This Malaria Operational Plan has been endorsed by the President's Malaria Initiative (PMI) Coordinator and reflects collaborative discussions with the national malaria control programs and partners in country. If any further changes are made to this plan, it will be reflected in a revised posting.

PRESIDENT'S MALARIA INITIATIVE

Year Three

FY08

Malaria Operational Plan (MOP)
TANZANIA

November 9, 2007

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ACRONYMS

<5MR	Under-Five Mortality Rate
ACT	Artemisinin-based Combination Therapy
ADDO	Accredited Drug Dispensing Outlet
AL	Artemether-lumefantrine
ANC	Ante-Natal Care
BCC	Behavior Change Communication
CA	Cooperative Agreement
CDC	Centers for Disease Control and Prevention
CTC	Care and Treatment Center
DDT	Dichloro-Diphenyl-Trichloroethane
DfID	Department for International Development (U.K.)
DSS	Demographic Surveillance System
ELISA	Enzyme-Linked ImmunoSorbent Assay
EV	Equity Voucher
FANC	Focused Ante-Natal Care
FBO	Faith-Based Organization
FELTP	Field Epidemiology and Laboratory Training Program
FY	Fiscal Year
GFATM	Global Fund to fight AIDS, Tuberculosis and Malaria
GoT	Government of Tanzania
HIS	Health Information System
HIV	Human Immunodeficiency Virus
HMIS	Health Management Information System
HPO	Health and Population Office
IEC	Information, Education and Communication
IHRDC	Ifakara Health Research and Development Center
IMCI	Integrated Management of Childhood Illness
IMR	Infant Mortality Rate
IPTp	Intermittent Preventive Treatment in Pregnancy
IPTi	Intermittent Preventive Treatment in Infancy
IRS	Indoor Residual Spraying
ITK	Insecticide Treatment Kits
ITN	Insecticide-Treated Net
IV	Infant Voucher
JICA	Japan International Cooperation Agency
JSI	John Snow, Inc.
LLIN	Long Lasting Insecticidal Nets
M&E	Monitoring and Evaluation
MEDA	Mennonite Economic Development Associates
MIS	Malaria Indicator Survey
MMTSP	Malaria Medium Term Strategic Plan
MOHSW	Ministry of Health and Social Welfare
MOP	Malaria Operational Plan
MSD	Medical Stores Department
NATNETS	National Insecticide Treated Nets Programme
NGO	Non-Governmental Organization
NIMR	National Institute for Medical Research
NMAC	National Malaria Advisory Committee
NMCP	National Malaria Control Program

PEPFAR	President's Emergency Plan for AIDS Relief
PERSUAP	Pesticide Evaluation Report and Safer Use Action Plan
PMI	President's Malaria Initiative
PSI	Population Services International
PWV	Pregnant Woman Voucher
RBM	Roll Back Malaria
RCC	Rolling Continuation Channel
RCHS	Reproductive and Child Health Service
RDT	Rapid Diagnostic Test
RNE	Royal Netherlands Embassy
RTI	Research Triangle Institute
SP	Sulfadoxine-pyrimethamine
SPA	Service Provision Assessment
TaNAAM	Tanzania NGO Alliance Against Malaria
TDHS	Tanzania Demographic and Health Survey
TEPHINET	Training in Epidemiology and Public Health Interventions Network
TFDA	Tanzania Food and Drug Authority
THIS	Tanzania HIV Indicator Survey
TNM	Tanzania Net Manufacturer
TNVS	Tanzania National Voucher Scheme
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Emergency Fund
USAID	United States Agency for International Development
USG	United States Government
WHO	World Health Organization
WHOPES	World Health Organization Pesticide Evaluation Scheme
WVT	World Vision Tanzania
ZTC	Zonal Training Center
ZMCP	Zanzibar Malaria Control Program

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A. EXECUTIVE SUMMARY

President's Malaria Initiative (PMI) Year Three, Fiscal Year 2008 (FY08)
Malaria Operational Plan (MOP) for the United Republic of Tanzania.

In June 2005, the United States Government selected the United Republic of Tanzania as one of the first of three countries to be included in the PMI. This $1.2 billion five-year initiative is now working in 15 sub-Saharan African countries to reduce malaria mortality by 50% in children under five years of age and pregnant women through implementation of proven malaria control interventions. The Initiative will increase coverage to 85% of: 1) insecticide-treated nets (ITNs); 2) prevention of malaria in pregnancy; 3) prompt management of malaria with artemisinin-based combination treatment (ACT); and, 4) indoor residual spraying (IRS).

The United Republic of Tanzania MOP 08 is divided into activities for mainland Tanzania and Zanzibar, made up of several islands (Unguja and Pemba being the two largest), as the Mainland and Zanzibar have separate and independent malaria control programs.

The population of United Republic of Tanzania constitutes the largest number of persons at risk for malaria among all 15 PMI countries: approximately 36.7 million individuals of which 35.6 are in the mainland (93% of the population is at risk in the mainland) and 1.1 million in Zanzibar (where 100% of the population is at risk)[1]. An estimated 100,000 malaria deaths occur annually in Tanzania, of which an estimated 80% are in children under five years of age. Approximately 14-18 million clinical malaria cases each year are reported by public health services. Over 40% of all outpatient attendances are attributable to malaria. According to the health management information system (HMIS), the disease is responsible for more than half of deaths among children under five years of age in health facilities and up to one-fifth of deaths among pregnant women.

The most recent data for malaria interventions in mainland Tanzania comes from a mix of several sources. The most recent Tanzania Demographic and Health Survey (TDHS) in 2005 serves as the PMI baseline. According to this survey, 23% of households owned at least one ITN, with 16% of children under five sleeping under an ITN. PMI will be conducting a nationwide Malaria Indicator Survey later this year, but the Tanzania National Voucher Scheme Evaluation (TNVSE) survey (mainland) in 2006 provides updated interim data: 29% of households have at least one ITN with 18% of pregnant women and 28% of children under five sleeping under an ITN. The TNVSE also reported that 90% of facilities had ACTs in stock and that 25% of pregnant women received two doses of intermittent preventive treatment (IPTp). In Zanzibar malaria indicators have shown marked improvement, with laboratory confirmed malaria cases dropping to 1% in health facilities in April 2007 from 25% in April 2005.

Tanzania is the recipient of Round One and Round Four Global Fund to fight AIDS, Tuberculosis and Malaria (GFATM) grants which have provided most of the funding for ACTs and the mainland voucher scheme. The National Malaria Control Program (NMCP) has submitted proposals for Round Seven ($52.4 million over 5 years) and the Rolling Continuation Channel ($122.6 million over 5 years). In addition, a World Bank credit was approved in July 2007, allocating an additional $25 million to support an ITN catch up

[1] Projected population is 38.3 million for mainland and 1.1 million for Zanzibar. Tanzania National Projections Vol. XII based of 2002 Census. National Bureau of Statistics – Mainland and Chief Government Statistician – Zanzibar. Nov 2006.

campaign for children under five in 2008. PMI is working with all donors and the NMCP to ensure that funding and activities are aligned with the national plan and are complementary.

The $34 million PMI Malaria Operational Plan for FY2008 was developed with full participation of the NMCP on the mainland and the Zanzibar Malaria Control Programme (ZMCP) in Zanzibar. Two consultative meetings with malaria control stakeholders were held in the mainland and Zanzibar in May 2007. Then, an iterative consultation process with NMCP and ZMCP was followed to agree on activities, budgets and timelines. The final MOP 08 was reviewed and approved by NMCP and ZMCP.

Proposed Year Two Targets	Results as of June 2007
Over 1 million ITNs distributed through vouchers and direct distribution on Mainland and Zanzibar	PMI has distributed 887,050 Infant Vouchers, with an expected redemption of 709,000 (by December 2007) (based on historical redemption rate of over 80%-- six month lag time in accounting for redeemed vouchers) (Actual vouchers redeemed August 2007: 208,676) In Zanzibar, 130,000 LLINs were distributed
Over 1.2 million people protected through IRS	40,000 households sprayed in Muleba on mainland in one round (protecting 200,000 residents) 200,000 households sprayed in Zanzibar in three rounds within 12 months (1 million residents protected)
ACTs implemented in health facilities in 80% of districts (mainland)	ACTs rolled out nationwide in January 2006 Over 90% of health facilities are reporting availability of ACTs All health workers trained in new treatment guidelines

Progress to date and plans for each of the major interventions:

Insecticide-Treated Nets: In the mainland, PMI has continued to support the Tanzania National Voucher Scheme (TNVS) in several ways. The Infant Voucher was launched in fall 2006 for children receiving their measles vaccination at nine months of age. By August 2007, more than 900,000 vouchers had been distributed nationwide to health districts with actual redemptions at 208,676. Estimated redemptions (due to lag time in accounting) are expected to reach 710,000, based on historical redemption rates.

During FY08, PMI will continue to support the infant voucher and the under five catch-up campaign for LLINs. During Year Three, PMI will be supporting the implementation of several policy changes which are expected to lead to a rapid increase of ITN coverage levels for children under five and an acceleration of a transition to long-lasting insecticidal nets (LLINs). The first is the complete transition to LLINs and a reduction of the top up fee[2] families have to pay to Ts500 ($0.38) in June 2008. The second is a planned free nationwide LLIN catch-up campaign for children under five beginning in May 2008. This will be jointly funded by the GFATM, World Bank and the PMI. Together with other donors, it is estimated that approximately one million LLINs will be distributed to infants through the voucher

[2] "Top up fee" is the amount a woman needs to provide to purchase a bed net. The reduction is by more than half the old fee.

program and an additional 5.6 million free LLINs to other children under five in the catch-up campaign.

In Zanzibar, after the initial purchase and distribution of 130,000 free LLINs, PMI is supporting the ZMCP in transitioning to a more stable and sustainable way of distributing LLINs through health facilities by introducing a voucher scheme similar to that in the mainland. For FY08, PMI will continue technical support to continue the voucher scheme.

Other Vector Control: PMI supports IRS in mainland and Zanzibar. PMI has supported three rounds of IRS in the Zanzibar islands and one in the mainland. The first two rounds in Zanzibar reached 203,754 and 196,978 households respectively, accounting for 96% and 93% of the targeted households. The third round of IRS in Zanzibar began in July and was completed in September 2007 with similar results. For FY08, PMI will continue to support IRS in Zanzibar with focal spraying depending on epidemiological and entomological data.

The mainland IRS program will be supported in Muleba District and will be expanded to other districts/regions to cover over 147,000 households. PMI support is being provided to the mainland to develop IRS capabilities within the NMCP. PMI is also assisting the mainland to meet their domestic environmental protection regulations for spraying with other insecticides, especially the re-registration of dichloro-diphenyl-trichloroethane (DDT). PMI will also continue to support the larviciding intervention in Dar es Salaam City with a total of nine wards covering a population of 368,750. Early results show significant decreases in the density of *Anopheles* mosquitoes with a concurrent decrease in parasitemia.

Intermittent Preventive Treatment of Pregnant Women (IPTp) and Infants (IPTi): Mainland PMI funding for IPTp began in FY07, with previous years supported with other USAID/Tanzania funds. To date more than 2,300 providers have been trained in Focused Ante Natal Care (FANC) in 1,177 facilities (out of 4,792 targeted facilities) in 80 out of 114 districts in the mainland. For FY08, PMI will accelerate the FANC rollout to all regions in Tanzania —73% of health facilities will be trained in FANC/IPTp by the end of 2008. Additionally, PMI will also work to promote early attendance to ante-natal care (ANC), reduce sulfadoxine-pyrimethamine (the drugs used for IPTp, SP) stock outs and incorporate FANC into 100% of Ministry of Health and Social Welfare nurse-midwifery schools in the mainland. The NMCP has also requested PMI assistance in developing an IPTi program, but this activity will be held until the World Health Organization publishes its recommendations on IPTi.

Malaria Case Management: PMI Tanzania supports several case management activities. Over the past year, ACT training in the mainland has been completed for all first level health workers and out-patient department health workers. More than 8,500 health workers have been trained in using ACTs for uncomplicated malaria (with 44% trained using PMI resources). A total of 400,000 rapid diagnostic tests (RDTs) were distributed to three research institutions in the mainland developing recommendations on diagnostic policy and training/supervision approaches. Zanzibar received 100,000 RDTs; most of them have been used. A recently completed survey showed that almost 95% of facilities in Zanzibar had either microscopy or RDTs available for confirming malaria diagnoses. PMI also procured and distributed ACTs through United Nations High Commissioner for Refugees (UNHCR) in refugee camps in northwestern Tanzania. A total of 113,280 treatments of ACTs were made available to Accredited Drug Dispensing Outlets (ADDOs) for sale in the private sector at subsidized prices.

PMI will support the next ACT training phase in FY08, which includes case management of severe malaria for nurses. Implementation approaches for RDTs are being tested in mainland Tanzania. RDTs are already part of the case management algorithm in Zanzibar. Over 1 million RDTs will be procured for Zanzibar and Tanzania in FY08. In addition, over 2 million ACT treatments will be procured for use in refugee camps and the ADDOs.

Behavior Change and Communication (BCC): With FY07 funds, PMI is expanding BCC activities consisting of advocacy, mass media and community-based approaches on the mainland. Promotional activities in Zanzibar were originally focused on IRS but will be expanded to include other malaria interventions. In FY08, $4 million in the mainland and $300,000 for Zanzibar will be programmed for BCC. There will be an increased emphasis on community-based interventions and working with local non-governmental organizations (NGOs). The BCC activities will span all major intervention areas including ITN use, treatment-seeking behavior, and first-line treatment.

Monitoring and Evaluation (M&E): PMI is providing leadership to strengthen a national monitoring and evaluation plan to accommodate the needs of NMCP, ZMCP, and other partners striving to track the progress of malaria prevention and control in Tanzania. Our provision of technical assistance in the planning of nationally representative surveys such as Malaria Indicators Surveys (MIS), the Tanzania HIV Indicator Survey (THIS), and the establishment of sentinel surveillance capacity at selected health facilities will ensure that PMI has the necessary M&E data in a timely manner. Epidemiologic and entomologic surveillance are also being prioritized by PMI since the transmission dynamics of *Plasmodium falciparum* in Tanzania are quite diverse.

In an effort to foster improved collaboration and communication with key partners, a member of the PMI Tanzania team serves on the GFATM's Five-Year Impact Evaluation Study Task Force assembled in mid-2007. This GFTAM project will collate HIV, tuberculosis and malaria M&E data from the past five years in an effort to describe the overall impact of these three disease control programs in Tanzania. In FY08, PMI efforts in M&E will focus on strengthening routine HMIS data collection, setting up sentinel surveillance sites on both the Mainland and Zanzibar, and continued support to demographic surveillance systems.

Budget: The FY08 PMI budget for Tanzania is $33.724.600. The mainland accounts for $29.186.600 and $2.803 million is allocated for Zanzibar, with the rest for monitoring and evaluation, administration and other expenses. The commodity portion of the total budget is 52%. Of the total allocated, 45% is for ITNs, 20% is for IRS, 17% for diagnostics, procurement and use of antimalarial drugs, 8% for IPTp, 4% monitoring and evaluation, 2% capacity building and 4% for management and administration. The per capita expenditure is $.80. Approximately $12.815 million or 38% will be channeled through NGOs and Faith-Based Organizations (FBOs).

B. PRESIDENT'S MALARIA INITIATIVE

In implementing the United States Government (USG) component of this Initiative, the USG is committed to working closely with host governments and within existing national malaria control plans. Efforts are 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 President's Malaria Initiative (PMI) are highly consultative and held in collaboration with national malaria control programs and other partners.

This document presents a detailed implementation plan for the Year Three or FY08 of the PMI in Tanzania. It briefly reviews the current status of malaria control and prevention policies and interventions, identifies challenges and unmet needs if the goals of the PMI are to be achieved, and provides a description of planned Year Three activities under the PMI. The document was developed in close consultation with the National Malaria Control Programme (NMCP) and the Zanzibar Malaria Control Programme (ZMCP) and with participation of many national and international partners involved in malaria prevention and control in the country.

The PMI is recognized as a key partner in the fight against malaria in mainland Tanzania and Zanzibar. Together with the GFATM and the World Bank, PMI supplies most of the financial and technical resources available to the NMCP and ZMCP for malaria control. Managers in both the mainland and Zanzibar credit PMI with providing vital contributions to the success of their programs.

C. MALARIA SITUATION

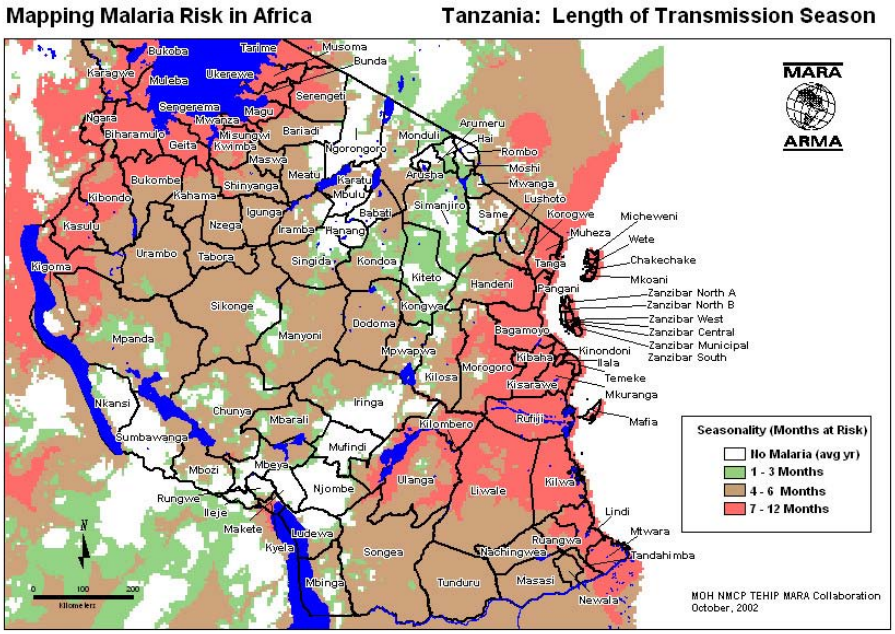
Malaria is endemic across nearly all of mainland Tanzania, with 93% of the population living in areas where *Plasmodium falciparum* is transmitted (See Figure 1), but variation exists in the degree of endemicity. Unstable seasonal malaria transmission characterizes approximately 20% of the country, while stable malaria with seasonal variation occurs in another 20%. The remaining malaria endemic areas in Tanzania (60%) are characterized as stable perennial transmission. *P. falciparum* accounts for 96% of malaria infection in Tanzania. The principal transmission vector in the mainland and Zanzibar is *Anopheles gambiae*.

The population of Tanzania constitutes the largest number of persons at risk for malaria among all 15 PMI countries: approximately 36.7 million of which 35.6 million individuals are in the mainland (93% of the population is at risk in the mainland) and 1.1 million in Zanzibar)[3].With such a large portion of the country characterized as perennial *P. falciparum* transmission, the ongoing burden of malaria morbidity and mortality is substantial. An estimated 100,000 malaria deaths occur annually in Tanzania, plus 14-18 million clinical malaria cases each year are reported by public health services. Health facilities report malaria as the leading cause of outpatient and inpatient health care visits and of deaths among children. Over 40% of all outpatient attendances are attributable to malaria. According to the

[3] Projected population is 38.3 million for mainland and 1.1 million for Zanzibar. Tanzania National Projections Vol. XII based of 2002 Census. National Bureau of Statistics – Mainland and Chief Gov. Statistician – Zanzibar.

health management information system (HMIS), the disease is directly (severe malaria) or indirectly (severe anemia) responsible for more than half of deaths among children under the age of five years in health facilities and for up to one-fifth of deaths among pregnant women.

Figure 1: Length of Malaria Transmission Season, Tanzania



Overall, the Millennium Development Goals indicators are showing improvement. The Tanzania Demographic and Health Survey (TDHS) 2004 – 2005 showed a significant decline in infant mortality rate (IMR) since 1999. The IMR declined from approximately 100 per 1000 live births in 1999 to 68 per 1000 live births in 2004. Similarly, the under-five mortality rate, the GFATM's principal indicator of success against malaria, showed a decrease from 156 deaths per 1000 five years ago, to 112 per 1000 in the 2004 TDHS. The RBM core indicators (see Table A below) suggest that some reduction in IMR is partially due to an increase in coverage of key malaria interventions and, consequently, a lowering of malaria-specific mortality among infants. Unfortunately it is difficult to quantify with the available data how much of the reduction in IMR is due to a reduction in malaria-specific mortality. The 2004 IMR estimates are not equal across all geographic or socio-economic strata. The Northern Zone and Southern Zone in the mainland experienced the extremes in IMR—67 and 127 per 1000 live births, respectively. Cohorts classified in the richest and poorest socio-economic status (SES) quintiles experienced an IMR of 64 and 88 per 1000 live births, respectively. Likewise, IMR was highly associated with mother's education, with rates of 56 and 101 per 1000 live births for women with secondary education and no education, respectively. These data suggest that further gains in infant mortality need to come from intensified efforts to reach populations living in certain Zones[4] and in the lowest SES and educational levels.

Of special note is the ongoing progress of the GFATM-PMI-supported malaria control interventions in Zanzibar. ZMCP in collaboration with PMI recently completed a survey of outpatient registers covering the first six months of 2005, 2006, and 2007 at 10 health facilities

[4] Mainland Tanzania is divided into 8 zones, 21 regions and 114 districts and 132 government councils. Zanzibar has 5 regions, 10 districts and 10 government councils.

in Unguja and Pemba. Compared to 2005 data, laboratory-confirmed malaria among children under one year of age was 70% and 90% lower for 2006 and 2007, respectively. The main difference between the first six months of 2005 and first six months of 2006 is the free distribution of long lasting insecticidal nets (LLINs) to all pregnant women and children under five.

Population-based parasitological data from Zanzibar show important declines. Data from an on-going study by the Zanzibar Research Unit and the Karolinska Institute report that in two sentinel sites (North A and Micheweni Districts in the main Zanzibari island of Unguja) the prevalence of malaria infection has gone from 7.9% in 2003 to 0.8% in 2006 in North A and from 14.2% in 2003 to 4.7% in 2006 in Micheweni. Preliminary data from the same sites in 2007 show that prevalence is now close to zero. Very preliminary data from a RBM survey recently completed show parasitemia also close to zero.

In spite of signs that the malaria situation is improving, there are still areas of concern. The 2005 and 2006 Tanzania National Voucher Scheme Evaluation (TNVSE) surveys (nationally representative samples of 6,199 of 6,260 households, respectively) showed ownership of at least one bed net was moderate and not substantially improved from the 2004 TDHS (sample of 9,483 households). Likewise, the proportion of pregnant women sleeping under an insecticide treated net (ITN) the preceding night has shown little improvement since 2004. The most vulnerable group, children under five years old, experienced almost a doubling of ITN coverage between 2005 and 2006. Yet last year's TNVSE survey still indicated that ITN coverage for this group was far below Abuja or PMI targets. See Table A.

Table A: Bed Net Coverage Indicators – Mainland

Indicator	2004 TDHS (%)	2005 TNVSE* (%)	2006 TNVSE* (%)
% households at least one net	46	44	57
% households at least one ever treated	29	24	38
% households at least one ITN	23	18	29
% PWV sleeping under any net	32	25	34
% PWV sleeping under ever treated net	20	13	23
% PWV sleeping under ITN	15	11	18
% Under fives sleeping under any net	31	28	41
% Under fives sleeping under ever treated	20	15	28
% Under fives sleeping under ITN	16	15	28

*TDHS data shown for comparison purposes to initial (2005) TNVS evaluation survey. 2005 and 2006 TNVS evaluations were conducted in the same 21 districts each year and do not directly overlap with districts included in the 2004 TDHS.

Intermittent Preventive Treatment of malaria in pregnancy (IPTp) in both mainland and Zanzibar needs special attention. The 2004 TDHS reported that 53% of pregnant women in the mainland received at least one dose of SP for IPTp, but two doses, the national guideline, were received by only 22%. In Zanzibar the situation was even worse—26% of pregnant women received at least one dose and only 14% received two or more doses.

The Integrated Management of Childhood Illness (IMCI) strategy, the standard for case management of malaria and other childhood diseases in Zanzibar (and the mainland), will

need to be strengthened to ensure that childhood malaria continues to be properly addressed in an environment of reduced malaria prevalence.

Finally, as Zanzibar continues progress in accomplishing dramatic reductions in malaria transmission it will become increasingly important for malaria controllers to mount improved capacity to respond to sudden surges in malaria. This will be particularly important for controlling severe outbreaks among the youngest children who are no longer acquiring protective immunity as a consequence of periodic exposure to *P. falciparum* parasites from birth onward.

D. NATIONAL MALARIA CONTROL PLAN AND STRATEGY

The Government of Tanzania has well established malaria control programs in the mainland and Zanzibar. The NMCP serves the Mainland while the ZMCP serves Zanzibar. Mainland Tanzania and Zanzibar have separate ministries of health and for practical purposes their respective programs are independent. For malaria control purposes, there are two "countries" within the United Republic of Tanzania; the mainland with approximately 38.3 million inhabitants and Zanzibar with a slightly more than 1.1 million people.

The NMCP is organized into five cells (organizational units) including case management, vector control, ITN, information and education, and monitoring and evaluation (including operations research and epidemic detection/response) under the leadership of a program manager. Each cell includes a team leader and from two to four staff members, plus a total of seven support staff across all cells. The ZMCP is organized in a similar manner and has a comparable number of staff.

To coordinate and direct actions, the NMCP and ZMCP have established various committees and task forces. In the Mainland, the National Malaria Advisory Committee (NMAC) meets twice a year. Its purpose is to offer to the NMCP state-of-the-art technical advice on malaria control. The Inter-Agency Malaria Coordinating Committee, of which PMI is a part, in the mainland was set up to coordinate with RBM partners on issues of planning, monitoring and evaluation and funding. It is supposed to meet three times a year, but it is currently non-functional. For the mainland, there are four sub-committees of National Malaria Control that deal with the various aspects of the program, namely: case management, vector control, monitoring and evaluation, and information, education and communication (IEC). Only the case management and monitoring and evaluation committees, however, meet with any regularity. ITN strategy is coordinated through the NATNETS Programme. As may be expected, coordination is considerably more complex in the mainland than in Zanzibar.

The principal aim of NMCP's Malaria Medium-Term Strategic Plan (MMTSP 2002 – 2007) is to reduce malaria morbidity and mortality in all 21 regions of the mainland by 25 % by 2007 and by 50 % by 2010. The new draft MMTSP (2008 – 2012) states that the burden of malaria will be reduced by 80% by the end of 2012. For Zanzibar, the targeted reduction is 35% by 2008. Both malaria control programs have adopted four WHO-recommended strategies to meet these objectives: 1) appropriate management of febrile episodes in homes and health facilities (in the case of health facilities treatment is with artemisinin combination therapy (ACT); 2) protecting pregnant women against malaria by using IPTp; 3) vector control which includes encouraging populations at risk to sleep under ITNs and efforts to implement indoor residual spraying (IRS) in epidemic-prone areas; and 4) in the case of the mainland, prompt recognition and response to epidemics (Zanzibar is not prone to sudden malaria outbreaks,

although may be in the future). Larvicidal interventions are also being carried out in the mainland. IRS is part of current policy in Zanzibar and in mid-2007 IRS campaigns began on the mainland in Muleba District.

Operationally, the mainland strategy involves demand creation through behavioral change communication, implementation of the IMCI strategy in households and communities (which includes case management for fever in children under five), training of private vendors for improved distribution of ITNs, use of a subsidized voucher system for vulnerable groups to make ITN ownership less expensive, establishment of early warning systems for malaria epidemics, and use of IPTp and ITNs by pregnant women. In Zanzibar, LLINs were distributed free to high-risk groups until recently while in the mainland users pay a minimal fee to top off the voucher value (given to pregnant women during ante-natal visits). Current guidelines include spraying with insecticides to pre-empt epidemics in the mainland. In Zanzibar, where spraying has been done before (1960s and 1980s), the ZMCP has reinstituted their IRS program with PMI funding. Home treatment of malaria is encouraged but not overtly promoted in the mainland. Most work of the NMCP and ZMCP is through direct support to districts with training and technical assistance, guidelines and, in some cases, financial support. Regions and districts in the Mainland and Zanzibar are responsible for programming their own malaria activities.

The Tanzania National Voucher Scheme (TNVS) has made significant gains during this past year. As of August 6, 2007 more than 3,439,725 vouchers have been distributed to pregnant women since the start of the program in November 2004. Approximately 2,195,413 women have redeemed their vouchers for bundled polyester nets. Although PMI did not directly support the Pregnant Woman Voucher (PWV) until recently, its infrastructure greatly facilitates the distribution of PMI's infant voucher (IV) and equity voucher (EV). Additionally, the network of retailers built up under the TNVS provides a basis upon which the future of bed net distribution in Tanzania will rest. Supplementing the nets distributed as a result of the TNVS, 4.9 million unsubsidized (apart from the bundled ITK) polyester nets have been sold by the retail vendor network (and other vendors) since the start of the TNVS, complementing the 2.3 million nets sold under the TNVS. In August 2007 PMI began supporting the PWV during an interim period while GFATM resources are mobilized.

Although overall PMI's work with the TNVS has been excellent this past year, there has been significant debate within the NMCP, MOHSW and the various stakeholders that has resulted in important changes in policy and practice. Following the last NATNETS Steering Committee[5] meeting (May 2007) the MOHSW has now agreed on the following: 1) TNVS will move toward LLINs as soon as funding is available, gradually introduced one Health Zone[6] at a time between June – Dec 2008; 2) the top up value (on average Ts1,290, $.99) will be reduced to Ts 500 ($.38) to enable families to afford a LLIN; and 3) the under five "catch up" campaign originally planned to commence in 2007 will not use vouchers, rather LLINs will be directly distributed to beneficiaries free of cost starting in June 2008.

These changes will have considerable impact on the financing of the TNVS and will require re-alignment of PMI resources. These policy changes are partly justified by the slow progress in increasing coverage of the target populations and the need for the distribution of bed nets to be more equitable. All of this is a departure from previous plans which involved providing a

[5] NATNETS is the National Nets Program and its steering committee is composed by donors who are supporting NMCPs malaria activities, namely bed nets.
[6] Health Zone is a MOHSW-only aggregation of several regions. There are eight in the country.

voucher for a bundled polyester bed net (costing about half of an LLIN) that required a top up[7] . These changes come at a critical time for the national bed net activity given that current GFATM funding for the TNVS will expire in October 2007 and other donors (DfID and RNE) are shifting their resources to other forms of support to the MOHSW and/or Government of Tanzania (i.e. basket funding/budget support). PMI will work with the NMCP to ensure that the impact is minimized and the bed net program does not suffer any dislocations as a result of this change.

Financing of malaria activities for both the mainland and Zanzibar is very dependent on outside sources. In the mainland, the malaria budget allocation from the GoT's sources for 2007-2008 has been drastically reduced from a high of $5.2 million (2006 -2007) to $2.8 million (2007 – 2008) as GoT financing has shifted to support other priorities. Table B shows the amounts and sources of funding for malaria activities in the mainland. A gap analysis conducted in preparation for the GFATM Round Seven and Rolling Continuation Channel (RCC)[8] proposal in the Mainland, shows serious financial deficiencies in a number of programmatic areas in the short-and long-term. Further, if GFATM or other resources fail to materialize and additional resources are not found, the malaria program in the mainland will face serious difficulty.

Table B*
External Sources of Funding for Malaria Control
Mainland

Source	Amount ($Millions)	Period Covered	What is covered?
GFATM Round One	19.8	Nov 03 – Oct 07	Establishment of TNVS. Provision of discount vouchers to pregnant women with associated training, BCC and M&E.
GFATM Round Four	54.2	Jun 05 – May 07	Provision of ACTs (Received approval for second phase).
GFATM Round Seven	52.5 *Proposed*	2008 – 2013	Improved malaria diagnosis through the introduction of RDTs ($15.5 million); Access to ACTs in the private sector ($27 million); Improved quality of care in children with severe malaria ($4.8 million); Monitoring and evaluation ($5.2 million).
GFATM RCC	122.2 *Proposed*	2008 – 2013	Support to the PWV ($76.2 million); Catch up campaign for under fives ($23.7 million); BCC ($16.9 million) and monitoring and evaluation ($5.4 million).
DfID/Royal Netherlands Embassy (RNE)	29.0	Jul 02 – Jun 07	SMARTNET ITN Social marketing program, insecticide subsidy, demand creation and BCC.
PMI Year One	8.5	Jul 06 – Jun 07	TNVS Infant Voucher (15 regions), Equity Voucher (six regions), urban malaria control, in Dar es Salaam, improved

[7] "Top up fee" is the amount the woman needs to provide to purchase a bed net.
[8] RCC is new mechanism established by the GFATM to enable countries with good record of performance to seek support for activities that were started with GFATM funds but are coming to an end. As opposed to a Rounds-based proposal (Round 7) the RCC allows the GFATM to fund certain line items in the proposal while not funding others. Participation in the RCC is by invitation only.

Table B* External Sources of Funding for Malaria Control Mainland			
Source	**Amount ($Millions)**	**Period Covered**	**What is covered?**
			management of severe malaria (3 districts), RDTs (five districts), training for ACTs, ACTs for private sector, ACTs for refugee camps, strengthen Medical Stores Department, M&E.
PMI Year Two	28	Jul 07 – June 08	TNVS Infant Voucher (21 regions), Equity Voucher (seven regions), urban malaria control in Dar es Salaam, improved management of severe malaria (3 districts), RDTs (five districts), training for ACTs, ACTs for private sector, ACTs for refugee camps, strengthen Medical Stores Department, M&E, IRS, BCC, purchase insecticide kits. *Dates are for actual financing years*
PMI Years 3 – 5	110 *Proposed*	Jul 08 – Jun 11	Continuation of above activities with change to LLINs and exception of equity voucher.
World Bank	25	Jul 07 – Dec 09	Under-five LLIN catch up campaign, national re-treatment campaign.
Swiss Development Corporation	1.2	Jul 05 – Jun 08	Core support and staffing on national ITN Cell.
Irish AID	.85	Sep 03 – Jan 07	Additional support to ITN Cell including promotion of LLINs, communication and advocacy, training and institutional strengthening.
Italian Cooperation 1	.761	Jan 04 – Mar 07	Establish M&E Cell, training for ACTs, TA for GFATM proposal development Round Four.
Italian Cooperation 2	1.3 *Proposed*	Jan 08 – Dec 09	Activities not yet determined.
Japanese International Cooperation Agency	.9	Feb 05 – Jun 07	Quality assurance for laboratory staff, training of RCH staff.
USAID non-PMI	.25	Jan 05 – Dec 09	Improvement of quality of pediatric care including access to HIV care and treatment.
European Union	.1	Jan 06 – Dec 08	Improvement of quality of pediatric care with emphasis on severe febrile diseases.
Japanese International Cooperation Agency	.1	Jan 07 – Dec 09	Establishment of acute pediatric care units in tertiary and regional hospitals.

* Adapted from GFATM Round Seven proposal. National Malaria Control Programme, Ministry of Health and Social Welfare. July 2007.

NMCP has submitted a proposal to the GFATM under the RCC for $122.2 million for six years (see Table B). The proposal includes $76.2 million to finance the PWV with LLIN vouchers and to provide the associated infrastructure and training, $23.7 million to finance 58% of the Under Five Catch Up Program and $16.9 million for behavior change and

communication (BCC) activities. Additionally, NMCP submitted a GFATM Round Seven proposal requesting $52.5 million for: 1) increased coverage of malaria parasitological diagnosis through the introduction of RDTs where microscopes are unavailable; 2) increased access to ACTs through subsidy in the private sector; and: 3) improved quality of care to severely ill patients; and, 4) monitoring and evaluation. NMCP officers have a high degree of confidence that RCC funds will be granted but are not as hopeful of the Round Seven proposal. If GFATM RCC or Round Seven funds are not obtained or if the full amount is not awarded, the bed net program will suffer and will have to be revamped. NMCP's and PMI's resources will simply not be enough to cover the shortfall. The GFATM recently approved the second phase of its Round Four grant (i.e. ACTs in public health facilities) to mainland Tanzania.

Another donor providing support of the NMCP bed net program is the World Bank. A credit for $60 million dollars has been approved (July 4, 2007) by the World Bank to support the health sector. Of the total, $25 million has been allocated to support the malaria program—approximately $10.2 million for a national re-treatment campaign ($8.2 million for insecticide and $2 million for implementation and logistics costs) and $14.8 million to support the catch up campaign for children under five. PMI officers worked very closely with the World Bank in budgeting and securing these resources for malaria.

According to ZMCP, the MOHSW (Zanzibar) budget is approximately $6.1 million, of which approximately $73,790 is for malaria activities. An important funding source for malaria activities in Zanzibar is GFATM Round Six funds, with an expected contribution of $1.8 million and $1.6 million for 2007 and 2008, mainly for ACTs and LLINs. PMI provides around $3 million each year mostly for IRS. The ZMCP also submitted a GFATM Round Seven proposal. The ZMCP proposal includes procurement of ACTs for public and private health facilities, training of health workers in case management, supervision of case management, strengthening of quality assurance, pharmacovigilance, diagnostic capacity improvement, (including procurement of RDTs), support to IRS, IPTp, LLINs for a routine supply to target cohorts, and other system and community strengthening activities. Total budget requested in the ZMCP Round Seven proposal was $19.6 million.

E. CURRENT STATUS OF MALARIA INDICATORS

Several nationally representative surveys and data sources provide information on coverage levels of various malaria indicators. Table C below describes what is currently known for the mainland and Zanzibar. Mainland Tanzania's coverage targets remain below desired levels as indicated by the most recent TNVS evaluation, a nationally representative sample of over 6000 households conducted in 2005, 2006, and 2007. Data from the 2004-05 TDHS provide baseline indicators.

Table C: Coverage Indicators Mainland and Zanzibar

Coverage Indicator	Mainland Baseline 2004 TDHS (%)	Mainland 2006 TNVSE¶* (%)	Zanzibar Baseline 2004 DHS (%)	Zanzibar 2006-07 MIS (%)
% Households with at least one ITN	23	29	28	61
% Children under five who slept under an ITN the previous night	16	28	22	76

Table C: Coverage Indicators Mainland and Zanzibar				
Coverage Indicator	Mainland Baseline 2004 TDHS (%)	Mainland 2006 TNVSE¶* (%)	Zanzibar Baseline 2004 DHS (%)	Zanzibar 2006-07 MIS (%)
% Pregnant women who slept under an ITN the previous night	15	18	20	64
% of women who received two or more doses of IPTp during their last pregnancy in the last two years (IPTp)	22	25	14	56
% Govt health facilities with ACTs*	-	90‡	-	-
% of children under five years old with fever in the last two weeks who received treatment with ACTs within 24 hours of onset fever.	-	-	-	26
% of targeted houses adequately sprayed with a residual insecticide in the last 12 months	-	95†	-	95†

*Data for *treatment* with ACTs not yet available, thus indicator modified
†RTI activity reports (mainland includes one district only, July 2007)
‡90% of government facilities reported no stock-out in Jan-Mar 2007 supervision summary reports (NMCP)
¶TNVSE=Tanzania National Voucher Scheme Evaluation, nationally representative survey of 6,300 households
*TDHS data shown for comparison purposes to initial (2005) TNVS evaluation survey. 2005 and 2006 TNVS evaluations were conducted in the same 21 districts each year and do not directly overlap with districts included in the 2004 TDHS.

F. GOALS AND TARGETS OF THE PRESIDENT'S MALARIA INITIATIVE

The goal of PMI is to reduce malaria-associated mortality by 50% compared to pre-PMI levels in Tanzania. By the end of 2010, PMI will assist Tanzania to achieve the following targets among persons 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 six 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 will have ACTs available for treatment of uncomplicated malaria;
- 85% of children under five with suspected malaria will have received treatment with ACTs within 24 hours of onset of their symptoms.

G. EXPECTED RESULTS – FY08

PMI will measure progress toward achieving these coverage levels through several mechanisms. Mortality impact and intervention coverage can best be measured with representative household surveys like TDHS. Unfortunately TDHS will not be repeated until 2009. However, there is an opportunity to include questions about malaria indicators in the Tanzania HIV Indicator Survey (THIS) Survey in mid-2007. Both NMCP and ZMCP also conduct biannual RBM coverage surveys as recommended by WHO–Africa Region. ZMCP recently completed one and preliminary results are available. These surveys are more rapid and less statistically representative than TDHS or the RBM Partnership Malaria Indicator Survey (MIS). These surveys will be repeated in 2007 and will be used to help estimate progress toward PMI targets for ITN ownership and use, coverage of IPTp, and prompt effective treatment of childhood fevers. NMCP has requested PMI support to complete RBM coverage surveys at household and facility level in 2007. The 2006 Service Provision Assessment (SPA) that includes facility-based process indicators has only released preliminary results and a full report is not yet available.

Key outcomes and their targets to be measured in 2007 - 2009 surveys are listed in Table D and include:

Table D: Targets for Changes in Selected Indicators for Tanzania*

Country	Two dose IPTp			ITN use(<5's)			ITN use (Pregnant women)			IRS (targeted houses)			Febrile children receiving ACT		
	'05	'07	'08	'05	'07	'08	'05	'07	'08	'05	'07	'08	'05	'07	'08
Mainland	22%	50%	60%	16%	40%	60%	15%	55%	60%	0%	85%	85%	<1%	40%	60%
Zanzibar	14%	40%	70%	22%	80%	85%	26%	80%	85%	0%	85%	85%	36%	70%	80%

*Baseline coverage estimates in this table are drawn from the 2004/2005 Tanzania Demographic and Health Survey. Indicative 2007 coverage estimates will be taken from the DHS malaria module which will be incorporated into the Tanzania HIV Indicators Survey that will be conducted in late 2007. However, these estimates will not account for a full two years of funding. Therefore, the actual 2007 impact will be measured by the TDHS in 2009.

In FY08, PMI, with partners, will achieve the following results:

Prevention

- Approximately 1.1 million ITNs will be distributed as part of the IV in mainland Tanzania.
- Approximately 5.6 million LLINs will be distributed in mainland Tanzania during a national under five catch up campaign of which 285,000 will be provided by PMI.
- Approximately 6.5 million ITNs will be re-treated in mainland Tanzania during a national re-treatment campaign.
- Approximately 60% of children under five will have slept under LLIN after the PWV, IV, Under Five catch up campaign and national re-treatment programs are implemented.
- Approximately 120,000 and 200,000 households targeted for IRS will have been sprayed on the mainland and Zanzibar respectively.
- 3000 health workers will be trained in IPTp in the mainland
- Approximately 400,000 individuals will be protected through larviciding activities in mainland Tanzania.

Treatment

- 1000 registered nurses will be trained in malaria case management in the mainland (including in-patient care of severe malaria). That is approximately 50% of total.
- 100,000 RDTs will be distributed to health facilities in Zanzibar
- 400,000 RDTs will be distributed to health facilities in mainland Tanzania.

H. INTERVENTIONS – PREVENTION

H.1 Support to the Infant Voucher – Mainland

Current Status

The distribution and redemption of IV is going as expected. Mennonite Economic Development Associates (MEDA), our partner for the IV and EV, reports that as of August 2007, more than 900,000 infant vouchers had been distributed in 89 districts in 15 regions (out of 114 districts and 21 regions) of mainland Tanzania. This is almost two times the number distributed up to the last quarter of 2006. Also, as of August 2007, 208,511 of these vouchers had been redeemed. Because of the lag time (six months) between when a voucher is redeemed with the retailer and when the voucher is redeemed with MEDA, the actual redemption is higher than the above figures indicate—estimate to reach over 700,000 by December 2007. Training for all stakeholders who support and/or manage the IV has been completed in the 15 targeted districts and regions mentioned above. Our training partner World Vision Tanzania (WVT) reports that all Reproductive and Child Health Service (RCHS) personnel handling the IV in 15 districts were trained (Approx. 6,986) in 3,189 health facilities exceeding the targets of 5,819 personnel in 2,940 facilities. The remaining six regions will be completed by December 2007. Stakeholders trained include Council Health Management Teams, clinic staff, wholesalers and retailers.

USAID/Tanzania has issued a request for applications (FY07 funds) to complete additional training and promotion of the IV and the possible extension of the EV to seven regions (based on the results of an evaluation). Besides completing the training, an assessment of past training will be undertaken and re-training done as needed. This contract will also provide resources for follow up of all trainees and on-going supervision.

Proposed USG activities

Support to the Infant Voucher Mainland	
Cost	$9 million
% Commodities	85%
Level	National
Mechanism	MEDA

The top up amount will be reset at a lower level of Ts 500 ($.38) enabling caretakers to obtain an LLIN at extremely low prices with potential durability of up to five years. The new policy will be implemented with support from the GFATM and will be done region by region starting in June 2008 and finishing in December 2008. PMI will continue its support to the IV to ensure that all children who leave their mother's bed (at 9 months) will have an LLIN of their own. All IVs will be funded with PMI funds. The EV will be evaluated and discontinued if not performing.

The implementing mechanism will be MEDA, a Canadian-based Faith-Based

Organization (FBO).

H.2 Support to the Under Five Catch Up – Mainland

Current Status

The TNVS, started in November 2004 and supported by GFATM and PMI, provides ITN vouchers only to pregnant mothers, infants and the poor. Given that the TNVS has only been fully operational for less than two full years (having reached the last districts in May 2006), a significant group of children under five will not have benefited from the program. Approximately 5.6 million children who were one year or older when the TNVS started may not have an ITN to sleep under. Therefore, a catch up mechanism is needed to ensure that all children between one and five years of age have an ITN. According to the new NMCP policy all bed nets distributed under this mechanism will be LLINs and will be free of cost. This activity was originally included in the MOP 07 (in four regions), but it has been delayed until May 2008 because the NMCP wishes to implement the campaign once all funds (including GFATM and World Bank) are in place to ensure that all targeted children receive an LLIN rather than an ITN.

According to the NMCP, the present budget strategy for this activity includes funding eight regions with the World Bank credit of $25 million and 12 regions with the GFATM's Rolling Continuation Channel funds ($23.7 million if obtained). PMI will support the implementation of the catch up campaign in one region.

Proposed USG Activities

Support to Under Five Catch Up – Mainland	
Cost	$3.25 million
% Commodities	80%
Level	National
Mechanism	MEDA

Children one to five years old will receive a free LLIN through a specifically-designed campaign which will be combined with the national re-treatment campaign. The campaign will commence in May 2008 and will be completed by the end of the year (one zone per month). PMI Tanzania will program $3.25 million to support the catch up campaign. This distribution will not be through the TNVS but rather will be direct distribution of free LLINs to beneficiaries under five. The overall switch to LLINs through the TNVS will be linked to this "catch up" campaign and will occur one month following the "catch up" campaign in each of the regions. The PMI will contribute LLINs and logistics costs for the equivalent of one of the 21 regions (GFATM and World Bank will pay for the rest as mentioned above). PMI costs for this activity include sensitization of local government, training of staff, compilation of lists of children under five living in the campaign area, logistics costs and the procurement of approximately 285,000 LLINs. The NMCP estimates that coverage of children under five with LLINs will reach approximately 60% nationwide by the end of 2008.

Whereas the IV will be an ongoing routine program, and thus represents a recurring cost, the "catch up" to reach all children under five represents a single intervention to achieve rapid coverage of this entire target group during PMI Years Three and Four. It will not require annual repetition as all newborn children will be reached through the continuing Infant Voucher program.

The implementing mechanism will be MEDA.

H.3 TVNS Training – Mainland

Current Status

Traditionally the NMCP has separated the TNVS logistics contractor (i.e. MEDA) functions from the training contractor (World Vision Tanzania). PMI continued this separation in its Year One through agreements with MEDA and subcontracts to World Vision through the CORE Group for training for the Infant and Equity vouchers. The training contractor is responsible for all training of MOHSW staff, as well as bed net retailers participating in the TNVS Program.

USAID/Tanzania has released an RFA for training on the TNVS for $500,000 with FY07 funds. A small part of this RFA includes local mass media and focused community level promotion on the uptake and use of the infant and equity vouchers to purchase ITNs through the TNVS, as well as instruction on how to use nets and treat them. These local BCC activities will complement the larger BCC programs described in section H.11 below.

With the introduction of the Under Five Catch Up Campaign, and the NMCP's decision to move all the vouchers to LLINs, there is continued need for additional training and community promotion of the TNVS.

Proposed USG Activities

TNVS Training	Mainland
Cost	$400,000
% Commodities	-
Level	National
Mechanism	TBD

$400,000 in funding will be provided to continue training of RCHS personnel and retailers to ensure continued smooth functioning of the TNVS. The BCC activities will be shifted to the BCC awardee described in section H.11 below.

The implementing mechanism will be incremental funding to the bilateral awardee.

H.4 Support to Zanzibar Voucher Scheme – Zanzibar

Current Status

Zanzibar has been very successful with their initial distribution of LLINs. Preliminary data from a recent RBM MIS survey (August 2007) indicate ownership of an ITN in 76% of households and 74% of children under five sleeping under an ITN. Together with treatment with ACTs and IRS, LLINs have helped reduce malaria incidence significantly (see Section C. Malaria Situation). LLINs provided by the GFATM and PMI were distributed by the MOHSW through health facilities in a national campaign that lasted several months. Lists of eligible children and pregnant women were compiled and once complete, MOHSW vehicles delivered the LLINs and health workers distributed them to those on the list. Although some problems with the distribution were reported, all in all the system worked. However, ZMCP recognizes that a campaign-style activity can not provide bed nets routinely to target groups. To solve this problem, ZMCP has engaged, with PMI support, the services of MEDA to

implement a voucher system similar to the one on the mainland for the routine distribution ("keep up") of bed nets through health facilities. This scheme has strong political support in the MOHSW. To date, a voucher has been designed and a printing order submitted for 100,000 vouchers. Also the listing of health facilities in Unguja has been updated. Sensitization materials have been developed and community work has already begun. Training of trainers and of community leaders has begun in both islands. An exhaustive consultative process was followed to arrive at an acceptable top up amount for the voucher, Ts 1,000 ($ .77). Before free distribution of LLINs, the ZMCP distributed bed nets through public health facilities at a cost of Ts 1000.

Proposed USG Activities

Support to Zanzibar Voucher Scheme	
Cost	$180,000
% Commodities	-
Level	National
Mechanism	MEDA

Given the importance of bed nets in the Zanzibar malaria control program, PMI considers this activity a high priority and has assigned $180,000 to support the training, supervision and logistical aspects of the program as well as other key activities. The GFATM is a key partner and will supply all the LLINs necessary for this activity. PMI-supported activities will include additional development of training materials and training for RCH staff and retailers, design of a database for voucher tracking, contracting wholesalers, voucher distribution to clinics and on-site monitoring. Additionally, ZMCP plans BCC activities to promote the continued use of bed nets in the islands.

The ZMCP and the implementing partner will carefully monitor this activity to ensure that cost is not a factor in obtaining an LLIN. PMI will propose a policy change if redemption rates are too low.

The implementing mechanism will be MEDA.

H.5 Urban Malaria Control – Larviciding – Mainland

Current Status

Reduction in human-vector contact is a cornerstone of malaria control. While ITNs and IRS both diminish human contact with adult mosquitoes, earlier stages of the mosquito life-cycle may also be targeted for malaria control purposes. One approach is to kill mosquito larval stages while still in their breeding sites (water). This reduces the numbers of larvae that mature into pupae and ultimately into adulthood, rendering fewer vectors available to feed on humans and transmit malaria parasites.

PMI has provided $200,000 and $400,000 in FY076 and FY2007, respectively, to support the Dar-es-Salaam Urban Malaria Control Programme through the global Integrated Vector Management implemented by Research Triangle Institute (RTI). This is a collaborative effort between the City Medical Office and the Ifakara Health Research and Development Centre (IHRDC). To date, field workers have successfully mapped mosquito breeding sites within 15 wards covering three municipalities. Over 200 field staff have conducted regular inspections to determine which sites are active and to identify new breeding sites. The teams also conduct regular sampling for adult mosquito vectors including nighttime human landing catches.

Beginning in April 2006 the project targeted three wards to receive the larviciding intervention, and expanded to nine sites by May 2007. Field teams have treated active breeding sites in these wards with a biological larvicide that includes *Bacillus thuringiensis var. israelensis H-14* for open habitats (e.g., ponds and fields) and *Bacillus sphaericus* for closed habitats (e.g., pit latrines and septic tanks).

Preliminary entomologic data show that while no reductions were detected in human-biting rates of adult culicines, a 20% reduction in human-biting rates of *A. gambiae* was detected. More importantly, a 63% reduction in parasitemia prevalence was detected among the initial three intervention wards (11% pre-intervention versus 4% post-intervention). Through the activities of the Dar-es-Salaam Urban Malaria Control Programme, more than 400,000 urban residents have been protected from mosquitoes carrying malaria, and other diseases. The program also provides a scaleable model for rolling out larval control in other urban settings.

Proposed USG Activities

Urban Malaria Control – Mainland	
Cost	$500,000
% Commodities	-
Level	District
Mechanism	RTI

In PMI FY08, $500,000 will be used to allow the intervention to continue in nine wards with the remaining wards serving as a comparison group. Ongoing entomological and parasitological data will be collected to verify the performance of this intervention, particularly following a rainy season. In addition to parasitological outcomes conducted as part of household surveys, health facility record reviews will be conducted in selected sites within intervention and non-intervention wards to see if differences in malaria admissions can be detected. The total population covered by the larviciding intervention by the end of calendar year 2008 will be nearly 450,000.

The implementing mechanism will be incremental funding to the RTI Cooperative Agreement.

H.6 Indoor Residual Spraying – Mainland

Current Status - Mainland

Muleba and Kagera districts in North Western Tanzania (Pop. 385,184 and 216,437 respectively), on the shores of Lake Victoria have been characterized as having seasonal, stable transmission. In the last few years annual increases in malaria morbidity and mortality have been noted with alarming regularity in both districts. Seasonal increases occur in late May through July toward the end of the "long" rains. Because of this, NMCP decided to conduct pre-emptive IRS—a recommendation from a previous PMI-funded consultancy on management and control of epidemics—in the affected areas. The MOP 07 has been modified to add an additional $2 million to expand IRS to other areas. The balance of FY07 funds are being programmed for not only 42,000 households in Muleba, but also 95,000 in Karagwe and possibly 10,500 on Mafia island.

The criteria used for selecting which wards[9] to spray were: history of previous outbreaks, evidence of high seasonal transmission and high burden of severe malaria. The timing of the IRS is based on the epidemiological cycle, the weather cycle and the residual duration of

[9] Ward is the next level down from district. There can be anywhere between 4 – 20 wards in a district.

the insecticide (six months). IRS is targeting 13 wards with approximately 40,000 households—almost half of Muleba district. All preparatory steps for IRS were taken including development of environmental assessments, establishment of a management structure, a logistic assessment, training, advocacy at several levels, setting up a management information system, purchase of insecticide and sprayers, and the start of a BCC campaign. A total of 733 local personnel are involved one way or another with the IRS and are subdivided into three operational sections, namely, spray operations, health education and administration and technical management. IRS was conducted from May through July 2007—87% of targeted homes were sprayed (35,048 homes out of an estimated 40,197). The National Institute for Medical Research (NIMR) has been tasked with conducting entomological and parasitological monitoring in the IRS sites. All activities are being carried out by or in coordination with RTI and NMCP.

The NMCP is currently developing its IRS strategy. The draft of the strategy lays out a plan to do IRS in 60 districts (out of 114) with use both *Diphenyl-Trichloroethane* (DDT) and *lambda cyhalothrin*. The plan calls for PMI supporting IRS in 10 districts. The remaining districts will be sprayed using GoT's own resources, GFATM funds proposed for Round Eight and support from other donors.

Proposed USG Activities - Mainland

Indoor Residual Spraying	Mainland
Cost	$3.97 million
% Commodities	68%
Level	Regional
Mechanism	RTI

During FY08 PMI will support increased IRS in the mainland. Among the activities to be supported is the completion of the GoT environmental assessment for Mafia. A third IRS campaign in Muleba, a second campaign in Karagwe and a first campaign in Mafia will be supported—totaling approximately 147,500 households. PMI will also assess other areas in different regions of mainland Tanzania with different malaria epidemiological patterns for potential future IRS operation.

The implementing mechanism will be incremental funding to the RTI cooperative agreement.

H.7 Rational Integration of IRS and ITNs – Operations Research

Current status

Choosing between indoor residual spraying and insecticide-treated nets as interventions against adult mosquitoes has largely been decided on pragmatic logistical grounds. No explicit guidelines for choosing one or the other or for combining the two to maximum effect yet exist. Evidence to date suggests that ITNs and IRS have approximately equivalent impacts at equivalent coverage levels although ITNs are more cost effective. It is possible that applying contact insecticides such as pyrethroids through both mechanisms simultaneously provides little added benefit relative to the use of one approach. In contrast, complementing pyrethroid-treated ITNs with IRS of a spatial repellent such as DDT or transfluthrin may deliver benefits which are additive or even synergistic.

Proposed USG activities

Rational Integration of IRS and ITNs	
Cost	CORE
% Commodities	--
Level	NA
Mechanism	IHRDC

We will evaluate the impact of combining IRS and ITNs at experimental hut level and predict impact at population levels using the latest malaria transmission models developed at IHRDC. All combinations of ITNS and IRS will be evaluated in terms of reducing house entry, successful feeding and survival of house entry and exit using novel experimental hut designs recently developed at IHRDC. The epidemiological implications of these combined effects will then be extrapolated to population level using behavioral models of vector-parasite biodemography which have been developed by IHRDC specifically for evaluating the relative contributions of insecticidal and excito-repellent[10] interventions against adult mosquitoes.

The results of this study have implications for all malaria-prone areas of all PMI countries but the field studies will be conducted in Lupiro, Ulanga District southern Tanzania where high densities of *Anopheles gambiae* are available all year round and experimental huts are already in place. The modeling analyses will be conducted in Ifakara and Dar es Salaam, Tanzania.

The mechanism will be through funding IHRDC. IHRDC is a Tanzanian Non-Governmental Organization (NGO).

H.8 Indoor Residual Spraying – Zanzibar

Current Status – Zanzibar

IRS in Zanzibar is one of the most successful activities supported by PMI in Tanzania. Three IRS campaigns have been undertaken in the two main islands of Zanzibar (Unguja and Pemba): the first campaign from Jul – Sep 2006, a second from Jan – Mar 2007, and the third from Jul – Sep 2007. Early indications are that the third campaign is meeting with the same coverage as the previous two. IRS coverage (percent of households targeted for IRS actually sprayed) reached 96% in the first round (203,754 households) and 91% in the second round (196,978 households). In all three campaigns *lambda cyhalothrin* insecticide was used. Based on experience from the first and second campaigns a higher emphasis was placed on BCC during the most recent campaign, especially through NGOs. The costs per household sprayed have been estimated at $10 per household. USAID/Tanzania has contracted the services of RTI to cooperate with ZMCP and NMCP in the implementation of IRS campaigns in Zanzibar and the mainland. As part of IRS activities, ZMCP carried out a bio-efficacy study of *lambda cyhalothrin* in October – December 2006 after the first IRS campaign. Although the study was cross-sectional rather than longitudinal and it had some methodological problems, it revealed that anopheline mosquitoes were still fully susceptible to *lambda cyhalothrin*. Additionally, a recent parasitemia survey in one district of Unguja island found parasitemia close to 0%. The ZMCP has requested funding for operational costs for IRS from the GFATM Round Seven proposals. These funds will complement but not replace PMI IRS funds.

[10] Characteristic of pesticides to keep mosquitoes away from pesticide-treated materials.

Proposed USG Activities – Zanzibar

Indoor Residual Spraying	Zanzibar
Cost	$1.5 million
% Commodities	85%
Level	National
Mechanism	RTI

PMI will program $1.5 million to continue the success of IRS in Zanzibar. Future rounds of IRS will be focused on malaria "hot spots." ZMCP will continue to monitor clinical, laboratory and entomological indicators to identify areas where focal spraying would be useful. Resources will be used for the procurement of insecticides, transport, refresher training of operators and supervisors and other operational costs. The long term strategy for IRS in Zanzibar is to be prepared to address any localized resurgence of malaria through on-going surveillance. If the recent reductions in malaria incidence in Zanzibar are sustained, the susceptibility of the population to clinical malaria may increase, creating potential for severe epidemics. ZMCP, with support from RTI, is planning a consultative meeting to determine the future of IRS in Zanzibar.

The implementing mechanism will be incremental funding to the RTI cooperative agreement.

H.9 Support to DDT Registration – Mainland

Current Status

PMI spraying is conducted strictly observing all USG as well as Tanzanian environmental regulations. IRS costs PMI an average of $10 per house sprayed. The WHO recommends that IRS campaigns be conducted at least twice a year for a minimum of three years, or $60 per household.

IRS in Muleba was carried out using *lambda cyhalothrin*. This insecticide was chosen by the NMCP as the best option for immediate spraying in Muleba as DDT is not yet registered. As mentioned above, future IRS plans include the spraying in Karagwe and other high risk, stable, seasonal transmission areas. The MOHSW has indicated that their preference is to use DDT as a more sustainable lower cost strategy for IRS. Unfortunately DDT has been de-registered in Tanzania and will need to be registered again which may take between one and two years. The MOHSW has formally requested PMI for help in the DDT registration process. This activity is especially important because the MOHSW has allocated significant resources ($852,707) in their FY08 budget for IRS with DDT and will continue to do so over the next six years.

Proposed USG Activities

Support to DDT Registration	Mainland
Cost	$150,000
% Commodities	--
Level	National
Mechanism	RTI

PMI is programming $150,000 to support the MOHSW with the registration of DDT in mainland Tanzania. Resources will be provided for developing the environmental assessments, DDT waste disposal processes, and other analysis required to register DDT in Tanzania. This support may include fielding national or international consultants, production of their reports and running of workshops that may come from the results. Additionally, some of these resources may be used for IEC activities, including training at national and regional level. The implementing mechanism will be incremental funding to the RTI cooperative agreement.

H.10 Control of Malaria in Pregnancy – Mainland

Current Status – Mainland

Current MOHSW policy for IPTp is two doses of *sulfadoxine-pyrimethamine* (SP) given as directly observed therapy. First dose is given at first visit after quickening (typically at 20 – 24 weeks gestation) and a second dose at least four weeks after the first dose. Ninety four percent of pregnant women saw a health worker at least once during their pregnancy and 62% made four or more visits according to the TDHS 2004. The same survey found that more than 53% of pregnant women received at least one dose of SP but only 22% reported receiving 2 doses of SP as recommended. The median first ante-natal care (ANC) visit occurs at 5.4 months of pregnancy. Preliminary findings of the SPA 2006 found that 58% of health providers gave a dose of SP but only 9% of first-visit ANC clients were counseled regarding the importance of the 2nd dose of IPTp, reducing an opportunity to increase uptake of the second dose.

Focused Ante Natal Care (FANC) is the WHO-supported strategy for ante-natal care into which IPTp has been integrated in Tanzania. The Mainland MOHSW has been implementing FANC in all public health facilities since 2004. Most facilities had previously received training on IPTp for at least one health provider, but it was agreed that there was a need to revise the training curriculum and develop a cadre of FANC trainers in all regions to update providers' skills. However, the quality of FANC services is often low and record keeping is poor.

USAID/Tanzania and the CDC have supported the uptake of IPTp in antenatal clinics by funding FANC since 2004. In Tanzania the implementing partner is the ACCESS Project managed by JHPIEGO. ACCESS has advanced IPTp coverage and the quality of antenatal services region by region and is in the process of scaling up IPTp nationwide. ACCESS's work in Tanzania has succeeded in: 1) developing training materials for trainers and providers which standardize IPTp, ITN and FANC training nationally; 2) incorporating IPTp, ITN and FANC training into pre-service midwifery certificate and diploma programs nationally; 3) training providers to incorporate quality of care practices and use a standards based performance assessment tool in ANC services; and 4) fostering awareness creation.

All nurse-midwifery certificate pre-service schools in the country are now training their students with ACCESS-developed materials, and half of all midwifery diploma schools have tutors trained in IPTp/ITN/FANC. Eleven of 21 regions have master IPTp trainers and approximately 1,177 facilities out of 5,054 targeted facilities have at least one health worker trained in IPTp/ITNs/FANC by JHPIEGO.

Experience from the field has identified some important barriers for the scale up of IPTp/ITN/FANC activities including: 1) stock outs of SP in ANC services, mostly affecting regions using the indent system of requisition of supplies and in some facilities run by FBOs; 2) a lack of systematic supervision and follow up of trainees to ensure quality services in facilities where health providers have been trained; and 3) a problem in data collection methods in ANC facilities that compromises estimates of IPTp 1 and 2 coverage rates using service statistics.

Proposed USG Activities - Mainland

Control of Malaria in Pregnancy Mainland	
Cost	$1.8 million
% Commodities	-
Level	National
Mechanism	ACCESS

With USAID Maternal and Child Survival funds and the PMI, ACCESS will continue to support the MOHSW to comprehensively scale-up antenatal care services to cover the remaining ten regions with a major focus on the prevention and control of malaria in pregnancy. The objective is to achieve national coverage of approximately 4,800 health facilities offering quality FANC services by the end of 2009.

ACCESS will implement a number of strategies to bring FANC to scale:

- A cascading approach to training. This proven strategy brings sustainability by investing in human capacity development and transfers ownership to the country through the support of trainers and supervisors. Based on requests from the MOHSW, ACCESS will develop a national group of higher level trainers who can conduct the regional training of trainers with minimal technical support from ACCESS. As the national and regional groups of trainers is being developed, ACCESS will support further district and facility level trainings to enable rapid scale up of service provider training using all funds, including those of the MOHSW.
- As previous experience with FANC training in Tanzania has shown, training alone is not sufficient to improve IPTp coverage. While providers need technical knowledge, to change behaviors the environment in which they work also needs to be conducive to implementing best practices. To this end, ACCESS will support selected facilities to integrate a system of quality improvement based on nationally-approved performance standards and an external supervision system. Once a model program for all levels of the health care delivery system is in place (regional and district hospital, health centre and dispensary) the strategy will be disseminated nationally. This process will involve NMCP, RCHS, and the Health Sector Inspectorate Unit of the MOHSW.
- By providing channels of communication between relevant authorities (e.g. RCHS, NMCP, MSD) ACCESS will address key ANC commodity stock outs, to ensure availability of SP.
- Finally, ACCESS will work with other partners to promote early attendance of ANC by pregnant women, and will facilitate discussions between National AIDS Control Program and its Prevention of Mother to Child Transmission program and the NMCP to resolve the MOHSW policies and guidelines on the provision of SP to pregnant women living with HIV who are on prophylactic Cotrimoxizole.

Results (mainland, FY08):

- Number of providers trained: 6,860
- Proportion of regions with trainers: 100%
- Number of facilities covered: 3,489 (73%)

Together training and systems strengthening will raise the quality of care received by pregnant women and achieve increased utilization of FANC services nationally, including 85% uptake of IPT2 in ACCESS-supported facilities by 2009.

The implementing mechanism will be Field Support to the ACCESS Project.

H.11 Control of Malaria in Pregnancy – Zanzibar

Current Status – Zanzibar

The ZMCP's IPTp intervention is relatively new, having started only in February 2004. An RBM coverage survey conducted in 2007 indicated that as many as 78% of pregnant women received a first dose of SP and 48% of women received two doses of SP. Although the endemicity of malaria in Zanzibar has fallen as a result of its successful malaria control program, current ZMCP guidelines for malaria in pregnancy continue to call for two doses of SP to be given as directly-observed therapy. In such a situation prompt and appropriate diagnosis and treatment of malaria in pregnant women is critical to ensure the safety of the mother and her pregnancy.

Antenatal care is high in Zanzibar, with more than 85% of women making at least one antenatal visit to a public health facility during their pregnancy, nevertheless attendance is late (median months pregnant at first visit is 5.6), optimal attendance is low (only 12% made the target of four visits), and knowledge of interventions to prevent malaria in pregnancy is limited (only 28% knew about IPTp and 59% knew about bed nets). SP availability is high and a high proportion of health workers have been trained in IPTp. Antenatal care and SP are free. Additionally, community-level BCC is being implemented to increase understanding and use of malaria preventive measures in pregnancy. The national facilitating team conducts regular supportive visits to service providers to ensure proper drug usage and record keeping in ante-natal clinics.

Intensive monitoring has been introduced to assess, manage and prevent adverse drug reactions in the population but reports are not regular and comprehensive. National malaria treatment policies for Zanzibar and mainland Tanzania do not recommend ACT during the first trimester of pregnancy and call for the creation of a national register to record women who receive this treatment inadvertently. ZMCP feels that reporting of pregnant women receiving ACTs inadvertently is inadequate and needs immediate attention.

Proposed USG Activities – Zanzibar

Control of Malaria in Pregnancy Zanzibar	
Cost	$100,000
% Commodities	-
Level	National
Mechanism	ACCESS

ACCESS will provide technical assistance to the ZMCP to develop strategies and policies to address malaria in pregnancy in Zanzibar. ACCESS will work with ZMCP and RCHS to support the comprehensive training of ANC providers in diagnosis and treatment of malaria in pregnancy and to improve the quality of care in ANC clinics so that interventions for malaria in pregnancy can be effectively implemented. The institutionalization of ANC-based quality improvement practices including monitoring and supervision of health facilities; updating existing Malaria in Pregnancy Guidelines to include proper malaria case management of pregnant women including those who are HIV-infected; and exploration of the use of HemoCue® to diagnose anemia in pregnant women need to be addressed. A critical community component of the work is mobilization of pregnant women to seek ANC services early and increasing their knowledge of the current risks associated with malaria in pregnancy, as well as the use of preventive measures for malaria. ACCESS can work with other partners who may have funds for this to introduce appropriate messages to the community through mass media and other IEC and BCC efforts on the islands.

The implementing mechanism will be Field Support to the ACCESS Project.

H.12 Intermittent Preventive Treatment of Malaria in Infants – Mainland

Current Status

Intermittent preventive treatment of malaria in infancy (IPTi) is a promising strategy to reduce the burden of clinical malaria and anemia in infants under the age of one year. An antimalarial drug is given to infants at the time of routine vaccinations as part of the WHO's Expanded Program on Immunization. In Tanzania, studies have been conducted by the Ifakara Health Research and Development Center (IHRDC) together with the national Expanded Program on Immunization in Ifakara region, demonstrating that SP delivered at the time of the second and third doses of DTP-HB/OPV and measles vaccination (around 2, 3 and 9 months of age) reduced the incidence of clinical malaria by 59% and anemia by 50% in the first year of life and that these infants had 36% less malaria in the second year of life (Schellenberg *et al*, Lancet, 2001 and 2005).

The Bill and Melinda Gates Foundation is funding an IPTi Consortium consisting of leading centers of malaria research and two United Nations agencies to assess this intervention and to guide national policy regarding the acceptability, efficacy, cost effectiveness, and safety of IPTi especially in the face of the falling treatment efficacy of SP. The IPTi Consortium is expected to advocate to the WHO's Scientific and Technical Advisory Group for the protective efficacy of IPTi using SP, after which the various agencies of the WHO will determine whether they will endorse this intervention.

Proposed USG Activities

Intermittent Preventive Treatment of Malaria in Infants - Mainland	
Cost	$100,000
% Commodities	-
Level	National
Mechanism	TBD

PMI – Tanzania will set aside $100,000 to support the development of policy level work with the MOHSW and to identify the most efficient way of mainstreaming a national IPTi intervention for infants, depending on the WHO approval. At this time IHRDC together with the MOHSW has a five-district pilot roll out in southern Tanzania in which tools and a management system have been developed. In this model, the supervision and management system is embedded into the EPI program of Ifakara region and tracking of the uptake of IPTi (SP at 2, 3 and 9 months) has been integrated into both the child's health card and the EPI facility's vaccine record (appropriate changes in these records have already been developed and agreed upon with the MOHSW). This pilot can serve as an important starting point from which an IPTi intervention can be rapidly and effectively rolled out to the remaining 120 or so districts in Tanzania. With these funds, PMI will identify a partner to facilitate high level policy discussions to recruit the necessary national support for the IPTi program; to develop a national roll out of IPTi based on the model program in Ifakara (using developed tools and systems as applicable); to forecast the impact of a national IPTi program on the current EPI program in order to ensure that the EPI program is not adversely affected by an additional responsibility; to advise on practical implications of the program (such as ensuring that additional doses of SP are made available by MSD to the facilities in a timely manner for a successful program); to initiate the start up of a national program as the policy environment becomes favorable; to monitor the rollout and impact of the program as it unfolds. Given

results from six randomized control trials we can expect significant reductions in malaria incidence, anemia, and malaria admissions in children under two years of age. If IPTi is not approved internationally, the funds will be reprogrammed.

The implementing mechanism will be competitively awarded through a cooperative agreement.

H.13 Behavior Change and Communication – Mainland

Current Status – Mainland

PMI-funded BCC activities in support of malaria interventions will be started in 2007, as BCC was not included in the first year of PMI (FY06). At the time other funding sources were available for promotion of ITN use, early care seeking behavior and ACT use. Generic social marketing of ITNs has been supported by SMARTNET over the last five years (2001 – 2006). NATNETS and its partners have developed a framework for promoting acceptance of and appropriate use of ITNs and insecticide re-treatment kits, including mass media, rural road shows, networks of ITN sellers, health worker communication and community-based interventions to deliver consistent messages about malaria prevention. Promotion at the district and community level has been handled by PSI Tanzania under SMARTNET and by World Vision Tanzania, a FBO, under GFATM Round One.

ACT promotion has been led by NMCP with the participation of several NGOs: PSI, Africare/Tanzania Plan International and the Tanzania NGO Alliance Against Malaria (TaNAAM). PSI has worked primarily with media, including radio, television (including mobile 'road shows'), and print media. Africare and Plan have focused on interpersonal communication and community mobilization through theatre performances and drama. TaNAAM has worked on NGO coordination. ACT promotion was funded under GFATM Round Four.

General messages on pregnancy, including IPTp, have been handled by Reproductive and Child Health Service of the MOHSW. RTI has been handling IRS logistics and promotion in Muleba district in Northwest Tanzania where IRS has begun in the mainland.

In FY07, PMI recognized we needed to become more active in BCC, as NMCP still feels that BCC continues to be a gap in its overall strategy and a professional, integrated approach is required instead of the present ad hoc system. Further improvements in BCC is needed to make sure vulnerable groups--pregnant women, children under-five--are reached and accept key malaria interventions, and are critical to achieve several key PMI targets, including ones relating to ITNs, IRS and ACT. In response, PMI has released an RFA for a competitively awarded Cooperative Agreement worth $2,600,000 for providing BCC activities for the four main interventions – ITNs, ACT, IPTp, and IRS. The RFA asks applicants to focus on the following areas, which need strengthening:

1. Focus in rural/underserved areas: Uptake of malaria interventions such as ITNs remain considerably lower in rural (23%) versus urban (50%) areas. The PMI BCC implementer is expected to prioritize BCC efforts in disadvantaged areas.
2. Work closely with community organizations: The PMI BCC implementer is expected to work closely with local NGOs, CBOs and FBOs to implement malaria interventions.

3. Work closely with Local Government Structures: The PMI BCC implementer is expected to work closely with, and build the capacity of, local government structures such as Council Health Management Teams, to implement malaria interventions.
4. Improve coordination: There are many active players taking part in malaria communication activities. Their activities need to be coordinated to avoid duplication, ensure consistency of messages with a view of achieving synergistic results.
5. Work closely with MOHSW and NMCP to carry out BCC/IEC activities. The PMI BCC implementer will lead a national level BCC campaign, with all activities being approved by NMCP. The implementer will also work to improve the capacity of NMCP's Information, Education and Communication (IEC) cell to implement malaria BCC.
6. Work with health providers to improve interpersonal communication skills.

The PMI BCC activity will be focused on reaching people, especially people in under-served areas, directly with BCC activities. It is envisioned that the implementer will select geographic areas for activity prioritization using criteria such as under-five and infant mortality rates, malaria prevalence, socio-economic status, and current level of uptake of selected malaria interventions. It is estimated that 70% of funds will be used for intensive, community focused activities, involving sub-granting to and capacity building of local organizations, including CBOs, and FBOs, and local governmental organizations. Thirty percent of funds will be used for judicious use of mass media (especially radio, which is widely available in rural areas) as reinforcement of community delivered messages.

Without constant, focused reminders to use ITNs, demand IPTp, accept IRS and quickly and effectively treat malaria, PMI will not meet its goals.

Proposed USG Activities – ITN promotion/IPTp, IRS, ACT

BCC – Mainland	
Cost	$4 million
% Commodities	-
Level	National
Mechanism	Incremental funding to BCC Awardee

For PMI Year Three, it is proposed that BCC activities started in Year Two be strengthened. Demand creation campaigns will strongly focus on rural, underserved communities, with 70% of funds continuing intensive community-based activities through local NGOs and local governmental organizations.

In PMI year three, 60% of funds ($2,400,000) will continue to emphasize ITNs, PMI's main intervention on the mainland. Activities that began in 2007 will be continued, including a rural community-based campaign focused on early ANC attendance, voucher uptake and use for pregnant women and infants, as well household-based campaigns on how to hang and use nets properly. In addition, intensive efforts are needed to publicize the national under-five catch-up campaign, the massive net re-treatment campaign by the World Bank, as well as changes in the TNVS (reduced top-up to Ts500, change in net type to LLINs).

The remaining 40% of funds will focus on ACTs ($600,000), IPTp ($500,000) and IRS, ($500,000). ACTs were launched in Tanzania in December 15, 2006, and publicized on National Malaria day on April 25, 2007, and are currently available in 90% of health facilities. However, a concerted, national BCC effort has not taken place, leading to many instances of misuse (not taking the full dose) and misconceptions (ACTs are not safe, have many side

effects). Activities beginning in 2007 to promote early care-seeking and compliance with treatment guidelines will continue to roll out nationally. IPTp promotion will emphasize early ANC care-seeking, the safety and efficacy of SP, and the need to take two doses of SP, nationally. IRS BCC campaigns will work closely with the IRS implementer, RTI, in rolling out BCC to districts that are targeted for spraying. In past spraying efforts, RTI has highlighted the need for intensive BCC efforts with community members, including allaying concerns about safety and privacy, and has requested BCC assistance from PMI.

Cross cutting activities such as promoting stakeholder coordination, improving health provider communication skills and adherence to national guidelines, and strengthening of NMCP's IEC cell will continue. New interventions, such as IPTi, will be included for BCC promotion as they are accepted by NMCP. The BCC implementer will partner with private sector organizations, with an aim of leveraging funds for malaria interventions, emphasizing corporate social responsibility.

The implementing mechanism will be incremental funding to the cooperative agreement awarded in FY07 (depending on successful implementation).

H.14 Behavior Change and Communication – Zanzibar

Current Status – Zanzibar

The initial PMI distribution of LLINs in Zanzibar in January 2006 was not accompanied by any BCC. As a result, many consumers did not know how to properly use the nets. USAID/Tanzania immediately implemented a communication strategy in support of the ZMCP Kataa Malaria (Reject Malaria!) campaign funded by pre-PMI malaria funds through the T-MARC social marketing program. The four priority areas of Kataa Malaria Phase I were: 1) access to effective management; 2) promotion of ITNs; 3) control and prevention of malaria in pregnancy; and 4) community-based activities. A number of educational materials have been produced such as pamphlets, posters, flipcharts, "*photonovelas*," teacher's guides, etc. Additionally, using resources from the IRS partner, mass media (e.g. TV, radio, press and billboards) has been used to promote the IRS campaign. T-MARC also provided support by working with local NGOs to follow up the use of the LLINs in homes. The campaign has been very successful in raising awareness of malaria as a serious health problem for individuals and for Zanzibar as a whole, leading to extremely high acceptance and use of all malaria interventions, including ITN use (estimated over 80%), houses sprayed with IRS (more than 90%), as well as use of ACTs. IPTp use is impressive compared to the mainland, at 78% (IPTp 1) and 48% (IPTp 2), but could be improved with further BCC efforts.

In FY07, RTI won a competitively awarded Cooperative Agreement to work with the Health Promotion Unit of the MOHSW, the lead department for the development, coordination and implementation of BCC activities in Zanzibar. The work with the Health Promotion Unit is subdivided into four components, namely, management, community-based health care services, school health and public health information. The main BCC activity to date has been the launching of an IRS promotion campaign to coincide with IRS in February. Other activities have included the formation and training of community health committees, and the use of mass media (radio, television, news media and print material) for the promotion of general malaria BCC activities. Support has also been provided to the Health Education Unit to train teachers on malaria prevention and control. The Health Promotion Unit was supported

with the procurement of materials for the development and printing of BCC materials, such as computers, scanners, and digital cameras.

Proposed USG Activities

BCC Zanzibar	
Cost	$300,000
% Commodities	-
Level	National
Mechanism	RTI

BCC activities in Zanzibar in PMI Year Three will focus on consolidation and maintenance of successful malaria prevention and control behaviors, including proper use of ITNs, ACTs, and IPTp, as well as continued acceptance of IRS. It is envisioned that BCC support will be provided in an integrated fashion. Sustainability will be emphasized, as further support will be provided to strengthen the MOHSW's Health Unit's capacity to implement malaria BCC by providing materials and equipment to carry on BCC once PMI funds are discontinued. Community-based approaches to promote ITNs and IPTp, promotion of IRS, will continue, as well as mass media (including judicious use of billboards).

The implementing partner will be incremental funding to the RTI cooperative agreement.

I. INTERVENTIONS – CASE MANAGEMENT

I.1 Rapid Diagnostic Tests – Mainland

Current Status – Mainland

A total of $500,000 was allocated for the purchase of Rapid Diagnostic Tests (RDTs) for the mainland in the MOP 2007. This was in addition to approximately $400,000 in MOP 2006. All MOP 2006 money for RDTs has been spent purchasing Parahit (375,000 units) and Paracheck (400,000 units) as programmed. Parahit tests have been distributed to three sites: Dar es Salaam City/Swiss Tropical Institute, Ifakara Research and Development Centre and Joint Malaria Programme in Moshi. The distribution of Paracheck was delayed because of registration issues in mainland Tanzania which have now been resolved—Paracheck is now formally registered in mainland Tanzania. Initial testing at community level has revealed that there are significant issues with interpretation of results and prescriber behavior after a negative test. Final results from PMI sites are not yet available but in one site (unrelated to PMI) using Paracheck there has been a 50% reduction in the prescription of antimalarials for fevers. Local and international literature shows that a significant number of fever cases going to health facilities do not suffer from malaria but are treated as malaria. As a consequence, non-malaria cases are showing higher case-fatality rates than those diagnosed correctly as having malaria. It becomes important therefore to have a diagnostic tool that can eliminate the malaria diagnosis so that other causes of fever are investigated and treated.

NMCP has submitted a GFATM Round Seven proposal that, if awarded, will fill most RDT needs for the country.

Proposed USG Activities – Mainland

RDTs Mainland	
Cost	$500,000
% Commodities	100%
Level	Regional
Mechanism	USAID | Deliver Task Order Three

PMI will continue to support the introduction of RDTs at the same level as before and has allocated $500,000 for the purchase of RDTs in FY08. Coordination with NMCP's Malaria Diagnostic Task Force will continue as before and the impact on prescribing practices will be carefully scrutinized.

The implementing mechanism will be field support to USAID|Deliver Task Order Three.

I.2 RDT – Operations Research

Current status

The introduction of ACTs in Tanzania, costing up to ten times per treatment previous antimalarials, has increased awareness that up to 90% of malaria treatments in low-moderate areas of transmission in Tanzania (up to half the population) are prescribed for aparasitaemic patients, a problem that generates unsustainable costs and often results in incorrect treatment for the actual illness. To help address the problem PMI with NMCP have introduced RDTs into a variety of heath facilities. Yet in spite of a negative RDT result there exists a widespread tendency of prescribers to use antimalarial drugs. Studies by Reyburn et al [(BMJ, doi:10.1136/bmj.39073.496829.AE (published 26 January 2007)] and Hamer *et al* (JAMA May 23 -30, 2007--Vol 297, No. 20)suggest that this is a deep rooted problem that will demand significant long-term investment in diagnostics and training if it is to be corrected.

There is a need to adapt current HMIS to report malaria diagnoses by test result thus indicating where, and in what age groups, inappropriate use of antimalarials is most prevalent. A requirement to report malaria diagnoses by test result may in itself improve prescriber behavior and will provide options for the MOHSW to improve case management through clinic performance indicators linked to incentive or accreditation schemes.

Proposed USG Activities

RDTs – Operations Research	
Cost	$90,000
% Commodities	-
Level	NA
Mechanism	RTI

This operations research activity will design, implement and evaluate in selected sites an adaptation of the routine HMIS to report malaria diagnoses by RDT result in basic health facilities. The specific objectives are: 1) to develop and validate a reporting system that would be ready for use at national level, either in sentinel sites or all health facilities with malaria test capacity; 2) to estimate the prevalence of over-use of antimalarials in study health facilities; 3) to assess whether reporting itself is likely to improve targeting of antimalarials; and 4) to identify health worker characteristics associated with good practice.

A review of the current HMIS will be made and simple and robust modifications will be designed to enable health facilities to report malaria by RDT result (positive/negative/not done). The forms will be piloted in two busy health facilities each in areas of high and low transmission (Tanga and Kilimanjaro respectively) and following necessary modifications,

rolled out to an additional ten health facilities in each of the two regions. All health facilities will be provided with NMCP/PMI RDTs and workplace-based training. Reports will be collected through regular clinic monitoring and supervision by the research team. Outcomes will include: 1) acceptability of reporting system identified through health worker interviews; 2) proportion of malaria diagnoses prescribed antimalarials and/or antibiotics by RDT result over and under the age of five years; 3) proportion of malaria diagnoses in RDT negative patients before (as measured through health facility exit surveys) compared to after the introduction of new reporting forms; and 4) health worker characteristics associated with good practice. All attendees in pilot health facilities will be included and potentially benefit from more appropriate treatment for febrile illness.

The mechanism is to be determined.

I.3 Rapid Diagnostic Tests – Zanzibar

Current Status

The use of RDTs in Zanzibar began in 2004 with a pilot study conducted by the ZMCP and Zanzibar Malaria Research Unit Karolinska Institute. The results showed high sensitivity (97%) and specificity (84%) (Msellem, Mwinyi. "Efficacy and cost-effectiveness of malaria diagnosis procedures and the rational use of Artemisinin-based Combination Therapy in Zanzibar Preliminary Report," February, 2006. Zanzibar). In FY 06 PMI Tanzania allocated 100,000 RDT kits (Paracheck brand) to supply most health facilities on the island. As a consequence, today 100% of health facilities in Zanzibar have malaria diagnostic tools (microscopy and/or RDTs). Approximately 105 of 146 facilities have been provided with RDTs (the rest have microscopy) giving a monthly consumption rate of 200 RDTs per facility. JICA has been working with ZMCP in improving microscopy. Additionally, Zanzibar's GFATM Round Seven proposal is seeking resources for improving quality of malaria diagnosis, support to public health laboratories and procurement of RDTs.

With the control of malaria of *P. falciparum* etiology the attention of ZMCP has turned to *Plasmodium malariae* and *Plasmodium ovale* and discussion are under way whether to purchase multi-detection RDT or keep using Paracheck, which only detects *P. falciparum*. Regardless of what RDT is finally selected, their use is even more critical as parasitemia is drastically reduced. A simple test will be needed to properly diagnose malaria in Zanzibar and to ensure that non-malaria fever is treated appropriately. The ZMCP policy is to manage fever cases and/or suspected malaria cases through laboratory confirmation (e.g. microscopy or RDT).

Proposed USG Activities – Zanzibar

RDTs Zanzibar	
Cost	$205,000
% Commodities	100%
Level	National
Mechanism	USAID| Deliver Task Order Three

PMI will allocate $205,000 for the purchase of RDTs. This will enable ZMCP to continue to offer malaria diagnostic tests (microscopy and/or RDTs) in all MOHSW health facilities on the island pending approval of GFATM resources for RDTs. Funds for training, re-training and quality assurance come from other sources. The full amount will be used to purchase commodities.

The implementing mechanism will be field support to USAID|Deliver Task Order Three.

I.4 Training and Supervision for Malaria Case Management – Mainland

Current Status

ACTs were officially launched on December 15th 2006 in mainland Tanzania. To date, over 10.5 million treatments have been distributed to more than 4,800 health facilities (100%) nationwide. Beginning in July 2006, the NMCP began training on the new treatment guidelines for all health workers. The NMCP training strategy has four phases, namely: 1) training of clinicians and pharmacists about ACTs (carried out in 2006); 2) training of nursing staff on comprehensive case management including management of severe malaria (2007 – 2009); 3) training in RDTs (2007-2008); and 4) private providers and drug outlets (2007 – 2008). The first phase of training consisted of a two-day orientation to update health workers on treatment using ACT. PMI contributed to this effort by providing funds for training in three MOHSW zones through the Zonal Training Centers in Arusha, Iringa, and Kigoma. A total of 8,527 health workers were trained over a six-month period. PMI funds covered this initial phase of training for 3,775 health workers. Under MOP 07, funds are available for Phase Two training of nurses. The course focuses on the knowledge and skills for higher level management of malaria. A work plan has been developed with the cooperation of NMCP and the Japanese International Cooperation Agency (JICA) to roll out the course in all regions of the mainland over two years. The course, designed in cooperation with JICA, has already been developed and extensively tested. NMCP has submitted a GFATM Round Seven proposal to support Phase Three activities.

Proposed USG Activities

Training and Supervision for Case Management Mainland	
Cost	$883,600
% Commodities	-
Level	National
Mechanism	ZTCs

For 2008, NMCP has requested to continue support for Phase Two and initiate Phases Three and Four training. The final form for this activity will depend on whether NMCP is successful in its GFATM Round Seven proposal. Priorities for PMI will be to complete nurse training and initiate training of providers in the private sector.

The implementing mechanism will be incremental funding to the ZTC Implementation Letters.

I.5 Malaria Case Management – Zanzibar

Current Status

ACTs were deployed for the first time in Zanzibar in 2003. The chosen ACT is amodiaquine – artesunate. According to the ZMCP, ACTs are widely available in all Zanzibar public health facilities. Health workers comply with appropriate use of ACTs approximately 70% of the time. In spite of these achievements there are still areas of concern in the implementation of ACT in Zanzibar. Health worker problems in communicating with caretakers on how to use ACTs is a serious issue; a dearth of job aids to talk to mothers compounds the problem.

Another area of concern is that there is no functional system for reporting adverse reactions to ACT or to other drugs.

With the decrease in malaria case load in health facilities in Zanzibar there will now be increased attention to other non-malaria causes of fever and death in children under five. The IMCI, a WHO Strategy to manage the most important causes of death in children under five, which is being implemented in Zanzibar, will need to be reinforced to continue strengthening the diagnosis and management of febrile illnesses so that malaria case management is improved.

Proposed USG Activities

Case Management	Zanzibar
Cost	$100,000
% Commodities	-
Level	National
Mechanism	ZMCP

ZMCP will improve health worker skills by training and re-training dispensers, clinicians and other health workers in case management of malaria, use of ACTs and interpersonal skills for instructing caretakers how to comply with recommendations. Additional training will be provided to enhance pharmacovigilance and reporting of adverse reactions due to ACTs. ZMCP officers are prioritizing the need for regular meetings and refresher courses on reporting adverse reactions. Resources to support IMCI will also be made available from this activity to reinforce appropriate fever and malaria case management. Based on findings from surveys conducted by WHO and others it will be possible to identify the areas of IMCI that most need support.

The implementing mechanism will be incremental funding to the ZMCP implementation letter.

I.6 Private Sector Artemisinin Combination Therapy – Mainland

Current Status

The rationale for making ACTs available in the private sector is that up to 40% of patients with fever in mainland Tanzania are either taken to or seek care with private sector providers. PMI is working with the Tanzania Food and Drug Authority (TFDA)'s ADDO program to make subsidized ACTs available and safely dispensed in the private sector. The first line treatment on the mainland is artemether-lumefantrine (AL). Under PMI, FY 06 and 07 funding, the Rational Pharmaceutical Management (RPM Plus) Project supported MOHSW/NMCP and TFDA in developing a system for private sector delivery of ACTs. Activities included policy discussions to permit sale of ACTs through ADDOs; preparations for ordering, receiving, distribution of ACTs; and steps to ensure proper management and use of subsidized ACTs by ADDOs (including support to TFDA for strengthening pharmaco-vigilance system and routinely monitor the safety of ACTs in its program). This was done in collaboration with TFDA, NMCP, local government authorities, ADDO owners and other stakeholders.

Currently, there are approximately 473 ADDOs in Morogoro and Ruvuma regions. With RPM Plus assistance and GoT funding, the TFDA will train and accredit additional ADDOs in Mtwara and Rukwa regions, bringing the total number of ADDOs that will be operational by

the end of 2007 to 1324 in 21 districts. Therefore, the intervention will cover about 5,147,241 million inhabitants in the four regions, 14.3% of the total Tanzanian population. An estimated 113,280 AL treatments have been purchased from Novartis and are in Tanzania (June 2007). RPM Plus has selected one main private pharmaceutical distributor in country to handle warehousing, customs, etc. and two smaller distributors to provide ACTs directly to ADDOs. Current estimates are that the subsidized ACTs will be sold at a price of $1.20 and $0.40 for adults and children respectively. Because of the need to distinguish ADDO ACTs from those in the public sector, a label has been added to the ADDO ACT packaging. ACT distribution to the ADDOs has begun.

The Clinton Foundation has started an operational research project to make available subsidized AL in the private sector in two districts of the mainland. ACTs will be procured and transferred to a wholesale vendor who in turn will sell them to formal and semi-formal drug outlets. The idea is to let market forces determine the best distribution mechanism for subsidized ACTs in the private sector. The Clinton Foundation's approach and the ADDOs are complementary and will help make ACT more available and affordable in the private sector.

Proposed USG Activities

Private Sector ACTs	Mainland
Cost	$2.1 million
% Commodities	95%
Level	Regional
Mechanism	USAID | Deliver Task Order Three MSH RPM+

Resources under this activity are mainly to purchase (subsidize) AL for use in the private sector, namely ADDOs. A small amount of resources will be used by RPM Plus to monitor the distribution and tracking of sales of AL by ADDOs in the seven districts in Ruvuma and Morogoro regions that will receive PMI-funded subsidized AL.

RPM Plus will provide technical support to NMCP and TFDA for the development of a tracking system to compile data from ADDOs and distributors. Future stock forecasts for the ADDOs (PMI-assisted and TFDA-assisted outlets) will be undertaken with assistance from RPM Plus and the USAID|Deliver Task Order Three. Procurement of ACTs will be done by the USAID|Deliver Task Order Three. RPM Plus will contribute to NMCP efforts in monitoring performance of ACTs policy implementation.

To address issues of quality of services RPM Plus will support NMCP in adapting/developing/ distributing educational materials for ADDO dispensers to enhance their performance in management of malaria and ensuring good quality of ADDO services. Additionally, in collaboration with TFDA, RPM Plus will provide support to Council Health Management Teams to conduct supportive supervision to health facilities and ADDOs and to encourage routine consumption reporting on ACTs.

RPM Plus will work closely with social marketing agencies to support implementation of communication strategy for the ADDOs in the four regions. The strategy will increase awareness of the availability of subsidized ACTs in ADDOs, promote adherence to antimalarial guidelines, and promote community awareness on the set price and packaging of the drugs. A total of $2.1 million is programmed for this activity, $1.9 million for the purchase and distribution of ACTs and $200,000 for technical assistance.

Implementing mechanisms will be field support to RPM Plus for technical assistance and field support to USAID|Deliver Task Order Three for ACT procurement and distribution.

I.7 Artemisinin Combination Therapy for Refugees – Mainland

Current Status

NMCP received support from Round Four GFATM to introduce ACTs as first-line treatment of uncomplicated malaria. The amount of funds requested was based on malaria cases reported through the national HMIS. These data are reported from all government and voluntary health facilities throughout the country. Unfortunately, implementing partners providing health services to refugee-affected communities under the authority of United Nations High Commissioner for Refugees (UNHCR) do not report routine data through the HMIS. As a result, 276,995 refugees (as of May 1, 2007), as well as Tanzanians who seek care from UNHCR partners in refugee-affected areas, were not considered in the NMCP's estimation of ACT needs. In addition, UNHCR and its implementing partners did not budget sufficient resources to transition from SP to ACT.

In response, in FY06, PMI allocated $500,000 to the WHO for procurement of ACTs on behalf of UNHCR and its implementing partners, providing 299,520 treatments, with over 241,920 doses earmarked for children less than 35 kilograms of weight. ACT distribution started in January 2007, with UNHCR paying for all in-country logistics. UNHCR purchased RDTs with its own resources to enhance diagnostic capacity. This resulted in 50% reduction of reported malaria in the refugee camps. The manufacturer Novartis also donated 146,500 AL treatments for children under 15 Kg. Tanzanian citizens living near camps have also benefited from PMI assistance to the refugee camps, as they have full access to camp health facilities; Tanzanian citizens make up to 15 - 30% of users of camp health facilities.

In FY07 PMI programmed $350,000 for AL procurement. An additional $500,000 was provided when it was thought that the initial allotment would not be sufficient. However, because of the donation from Novartis and reductions in malaria morbidity the total amount, $850,000, was more than was needed for AL for FY07. $90,000 was used to procure AL through WHO (roughly 48,000 treatments for adults) preventing an impending stock-out. The remaining $760,000 was programmed into USAID|Deliver Task Order Three, out of which $200,000 will be used for further ACT procurement, $260,000 will be used for RDT procurement and the rest ($300,000) was moved to provide ACTs for ADDOs.

Proposed USG Activities

ACTs for Refugees	Mainland
Cost	$400,000
% Commodities	100%
Level	Regional
Mechanism	USAID| Deliver Task Order Three UNHCR

It is expected that the refugee population in Tanzania will be declining and the GoT will eventually include the refugee population into the GFATM requests, but this process will likely take about two years. Furthermore, none of the UNHCR partners have yet committed additional resources to AL costs. PMI has proposed an additional $400,000 in FY08 resources to bridge the gap between FY06 and FY07 supplies and when UNHCR and partners begin providing ACT. We envision that some FY08 support will also go towards RDT procurement, as accurate malaria diagnosis will ensure judicious use of expensive ACTs. Resource requests have been reduced from FY07 as 1) UNHCR is expected to have substantial stock of ACTs from FY06 and FY07 PMI support and therefore will not need as much support in FY08, and 2) UNHCR and GoT are dramatically increasing efforts to promote voluntary repatriation, likely resulting in a reduced refugee population. UNHCR has recently instituted a Health Information System

(HIS) which tracks malaria morbidity and mortality data. The HIS will be updated to include malaria diagnosis by RDTs, and morbidity and mortality data will be followed closely to track effectiveness of ACT and other malaria prevention and control measures.
The implementing mechanism will be field support through USAID | Deliver Task Order Three.

I.8 Management of Severe Malaria – Mainland

Current Status

Management of uncomplicated malaria will be greatly improved in Tanzania now that AL has been introduced as first-line treatment. However, some children with uncomplicated malaria who do not receive ACTs, or who do not receive this treatment early enough following initial onset of symptoms, will progress to severe malarial disease. This minority of children who develop severe malaria contribute many of the malarial deaths PMI strives to avert. Children with danger signs identified with the IMCI algorithm should be provided pre-referral doses of essential medicines, often by injection, and referred to health centers or hospitals where trained staff and specialized equipment and therapies should be available to help minimize risk of death.

An initial assessment funded by PMI and completed by IHRDC and CDC in Kisarawe, Ilala and Bagamoyo Districts during 2006-07 has shown that few children with severe illness are appropriately categorized and treated according to the IMCI syndromic classification. Referral to higher-tier health facilities was uncommon despite more than 50% of the health care workers being clinical officers with more than five years of experience and trained on IMCI. Despite the deficiencies in pre-referral care and the quality of care at inpatient departments, a number of promising new interventions for confronting severe malaria have become available in recent years.

Rectal and intramuscular artemisinin drugs are equivalent to intravenous quinine for treating severe malaria, but much less likely to cause toxicity or precipitate crises such as hypoglycemia. Rectal suppositories can be given without specialized training or injection equipment and are an ideal intervention for pre-referral care at peripheral health facilities or in the community. WHO has already recommended rectal artesunate for initial pre-referral care of children with suspected severe malaria and products have been registered with the Tanzania Food and Drugs Authority. $350,000 in FY06 funds have been allocated to purchase commodities for treatment of severe malaria. An additional $150,000 (FY06) and $290,000 (FY07) was allocated to the CDC cooperative agreement with Ifakara Health Research and Development Centre (no longer a viable mechanism) to develop training, supervision, and monitoring protocols for the improved management of severe childhood illness. In preparation for this activity, rectal artesunate, parenteral artemether, and chloramphenicol have been procured and shipped to Tanzania (August 2007). Their findings will help NMCP and ZMCP consider necessary changes to pre-referral malaria treatment guidelines as the epidemiology of malaria on the mainland and Zanzibar changes.

Proposed USG Activities

Management of Severe Malaria Mainland	
Cost	$335,000
% Commodities	30%
Level	NA
Mechanism	USAID| Deliver Task Order Three IHRDC

Building on findings from the initial assessment described above, PMI will program FY08 resources to introduce enhanced pre-referral and inpatient care in all government health facilities in Kibaha Urban, Kibaha Rural, Kisarawe and southern third of Bagamoyo District (catchment area population of 330,000). The objective of this activity will be to demonstrate how improving overall standards of care in combination with new drug therapies can be deployed in dispensaries and health centers. The implementation package will include two main components: 1) improvement of health worker performance and 2) implementation of safer, simpler, more efficacious parenteral and rectal treatments. Improvements in health worker performance will focus on the correct identification, classification, and treatment of severely ill children. An improved pediatric medical record system will be implemented along with increased supervision and feedback, including a review of the management of all severely ill children. Rectal artesunate and intramuscular artemether are approved in Tanzania and are part of NMCP guidelines. In FY2008, funds for this activity include $100,000 in commodities (severe malaria drugs) and $235,000 in non-commodity costs.

The implementing mechanisms will be incremental funding to the IHRDC cooperative agreement for non-commodities (management by CDC) and procurement of commodities through the USAID|Deliver Task Order Three. IHRDC is a Tanzanian NGO.

I.9 Malaria Commodity Logistics – Mainland

Current Status

ACTs were officially launched in mainland Tanzania on December 15th, 2006. To date, over 10.5 million doses of AL have been delivered to 4800 public health facilities throughout the country, or 100% of health facilities. Medical Stores Department (MSD) is the central drug procurement and distribution organization that is tasked with the forecasting, procurement, consignment and delivery of AL to the health facilities.

The initial quantification of the need for ACTs was done based on morbidity data and health facility attendance. However, experience from other countries shows that this initial forecasting may differ significantly from actual consumption and prescribing practices at the health facility level. Therefore, it is critical to ensure that consumption data is available to monitor stock levels at the facility and revise quantification estimates, as needed.

In addition, data from health facility surveys undertaken by the TNVS work shows that SP stock outs are still common at ANC clinics and may be a significant barrier to IPTp uptake.

Proposed USG Activities

Malaria Commodity Logistics Mainland	
Cost	$350,000
% Commodities	-
Level	National
Mechanism	USAID| Deliver Task Order Three

In FY07, the USAID|Deliver Task Order Three was provided funds to begin supporting ACT implementation through technical assistance to MSD, supporting rollout of the Integrated Logistics Systems, and monitoring consumption data at the facility level. In FY08, PMI proposes to continue this support to ensure the availability of ACTs, SP, and drugs for severe malaria with a greater focus on monitoring stock, reporting of consumption data, and strengthening distribution to the facility level. The budget for this activity is $350,000.

The implementing mechanism will be field support USAID|Deliver Task Order Three.

I.10 Promotion and Awareness of ACT Use – Mainland

Current status

The NMCP has stated that addressing the issue of ACTs in the private sector is a priority. Artemisinin-containing drugs are legally produced and sold commercially in Tanzania, as well as being imported. WHO recommends that all artemisinin treatments be supplied in combination with other antimalarials in order to prevent development of antibiotic resistance. In reality, artemisinin drugs are often sold as mono-therapy in the private sector, which accounts for 40% of all malaria treatment in Tanzania. The Tanzanian Food and Drug Authority (TFDA) has issued instructions that all artemisinin mono-therapy products have to be withdrawn by January of 2008. One of Tanzania's largest domestic producers of artemisinin has already agreed to withdraw its mono-therapy product and only sell it as a co-packaged ACT. Import of counterfeit drugs is also a problem in Tanzania. In order to support the move to quality ACTs, a coordinated BCC campaign was designed using FY07 PMI funds to promote legitimate ACT use for private sector pharmaceutical and health providers. Additionally, the ADDO program is introducing Coartem®, in a limited number of ADDOs. See Section I6 above.

Proposed USG Activities

Promotion and Awareness of ACTs Mainland	
Cost	$250,000
% Commodities	-
Level	National
Mechanism	T-MARC

This activity will be continued in FY08 to support the TFDA in the withdrawal of mono-therapy. Messages to the private providers and drug sellers will stress the importance of ACT, and create consumer awareness and demand for the recommended treatment product. The campaign will emphasize where and how providers can identify genuine quality-assured ACT products. While not advertising any single ACT product, this campaign will help the NMCP and ZMCP to ensure that only ACTs are provided in the private sector and minimize the use of artemisinin mono-therapies and counterfeit ACTs. This generic social marketing of ACTs is consistent with NMCP plans to introduce an over-branded ACT at a later time in the private sector. PMI will set up indicators and benchmarks and monitor closely to evaluate progress before committing FY08 funds. If indicators are not met, funding will be reprogrammed.

This activity will coordinate with the ACT promotional campaigns aimed at the general public described in section H.14 above.

Because of its specialized experience in working with the pharmaceutical industry and private health care providers, the implementing mechanism will be T-MARC. Incremental funding will added to our bilateral contract.

J. INTERVENTIONS – EPIDEMIC SURVEILLANCE AND RESPONSE

Current Status

Epidemic malaria has been defined as 'an acute exacerbation of disease out of proportion to the normal to which the community is subject.' Malaria epidemics do not normally occur on the mainland or Zanzibar. In Africa, it is estimated that 110,000 people die as a consequence of malaria epidemics (perhaps 10% of all malaria deaths). Identification of and response to malaria epidemics is one of the principal strategies for the control of malaria advocated in the National Malaria Medium Term Strategic Plan 2002 – 2007. The main areas of focus include: establishment and strengthening of surveillance systems; building the capacity at the district level for early detection; and confirmation of increases in malaria transmission followed by effective response to epidemics. There is also a need to more fully characterize the specific communities and locations particularly prone to sudden increases in malaria transmission, and to establish sound planning for epidemic response in these locales. Plans for implementation of epidemic preparedness need to be drafted and approved well in advance to ensure a response will be successfully implemented when needed.

Sustainable early warning and detection systems are needed in epidemic-prone areas of Tanzania, but particularly in Zanzibar where dramatic reductions in malaria transmission intensity have been recently achieved. The limited exposure to *P. falciparum* parasites that young children and pregnant women now experience leaves them more susceptible to severe illness and death with sudden increases in malaria transmission. To avert high incidence of severe morbidity, malaria mortality, and negative economic impacts of unexpected malaria epidemics, the health sector must anticipate these events well in advance. The necessary actions are sequential: early warning, early detection, epidemic confirmation, mobilization, response, and implementation of control measures.

Proposed USG Activities

Epidemic Surveillance and Response Mainland/Zanzibar	
Cost	300,000 M 100,000 Z
% Commodities	25%
Level	Regional
Mechanism	RTI

While epidemic response is an important capacity for NMCP and ZMCP to develop, this must first be preceded by adequate systems for epidemic detection. In the PMI Year Three, activities will be extended to characterize and cover more malaria epidemic-prone districts with systems to predict and detect increases in malaria transmission. A three pronged strategy will be used. First, preliminary work will be undertaken to initiate early *warning* systems that alert NMCP and ZMCP of likely increases in malaria transmission well in advance of the epidemic event (e.g., increased rainfall, increased mosquito abundance, satellite data on humidity). Early warning systems can provide lead times of weeks to months, during which time other

surveillance activities can be enhanced. Second, a foundation laid in recent years by NMCP and ZMCP requires an infusion of additional resources to boost capacity of early *detection* systems that alert health officials of possible increases in transmission through the immediate identification of surges in fever cases or laboratory confirmed malaria. Resources will be used to promote innovative and appropriate information technologies (e.g., through collaborations with Phones for Health network) to record, transmit, and manage sentinel health facility data. Third, prearranged mechanisms must be devised to deploy a small cadre of trained health staff to investigate and confirm suspected epidemics and implement agreed upon responses (e.g., mass ACT administration for all fever cases in the affected community). Currently, no such plans exist at the regional or district level in Tanzania. Finally, emphasis will be placed on strengthening the capacity of the NMCP and ZMCP to effectively manage and monitor this overall strategy for detection, prevention and control of malaria epidemics. Sound epidemic preparedness is critical to protecting all inhabitants of Zanzibar (1 million) and approximately 7% of the mainland population (2.6 million) living in 25 epidemic-prone districts.

The implementing mechanism will be incremental funding to the bilateral RTI Cooperative Agreement.

K. HIV/AIDS and MALARIA

Current Status – Mainland

Persons living with HIV/AIDS constitute another group particularly vulnerable to malaria and therefore warrant expanded coordination efforts between PMI and the President's Emergency Plan for AIDS Relief (PEPFAR). Data from several parts in Africa suggest that recurring episodes of malarial fever may cause transient increases in viral load among individuals infected with HIV. Consequently, HIV infected individuals co-infected with malaria may be more likely to transmit HIV through sexual contact during these periods of elevated viremia. It is also well documented that susceptibility to malaria illness is enhanced in HIV infected patients. Although the Tanzania HIV prevalence of around 7% in the general population is not the highest level of HIV in sub-Saharan Africa, malaria still poses an epidemiological and personal threat to people living with HIV/AIDS.

The PEPFAR 2007 Country Operational Plan for Tanzania includes $750,000 for the purchase and distribution of LLINs for persons living with HIV/AIDS and enrolled in home-based palliative care. The home-based care is provided primarily by three PEPFAR awardees. The PEPFAR strategy is to provide the LLINs via a voucher distributed through home-based care volunteers. Additional PEPFAR support in the amount of $500,000 was allocated in mid-2007 to support LLIN distribution to orphans. While no age range was specified in the PEPFAR plan to cover orphans, PMI and NMCP will operationalize this effort to include only orphans over the age of five years who would otherwise be missed by the campaign to distribute LLINs to all children under-five ("catch-up" campaign) expected in 2008. A third mechanism for increasing LLIN coverage via PEPFAR funding in Tanzania includes a strategy to provide vouchers to persons who donate blood at safe blood centers in Tanzania (an estimated 50,000 persons). To date, PMI Tanzania has not directed funds to specific HIV/AIDS control efforts that overlap with and strengthen the impact of malaria control efforts.

Proposed USG Activities

HIV/AIDS and Malaria – Mainland	
Cost	150,000
% Commodities	50%
Level	Regional
Mechanism	TBD

PMI Tanzania and PEPFAR Tanzania will continue to collaborate in ways that synergize their respective efforts to reduce the combined burden of malaria and HIV/AIDS. It is critical that non-malarial fevers in HIV/AIDS patients receive appropriate therapy. Of approximately 200 HIV care and treatment centers (CTCs) in Tanzania currently providing antiretroviral therapy to over 75,000 persons living with HIV/AIDS, half lack laboratory capacity to diagnosis malaria among their clients presenting with fever. Many of these clients include children (over 6,000 under 14 years of age). To help ensure the proper diagnosis and treatment of malaria among CTC clients and help minimize their likelihood of developing prolonged fever and subsequent increases in HIV viral load, PMI will support malaria rapid diagnostic capacity (RDT implementation) and ACT supply and distribution to selected CTCs in districts with high malaria transmission. The sites will be selected in close consultation with National AIDS Control Program and PEPFAR. Funds ($100,000) will be used to provide malaria RDT training to CTC staff currently performing rapid HIV diagnosis and to stock RDTs and ACTs at CTCs currently operating with PEPFAR support, but lacking malaria treatment services.

Reducing malarial anemia among young children will help minimize the need for therapeutic blood transfusions, and thus reduce the incidence of pediatric HIV directly attributed to transfusion (and indirectly attributed to malaria). Systems to monitor district-level transfusion services will be implemented and data reviewed to assist the decision making process for prioritizing locations for heightened integrated vector control. While vector control costs are not part of this activity, funds ($50,000) will be used to establish more routine reporting of transfusion services to NMCP.

The funding mechanism will be through selected USAID/Tanzania and CDC/Tanzania partners already implementing PEPFAR programs.

L. CAPACITY BUILDING WITHIN THE NATIONAL AND ZANZIBAR MALARIA CONTROL PROGRAMS

Current Status – Mainland and Zanzibar

Two PMI technical advisors each spend approximately 50% of their time at the offices of the NMCP and ZMCP. They also make frequent visits to the Zanzibar Malaria Control Program. In the course of these regular interactions, the two technical advisors work with NMCP and ZMPC staff at all levels. The PMI advisors engage in activities such as proposal preparation and review, monitoring of PMI partners, development and review of national malaria control guidelines, assistance in strategic mid-term planning, review of data from various partners, drafting of plans for malaria surveillance systems, and provision of input to the development of training materials and curricula.

But PMI technical advisors are a short-term strategy for providing sustainable training capacity within NMCP and ZMCP. Longer-term, ongoing training (beyond one or two-day trainings) of human resources is a key area where PMI can contribute. One way to accomplish this is for PMI to support public health training programs that enhance competencies in applied epidemiology, implementation and evaluation of malaria interventions, monitoring

and evaluation, surveillance strengthening, epidemic preparedness, and public health decision making and leadership skills. PMI can help ensure sustainable malaria control in Tanzania through assistance in training a stronger, larger cadre of public health practitioners and managers.

Over the past two decades several countries have developed national or regional field-based training programs in applied epidemiology and public health. The primary goal of these two-year training programs is to foster the development of field-trained epidemiologists who are competent in the practical application of epidemiologic methods and public health systems management.

One model of field-based, two-year training programs is the Field Epidemiology and Laboratory Training Programs (FELTPs). During the two-year program, FELTP trainees are embedded within the MOHSW where they work daily with the staff of specific disease control programs (in this case, NMCP and ZMCP). CDC-Atlanta, CDC-Tanzania, USAID-Global Health Bureau, and the African Field Epidemiology Network (AFENET) worked jointly with Tanzanian colleagues in February 2007 to develop a plan for a Tanzania FELTP. Under the existing plan, the Tanzania FELTP expects to admit its first cohort of trainees in FY2008.

Proposed USG Activities

Capacity Building	Mainland/Zanzibar
Cost	$160,000
% Commodities	-
Level	NA
Mechanism	USAID Global

To help foster a longer term training strategy for strengthening NMCP and ZMCP professional capacity in Tanzania, PMI will also contribute funds to a joint effort of CDC-Atlanta (Coordinating Office of Global Health), CDC-Tanzania (PEPFAR), and AFENET to initiate a FELTP program in Tanzania in FY2008. The total estimated cost of FELTP in Tanzania during FY2008 is $1.4 million. PMI support of the Tanzania FELTP is intended to serve as an initial infusion of financial resources to help launch the program. This level of PMI funding will cease upon identification of other donors.

The PMI technical advisors will fully participate in the ongoing development plan for the Tanzania FELTP, including curriculum planning and the candidate selection process. PMI support of start-up costs for the Tanzania FELTP will ensure the minimum assignment of two trainees to NMCP/ZMCP each year. Trainees will spend two years embedded in NMCP and ZMCP focusing on applied epidemiology, implementation and evaluation of malaria interventions, monitoring and evaluation, surveillance strengthening, epidemic preparedness, and public health decision making and leadership skills. The program will be housed in the new National Institute of Medical Research building.

The implementing mechanism for Tanzania FELTP will be field support to the existing USAID-Global Health Bureau's funding of AFENET via an interagency agreement with CDC-Atlanta.

M. COMMUNICATIONS AND COORDINATION

Key to the success of PMI is how it fits, complements and coordinates activities with government, development partners and with USAID/Washington and CDC headquarters. All PMI technical activities are undertaken in close coordination with the NMCP and other national and international partners, including the WHO, UNICEF, the GFATM, World Bank and the private sector. An example of close collaboration is with the World Bank, with whom PMI worked to help obtain a credit of $60 million of which $25 million is to support the malaria program in the mainland.

PMI understands that communication and coordination requires constant vigilance and that there is steep time cost for ensuring that stakeholders are informed and participating in PMI. In Tanzania, PMI has made sure that a transparent consultative process is followed in the development of the MOP in all three years. As a result, all stakeholders strongly buy into the current PMI strategy and year three work plan.

At the country level, PMI coordinates through mechanisms already existing in the mainland and Zanzibar. Such mechanisms include the National Malaria Advisory Committee, the various sub-committees (e.g. case management, vector control, IEC, etc.) and the Inter Agency Malaria Coordinating Committee. USAID is a member of the NATNETS advisory board.

PMI has been allocated office space in both the NMCP and the ZMCP. This facilitates communications between technical staff and ensures that PMI works closely with the respective programs. Both the USAID/Tanzania and CDC technical advisors sit, on a rotating basis, at NMCP. PMI has instituted bi-monthly and quarterly coordinating meetings with the NMCP. To ensure that PMI partners are clear that NMCP is the ultimate leader of their activities, partners participate in the bi-monthly meetings and report on their activities and plans. A one to two page report is submitted by partners to USAID/Tanzania and NMCP.

Effective communication with USAID/Washington and CDC headquarters occurs through e-mail, phone and fax. A bi-weekly phone call is made between CDC/Atlanta, USAID/ Washington and all personnel involved in managing the Tanzania country program.

N. PRIVATE SECTOR PARTNERSHIPS

No activities are programmed this year.

O. MONITORING AND EVALUATION PLAN

Ambitious goals of the Tanzanian MOHSW and international donor programs, in combination with intense competition for resources from other disease programs, makes tracking the progress of malaria control activities especially critical. A rigorous monitoring and evaluation (M&E) framework with the capacity to capture, manage, and report quality data in a timely manner is a key PMI goal. Many partners and initiatives are working to control malaria within Tanzania and a successful M&E framework should accommodate more than just a single donor or implementer's needs. The M&E needs of NMCP, ZMCP, and many other stakeholders must also be considered and integrated (consistent with the UNAIDS "Three

Ones" principle[11]). To date, PMI is working closely with colleagues from NMCP, ZMCP, Global Fund and other sectors of the MOHSW to develop more coordinated and integrated M&E efforts. Towards this goal of integrated M&E efforts, the CDC PMI Advisor serves as a core team member of the Global Fund's Five-Year Impact Evaluation Study task force recently convened in Tanzania.

NMPC and ZMCP both pursue M&E activities as part of their efforts to accommodate reporting requirements of multiple donors, including PMI. While each program has conducted malaria surveys in recent years, the methods have not always been standardized or the timing carefully coordinated. The M&E framework PMI supports is based on the goal to reduce malaria deaths by 50% and to achieve coverage targets for specific interventions. The framework is aligned with the standard methods for malaria program evaluation being adopted and promoted by WHO Roll Back Malaria. Program *monitoring* will be based on several coverage outcomes measured at baseline, midpoint and the end of the Initiative. Program *evaluation* will be based on impact on all-cause and malaria-specific mortality, measured at baseline and the end of the Initiative. Information used to evaluate program outcomes and impact of PMI will be collected primarily through nationally representative household surveys (TDHS, THIS, and MIS).

PMI-promoted M&E activities in Tanzania will be coordinated by the PMI in-country staff and representatives from NMCP and ZMCP. The following objectives will be pursued in 2007-2008:

- Support RBM efforts to carry out M&E System Strengthening Tools process
- Develop clear M&E action plans and timelines
- Finalize baseline estimates of outcome and impact indicators
- Establish PMI data collection, reporting, and management procedures
- Build M&E capacity within NMCP/ZMCP
- Establish sentinel surveillance at selected health facilities in mainland and Zanzibar

Support RBM efforts to carry out M&E System Strengthening Tools. In the first quarter of FY2008, a workshop will be convened in Tanzania to address the use of the recently developed RMB M&E System Strengthening Tool (MESST). The overall goal of the workshop will be to support M&E needs for NMCP, ZMCP, and other key stakeholders including PMI and Global Fund. The workshop (FY07 funds) will include a comprehensive plan that will focus on improving: 1) malaria control M&E plan; 2) data management capacities of the M&E cells; and 3) data collection and reporting systems per malaria intervention area.

M&E action plans and timelines. Specific monitoring activities within four main intervention areas (ITNs, IRS, IPTp, and case management with ACT) will be tracked through periodic reports from local and international partners who are providing related commodities to health facilities. 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, BCC/IEC efforts, supervision and training for health care workers, and monitoring of drug and insecticide efficacy and effectiveness. As seen in Table

[11] The "Three Ones" principle is an agreed framework for coordinating donor funding and actions that resulted from the 2004 Consultation on Harmonization of International AIDS funding. The "three ones" are: one action framework for coordination; one national coordinating authority; and, one country-level monitoring and evaluation system.

E below, many malaria surveys (nationally representative or otherwise) have been conducted in Tanzania in recent years. While considerable data have been generated from these surveys, sampling procedures and other methodological issues limit interpretation of the data. Several surveys warrant special attention: 1) most baseline data for determining overall impact of PMI will be based on 2004 TDHS data; 2) considerable mid-point data will originate from the 2007 THIS; and 3) the next TDHS in 2009-10 will include important all-cause mortality data and possibly malaria-specific mortality data if verbal autopsy methods can be included.

A small amount of funding will be allocated to preliminary planning efforts for the 2009 TDHS, a survey expected to provide critical mortality data for monitoring PMI impact.

Table E: Major Malaria Coverage and Impact Indicator Surveys 2001 - 2010, Tanzania.

Survey	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
(PMI year)						1	2	3	4	5
NMCP MIS	X		X		X		X*			
ZMCP MIS			X		X		X*		X	
ZMCP cross-sectional			X		X		X			
ZMCP mortality								X		
TDHS				X					X	
THIS			X				X			
RBM MIS										X
TNVSE					X	X	X*	X	X	
Demographic and Surveillance System (DSS) (Rufiji and Ifakara)					X	X*	X*	X*	X	X

NMCP surveys include household and facility surveys in 21 districts in 2005 and 2007.
ZMCP cross-sectional surveys are conducted every other year at the same two geographic locations.
TDHS in 2009 may include verbal autopsies for deaths among children under five.
THIS (Tanzania HIV Indicator Survey) with malaria module (plus hemoglobin, parasitemia, and all-cause mortality for children under five) is a nationally representative survey of 10,000 households (mainland is included and Zanzibar tentatively).
MIS in 2010 will be first true nationally representative MIS using full RBM protocol (household and women surveys).
TNVSE=Tanzania National Voucher Scheme Evaluation, a nationally representative survey of the national voucher scheme and ITN/LLIN coverage (plus IPTp coverage).
* indicates PMI support for activity

Finalize baseline estimates of outcome and impact indicators. Careful documentation of various malaria indicators prior to initiation of any PMI activities in Tanzania will provide the basis for evaluating the overall impact of PMI resources on improving the malaria situation at mid-point and after five years. As of July 2007, all available baseline estimates of outcome indicators have been finalized from the 2004 TDHS. Baseline impact indicators, particularly malaria-related mortality among infants and children under five from the DSS data, will be finalized in the early part of FY2008.

Establish PMI data collection, reporting, and management procedures. Key to M&E success is a system to collect, report, and manage the ongoing flow of relevant M&E information from all PMI funded partners (e.g., staff trained in IRS application), plus an improved ability to tap into national-level data (e.g., reported to the HMIS). These systems will be established within NMCP and ZMCP through additional staffing support for data managers and procurement of computer equipment.

Build M&E capacity within NMCP/ZMCP. Small monitoring and evaluation units are functional in both the NMCP and ZMCP and each program maintains a database of malaria cases diagnosed and treated at health facilities, conducts periodic coverage surveys, and provides occasional supportive supervision. In practice, however, these basic monitoring and evaluation activities are poorly staffed and under funded. Resources and fuel are scarcely available to complete more than a fraction of proposed supervision visits, routine health facility data are often incomplete or missing and require follow-up visits, and routine coverage surveys frequently suffer from non-representative sampling strategies. Both ZMCP and NMCP prioritized additional support for monitoring and evaluation activities in their requests for FY06 and FY07 PMI funding.

Establishment of sentinel surveillance sites. Household surveys (DHS, THIS, MIS) will serve as the foundation for nationally representative malaria coverage estimates and outcome indicators. The time-lag associated with obtaining results from these large, complex surveys necessitates other approaches for monitoring the most current malaria control program achievements or failures. Out-patient and in-patient data collected prospectively from selected sentinel health facilities (with diagnostic capacity) throughout Tanzania will provide a basis for this strategy. This strategy will be especially useful for collecting malaria morbidity (e.g., severe malarial anemia) and mortality data. On much of the mainland, malaria control is faced with the difficult task of alleviating malaria as a clinical disease problem, sub-clinical parasitemia is not yet a priority. But in Zanzibar where malaria transmission has been greatly minimized the epidemiologic monitoring of infection (parasitemia) as become the primary goal. M&E plans need to take these differences into account and be flexible enough to allow periodic modifications that accommodate local variability in malaria epidemiology. Sentinel health facilities are more amenable to implementing immediate changes in data collection at selected sites without the difficulties of modifying the entire HMIS.

O.1 Strengthening HMIS and Support Supervision

Current Status – Mainland and Zanzibar

The HMIS is a nationally used tool in Tanzania which, under ideal conditions, helps keep health facilities updated concerning health information and utilization while simultaneously providing a partial means for stakeholders to plan, implement, and monitor and evaluate health services. Unfortunately the current HMIS in Tanzania provides insufficient data to be a significant component of quality M&E for malaria control. In theory, HMIS is a system to strengthen decentralization to regions in order to achieve proportionate presentation of information on disease control in a district. The resulting information should be used by local, regional, and national decision makers and managers responsible for malaria control activities. Unfortunately outcome indicators (e.g., number of clinical malaria episodes) are generally too imprecise to be useful for stringent M&E needs.

Proposed USG Activities – Mainland and Zanzibar

Strengthening HMIS and Support Supervision	
Cost	$130,000 M $70,000 Z
% Commodities	-
Level	National
Mechanism	NMCP ZMCP

a. Improving routine malaria control databases. Routine HMIS data collection and management on the Mainland will be supported in the amount of $50,000 through cooperative agreement and technical supervision of NMCP by CDC. Similarly $35,000 is sought to support routine HMIS data collection via a USAID/Tanzania cooperative agreement with ZMCP. Health information systems data includes routine program data from the national malaria control program on quantity of ACTs purchased and used, human resources and financial inputs, etc from all reporting health facilities in the country. Health information system data also includes information on the number of outpatient malaria cases, inpatient malaria cases and deaths, inpatient severe anemia cases, inpatient blood transfusions, malaria cases confirmed by rapid diagnostic test and malaria microscopy, and total number of inpatient admissions for all diagnoses (as a proxy for overall hospital utilization). These indicators can be stratified by age and preferably assessed on a health facility level to be reported monthly to the district and quarterly to the national malaria control program and PMI/partners. Quarterly reports of routine data will assist malaria control planners in marking trends in malaria cases and delivery of interventions.

b. Supervision and quality assurance. $80,000 has been allocated to enhanced supervision and quality assurance for the Mainland and $35,000 to Zanzibar. The NMCP and ZMCP strategic plans acknowledge that planned supervision visits occur only rarely, usually for lack of funds. Without supportive supervision, NMCP has little opportunity to improve the implementation and delivery of its interventions. In addition, national level staff may be unaware of relatively simple problems until such time as a biannual assessment carried out. PMI funds will support ZMCP and NMCP staff to complete supervision visits every other month, including per diem and vehicle expense. Districts and facilities for supervision will be prioritized according to criteria such as accessibility, geography, levels of endemicity and other factors indicating high risk for malaria, and areas indicating previous management or implementation problems. Supervisors will use checklists to record their findings, and incorporate data into quarterly HMIS reports and presentations for NMCP and partners. They will also feed the information into regular updates of national malaria guidelines and training manuals. Selection of districts and health facilities for supervisory visits will be made by program managers in collaboration with CDC and other PMI Partners. It will be important that these sites represent typical districts in a variety of transmission settings, and that some districts with early implementation interventions supported by PMI (expanded TNVS, equity vouchers, RDTs, severe malaria, ADDOs) are included. Revisits to address problem areas will be a priority for a subset of supervision visits.

Examples of practices to be monitored include:

- Health facilities: management of patients in outpatient clinics, management of severe malaria, availability of drugs and health education materials, quality of registers, dispensing of anti-malarials during ANC according to guidelines, distribution of vouchers by target population, supplies and appropriate use of RDTs.
- ADDOs: dispensing practices for ACTs, adequate supplies, information provided to customers on the drugs.
- ITN outlets: appropriate supplies of ITNs, redemption practices for each type of voucher (pregnant women, infants, under-fives, “equity” 100% subsidy).

- Community: ITN hanging and use in households.

During visits, malaria control staff will interview staff, view supplies of drugs and vouchers, review registers, observe case management, visit a selection of households in the nearby community, and provide immediate oral or written feedback before departing. Staff will summarize findings from supervisory visits in quarterly reports to the program manager and partners, and will address critical issues during weekly meetings with program managers. A sample of checklist data will be entered into a database that will be incorporated into the HMIS for national reporting, and for updating training guidelines and methods.

The implementation mechanism will be a cooperative agreement between USAID/Tanzania and NMCP.

O.2 Establishment of Sentinel Surveillance Sites

Current Status – Mainland and Zanzibar

While NMCP currently has 21 sentinel districts where they have previously conducted surveys on malaria prevalence, treatment seeking behavior, and health facility services, no ongoing sentinel health facilities are currently operating on the mainland. A similar situation prevails in Zanzibar where sentinel areas are used for periodic surveys, but no selected sentinel health facilities report timely malaria data for M&E purposes.

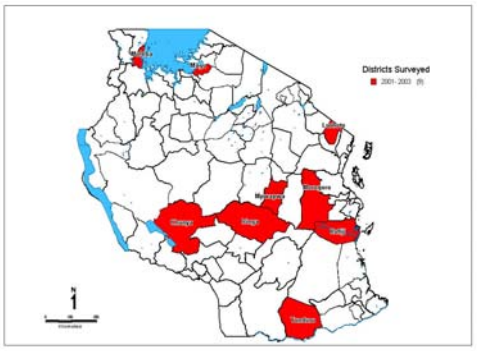
Proposed USG Activities – Mainland and Zanzibar

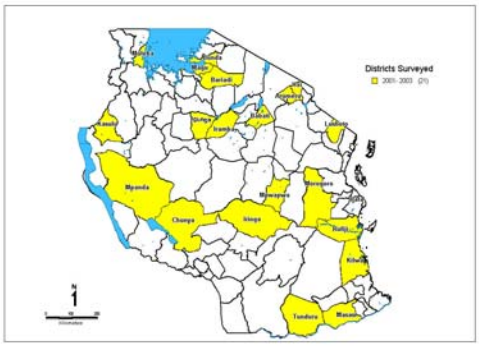
Establishment of Sentinel Surveillance Sites	
Cost	$200,000 M $70,000 Z
% Commodities	-
Level	NA
Mechanism	RTI

In FY08 health facilities will be selected on the mainland and Zanzibar with a sufficient catchment population to permit analysis of quarterly trends in malaria outcome indicators. On the mainland, seven facilities will be selected in the first quarter of FY2008. The allocation of sentinel facilities will be prioritized to the nine districts (Dodoma, Iringa, Kagera, Mbeya, Morogoro, Mwanza, Pwani, Ruvuma, and Tanga) initially included in the 2001, 2003, 2005 and 2007 NMCP health facility surveys (See Figure 2). Pending successful implementation and reporting of data by these nine sites in FY2008, the number of sites will be increased to 15 in first-half of FY2009 and then to 21 in the second-half. Again, the sentinel facilities will be selected from among the remaining 21 districts participating in the 2005 and 2007 NMCP facility surveys. Since Zanzibar is aiming to completely suppress malaria transmission, a large number of sentinel facilities is currently warranted. Eight sentinel health facilities have been selected in Unguja and six in Pemba.

Figure 2
Initial and Final Districts for Sentinel Facilities

Initial districts for sentinel facilities (n=9) Final districts for sentinel facilities (n=21)





The implementing mechanism will be incremental funding to the RTI cooperative agreement.

O.3 Entomological Monitoring

Current Status – Mainland and Zanzibar

PMI and GFATM are supporting IRS; however, routine and systematic entomological monitoring has rarely been conducted on the Mainland or Zanzibar. As a result, longitudinal data are not consistently available from the same sites over time.

Limited entomological sampling has been conducted in Zanzibar since the widespread distribution of LLINs and the introduction of IRS. PMI identified $50,000 in FY06 funds to support data collection for entomologic monitoring on the isles, and some data have been recently reported. Sporozoite rates are estimated using Enzyme-Linked ImmunoSorbent Assay (ELISA) on dissected mosquito salivary glands. The introduction of LLINs and IRS will require further testing, and bioassays to monitor insecticide efficacy. These can be completed in Mainland Tanzania with support from the National Institute for Medical Research. To date, the PMI country team has identified only $20,000 to support of entomological monitoring on the Mainland, but this will significantly increase in FY08.

Proposed USG Activities – Mainland and Zanzibar

Entomological Monitoring	
Cost	90,000 M 160,000 Z
% Commodities	-
Level	NA
Mechanism	RTI

In FY08, $160,000 is allocated for entomological monitoring on Zanzibar and another $90,000 on Mainland Tanzania. Funds for entomological monitoring will be awarded through RTI.

Primary entomological activities will include monitoring the susceptibility of malaria vectors to insecticides using:

- WHO bioassays of ITNs/LLINs and treated walls;
- Susceptibility tests using WHO treated papers; and
- ELISA for knock-down resistance (kdr) mutations.

Secondary activities will include the monitoring of changes in parameters contributing to malaria transmission including:

- Changes in human biting and sporozoite rates;
- Changes in behavior (i.e., biting times or where biting and resting occurs); and
- Changes in species composition.

The implementation mechanism will be incremental funding to RTI who will coordinate specific activities with IHRDC and NIMR.

O.4 Quantification of Repellant and Irritant Actions of DDT and Pyrethroid Insecticides Against African Malaria Vectors - Operations Research (Core funding)

Current status

IRS and LLINs are core malaria prevention strategies for the PMI, however, the mode of action (i.e., spatial repellency, contact irritancy and contact toxicity) of key IRS/LLIN insecticides against African malaria vectors is not known. In addition, it is assumed that the development of resistance in vectors will change the efficacy of these interventions but little quantitative data exists to substantiate this hypothesis. Determining the mode of action of an insecticide and changing the insecticide used will impact the efficacy of the intervention as resistance develops in the mosquito population. Identifying the mode of action will permit vector control programs to exploit different insecticides, extend their useful life, and better manage resistance as it develops from agriculture and expanded use of IRS and LLINs.

Proposed USG activities

Monitoring Vector Behavior in Response to Insecticides	
Cost	CORE
% Commodities	-
Level	NA
Mechanism	IHRDC

(1) Novel, portable experimental huts will be developed for measuring *A. gambiae* house entry and exit behaviors using eave, window and/or door interception traps. A series of baseline experiments will be conducted pre-treatment to describe natural behavior patterns of susceptible *A. gambiae*. This will be followed by chemical treatment of mud panels in experimental huts to evaluate changes in vector behavior in response to DDT and other WHO IRS-LLIN approved insecticides. The study began in FY2007 with USAID non-PMI funding and will continue for three years (minimum). The study design will be replicated in subsequent years within field sites with resistant *A. gambiae* populations. Data collected during experimentation will be made available to other research consortiums in Tanzania focused on modeling efficacy of malaria interventions.

(2) To determine the mode of action (i.e., spatial repellent, contact irritant, contact toxicant) of DDT and pyrethroid insecticides.

(3) To quantify potential changes in spatial repellent and contact irritant behaviors associated with insecticide resistance.

Initial studies will be conducted in Lupiro, Ulanga District near Ifakara, Tanzania with subsequent studies in at least two-three countries to cover a range of vectors with different levels of insecticide resistance. The Lupiro site was selected based on the excellent technical staff and infrastructure at IHRDC, year-round high populations of *A. gambiae* in the regional

rice growing area, and an ability to conduct studies with DDT. Results from this work will be applicable in all PMI countries.

The mechanism will be through a cooperative agreement with IHRDC. IHRDC is a Tanzanian NGO.

O.5 Demographic Surveillance System Support

Current Status – Mainland

Tanzania, like many countries in sub Saharan Africa, is faced with the dearth of reliable information for planning and monitoring due to fragmentary routine data collection systems. Current data sources such as Demographic and Health Surveys provide valid estimates of overall mortality; but these surveys are infrequent, cross-sectional and do not track specific causes of deaths. Demographic surveillance system (DSS) offer an excellent platform to generate accurate longitudinal information that can reliably be used to inform appropriate policies and monitor the impact of health interventions designed to reduce morbidity and mortality. Although the DSS systems are not nationally representative, their prospective nature allows validation and exploration of in-depth assessment of observations made with country representative data collection systems.

A central objective of PMI is to reduce malaria specific mortality by 50%. Measuring cause-specific mortality is a difficult task in settings like Tanzania, where most people die outside of health facilities and vital statistics are not routinely collected. Cause-specific mortality can be monitored for the population of a defined geographic area via verbal autopsy interviews, which are completed at several DSS sites in Tanzania. Approximately 170,000 people in Rufiji (31 villages), Kilombero and Ulanga Districts (25 villages) are currently enrolled in DSS sites operated by Ifakara Health Research and Development Centre since 1997. Together these sites represent the largest population under continuous demographic surveillance in sub-Saharan Africa. The per year operating costs total $500,000.

IHRDC has recently provided baseline estimates of all-cause (infant, under five, and child) and malaria-specific morality rates to PMI Tanzania. The data indicate compelling evidence of reductions in malaria-specific mortality among children under five between 2005 and 2006.

In Zanzibar the MOHSW has collaborated with the Johns Hopkins University School of Public Health (JHU) and Public Health Laboratory/ Ivo de Carnero Foundation (PHL) since 2000 on a recently completed evaluation of micronutrient supplementation. The trial included a system for monitoring mortality and morbidity (including transfusions performed) among the entire population of children under five years of age. The JHU team has recently provided the PMI Tanzania team with comprehensive all-cause and cause-specific mortality data for Pemba (2000-2005). These data will serve PMI needs as baseline estimates for Pemba since the 2004 TDHS does not provide adequately valid mortality estimates (due to small sample size). ZMCP and their research partners have also prioritized an additional mortality follow-back survey that would estimate mortality on Unguja in late 2007 (supported by PMI FY2007 funds). PMI has contributed $200,000 in FY06 and $300,000 in FY07 funding to support these ongoing DSS sites.

Proposed Actions – Mainland

DDS Site Support	Mainland
Cost	$150,000 M
% Commodities	-
Level	Regional
Mechanism	IHRDC

In addition to performing verbal autopsies on a continuous basis as deaths are reported, DSS sites collect comprehensive data three times per year on malaria coverage indicators and care-seeking behavior. CDC and USAID technical staff will work closely with DSS managers at IHRDC to obtain real-time data for estimating intervention coverage, and malaria-specific morbidity and mortality trends. The FY08 MOP includes $150,000 to contribute to the IHRDC DSS effort.

This type of focal (as opposed to national-level) monitoring and evaluation system will provide unique longitudinal data. This approach will allow for the most detailed and informative analyses regarding which specific PMI programmatic activities are most influential in improving coverage indicators and reductions in all-cause and malaria-specific morbidity and mortality. The Pemba DSS will be discontinued.

The mechanism for this activity is the IHRDC.

O.6 Preparation for 2009 TDHS

Current status

The last TDHS was conducted in 2004-05. The TDHS is the MOHSW's primary strategy for obtaining nationally representative data concerning levels, patterns, and trends in demographic and health indicators in the mainland and Zanzibar. The survey is designed to produce estimates at the regional level for most indicators. The essential malaria M&E indicators obtained from this survey include: IPTp, ITN, and IRS coverage, treatment seeking behavior for fever, plus all-cause under five mortality. However, for the first time in Tanzania the TDHS will be expected to also include verbal autopsies for all deaths detected among children under five years of age.

Proposed USG Activities

Preparation for TDHS	
Cost	$150,000
% Commodities	-
Level	National
Mechanism	TBD

PMI funds will be used to initiate planning and ensure timely implementation of the 2009-10 TDHS. A particular emphasis will be placed on establishing necessary changes to permit the inclusion of verbal autopsies for all deaths among children under five years of age.

The implementation mechanism is to be determined.

O.7 NMCP and ZMCP Monitoring and Evaluation Advisors

Current Status – Mainland and Zanzibar

Both Mainland and Zanzibar MOHSWs are facing substantial personnel constraints. This is particularly true for the monitoring and evaluation activities of both malaria control programs. Both ZMCP and NMCP request PMI provide direct personnel support for an epidemiologist for their Monitoring and Evaluation needs.

Proposed USG Activities – Mainland and Zanzibar

M&E Advisors	
Cost	$18,000 M $18,000 Z
% Commodities	--
Level	National
Mechanism	NMCP ZMCP

PMI will support two epidemiologists as malaria program M&E advisors to provide guidance and supportive supervision within the NMCP/ZMCP to facilitate capacity building and coordination of programmatic linkages (e.g., HIV/AIDS and TB control programs) among M&E efforts at the national and district levels. These persons will be responsible for providing support to the program managers for assessing intervention scale-up activities, especially those occurring at health facilities (e.g., case management of malaria cases seen at outpatient health facilities). While the NMCP/ZMCP are responsible for providing training for health workers and disseminating written clinical practice guidelines and job aides for clinical management, the M&E Advisors would support activities that improve HMIS data collection quality and timeliness and activities to enhance health worker performance through supportive supervision and quality improvement strategies. These persons are expected as part of their duties to interact with all units of the control program, district and health facility staff, members of the community and private sector, and President's Malaria Initiative personnel at CDC and USAID/Tanzania, as well as investigators charged with assessing individual GFATM and PMI initiatives.

The PMI M&E Advisors will sit in the M&E cell of each malaria control program and report to the M&E cell leader. The PMI Advisors will assist the M&E cell leader in training and supervising the M&E Advisors. This advisor would specifically work within the NMCP/ZMCP to champion quality improvement and build capacity for quality improvement in the Ministry of Health, by providing training to all units of the NMCP with respect to Quality Assurance and data management and supervision activities. Funds may be used for equipment (e.g., a desktop computer, or paper surveys or personal digital assistants for supervisors to help them collect data on health worker performance and related data) and travel to health facilities for the M&E advisor along with other members of the control programs.

Funds will support the M&E Advisors to communicate within NMCP and ZMCP and among their partners (e.g. PMI, GF, RBM) to maintain a database and summarize data on a regular basis. Data should be shared within the NMCP/ZMCP to help identify districts or regions that could benefit from supportive supervision. Data will be reported monthly within NMCP and regularly to PMI.

The implementing mechanism will be incremental funding to the RTI Cooperative Agreement.

P. MANAGEMENT AND ADMINISTRATION

Current Status – USAID/Tanzania - CDC

Two expatriate health professionals have been hired to oversee the PMI in Tanzania, one representing CDC, funded through the CDC Interagency Agreement and one representing USAID/Tanzania contracted by John Snow Inc. (JSI) funded through the TASC II mechanism. In addition, one Foreign Service National (FSN) was hired to support the PMI team. All PMI staff members are part of a single inter-agency team led by the USAID/Tanzania Mission Director or his/her designee in country. The PMI team shares responsibility for development and implementation of PMI strategies and work plans, coordination with national authorities, managing collaborating agencies and supervising day-to-day activities. As the USAID/Tanzania Technical Advisor under JSI TASC II will be leaving in 2008, he will be replaced by a US Personal Services Contractor.

The PMI professional staff works together to oversee all technical and administrative aspects of the PMI in Tanzania, including finalizing details of the project design, implementing malaria prevention and treatment activities, monitoring and evaluation of outcomes and impact, and reporting of results. The CDC staff person is supervised by CDC both technically and administratively. All technical activities are undertaken in close coordination with the National Malaria Control Program and Zanzibar Malaria Control Program of their respective Ministries of Health and Social Welfare 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/Tanzania is approved by the USAID/Tanzania Mission Director. Because of the need to adhere to specific country policies and US Government accounting regulations, any transfer of PMI funds directly to Ministries or host governments require approval by the USAID/Tanzania Mission Director and the USAID Controller.

Proposed USG Activities – USAID/Tanzania – CDC

In FY08, the USAID/Tanzania U.S. Technical Advisor, FSN Malaria Project Management Specialist and CDC Technical Advisor and Administrator will be continued. The USAID personnel will be funded directly through Personal Services Contracts. The CDC Technical Advisor and Administrator will be funded through the CDC Interagency Agreement.

The USAID Health and Population Office FY08 budget is $46,200,000 with 69% coming from PMI. Therefore, in FY08, USAID will utilize $375,000 (1.1% of the PMI program) for Program Development and Support to cover PMI expenses.

In addition to the USAID PMI Technical Advisor and Project Management Specialist funded separately, the Health and Population Office (HPO) consists of a United States Direct Hire who is program funded under the Junior Officer Placement Authority, and a United States Private Service Contractor, both of whom spend approximately 50% of their time directly manage PMI activities. Additionally, the Health and Population Office Administrative Assistant and Financial Management Analyst assigned to the HPO office spend a majority of their time on PMI activities. The CDC PMI technical advisor is located in the HPO and the

office is charged to International Cooperative Administrative Support Services costs and Information Technology "tax" on his space (in addition to CDC paid ICASS costs).

While planned travel can be included into institutional contracts, it is necessary to have some funds available to fund activities which are outside the pre planned scopes of work. In the past year the HPO has funded two PMI related invitational travel visits to Washington for Government of Tanzania Officials (one to the President's Malaria Summit) which cost approximately $6,000 each. Such needs will undoubtedly occur again in the next year.

Additional unanticipated costs may be incurred for such things as increased ICASS costs, hosting conferences in Tanzania, and emergencies. HPO will maintain separate accounting for PMI Program Development and Support Funding and any unexpended money will be carried over for future years.

CDC FY08 planning includes $100,000 for general administrative and technical support services to cover needs, both anticipated and unanticipated, by the PMI CDC Malaria Technical Advisor for Tanzania and Zanzibar. Most (~90%) of these costs are anticipated, including the following:

- TDY's from CDC Atlanta (2) for administrative assistance provided to the CDC Malaria Technical Advisor, the CDC (FSN) Administrative Assistant and to those persons within NMCP, ZMCP and various partner agencies involved in direct management of PMI funding mechanisms;
- TDYs from CDC Atlanta (2) for technical assistance in monitoring and evaluation;
- Travel costs associated with attending the PMI Intra-Africa Retreat in South Africa in October 2007;
- Reimbursement to CDC Tanzania Office for costs associated with providing office space, office equipment and other support services to the PMI CDC Malaria Advisor and to the CDC Administrative Assistant.

The remaining (~10%) CDC administrative support costs include unanticipated needs such as occasional regional and in-country travel to attend meetings, provide technical guidance and other support services to PMI partners, activities and projects.

Table F: Cost Detail USAID Administration & Technical Support			
Item	**Estimated FY08 Cost ($)**	**PMI share**	**Total ($)**
JOPA	236,173	50%	118,087
USPSC	267,539	50%	133,770
Admin Assistant	43,787	69%	30,213
Financial Analyst	66,268	69%	45,725
Office ICASS charges	15,000	1	15,000
Information Technology Tax	5,000	3	15,000
Invitational Travel	6,000	2	12,000
Other			5,206
Total			375,000

Table G: Cost Detail CDC Administration & Technical Support			
Item	**Estimated Unit Cost ($)**	**Units**	**Total ($)**
Administrative visits CDC Atlanta	12,000	3	36,000
Host country representative travel to PMI conference	5,000	2	10,000
M&E visits CDC Atlanta	12,000	2	24,000
CDC Tanzania office support	25,000	1	25,000
Unanticipated meetings/travel	5,000	1	5,000
Total			100,000

Q. ANNEXES - Tables

Q.1.1 Table 1 – Timeline of Activities

ANNEX 1

Table 1 PMI Year Three (FY08) Timeline of Activities														
	2007	2008	2008							2009				
ACTIVITY	Oct Dec	Jan May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
H. INTERVENTIONS PREVENTION														
H.1 Support to IV – Mainland														
H.1.1 Continue distribution of IVs														
H.1.2 Switch IVs to LLINs														
H.2 Support to Catch Up Campaign – Mainland														
H.2.1 MEDA attend planning meetings with TNVS														
H.2.2 Select PMI participation (region)														
H.2.3 Estimate quantity and procure LLINs														
H.2.4 Distribute LLINs in selected areas														
H.2.5 Evaluate PMI participation in catch up campaign														
H.3 TNVS Training – Mainland														
H.3.1 Develop/adapt tools														
H.3.2 Develop schedule for training														
H.3.3 Train														
H.3.4 Conduct supervision/follow up														
H.3.5 Generate reports														
H.4 Support to Zanzibar Voucher Scheme – Zanzibar														
H.4.1 Set up databases														
H.4.2 MEDA technical/monitoring visits to ZMCP														
H.4.3 Corrections/adaptations to method														
H.4.4 Quality assurance visits by PMI														
H.4.5 Report generation														
H.5 Urban Malaria Control – Mainland														
H.5.1 Continue larviciding in target area														
H.5.2 Continue adult mosquito monitoring														
H.5.3 Conduct household surveys														

H.5.4 Assess PMI participation														
H.6 IRS – Mainland														
H.6.1 Select IRS areas														
H.6.2 Logistic assessment in new districts														
H.6.3 Set up district IRS management structure														
H.6.4 Procure, store and transport pesticide/equipment														
H.6.5 Establish and manage warehouse														
H.6.6 Recruit and train IRS teams														
H.6.7 Manage transport for IRS site operations														
H.6.8 Conduct pesticide poisoning training and supply of essential medicine for its management														
H.6.9 Carry out IRS operations														
H.6.10 Manage data														
H.6.11 Conduct monitoring and supervision														
H.6.12 IEC campaign														
H.7 Rational integration of IRS/ITN – Operations Research														
H.7.1 Develop/finalize and obtain approval for protocol														
H.7.2 Develop/finalize models														
H.7.3 Set up experimental huts														
H.7.4 Implement														
H.7.5 Analyze data and report														
H.8 IRS – Zanzibar														
H.8.1 Evaluate entomological and epidemiological data														
H.8.2 Select areas for spraying														
H.8.3 Procure supplies														
H.8.4 Prepare teams														
H.8.5 Conduct IRS in selected areas														
H.9 Support DDT Registration – Mainland														
H.9.1 Review legislation and guidelines														
H.9.2 Implement environmental assessments														
H.9.3 Submit application for registration														
H.10 Control of malaria in pregnancy - Mainland														
H.10.1 Training of trainers														
H.10.2 Training in selected districts														
H.10.3 Quality assurance														
H.10.4 Data management and reporting														
H.11 Control of malaria in pregnancy - Zanzibar														

H.11.1 Training of trainers														
H.11.2 Training in selected districts														
H.11.3 Quality assurance														
H.11.4 Data management and reporting														
H.12 Introduction of IPTi – Mainland														
H.12.1 Convene meeting to review IPTi														
H.12.2 Select initial sites and roll out plan														
H.12.3 Prepare/adapt existing training materials														
H.12.4 Train in IPTi														
H.12.5 Assess activities														
H.13Behavior change and communication – Mainland														
H.13.1 Assess current BCC activities														
H.13.2 Draft work plan for FY08 implementation														
H.13.3 Review approve work plan														
H.13.4 Implement														
H.14 Behavior change and communication – Zanzibar														
H.14.1 Assess current BCC activities														
H.14.2 Draft work plan for FY08 implementation														
H.14.3 Review approve work plan														
H.14.4 Implement														
I. INTERVENTIONS CASE MANAGEMENT														
I.1 Rapid diagnostics tests - Mainland														
I.1.1 Assess needs														
I.1.2 Procure RDTs through USAID Deliver														
I.1.3 Distribute RDTs														
I.1.4 PMI quality assurance visits														
I.1.5 Generate reports on RDT use														
I.2 RDT - Operations Research														
I.2.1 Develop research protocol														
I.2.2 Approve protocol														
I.2.3 Procurement and distribution of supplies														
I.2.4 Implement research														
I.2.5 Evaluate and write up														
I.3 Rapid diagnostics tests - Zanzibar														
I.3.1 Assess needs														
I.3.2 Procure RDTs through USAID Deliver														
I.3.3 Distribute RDTs														

	I.3.4 PMI Quality assurance visits														
	I.3.5 Generate report on RDT use														
I.4	Training and Supervision for Malaria Case Management – Mainland														
	I.4.1 Prepare roll out plan for nurse training														
	I.4.2 Review materials and make changes														
	I.4.3 Train														
	I.4.4 Follow up visits														
I.5	Case management – Zanzibar														
	I.5.1 Assess needs														
	I.5.2 Adapt/update materials														
	I.5.3 Implement training														
	I.5.4 Evaluate training														
I.6	Private Sector ACTs – Mainland														
	I.6.1 Assess needs														
	I.6.2 Procure and distribute ACTs to private sector														
	I.6.3 Supervision monitoring														
	I.6.4 PMI quality assurance visits														
I.7	ACT for Refugees – Mainland														
	I.7.1 Assess needs														
	I.7.2 Procure and distribute ACTs														
	I.7.3 Monitor ACT use														
	I.7.4 Report on ACT use in refugee camps														
I.8	Management of Severe Malaria – Mainland														
	I.8.1 Training														
	I.8.2 Implementation														
	I.8.3 Follow Up														
I.9	Malaria Commodity Logistics – Mainland														
	I.9.1 Work with Deliver and MSD to develop plan														
	I.9.2 Develop any tools, guides, aids that are needed														
	I.9.3 Deliver supervision of health facilities														
	I.9.4 Spot checks by PMI														
I.10	Promotion and awareness of Appropriate ACT Use - Mainland														
	I.10.1 Assess activities from previous year														
	I.10.2 Redesign if necessary messages and strategy														
	I.10.3 Implement new communication strategy														

I.10.4 Monitor strategy														
J. INTERVENTIONS – EPIDEMIC SURVEILLANCE AND RESPONSE														
J.1 Epidemic surveillance and response - Mainland														
J.1.1 Plan early detection system														
J.1.2 Implement system														
J.1.3 Draft response plan														
J.1.4 Train response team														
J.1.5 Epidemic surveillance														
K. HIV/AIDS AND MALARIA														
K.1 HIV/AIDS and malaria – Mainland														
K.1.1 Select care and treatment clinics														
K.1.2 Train staff in RDT use and quality control														
K.1.3 Implement follow up/reporting														
L. CAPACITY BUILDING WITHIN NMCP														
L.1 Capacity building within NMCP – Mainland														
L.1.1 Finalize FELTP MOU														
L.1.2 Curriculum development														
L.1.3 Review applicants/select														
L.1.4 Enroll trainees														
M. COMMUNICATION AND COORDINATION														
M.1 Communication and coordination														
M.1.1 Bi-monthly conference call														
M.1.2 Bi-monthly NMCP – PMI partner's meetings														
O. MONITORING AND EVALUATION														
O.1 Strengthening HMIS and support supervision														
O.1.1 Improve malaria database														
O.1.2 Procure computer equipment														
O.1.3 Support supervision visits														
O.2 Establishment of sentinel surveillance sites														
O.2.1 Select/finalize sites														
O.2.2 Procure supplies														
O.2.3 Train site staff														
O.3 Entomological surveillance														
O.3.1 Finalize site selection														
O.3.2 Monthly data collection														
O.3.3 Initiate first susceptibility study														

O.4 DSS site support														
O.4.1 Finalize baseline data														
O.4.2 Ongoing data collection														
O.4.3 Modify verbal autopsy method														
O.4.4 Bi-annual reports														

Table 2 PMI Tanzania Mainland and Zanzibar Planned Obligations for Year Three FY08 ($34,000,000)						
Proposed Activity	**Mechanism**	**NGO FBO**	**Budget (*commodities)***	**Geographic Area**	**Description of Activity**	**Page Ref.**
H.1 Support for the Infant Voucher	MEDA	√	9,000,000 (7,650,000)	National Mainland	Subsidy for LLINs vouchers for infants	15
H.2 Support for the under five catch up campaign	MEDA	√	3,250,000 (2,600,000)	National Mainland	LLINs for one region	16
H.3 TNVS training	TBD		400,000	National Mainland	Training and promotion to support and deploy IV	17
H.4 Support to Zanzibar voucher scheme	MEDA	√	180,000	National Zanzibar	Development of a routine system for bed net distribution using vouchers	17
H.5 Urban Malaria Control – Larviciding – Mainland	RTI		500,000	Regional Mainland	Larviciding in urban wards of Dar es Salaam	18
H.6 Indoor Residual Spraying in Mainland	RTI		3,970,000 (2,699,600)	Regional Mainland	Focused IRS in malaria hotspots	19
H.7 Rational Integration of IRS and ITNs – Operations Research	IHRDC	√	CORE Funded	NA	Study best combination of IRS and ITNs	20
H.8 Indoor Residual Spraying in Zanzibar	RTI		1,500,000 (1,275,000)	National Zanzibar	IRS in districts in Zanzibar	21
H.9 Support to DDT Registration	RTI		150,000	Regional Mainland	Help NMCP register DDT	22
H.10 Control of Malaria in Pregnancy in Mainland	ACCESS		1,800,000	National Mainland	Implement FANC including IPTp	23
H.11 Control of Malaria in Pregnancy in Zanzibar	ACCESS		100,000	National Zanzibar	Support ZMCP in implementing IPTp	25
H.12 Introduction of IPTi in Mainland	TBD		100,000	Regional Mainland	Ready NMCP for IPTi	26
H.13 Behavior Change and Communication for Mainland	TBD		4,000,000	National Mainland	BCC for all aspects of malaria control	27
H.14 Behavior Change and Communication for Zanzibar	RTI		300,000	National Zanzibar	BCC for all aspects of malaria control	29
SUBTOTAL: Preventive			**25,250,000 (14,224,600)**			
I. CASE MANAGEMENT ACTIVITIES						
I.1 Rapid Diagnostic Tests in Mainland	USAID| Deliver Task Order Three		500,000 (500,000)	Regional Mainland	Continue very limited testing of RDTs in three research centers	30
I.2 RDT Operations	RTI		90,000	NA	Develop HMIS for	31

Table 2 PMI Tanzania Mainland and Zanzibar Planned Obligations for Year Three FY08 ($34,000,000)						
Proposed Activity	**Mechanism**	**NGO FBO**	**Budget (*commodities)***	**Geographic Area**	**Description of Activity**	**Page Ref.**
Research					reporting RDT results at basic facility level	
I.3 Rapid Diagnostic Tests in Zanzibar	USAID| Deliver Task Order Three		205,000 (205,000)	National Zanzibar	Continue support for RDTs in Zanzibar	32
I.4 Training and Supervision for malaria Case Management	ZTC		883,600	National Mainland	Start second phase of training. Registered nurses on severe malaria and other aspects of malaria management	33
I.5 Case Management in Zanzibar	ZMCP		100,000	National Zanzibar	Strengthen malaria case management through IMCI, and support adverse reactions reporting	33
I.6 Private Sector ACTs	MSH RPM+ USAID| Deliver Task Order Three		2,100,000 (1,900,000)	Regional Mainland	Support the introduction of ACTs in ADDOs	34
I.7 ACT for Refugees	USAID| Deliver Task Order Three UNHCR		400,000 (400,000)	Regional Mainland	ACTs for refugee camps in Northwestern Tanzania	36
I.8 Management of Severe Malaria	IHRDC USAID| Deliver Task Order Three	√ IHRDC	335,000 (100,000)	Regional Mainland	Evaluate acceptability of new therapies	37
I.9 Malaria Commodity Logistics	USAID| Deliver Task Order Three		350,000	National Mainland	Support MSD to ensure malaria commodities are in place in all facilities	38
I.10 Promotion and Awareness of Appropriate ACT Use	T-MARC		250,000	National Mainland	Discourage artemisinin and other monotherapies through BCC	39
SUBTOTAL: Case Mgmt.			**5,213,600 (3,105,000)**			
J. EPIDEMIC SURVEILLANCE & RESPONSE						
J. Epidemic Surveillance & Response – Mainland	RTI		300,000 (20,000)	Mainland	Strengthen capacity for epidemic detection/response	40
J. Epidemic Surveillance & Response – Zanzibar	RTI		100,000 (80,000)	Zanzibar	Strengthen capacity for epidemic detection/response	40
SUBTOTAL: Epidemic			400,000			

Table 2 PMI Tanzania Mainland and Zanzibar Planned Obligations for Year Three FY08 ($34,000,000)						
Proposed Activity	**Mechanism**	**NGO FBO**	**Budget (*commodities)***	**Geographic Area**	**Description of Activity**	**Page Ref.**
Surveillance & Response			(100,000)			
		K.	**HIV/MALARIA**			
K. HIV/Malaria	TBD		150,000 (75,000)	Mainland	Improve malaria diagnosis and treatment for PLWHA	41
SUBTOTAL: HIV/Malaria			**150,000 (75,000)**			
		L.	**CAPACITY BUILDING**			
L. Capacity Building the National Malaria Control Program	USAID Global		160,000	Mainland Zanzibar	Support for 2-year training in applied epi	42
SUBTOTAL: Capacity Building			**160,000**			
		N.	**PRIVATE SECTOR PARTNERSHIPS**			
N. Private Sector Partnerships	TBD		0	Mainland	Build private support for malaria control	44
SUBTOTAL: Private Sector Partnerships			**0**			
		O.	**MONITORING AND EVALUATION**			
O.1 Strengthening HMIS and Support Supervision	NMCP ZMCP		130,000 70,000	Mainland Zanzibar	Improve malaria reporting systems	47
O.2 Establishment of Sentinel Surveillance System	RTI		200,000 70,000	Mainland Zanzibar	System for expediting M&E data collection	49
O.3 Entomological Monitoring	RTI		90,000 160,000	Mainland Zanzibar	Measurement of vector exposure.	50
O.4 Entomological Monitoring – Operations Research	IHRDC	√	CORE Funded	NA	Monitor vector behavior change.	51
O.5 Demographic Surveillance Site Support	IHRDC	√	150,000	Mainland	Malaria specific mortality data/coverage data.	52
O.6 Tanzania Demographic Health Survey Support	TBD		150,000	Mainland	Preparation for 2009 – 2010 TDHS	53
O.7. M&E Advisor – Mainland/Zanzibar	NMCP ZMCP		18,000 18,000	Mainland Zanzibar	Staff support for M&E	53
SUBTOTAL: M&E			**1,056,000**			
		P.	**MANAGEMENT AND ADMINISTRATION**			
SUBTOTAL: Mgmt. and Admin.			**1,495 ,000**			56

Table 2 PMI Tanzania Mainland and Zanzibar Planned Obligations for Year Three FY08 ($34,000,000)						
Proposed Activity	**Mechanism**	**NGO FBO**	**Budget (*commodities)***	**Geographic Area**	**Description of Activity**	**Page Ref.**
GRAND TOTAL			**33,724,600 (17,504,600)**	***Commodities represent 52% of total budget***		

Q.1.3 Table 3 – Assumptions and estimated Year Three coverage levels

Table 3: Assumptions and Estimated Year Three Levels Tanzania FY08															
Country	2 dose IPTp			ITN use(<5's)			ITN use (Pregnant women)			IRS (targeted houses)			Febrile children receiving ACT		
	'05	'07	'08	'05	'07	'08	'05	'07	'08	'05	'07	'08	'05	'07	'08
Mainland	22%	50%	60%	16%	40%	60%	15%	55%	60%	0%	85%	85%	<1%	40%	60%
Zanzibar	14%	40%	70%	22%	80%	85%	26%	80%	85%	0%	85%	85%	36%	70%	85%

Assumptions Mainland:

Avg size of household is 4.9 persons = 7.8 million households (2002 Census)
Population of mainland Tanzania: 38.3 million (Tanzania National Projections (TNP). Vol.XII, National Bureau of Statistics, October 2006)

Pregnant women:	4.3% of population =	1,645,573 (TNP)
Infants (children <1):	4.0% of population =	1,529,901 (TNP)
Children 1 - <5 years:	14.4% of population =	5,501,176 (TNP)

At risk population for malaria in mainland—93% = 35,619,000 (NMCP)
Households at risk for malaria in mainland—7.3 million households
Average number of malaria-like illnesses per year and cost per ACT treatment:[12]
Children <5: 3.5 illnesses/year at $.68 each (avg of $.45 < 5kg and $.90>5kg)

Average of 2.0 nets/household needed to cover all pregnant women and children under five in a household based on average size of household:
Ratio of nets used/nets owned for pregnant women = .73
Ration of nets used/nets owned for <5s = .67[13].

Assumptions Zanzibar:

Avg size of household is 4.9 persons = 224,489 million households (National Average 2002 Census)
Population of Zanzibar: 1.1 million (Tanzania National Projections (TNP).Vol. VIII. Based on 2002 Census. National Bureau of Statistics & Chief Government Statistician, February 2006)

Pregnant women:	4% of total population =	44,000 (Demographic Surveillance System)
Infants (children <1):	3.8% of population =	41,459 (TNP)
Children <5:	17.4% of population =	191,346 (TNP)

At risk population for malaria in Zanzibar—100% = 1.1 million (ZMCP)
Households at risk for malaria in Zanzibar—224,489 households
Average number of malaria-like illnesses per year and cost per ACT treatment[12]:
Children <5: 3.5 illnesses/year at $.68 each (avg of $.45 < 5kg and $.90>5kg)

Average of 2.0 nets/household needed to cover all pregnant women and children under five in a household based on average size of household;
Ratio of nets used/nets owned for pregnant women = .96
Ratio of nets used/nets owned for <5s = .98[14]

[12] Average number of malaria-like illnesses per year is based on average in Africa.
[13] Assumption is based on large difference between ownership and use found in the DHS 2004.
[14] Assumption is based on large difference between overall household ownership and use by target populations found in the Zanzibar RBM MTSP Evaluation Report 2007.

Inter-vention	Needs for 100% Nationwide Coverage over three years	Needs for 85% Nationwide Coverage over three years	Annual Needs to Achieve 100% Coverage	Needs to Achieve Year Three PMI Targets	Year Three Contributions
IPTp Mainland	1,645,573x 2 treatments/woman = 3.3 million treatments/year x 3 years = 9.9 million treatments	8.4 million SP treatments	3.3 million SP treatments	**Target:** 60 *% of pregnant women receive two doses of IPTp* = 1.98 million treatments	MOHSW funding all SP requirements Mainland's FY07-2008 budget contains all needs for SP2. Problems with distribution are being resolved with PMI support
IPTp Zanzibar	44,000x2 treatments/woman=88,000 treatments/year x 3 years = 264,000 treatments	224,400 SP treatments	88,000 SP treatments	**Target:** *70% of pregnant women receive two doses of IPTp* = 61,600 treatments	MOHSW funding all SP requirements PMI contribution is to train health workers
ITNs Mainland	7.8 million households x 2.0 nets/household = 15.6 million ITNs	13.3 million ITNs	4.9 million nets owned	**Target**: 70*% of children under five and 70% pregnant women sleep under ITN* 1.71 million pregnant women/child under one own an ITN 3.97 million children between age one and five own and ITN = 5.68 million ITNs	Preg women vouch/ITNs through GFATM/PMI funding==1, 246, 000* Under five and infant vouch/ITN through GFATM/PMI funding==1,401,000** Other under five and infant ITN through private sector estimated at 1.3 million*** GFATM and World Bank catch up campaign: 5.8 million ITNs TOTAL = 9,747,000 ITNs Thus, more than 100% of Year Three ITN needs are met
ITNs Zanzibar	224,489 households x 2.0 nets/household = 448,978 ITNs	381,631 ITNs	149,659 nets owned	**Target**: 85*% of children under five and 85% pregnant women sleep under ITN*	GFATM: fully funding of LLIN for children under five and pregnant women. Needs are met.

Inter-vention	Needs for 100% Nationwide Coverage over three years	Needs for 85% Nationwide Coverage over three years	Annual Needs to Achieve 100% Coverage	Needs to Achieve Year Three PMI Targets	Year Three Contributions
				38,940 pregnant women/child under one own an ITN 127,404 children between age one and five own an ITN 166,344 ITNs	
ACTs – children under five Mainland	7.0 million < 5s at risk x 3.5 episodes/year = 24.5 million treatments/year x 3 years = 73.5million	62.5 million treatments	24.5 million treatments	**Target**: *85% of children under five receive ACT*s 20.8 million treatments=$14.2 million	GFATM for under fives provides 18 million doses of ACT annually **Thus, more than 100% of Year Three ACTs for under five target met.**
ACTs – children under five Zanzibar	191,346 <5s at risk x 3.5 episodes/year = 669,711 treatments/year x 3 years = 2 million	1.7 million	669,711 treatments	**Target**: *85% of children under five receive ACT*s 569,254 treatments=$387,092	GFATM for under five— Total available for under fives— Year Three needs are met.
IRS Mainland	Targeted houses in Districts of Muleba and Karagwe 120,000 per year X 3 years = 360,000	306,000 households in mainland annually	120,000 households in mainland	**Target**: *85% of targeted houses to be sprayed in mainland* 102,000 households to be sprayed	PMI: 102,000 households scheduled for spraying in mainland. PMI Year Three needs are met.

Inter-vention	Needs for 100% Nationwide Coverage over three years	Needs for 85% Nationwide Coverage over three years	Annual Needs to Achieve 100% Coverage	Needs to Achieve Year Three PMI Targets	Year Three Contributions
IRS Zanzibar	Houses in Unguja (with the exception of Stone Town) and Pemba Islands 224,489 per year X 3 years =	673,467 households	224,489 households	**Target**: *85% of targeted houses to be sprayed in Zanzibar* 190,815 households to be sprayed	PMI" 200,000 households scheduled for spraying in Zanzibar. Year Three needs are met.

** Calculation based on 1,301,000 vouchers redemption for children under five and infants on mainland plus 100,000 ITNs through routine distribution on Zanzibar.

***Tanzania has a flourishing private sector market for ITNs. Projected sales in 2007 are estimated using data from "Techno-economic Feasibility Report—Manufacturing Long Lasting Insecticide Treated Nets in Tanzania"; Manam Ltd; Anovotek LLC; PSI.

****Based on projected order on 6x1 and 6x2 children's doses from NMCP on mainland

Q.1.4 Table 4 – Budget Breakdown by Intervention

Table 4 Budget Breakdown by Intervention Year Three FY08 ($34,000,000)					
Area	**Commodities**		**Other**		**Total $**
	$	**%**	**$**	**%**	
Insecticide Treated Nets[1]	10,250,000	67%	5,130,000	33%	15,380,000
Indoor Residual Spraying[2]	3,974,600	59%	2,720,400	41%	6,695,000
Case Management[3]	3,105,000	53%	2,783,600	47%	5,784,000
Intermittent Preventive Treatment[4]		0%	2,500,000	100%	2,880,000
Epidemic Preparedness and Response[5]	100,000	25%	300,000	75%	400,000
HIV/Malaria[6]	75,000	50%	75,000	50%	150,000
Capacity Building[7]		0%	160,000	100%	160,000
Private Sector Partneships[8]		0%	0	100%	0
Monitoring & Evaluation[9]		0%	1,0566,000	100%	1,056,000
Administration[10]		0%	1,495,000	100%	1,495,000
Grand Total	**17,504,600**	**52%**	**16,220.000**	**48%**	**33,724,600**

[1]Includes: H1, H2, H3, H4 + $2.4 million (Part of H13) + $150,000 (Part of H14)
[2]Includes: H5, H6, H8, H9 + $500,000 (Part of H13) + $75,000 (Part of H14)
[3]Includes: All of I + $600,000 (Part of H13) + $75,000 (Part of H14)
[4]Includes: H10, H11, H12 + $500,000 (Part of H13)
[5]Includes: All of J
[6]Includes: All of K
[7]Includes: All of L
[8]Includes: All of N
[9]Includes: All of O
[10]Includes: All of P

BCC H13 – Mainland was split across interventions as follows:

ITN	$2.4 million
IRS	$500,000
Case management	$600,000
IPTp	$500,000
TOTAL	$4.0 million

BCC H14 – Zanzibar was split across interventions as follows:

ITN	$150,000
IRS	$75,000
Case management	$75,000
IPTp	$0
TOTAL	$300,000

Q.1.5 Table 5 – Budget Breakdown by Partner

Table 5 Budget Breakdown by Partner Year Three FY08 ($34,000,000)			
Partner Organization	**Geographic Area**	**Activity**	**Budget**
NMCP	Nationwide	Strengthening HMIS	148,000 (M)
ZMCP	Nationwide	Strengthening HMIS	188,000 (Z)
MEDA	Nationwide (M) Nationwide (Z)	Support infant voucher and under five catch up campaign in mainland and voucher system in Zanzibar	12,250,000 (M) 180,000 (Z)
WVT	Nationwide		
RTI	Regional (M) Nationwide (Z)	Urban malaria control, IRS, DDT registration epidemic surveillance in mainland, RDT Operations Research and IRS and epidemic surveillance in Zanzibar	5,210,000 (M) 2,130,000 (Z) 90,000 (OR)
ACCESS	Nationwide (M) Nationwide (Z)	IPTp training in mainland and Zanzibar	1,800,000 (M) 100,000 (Z)
IHRDC	Nationwide & Regional (M) Operations Research	Operations research to integrate IRS and ITNs, management of severe malaria and entomological monitoring	385,000 (OR, M))
USAID| Deliver Task Order Three	Nationwide (M) Regional (M) Nationwide (Z)	Purchase of RDTs, ACTs for ADDOs, ACTs for UNHCR and severe malaria drugs in the mainland and RDTs for Zanzibar	3,250,000 (M) 205,000 (Z)
MSH RPM+	Regional	Support the distribution of ACTs in ADDOs	200,000 (M)
Zonal Training Center	Zonal (M)	Support nursing and RDT training	883,600 (M)
T-Marc	National (M)	Promotion of appropriate ACT use	250,000 (M)
USAID – Global	Capacity Building	Capacity building for NMCP	160,000 (M)
USAID	Management	Management and administration	885,000 (M & Z)
CDC	Management	Management and administration	610,000 (M & Z)
TBD	Nationwide (M & Z) Regional (M & Z)	TNVS training, introduction of IPTi, BCC, sentinel surveillance, entomological monitoring in the mainland and sentinel surveillance and entomological monitoring in Zanzibar	4,800,000 (M)
	GRAND TOTAL		**33,724,600**