTp during their pregnancy (in areas that have been determined to be appropriate for IPTp use), and children under five with suspected malaria who have received treatment with an antimalarial drug in accordance with national malaria treatment policies within 24 hours of the onset of their symptoms will be collected as part of a nationwide Malaria Indicator Survey (MIS)

in October/November 2006. Since this survey is being carried out after the large-scale measles ITN distribution campaign, questions will be included to determine retrospectively when homeowners received their nets (i.e., pre- or post-campaign). Information on the proportion of houses targeted for IRS that have been sprayed will depend on the detailed mapping of malaria risk areas in the four southern provinces and Luanda currently being carried out.

To complement the data on coverage of interventions, malaria parasitemia and hemoglobin levels in children under five and pregnant women will be measured during the survey. Baseline data on malaria-related mortality in children under five will also be collected through verbal autopsies conducted as part of the MIS survey. The cost of this survey is approximately $900,000; $435,000 of this is included in the Year 1 PMI budget. It is expected that other groups interested in the results of the MIS will supplement this funding, but the remaining amount ($465,000) has been set aside in the Year 2 PMI budget.

Monitoring of progress ($500,000):

Given the weak national health information system in Angola and the unreliable quality of malaria surveillance data, during Year 2, PMI will support the NMCP by strengthening malaria monitoring at sentinel sites around the country to collect information on malaria and anemia cases, severe malaria, malaria- and anemia-related deaths, patients treated with ACTs, IPTp, bed nets distributed, and drug stocks and stockouts. To further oversee implementation and monitor progress of PMI-supported activities in Angola, in-country PMI staff will routinely collect information from partners, contractors, and grantees on procurement, receipt, and distribution of commodities, training, and IEC materials produced and distributed, etc. To supplement this information, targeted operational evaluations and record reviews may be required to answer specific questions or identify problems with program implementation.

A monitoring and evaluation working group will be established to develop a coordinated plan for monitoring and evaluation activities that is realistic and will meet the needs of the NMCP, PMI, and other partners. Capacity building within the NMCP will be included in the plan. While PMI will provide $500,000 to this effort during Year 2, it is hoped that other partners will also contribute funding. These data will be reviewed on a regular basis by the PMI team, the NMCP, and other partners to identify potential problems and suggest solutions.

STAFFING AND ADMINISTRATION

Proposed USG Component: ($800,000)

Both the USAID and CDC in-country health professionals have been hired and are expected to take up their posts within the next two months. Office space has been identified close to the offices of the NMCP in Luanda. In addition, one or more Foreign Service Nationals will be hired to support the PMI team.

All PMI staff members will be part of a single inter-agency team led by the USAID Mission Director or his/her designee in country. The PMI team will share responsibility for development

and implementation of PMI strategies and work plans, coordination with national authorities, management of collaborating agencies and supervision of day-to-day activities. Candidates for these positions will be evaluated and/or interviewed jointly by USAID and CDC, and both agencies will be involved in hiring decisions, with the final decision made by the individual agency.

It is envisioned that these two PMI professional staff will work together to oversee all technical and administrative aspects of the PMI in Mozambique, including finalizing details of the project design, implementing malaria prevention and treatment activities, monitoring and evaluation of outcomes and impact, and reporting of results. Both staff members will report to the USAID Mission Director or his/her designee. The CDC staff person will be supervised by CDC, both technically and administratively. All technical activities will be undertaken in close coordination with the MoH/NMCP and other national and international partners, including the WHO, UNICEF, the GFATM, World Bank and the private sector.

Locally-hired staff to support PMI activities either in Ministries or in USAID will be approved by the USAID Mission Director. Because of the need to adhere to specific country policies and USAID accounting regulations, any transfer of PMI funds directly to Ministries or host governments will need to be approved by the USAID Mission Director and Controller.

A communications expert will be hired through UNDP to assist the NMCP in developing and conducting an IEC program to support the implementation of ACTs, IPTp and the distribution of ITNs.

ANNEX

Figure 1

Municipality Map of Angola

(The 59 Municipalities (Districts) Targeted by the Ministry of Health are shaded)

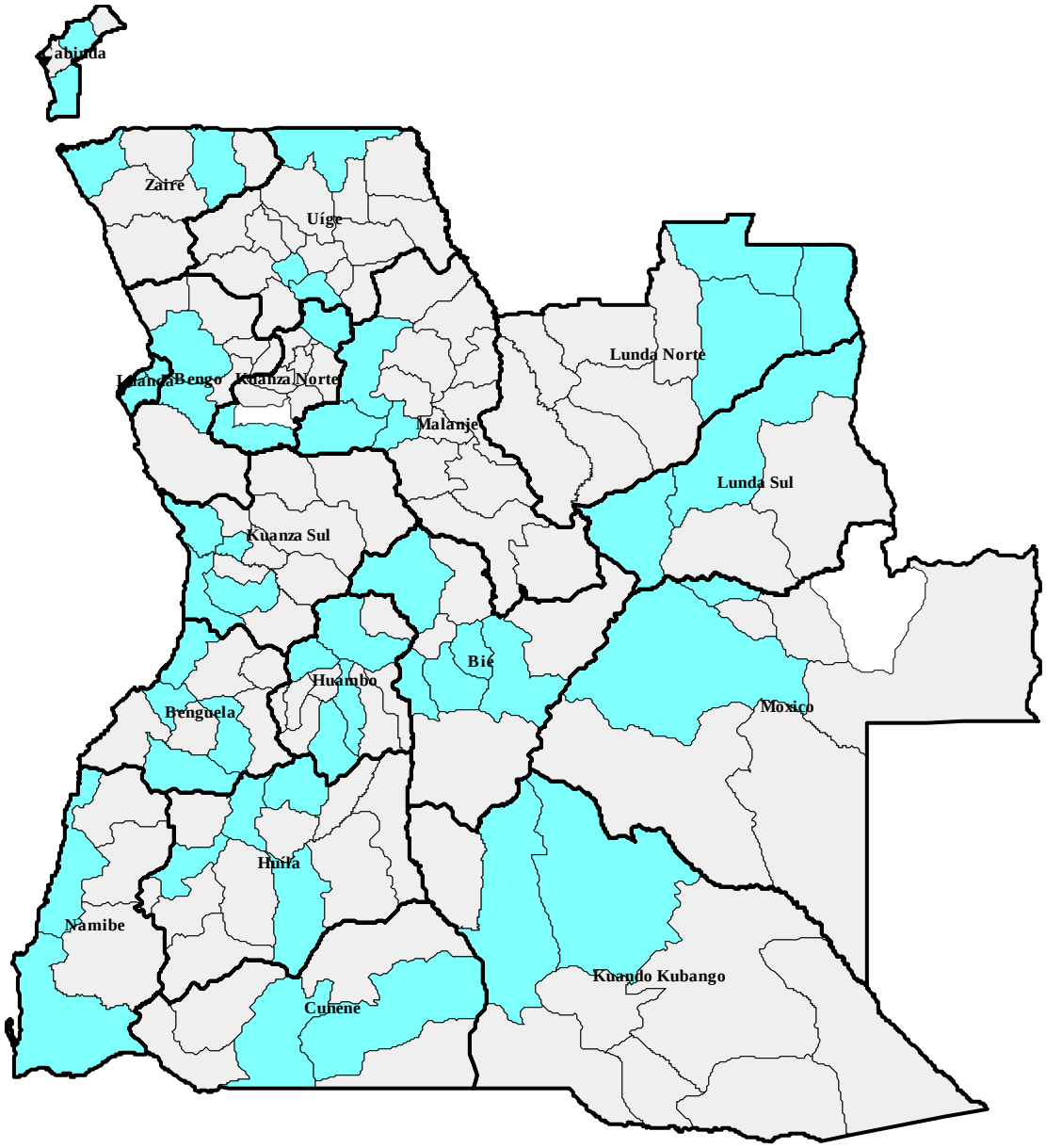

Table 1

President's Malaria Initiative – Angola
Year 2 (FY07) Timeline of Activities

ACTIVITY	2006			2007								
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
Procure commodities (AM-LUM; ITNs; RDTs)												
NGO/FBO grants – ACTs and IPTp	Award	Award										
Distribution of subsidized and full-cost ITNs through social marketing												
IRS campaign in epidemic-prone provinces												
National Malaria Indicator Survey												
Malaria risk study – Luanda and southern provinces												
Build in-country insecticide resistance testing capability; evaluate duration of insecticides on traditional surfaces												
Strengthen MoH antimalarial drug management system												
Improve diagnostic capabilities of MoH laboratory staff												
Establish epidemic response plans												
Strengthening NMCP capacity in financial and program management/IEC/M&E												

Table 2

President's Malaria Initiative – Angola
Planned Obligations for FY07 ($000)

Proposed Activity	Mechanism	Budget (*commodities)*	Geographic Area	Description of Activity	Relation to Interventions
PREVENTIVE ACTIVITIES					
Entomologic/ epidemiologic evaluation of malaria risk areas	CDC/IRS competed contract	20 (CDC) 130 (IRS contract)	Namibe, Huila, Cunene, Luanda City	Evaluation of malaria risk in southern provinces and Luanda City	IRS and ITNs
Entomologic monitoring/ insecticide resistance testing	CDC/IRS competed contract	20 (CDC) 80 (IRS contract)	Luanda	Establish capacity for entomologic monitoring/resistance testing in NMCP	IRS and ITNs
Procurement and distribution of LLINs	Grant to UNICEF	2,700 (*2,700*)	Nationwide	Purchase/distribution of LLINs to pregnant women/children <5 through clinics and child health days	ITNs
Social marketing of LLINs; IEC activities related to ITNs, ACTs, and IPTp	Population Services International	500 *(200)*	Luanda and major urban areas	Purchase and distribution of subsizided/full-cost LLINs in Luanda, IEC	ITNs
Indoor residual spraying	IRS competed contract	2,200 (*400*)	Namibe, Huila, Cunene	Purchase of insecticide, spraying supplies/equipment	IRS
Intermittent preventive treatment	Grants to NGOs/FBOs through USAID-Angola NGO srengthening contract	Funded under Case Management[2] (Roll out of AM-LUM)	Nationwide	Health worker training/development; dissemination of IEC materials related to IPTp	IPTp
SUBTOTAL: Preventive Activities		**5,650 (*3,300*)**			

CASE MANAGEMENT ACTIVITIES					
Procurement of microscopes/lab. supplies/RDTs	UNICEF	575 *(575)*	Nationwide	Procurement of lab. diagnostic equipment and supplies/RDTs	Case management
Laboratory training in malaria diagnosis/quality control	CDC Interagency Agreement/ TBD	50 (CDC) 150 (TBD)	Nationwide	Training of public and private sector malaria microscopists/lab. workers in RDT use	Case management
Procurement of AM-LUM	UNICEF	4,000 (4*,000*)	Nationwide	Purchase of AM-LUM	ACTs
Strengthen MoH antimalarial drug mgmt. system	Contract with RPMplus	500	Nationwide	Strengthen pharmaceutical mgmt. related to antimalarial drugs	ACTs
Support to IEC related to ACTs, IPTp,and ITNs	Population Services International	160	Nationwide	Develop unified, comprehensive IEC plan and implement	ACTs, IPTp, and ITNs
Roll out of AM-LUM therapy by NGOs/FBOs	Grants to NGOs/FBOs	1,700	Geographic areas covered by funded NGOs/FBOs	Implement ACT treatment of malaria in areas not currently served by the MoH	ACTs
SUBTOTAL: Case Management		**7,135 (*4,575*)**			
OTHER ACTIVITIES					
Develop epidemic detection and containment plans	IVM Task Order	100	Namibe, Huila, Cunene, C. Cubango,	Establish district-level epidemic detection and response plans	Epidemic response
Procure drugs and insecticides for epidemic response stockpiles	IVM Task Order (IRS supplies); UNICEF (drugs)	100 *(100)*	Namibe, Huila, Cunene, C. Cubango,	Establish epidemic response stockpile in one southern provincial capital	Epidemic response
NMCP capacity building in financial and program mgmt. and M&E	To be decided	250	Luanda	Training of NMCP staff in financial and program mgmt. and M&E	General
Communication and coordination	N/A	No cost to PMI[2]	Luanda	Support regular meetings of Malaria Task Force	General
SUBTOTAL: Monitoring & Evaluation		**450 *(100)***			

MONITORING AND EVALUATION					
Baseline nationwide Malaria Indicator Survey	Measure DHS	465[1]	Nationwide	Baseline data on intervention coverage	M&E
Strengthening sentinel site surveillance; monitoring of program implementation	Grant to NGO/FBO with technical assistance from CDC	500	Nationwide	Support to national malaria M&E plan	M&E
SUBTOTAL: Monitoring and Evaluation		**965**			
IN-COUNTRY MANAGEMENT AND ADMINISTRATION					
In-country staff; Admin. Expenses	CDC/USAID	800	Nationwide	Salaries/support of in-country PMI staff	All interventions
SUBTOTAL: Management/ Administration		**800**			
GRAND TOTAL		**15,000 (7,975)**	***Commodities represent 53.2% of total budget***		

1. Remainder of the estimated total cost of the MIS ($900,000) is covered under the Year 1 PMI budget
2. The cost of these activities is covered under other headings

Table 3

Angola – Year 2 Targets
Assumptions and Estimated Year 2 Coverage Levels

Year 1 PMI Targets:

1. *A total of 1.2 million additional LLINs will be distributed to children under five and pregnant women. (This is expected to translate to nationwide coverage of >60% of all pregnant women and children <5 in Angola in areas not covered by IRS)*
2. *Malaria treatment with ACTs will be implemented in all 59 priority districts nationwide (where 70% of the total population resides) and in all health facilities in 4-5 provinces (This is expected to translate to coverage of 25% of all children under five with suspected malaria nationwide)*
3. *IPTp with SP will be implemented in all 59 priority districts nationwide (where 70% of the population resides) and in all health facilities in 4-5 provinces (This is expected to translate to coverage of 25% of pregnant women attending health facilities nationwide)*
4. *At least 85% of houses in geographic areas targeted for IRS during Year 2 will have been sprayed*

Assumptions:

Population of Angola (estimated): 15,000,000

Pregnant women:	4% of total population = 600,000 pregnant women
Infants (children <1):	3% of population = 450,000 infants
Children <5:	20% of population = 3,000,000 children under five

The 59 MoH priority districts contain 70% of Angola's population, or 10,500,000 persons

Average number of malaria-like illnesses per year and cost per AM-LUM treatment:

Children <5:	3.5 illnesses/year at $0.45 each
Older children:	2.0 illnesses/year at $1.00 each
Adults	0.5 illnesses/year at $1.80 each

Average of 2.5 nets/household needed to cover all pregnant women and children under five in a household;

Inter-vention	Needs for 100% Nationwide Coverage over 5 Years*	Needs for 85% Nationwide Coverage over 5 Years*	Annual Needs to Achieve 100% Coverage	Needs to Achieve Year 2 PMI Targets	Year 2 Contributions
IPTp	600,000 pregnant women x 2 treatments/woman = 1.2 million treatments/year x 5 years = 6 million treatments	5.1 million SP treatments	1.2 million SP treatments	**Target:** *35% of pregnant women receive 2 doses of IPTp =* 420,000 treatments	MoH – 3 million SP treatments to arrive early 2006; **Sufficient SP available to achieve 100% coverage, if fully implemented**
LLINs	2.3 million households x 2.5 nets/household = 5.75 million nets	4.9 million LLINs	One-fifth of 4.9 million LLINs =980,000 LLINs	**Target**: *60% of households with one or more ITNs* 2.3 million x 60% = 1,380,000 LLINs	GFATM – 791,000 USG (PMI) – 400,000 JICA (Benguela) – 180,000 World Food Program – 170,000 **TOTAL** = 1,541,000 LLINs **Thus, more than 100% of Year 2 LLINs needs are met**
ACTs – children < 5 ACTs – older children ACTs - adults	3 million children under 5 x 3.5 episodes/year = 10.5 million treatments/year x 5 years = 52.5 million 6 million older children x 2.0 episodes/year = 12 million treatments/year x 5 years = 60 million 6 million adults x 0.5 episodes/year = 3 million x 5 years = 15 million treatments	10.5 million x 85% = 8.9 million treatments x 5 yrs = 44.5 million 12 million x 85% = 10.2 million x 5 yrs. = 51 million 3 million x 85% = 2.55 million x 5 years = 12.8 million	10.5 million treatments 12 million treatments 3 million treatments	**Target**: *25% of children under 5 receive ACTs nationwide* 10.5 million x 25% = 2.6 million treatments 12 million x 25% = 3 million treatments 3 million x 25% = 750,000 treatments	GFATM – $5.5 million USG (PMI) - $4.0 million JICA (Benguela Province) - $400,000 **TOTAL available for ACTs** = $9.9 million. If all 2.6 million child treatments are covered at $0.45/treatment = $1.2 million + all 3 million older child treatments are covered at $1.00/treatment = $3 million + all 750,000 adult treatments are covered at $1.80/treatment = $1.4 million = total of $5.6 million needed **Thus, more than 100% of Year 2 ACT needs are covered.**

IRS	107,000 houses sprayed by PMI in 2006 in Cunene and Huila Provinces + 25,000 houses sprayed with GFATM funding in 2006 in Namibe Province + one additional township = 140,000 houses	140,000 x 85% = 119,000 houses annually	140,000 households	**Target**: *85% of targeted houses to be sprayed* 119,000 households to be sprayed	USG (PMI) – 140,000 houses scheduled for spraying in provinces of Cunene, Huila, and Namibe **Thus, 100% of Year 2 needs are met.**

*These calculations are based on the assumption that the total population of Angola is at risk of malaria. Since malaria transmission probably does not occur in large areas of the capital, Luanda, which represents 25% of the country's population, it is likely that only 80-85% of the population is at risk of a malaria infection and needs preventive and curative malaria services.

Table 4

President's Malaria Initiative – Angola
Year 2 (FY07) Estimated Budget Breakdown by Intervention ($)

Area	Commodities (%)	Other (%)	Total ($)
Insecticide-treated nets	2,900,000 (90.6)	300,000 (9.4)	3,200,000
Indoor residual spraying	400,000 (16.3)	2,050,000 (83.7)	2,450,000
Case management	4,575,000 (64.1)	2,560,000 (35.9)	7,135,000
Intermittent preventive treatment	-	Covered under Case Management	Covered under Case Management
Monitoring and evaluation	0 (0.0)	965,000 (100.0)	965,000
Epidemic detection and response	100,000 (50.0)	100,000 (50.0)	200,000
Other activities	0 (0.0)	250,000 (100.0)	250,000
Staffing and administration	0 (0.0)	800,000 (100.0)	800,000
Total	**7,975,000 (53.2)**	**7,025,000 (46.8)**	**15,000,000**

Table 5

Year 2 (FY07) Budget Breakdown by Partner ($000)*

Partner Organization	Geographic Area	Activity	Budget ($000)
IVM Task Order	Nationwide	Epidemiologic/entomologic surveillance/monitoring	210
UNICEF	-	Procurement of LLINs; diagnostic equipment and supplies and RDTs; AM-LUM	7,275
Population Services International	Luanda – social marketing; nationwide – IEC	Procurement and social marketing of LLINs; develop and implement unified comprehensive IEC plan	660
IRS Competed contract	Namibe, Huila, Cunene	IRS	2,200
To be decided	Nationwide	Training/quality control of malaria diagnosis	150
Rational Pharmaceutical Management Plus Project	Nationwide	Strengthening MoH drug management system	500
To be decided	Nationwide	Capacity building in financial/program management	250
NGOs/FBOs – to be competed		Malaria preventive and treatment service delivery in underserved areas	1,700
IVM Task Order	Epidemic-prone provinces	Develop epidemic control plans and commodity stockpiles	200
Measure/DHS	Nationwide	MIS survey	465
NGO/FBO (to be competed) with technical assistance from CDC	Nationwide	Health facility surveys; malaria morbidity and mortality surveillance	500
CDC	Nationwide	Entomological evaluation of malaria risk, entomological capacity building, laboratory strengthening	90

*Does not include staffing/administration