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 Four

FY09

Malaria Operational Plan (MOP)
TANZANIA

November 16, 2008

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ACRONYMS

<5MR	Under-Five Mortality Rate
ACT	Artemisinin-based combination therapy
ADDO	Accredited Drug Dispensing Outlet
AL	Artemether-lumefantrine
ANC	Antenatal care
BCC	Behavior change communication
CA	Cooperative agreement
CDC	Centers for Disease Control and Prevention
CTC	Care and treatment center
DDT	Dichloro-diphenyl-trichloroethane
DLDB	Duka la dawa baridi (unlicensed drug venders)
DfID	Department for International Development (U.K.)
DSS	Demographic Surveillance System
ELISA	Enzyme-linked immunosorbent assay
EV	Equity voucher
FANC	Focused antenatal care
FBO	Faith-based organization
FELTP	Field Epidemiology and Laboratory Training Program
FSN	Foreign Service National
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
IHI	Ifakara Health Institute
IMALDIA	Improving Malaria Diagnosis Project
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 insecticide-treated nets
M&E	Monitoring and evaluation
MEDA	Mennonite Economic Development Associates
MEEDS	Malaria Early Epidemic Improving Malaria Diagnosis Project
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 voucherDetection System
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
SPS	Strengthening Pharmaceutical System Project
TaNAAM	Tanzania NGO Alliance Against Malaria
TDHS	Tanzania Demographic and Health Survey
TDY	Temporary duty travel
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 Four, Fiscal Year 2009 (FY09)
Malaria Operational Plan (MOP) for the United Republic of Tanzania.

In June 2005, the United States Government selected the United Republic of Tanzania (Tanzania) as one of the first of three countries to be included in the PMI. The Tanzania Malaria Operational Plan for fiscal year (FY) 2009 is divided into activities for mainland Tanzania and Zanzibar, as the Mainland and Zanzibar have separate and independent malaria control programs.

The population of Tanzania constitutes the largest number of persons at risk for malaria among all 15 PMI countries: approximately 40 million individuals of which 38.6 million are in the mainland (93% of the population is at risk in the mainland) and 1.3 million in Zanzibar (where 100% of the population is at risk)[1]. Annual malaria deaths in Tanzania have been reduced to 60,000, of which an estimated 80% are in children under five years of age. Approximately 14-18 million clinical malaria cases are reported annually by public health services. Over 40% of all outpatient attendances are attributed 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 the preliminary report of the Tanzania HIV/AIDS and Malaria Indicator Survey (2007-2008) (THMIS). According to this survey, 39% of households owned at least one ITN, with 26% of children under five sleeping under an ITN in the mainland. The THMIS also reported that the percent of pregnant women receiving two doses of intermittent preventive treatment (IPTp) had risen from 22% in the 2005 DHS to 57%. In Zanzibar, malaria indicators have shown marked improvement. The percentage of fevers confirmed as malaria dropped from 25% in April 2005 to less than 1% of those tested in health facilities in April 2007.

Tanzania is the recipient of Round 1, 4, and 7 Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM) grants which have provided most of the funding for ACTs and the mainland bed net voucher scheme. In addition, a World Bank credit was approved in July 2007, allocating an additional $25 million to support an ITN catch-up campaign for children under five in 2009 and bed net re-treatment. The National Malaria Control Program (NMCP) has submitted a proposal for a universal long-lasting ITN (LLIN) campaign in Round 8 ($113.3 million over five years) and plans to submit a proposal for ACTs and larviciding in Round 9. PMI is working with all donors and the NMCP to ensure that funding and activities are aligned with and complement the national plan.

The $35 million PMI MOP for FY2009 was developed with full participation of the NMCP on the mainland and the Zanzibar Malaria Control Programme (ZMCP) in Zanzibar. Separate consultative meetings with malaria control stakeholders were held in the mainland and Zanzibar in May 2008. Then, an iterative consultation process with NMCP and ZMCP was followed to agree on activities, budgets and timelines. The proposed FY09 MOP was reviewed and approved by NMCP and ZMCP.

[1] Tanzania National Projections Vol. XII based of 2002 Census. National Bureau of Statistics – Mainland and Chief Government Statistician – Zanzibar. Nov 2006.

Proposed Year Three Targets	Results as of March 2009
Approximately 1.1 million ITNs will be distributed as part of the infant voucher 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.	A total of 1,038,450 vouchers were distributed from July 2007 to July 2008, out of which 448,036 have been redeemed by caretakers of infants to buy nets. A total of 659,722 vouchers have been redeemed since the inception of the infant voucher in October 2006. It is expected that 7.2 million LLINs will be distributed during the national under five catch-up campaign, of which PMI will provide 1 million.
Approximately 100,000 households will be targeted for IRS in the mainland (490,000 people protected). Approximately 200,000 households will be targeted for IRS in Zanzibar (980,000 people protected).	A total of 95,000 houses were sprayed with PMI support in the mainland (465,500 people protected). A total of 210,000 houses were sprayed in Zanzibar (1,029,000 people protected).
Approximately 1,000 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 number of nurses nationwide.	A total of 615 registered nurses trained in malaria case management, including in-patient care of severe malaria. This activity is on track to meet its Year 3 target by March 2009.
A total of 750,000 ACTs for UNHCR and ADDOs will be procured and distributed A total of 185,000 rapid diagnostic tests (RDTs) will be distributed to health facilities in Zanzibar A total of 465,000 RDTs will be distributed to health facilities in mainland Tanzania.	679, 500 ACT treatments procured and are being distributed by UNHCR and ADDOs 150,000 RDTs were distributed to health facilities in Zanzibar. 350,000 RDTs were distributed to UNHCR camps, an additional 725,000 RDTs are ordered and will be distributed to health facilities in mainland Tanzania.

The major activities to be supported by PMI with FY09 funding are as follows:

Insecticide treated nets (ITN): Some dramatic shifts have occurred in the Mainland ITN program, as the mainland has moved towards a strategy of universal coverage. This strategy begins with the Under Five Catch-Up Campaign, a free net distribution for all children up to five years of age. The campaign is expected to start in December 2008 and continue until September 2009. The campaign is being jointly funded by the GFATM, the World Bank, PMI and the non-governmental organization (NGO), Malaria No More, with PMI supporting the purchase of approximately 1 million LLINs out of a total of 7,200,000 LLINs. Following the Under Five Catch-Up Campaign, the Government of Tanzania expects to distribute an additional 14.6 million LLINs, with the target of achieving 2.5 nets per household through a universal coverage campaign expected to take place in 2010 if the GFATM Round 8 proposal is funded. While the GFATM is expected to cover the majority of costs for this campaign, PMI will contribute approximately 1 million LLINs. By the end of both campaigns, it is expected that at least 85% of all Tanzanians, including vulnerable groups such as pregnant women and children under five, will be sleeping under a LLIN in Tanzania. Zanzibar is also moving towards a universal coverage strategy which PMI will support with the procurement of approximately 20,000 LLINs

PMI has been supporting the Tanzania National Voucher Scheme, a public-private partnership in which pregnant women and caretakers of infants can redeem vouchers at their nearest ITN

retailer. However, progress towards achieving the desired coverage levels has been slow. The 2007-2008 THIS/MIS demonstrated that only 27% of pregnant women and 26% of children under five were sleeping under an ITN. It is proposed that PMI support the Voucher Scheme at a reduced level in 2009 as an interim 'keep-up' mechanism until the universal coverage campaign is completed. A new "keep-up" mechanism to sustain high net coverage rates will be designed and implemented after this campaign.

Intermittent Preventive Treatment of Pregnant Women (IPTp): The 2007-2008 THIS/MIS showed that IPTp uptake improved from 22% in the 2004 DHS to 57%. PMI funding for IPTp has focused on health worker training together with a facility-level quality improvement program. To date, almost 2,500 providers and supervisors have been updated in Focused Antenatal Care (FANC) and quality improvement, representing approximately 50% of the 1,386 antenatal care (ANC) facilities in all 131 districts in the mainland. FY08 PMI funds will accelerate the FANC rollout to an additional 2,572 new providers in all regions of Tanzania — bringing to 77% the proportion of ANC facilities with trained providers. Additionally, PMI will work to promote national policy change to allow ANC clients to receive the first dose of IPTp at the end of the first trimester, after quickening, and the second dose after four weeks so that early ANC attendance may result in full IPTp coverage. With FY09 funds the program will shift focus to supporting regional and district authorities to provide the necessary supportive supervision to improve the quality of ANC services in their facilities (including ensuring the availability of sulfadoxine-pyrimethamine (SP) for IPTp at ANC clinics). Some FY09 funds will be used to support final trainings to ensure that 100% of all ANC facilities have at least one FANC-trained provider in place, and to promote demand creation in the community for improved uptake of ITNs and IPTp in the ANC clinics.

Indoor Residual Spraying: A second round of IRS was completed in Muleba district in the Mainland, reaching 36,371 households, in February 2008. Spraying also commenced in Karagwe district, reaching 59,177 houses. In both of these campaigns, over 90% of targeted houses were sprayed. In Zanzibar, a fourth round of spraying covering 211,388 households will be conducted in Sept/Oct 2008. In FY09, PMI will support expansion of IRS in up to an additional 4 districts in Kagera region, covering 360,000 households. In Zanzibar, PMI is supporting a shift to a focal coverage strategy. Ongoing collection of epidemiologic data, complemented by entomologic data, will provide the required data to make informed decisions on focal spraying.

Behavior Change and Communication (BCC): In October 2007, PMI started Tanzania's first comprehensive behavior change and communication project, the "Communication and Malaria Initiative in Tanzania" (COMMIT) project to address household behaviors across the four key PMI interventions in an integrated fashion. Most of the PMI funding is focused on rural communications activities, as uptake of malaria interventions such as ITNs remain considerably lower in rural (30%) versus urban (60%) areas, balanced by judicious use of mass media. In its first year of implementation, COMMIT is rolling out community-based activities in 25 high-priority districts, expecting to reach a minimum of 1,600,000 people. Mass media activities will reach 80% of the population, nationwide. With FY 08 funds, this initiative will roll out to an additional 40 districts and expand even further with FY 09 funds. BCC activities in Zanzibar 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 focal IRS as needed to control increases in malaria transmission.

Case Management: PMI has supported several intervention areas in case management. Since 2006, PMI has supported the introduction and use of RDTs in Tanzania. Since early

2007 through 2008, over 1.2 million RDTs have been distributed to health facilities (monitored thru research sites), UNHCR-run refugee camps, and Zanzibar. Since 2006, PMI has also supported the procurement and distribution of 574,890 ACTs to UNHCR refugee camps and distributed over 93, 538 ACTs through the ADDO program. In addition, PMI support from FY07 has resulted in the training of 613 registered nurses in comprehensive malaria case management that will result in lower level cascade training. In Year 4, PMI will continue its focus on strengthening diagnosis including a new focus on microscopy. In addition, PMI will continue to provide training and support to strengthen pharmaceutical management. Strengthening case management through the private sector via provision of ACTs to the ADDO program and promotion of the new private sector ACT policy will continue. PMI will also procure and distribute ACTs up to 2 million treatments to fill expected gaps in the public sector.

Monitoring and Evaluation. PMI continues to work closely with NMCP, ZMCP and other implementation partners to strengthen the national monitoring and evaluation (M&E) framework for malaria control in Tanzania. PMI supported the recently completed Malaria Indicator Survey (MIS), the first MIS to ever be implemented alongside an HIV indicator survey. These 2007-08 MIS results will serve as a midpoint for measuring PMI progress over the first five years of the initiative. In FY 09, the PMI team will continue to facilitate both malaria control programs' efforts to finalize their written M&E plans.

Surveillance of malaria morbidity and mortality at sentinel sites will continue to be supported by PMI on the mainland and Zanzibar in FY 09. Data collected at these sentinel facilities will be reported to NMCP and ZMCP at monthly intervals and provide the basis for ongoing updates regarding progress in malaria control. A malaria early epidemic detection system implemented in Zanzibar mid-2008 will continue to be expanded and strengthened. Finally, FY 09 funding will be used to begin preparing for the 2009-10 Demographic and Health Survey (TDHS), a critical activity for highlighting the progress of malaria coverage indicators and impact on all-cause under-five mortality rates through out Tanzania.

B. PRESIDENT'S MALARIA INITIATIVE

In June 2005, the United States Government (USG) announced a new five- year, $1.2 billion Initiative to rapidly scale up malaria prevention and treatment interventions in high-burden countries in sub-Saharan Africa. The goal of the President's Malaria Initiative (PMI) is to reduce malaria-related mortality by 50% after three years of full implementation in each country. This will be achieved by reaching 85% coverage of the most vulnerable groups – children under five years of age and pregnant women – with proven preventive and therapeutic interventions, including artemisinin based combination therapy (ACT), insecticide treated mosquito nets (ITNs), intermittent preventive treatment for malaria in pregnancy (IPTp), and indoor residual spraying with insecticides (IRS).

The PMI began in three countries in 2006, including Tanzania. An additional four countries were added in 2007; and eight countries were added in 2008 (for a total of 15 countries). Funding began with $30 million in fiscal year (FY) 2006 for the first three countries; $160 million in FY 2007; $300 million in FY 2008; $300 million in FY 2009; and is expected to reach $500 million in FY 2010.

In implementing the PMI, 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 non-governmental and private sectors, to ensure that investments are complementary and that RBM and Millennium Development Goals are achieved. Country assessment and planning sessions for the PMI are highly consultative and held in collaboration with national malaria control programs and other partners.

This document presents a detailed implementation plan for Year 4 (FY2009) of the PMI in Tanzania. It briefly reviews the current status of malaria control policies and interventions, identifies challenges and unmet needs and provides a description of planned Year 4 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. Program managers in both the mainland and Zanzibar credit PMI with providing vital contributions to their success.

C. MALARIA SITUATION

Malaria is endemic across nearly all of mainland Tanzania – 93% of the population lives in areas where *Plasmodium falciparum* is transmitted. Prevalence of malaria among children 6 to 59 months of age ranges from 0.4% in the elevated region of Arusha to 41.1% in the northwestern region of Kagera (Figure 1). Unstable seasonal malaria transmission occurs in 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 malaria vector in the mainland and Zanzibar is *Anopheles gambiae*.

The population size of Tanzania (39.4 million) and level of malaria endemicity results in 35 million persons at risk for this disease—the largest number among all 15 PMI countries. Health facilities report malaria as the leading cause of outpatient and inpatient health care visits and the primary cause of deaths among children. Over 40% of all outpatient attendances are attributable to malaria (approx. 16 million clinical malaria cases, Figure 2). NMCP estimates that 70,000 malaria deaths occur annually in Tanzania among all ages (extrapolated from under-5 mortality rate in 2004-05 TDHS, size of under-5 population, and the proportion of deaths attributable to malaria).

Figure 1: Prevalence of Malaria, United Repubic of Tanzania, 2007-08

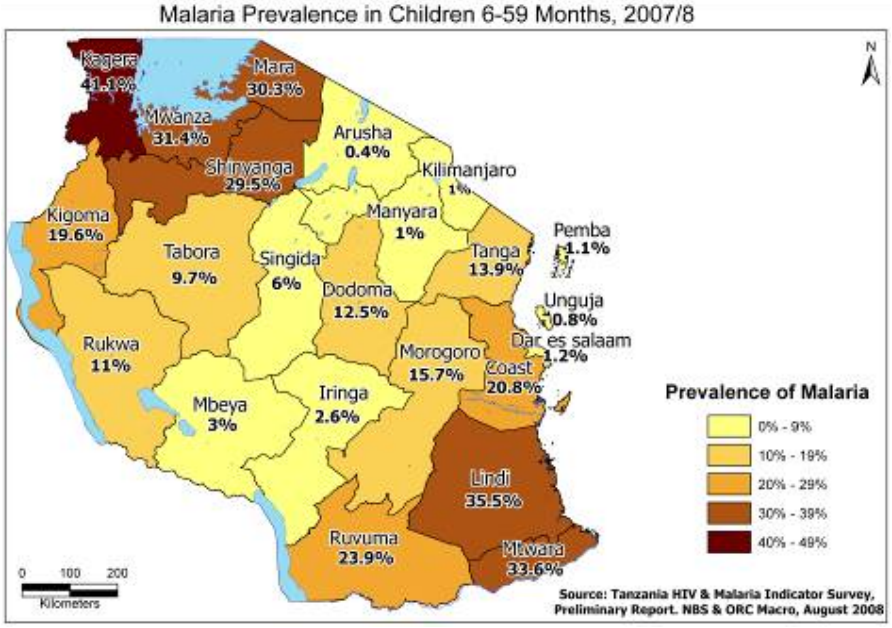
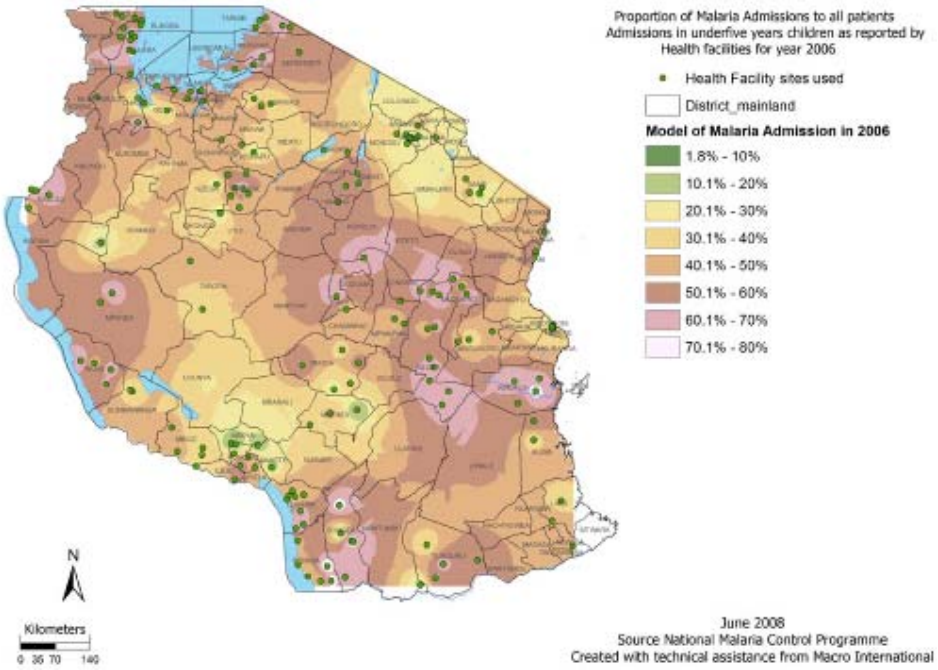


Figure 2: Proportion of Health Facility Admissions Due to Malaria, Tanzania, 2006



Overall, indicators for the Millennium Development Goals are showing improvement. The 2004-2005 Tanzania Demographic and Health Survey (TDHS) showed a significant decline in infant mortality rate from approximately 100 per 1000 live births in 1999 to 68 per 1000 live births in 2004. Similarly, the under-five mortality rate declined from 156 deaths per 1000 live births five years ago, to 112 per 1000 in the 2004 TDHS. While some of this reduction in infant mortality rate is due to increased coverage of key malaria interventions, it is difficult to quantify how much is due to reductions in malaria-specific mortality.

The 2004 infant mortality rate estimates are not equal across all socio-demographic strata. The Northern Zone and Southern Zone in the mainland experienced the extremes in this rate, namely 67 and 127 per 1000 live births, respectively. Cohorts classified in the richest and poorest socio-economic status quintiles experienced an infant mortality rate of 64 and 88 per 1000 live births, respectively. The infant mortality rate was also strongly associated with mother's education, with rates of 56 and 101 per 1000 live births among 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[2] and in the lowest socio-economic status and educational levels.

Progress continues with the GFATM-PMI-supported malaria control interventions according to the 2007-08 MIS. Prevalence of malaria parasitemia among children 6 to 59 months of age was 18.1% on the Mainland. While no earlier national estimates of parasitemia exist for comparison purposes, this estimate is lower than what would be expected in the absence of a strengthened malaria control infrastructure. As expected, regional variation was detected and parasitemia prevalence ranged from a low of 0.4% in Arusha Region to 41.1% in Kagera Region (8 of 21 regions exceeded 20% prevalence).

[2] 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 Zanzibar, current malaria prevalence indicates a very different epidemiologic picture. The prevalence of malaria among children 6 to 59 months was 0.8% in the 2007-08 MIS. These data are corroborated by an on-going Karolinska Institute study of two sentinel sites in Zanzibar (North A District in Unguja and Micheweni District in Pemba) where the prevalence of malaria infection has declined from 8.2% to 3.4% to 0.5% during 2003, 2005, and 2008, respectively, in North A and from 14.4% to 13.4% to 0.8% in the same years in Micheweni.

In spite of signs that the malaria situation is improving, there are still areas of concern. The 2007-08 MIS showed only a 10 percentage point increase over the 2004-05 TDHS estimate for the Mainland's household ownership of at least one bednet. While household ownership of at least one ITN increased between 2004-05 and 2007-08, the current estimates for ITN use among pregnant women and children under five remain well below Abuja targets (Table A).

Table A: ITN Coverage Indicators:

	Mainland		Zanzibar	
	2004-05* TDHS (%)	2007-08* MIS (%)	2004-05* TDHS (%)	2007-08* MIS (%)
% Households at least one net (any)	46	56	65	82
% Households at least one ITN	23	38	28	72
% Preg. Women sleeping under any net	32	35	46	64
% Preg. Women sleeping under ITN	15	26	20	51
% Under fives sleeping under any net	31	35	55	69
% Under fives sleeping under ITN	16	25	22	59

*TDHS and MIS field activities both conducted between Oct and Feb of each year.

Intermittent preventive treatment of malaria in pregnancy shows signs of improvement. The 2004 TDHS reported that 53% of pregnant women in the mainland received at least one dose of SP for IPTp, but only 22% received at least two doses (IPTp-2). In Zanzibar the situation was even worse; 26% of pregnant women received at least one dose and only 14% received two or more doses. In the 2007-08 MIS, IPTp-2 coverage had increased to 30% on the Mainland and to 53% in Zanzibar.

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. Zanzibar is currently considering a revision to their IMCI policy and shifting to the algorithm developed for areas of low malaria endemicity.

Finally, as Zanzibar continues to accomplish dramatic reductions in malaria cases it will become increasingly important for malaria controllers to mount rapid responses to sudden surges in malaria transmission. A malaria early epidemic detection system (MEEDS) was implemented in both Pemba and Unguja in mid-2008. Weekly data are being reported to ZMCP and action has already been taken to investigate instances of increased malaria transmission.

D. NATIONAL MALARIA CONTROL PROGRAMME – Mainland & Zanzibar

The United Republic of Tanzania has two separate Ministries of Health with independent malaria control programs on Mainland and Zanzibar. The NMCP serves only the Mainland (population 38.4 million) while the ZMCP serves Zanzibar (population 1.1 million).

Under the leadership of a Program Manager, 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) under the leadership of a program manager. Each cell includes a Team Leader and from two to four staff members, plus several support staff serving all cells. The organizational units of ZMCP are similar with 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. For the mainland, there are four sub-committees of National Malaria Control that address various aspects of the program, namely: case management, vector control, monitoring and evaluation, and information, education and communication (IEC). The ITN strategy is coordinated through the National Insecticide Treated Nets (NATNETS) Programme. NATNETS is a NMCP ITN program and is the principal mechanism for coordinating and managing all ITN related activities. PMI is represented in the NATNETS Steering Committee.

The new Malaria Medium-Term Strategic Plan 2008 – 2013 states that the burden of malaria morbidity and mortality will be reduced by 80% from current levels by the end of 2013. 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 an 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 IRS; and 4) in Zanzibar, prompt recognition and response to epidemics. Larviciding is 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 and Karagwe Districts.

Operationally, the mainland strategy involves demand creation through behavioral change communication, implementation of the IMCI strategy in households and communities (including 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 in 2006, while in the mainland users pay a minimal fee to top off the voucher value (given to pregnant women during ante-natal visits). 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 (through Regional and District Council Health Management Teams).

Financing of malaria activities for both the mainland and Zanzibar is highly dependent on outside sources. According to the gap analysis prepared as part of the GFATM Round 8 proposal, 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. However the Chief Medical Officer of the Ministry of Health questions that analysis, and has assured the PMI Country Team that the government's support to malaria control is increasing in FY 2008-2009. Further analysis of this apparent trend is required.

In addition to the PMI, the principal external donors for malaria control in Tanzania are the GFATM and the World Bank. Table B shows the amounts and sources of external donor funding for malaria activities in the mainland. A gap analysis conducted in preparation for the GFATM Round 7 and Rolling Continuation Channel (RCC)[3] proposal in the Mainland, shows serious financial gaps in a number of programmatic areas in the short-and long-term. Furthermore, if GFATM or other resources fail to materialize and additional resources are not found, the malaria control efforts in the mainland will face serious difficulty.

The NMCP was partly successful in its submission to GFATM under the RCC (see Table B). Unfortunately, the proposal budget and scope of work was reduced to $59 million to finance only two year of the pregnant woman LLIN voucher. Additionally, NMCP was successful with its Global Fund Round 7 proposal request for $52.5 million for: 1) increased coverage of malaria parasitological diagnosis through the introduction of rapid diagnostic tests (RDTs) where microscopes are unavailable; 2) increased access to ACTs through subsidy in the private sector; and: 3) improved quality of care for severely ill patients; and, 4) monitoring and evaluation.

Another donor providing support of the NMCP ITN program is the World Bank. A credit for $60 million dollars was 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 no more than $100,000 is allocated to malaria control. 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 has provided around $3 million/year since 2006, mostly for IRS. The ZMCP has submitted a GFATM Round 8 proposal. The 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,

[3] 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.

diagnostic capacity improvement, (including procurement of RDTs), support to IRS, IPTp, and routine distribution of LLINs, as well as other system and community strengthening activities. The total budget requested in the ZMCP Round 8 proposal was $19.6 million.

Table B*
External Sources of Funding for Malaria Control
Mainland

Source	Amount ($Millions)	Period Covered	What is covered?
GFATM Round 1	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 4	54.2	Jun 05 – May 07	Provision of ACTs (Received approval for second phase).
GFATM Round 7	52.5	2008 – 2013	Improved malaria diagnosis through the introduction of RDTs; Access to ACTs in the private sector; Improved quality of care in children with severe malaria; Monitoring and evaluation.
GFATM RCC	59.8	2008 – 2011	Support to the pregnant woman voucher; Catch-Up campaign for under fives; BCC; and monitoring and evaluation. Program will be evaluated in two and one half year's time to assess whether to continue voucher scheme.
GFATM Round 8 (submitted July 2008)	113.3	2009 - 2014	Attain universal coverage through distribution of 14.6 million LLINs to 8.7 million households through a one-time mass "catch-up" campaign. Strengthen regional malaria IMCI focal persons on monitoring and evaluation.
DfID/Royal Netherlands Embassy (RNE)	7.0	2007 - 2011	Insecticide subsidy
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.
Italian Cooperation 2	1.3 *Proposed*	Jan 08 – Dec 09	Activities not yet determined.
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.

E. CURRENT STATUS OF MALARIA INDICATORS

Two nationally representative surveys and other data sources provide information on coverage levels for key malaria indicators. Table C below describes what is currently known for the Mainland and Zanzibar. Several of Mainland Tanzania's coverage targets remain

below desired levels as indicated by the 2007-08 MIS (8,500 households). In Zanzibar ITN coverage has remained high, but below PMI targets, following a 2006 free LLIN distribution campaign for pregnant women and children under five years of age. Data from the 2004-05 Tanzania TDHS provide baseline indicators.

Table C: Coverage Indicators Mainland and Zanzibar

Coverage Indicator	Mainland 2004-05 TDHS (%)	Mainland 2007-08 MIS (%)	Zanzibar 2004-05 TDHS (%)	Zanzibar 2007-08 MIS (%)
% Households with at least one ITN	23	38	28	72
% Children under five who slept under an ITN the previous night	16	25	22	59
% Pregnant women who slept under an ITN the previous night	15	26	20	51
% of women who received two or more doses of IPTp during their last pregnancy in the last two years (IPTp)	22	30	14	53
% Govt health facilities with ACT*	-	90‡	-	100
% of children under five years old with fever in the last two weeks who received treatment with ACTs within 24 hours of onset fever.	-	14	-	8.4
% of targeted houses adequately sprayed with a residual insecticide in the last 12 months	-	95†	-	95†

*Data for treatment with *antimalarial*, specific data for ACT are pending
†RTI activity reports (mainland includes two districts only: Muleba sprayed in July 2007 and February 2008 and Karagwe sprayed in March 2008)
‡90% of Mainland government facilities reported no stock-out in Jan-Mar 2007, supervision summary reports (NMCP). 100% of Zanzibar government facilities reported no stock-out in May 2007, the time of the ZMCP biennial survey.

F. GOALS & TARGETS OF THE PRESIDENT'S MALARIA INTIATIVE

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 – Year Four

Prevention:

- In 2009, approximately 7.2 million LLINs will be distributed in mainland Tanzania during a national under five catch-up campaign, of which approximately 1 million will be provided by PMI/Tanzania.
- In 2010, approximately *an additional* 14.6 million LLINs will be distributed in mainland Tanzania during the Universal Coverage Campaign, of which approximately 1 million will be provided by PMI/Tanzania.
- At least 85% of targeted houses in five districts targeted for IRS in Kagera Region will have been sprayed, protecting 2 million residents.
- Approximately 1 million residents of Dar es Salaam (50% of the city's population) will be protected through the regular application of larviciding agents.
- By 2010, over 6,000 ANC health workers (>95%) will have been trained in FANC/IPTp.

Treatment:

- In 2009 through 2010, approximately 2 million ACT treatments will have been procured and distributed to health facilities, averting a potential stockout.
- By 2009, 85% of cases of all fever cases (children <5 years) consulting in public health facilities in Zanzibar will be diagnosed with an appropriate laboratory test.
- By 2010, a7n additional 1,500 of health care workers will have been directly trained in comprehensive malaria case management.

H. INTERVENTIONS - PREVENTION

H.1 Insecticide Treated Nets

Current Status

Mainland

ITN coverage in Tanzania has steadily increased during the last five years through a combination of subsidies targeting pregnant women and infants through the Tanzania National Voucher Scheme (TNVS) and, equally, through commercial sales supported by social marketing. Progress towards achieving the desired coverage levels has, nevertheless, been too slow: The 2007-2008 THIS/MIS demonstrated that only 26.7% of pregnant women and 25.7% of children under five were sleeping under ITNs.

As a result of the slower than expected progress in achieving coverage levels, there has been significant debate regarding ITN distribution mechanisms within the NMCP, MOHSW and other stakeholders. Subsequently, important changes in policy and practice occurred in 2007-2008. The MOHSW has agreed on the following: 1) starting from January 2009, the TNVS will gradually move toward LLINs following funding commitments from GFATM (Rolling Continuation Channel 2007) and PMI; 2) the voucher top-up value will be reduced to Ts 500 ($.45) to enable families to afford a LLIN; and 3) an under-five "catch-up" campaign to distribute free LLINs nationwide will commence in late 2008. Most recently (mid-2008), the

NMCP has decided to move towards a universal coverage strategy: following the under five campaign, there will be a "universal coverage" campaign targeting the entire population in 2010 - 2011. The current status on each of these key programs (TNVS, Under Five campaign, Universal Campaign) is described below.

Tanzania National Voucher Scheme

The Tanzania National Voucher Scheme started in November 2004 with support from the GFATM to provide ITN vouchers to pregnant women. PMI supported the expansion of the voucher scheme to infants, beginning in October 2006. As of July 2008, over 3.6 million vouchers have been redeemed for ITNs.

The TNVS has been carefully monitored through periodic nationwide surveys that have measured equity, average top up payments, and redemption rates. The 2007 TNVS survey, funded by PMI, revealed that although ITN coverage has been steadily increasing since the inception of the TNVS (coverage of children under five increased from 12% in 2005 to 26% in 2007), overall coverage rates are still low. Furthermore, there were some concerns such the rise in the top-up payments paid by pregnant women and the mothers/caretakers of infants from $0.69 in 2005 to $1.35 in 2007 caused by a rise in production costs due to oil price increases. The survey also documented that 16% of pregnant women who received vouchers could not afford the current top up fee required to redeem the voucher for a net, creating an equity issue. Many of these concerns will be addressed through changes in the TNVS design such as the decrease of the top up fee to mothers/caregivers to $0.45 cents and the conversion to LLINs.

Even with these changes, the future of the TNVS in the wake of the Under-Five campaign and the possible Universal Campaign is in question. After the Under Five campaign, it is expected that voucher redemption rates will initially drop steeply, especially for the infant voucher. Studies in the region of Lindi and Mtwara have shown that free distribution campaigns limited to children under five years do not adversely affect the voucher scheme in the long run; voucher redemption rates returned to pre-campaign levels within one year.

Despite the likely rebound of the TNVS after an under five campaign, the universal campaign (if funded in 2010) will place the future of the TNVS in doubt. Currently, the TNVS is operating through a network of nearly 7,000 retailers and wholesalers operating nationwide, which accept vouchers and top-up payment in exchange for nets. These retailers will lose their net business after the Universal Coverage Campaign, and will naturally be reluctant to stock expensive LLINs until the need and demand for new nets recovers.

Notwithstanding these questions on the viability of TNVS, there is a need for a "keep up" mechanism for ITNs to cover replacement ITNs and to cover newly pregnant women and infants. At a minimum, 3.2 million nets are needed each year to cover new pregnancies and births. Currently, only the TNVS has the infrastructure to function as a "keep up" mechanism nationwide. PMI will monitor the on-going impact of the campaigns on voucher redemptions rates and work with NMCP to explore alternative "keep up mechanisms" as data becomes available.

Under Five Campaign

PMI is supporting, along with the GFATM and the World Bank, the Government of Tanzania's "Under Five Catch-Up Campaign," a mass distribution campaign to distribute 7.2 million free LLINs to all children under five. The "Under Five Catch-Up Campaign" was intended to rapidly catch up net coverage for children under five that did not have access to the voucher program. PMI is contributing 1 million LLINs (FY 08 funding) to cover a pilot district (Mpanda, in Ruvuma) and support for up to three additional regions.

After delays due to negotiations between the major donors and the GoT regarding LLIN procurement, the campaign is expected to be piloted in October 2008, and begin in December 2008. It will be a rolling campaign, covering one zone (two or three regions) per month, and be completed by September 2009.

Universal Coverage Campaign

In May 2008, the GoT announced a policy to support attainment of universal coverage (defined as one LLIN per sleeping space). Accumulating evidence indicates that broader ITN coverage (at least 60%) for the entire population (not just vulnerable groups) will reduce overall transmission of malaria throughout the community. The reduction in transmission will even benefit community members not using ITNs, achieving the "mass effect". The 2007-2008 THIS/MIS demonstrated that ITN household ownership was 39.2%.

The proposed universal coverage campaign will contribute approximately 14.6 million additional LLINs to the expected 7.2 million LLINs that will be distributed through the Under Five Campaign. The combination of the Under Five Catch-Up Campaign and the proposed Universal Coverage Campaign will deliver an average of 2.5 nets to every household in mainland Tanzania (or one LLIN for every two people). It is estimated that the entire campaign will cost $108 million (including procurement of 14.6 million LLINs, distribution, training, behavior change communication, and monitoring and evaluation.). The NMCP has requested the majority of funding for this campaign through the recently submitted GFATM Round 8 proposal.

Zanzibar

Zanzibar has been very successful with their initial distribution of LLINs: approximately 333,000 LLINs provided by GFATM and PMI were distributed to all pregnant women and children under five in late 2005 and early 2006. The latest MIS survey indicates ownership of at least one ITN in 82% of households, with 74% of children under five and 73% of pregnant women sleeping under an ITN. Together with treatment with ACTs and IRS, LLINs have helped reduce malaria incidence significantly (see Section C. Malaria Situation).

In March 2007, ZMCP decided to try a new "keep-up" approach in order to maintain high levels of LLIN coverage. ZMCP engaged, with PMI support, the services of MEDA to implement a voucher scheme similar to the one on the mainland. It was determined that each voucher would be worth 6,000 Tsh ($5.00) and the top-up fee would be 1,000 Tsh ($0.83). The voucher scheme was launched in October 2007; however, it never caught momentum and it became clear that the system would not provide enough LLINs (estimated at 65,000) necessary to maintain high levels of coverage in Zanzibar. In June 2007, ZMCP decided to stop the voucher scheme.

The ZMCP also decided to move towards universal coverage and has submitted a GFATM Round 8 proposal to reach coverage levels of at least two LLINs per household. Approximately 611,000 LLINs will be distributed through mass campaigns, implemented district by district. LLIN campaigns will be designed to address the unevenness of current coverage in Zanzibar which ranges from 44% to 81% (all age groups) and 61% to 93% (under five age group) depending on the district (MIS, 2007). It is expected that private transporters will be contracted to transport the LLINs from the central stores in ZMCP directly to the communities in which the distribution is to take place. At community level, peripheral health facility staff, Shehia[4] health committees and selected Community Based Organizations will be responsible for tallying number of sleeping spaces, LLINs already present at homes (taking into account age of nets) and LLIN distribution.

Progress To Date

Mainland

The PMI has supported several elements of the TNVS since its inception including the nationwide expansion of the Infant Voucher program, support to the Pregnant Women Voucher program, support to training of health facility workers on TNVS, and procurement of insecticide treatment kits for bundling with nets. The Infant Voucher program was piloted in 6 regions in 2006, and as of May 2008, has been expanded to all 21 regions of the country and is operating nationwide. As of July 2008, 659, 722 infant vouchers have been redeemed at a redemption rate of 64%.

The Pregnant Women voucher had been funded by the GFATM since 2004. Beginning August 2007, PMI provided funding for the Pregnant Women voucher to ensure smooth continuation of the program due to delays in the GFATM funding. As of July 2008, 3,040,011 of these vouchers have been redeemed for a net, of which 428,969 have been funded by PMI.

Over 1,700,000 insecticide treatment kits have been procured since July 2007 to be bundled with ITNs in support of the TNVS and the commercial ITN market. This insecticide subsidy has been instrumental in ensuring that every net sold in Tanzania is an ITN. The insecticide subsidy was last funded by PMI with FY 07 funds and has not been supported by PMI since as the TNVS is converting to LLINs.

As mentioned above, the Under Five Catch-Up Campaign has been delayed until late 2008 due to protracted donor negotiations with GoT on the LLIN procurement. PMI procured one million LLINs in support of this campaign and will launch the campaign in September 2008.

Zanzibar

PMI supported the voucher scheme operations from October 2007 through June 2008. By May 31, 2008, after seven full months of implementation, 18, 895 vouchers had been returned for LLINs—out of a target of 31, 550. As a result of the decision to end the voucher program, PMI has refocused efforts to support free distribution campaigns instead. PMI is supporting the distribution of approximately 120,000 LLINs originally provided by GFATM for the voucher scheme to help control malaria in areas where increased cases are detected.

[4] Shehia is the smallest administrative subdivision in the Zanzibar islands. It usually comprises 500 to 600 households.

FY08 PMI funds of $180,000 were reprogrammed from the voucher scheme to support LLIN distribution to the entire Wete District in Pemba, to ensure high LLIN coverage in this area.

Proposed USG Activities

Mainland

a. *Support for Universal Coverage Campaign*: PMI will support approximately 8% of the Universal Coverage Campaign, purchasing and distributing approximately 1,000,000 LLINs. PMI would fund up to two regions of the campaign. Assuming that Tanzania is awarded the GFATM Round 8 grant, implementation will start during the first quarter of 2010. PMI funds will support implementation beginning in the Kagera Region to complement IRS activities, as high net coverage rates will allow for a reduction on dependence on IRS in this area. *($10,250,000)*

b. Support for Under-Five Catch-Up Campaign: PMI will procure and distribute an additional 290,000 LLINs to fill the remaining gap in the Under Five Catch-Up Campaign. The Under Five Catch-Up Campaign was originally designed to cover children aged one to five years, or approximately 5.6 million Tanzanian children. GFATM, World Bank, and PMI funding requests were made accordingly. It was envisioned that the PMI supported infant voucher would cover children under one. However, the Government of Tanzania requested that the campaign be extended to cover all children, including children under one, raising the total estimated number of children to 7.2 million. The addition of another 1.6 million LLINs has increased the total cost of the campaign by approximately $9.8 million.

PMI responded by reprogramming $5 million from the infant voucher to the under-five campaign. UNICEF ($1 million) and Malaria No More ($2 million) are jointly donating an additional $3,000,000 to the campaign. The additional funding of $1.8 million will ensure that the under-five catch-up campaign is fully funded, enabling all children under five in the last zone (Coast, including Pwani region, Morogoro region, and Dar Es Salaam region) to receive a net. *($1,600,000 for nets and $200,000 for training)*

c. Support to the Tanzania National Voucher Scheme: PMI will continue to support the TNVS, focusing support on the Infant Voucher, but also providing support as needed to the Pregnant Women voucher (which is currently only going to be funded by GFATM until the first half of 2010). PMI support is reduced in anticipation of the decreased redemption rates after the campaigns. The continuation of the TNVS is required as an interim 'keep up' mechanism to: 1) provide a means for infants (born after the campaign) who did not get an LLIN via the under-five catch-up campaign; 2) provide, as necessary, a means for pregnant women to get an LLIN after the GFATM funding for the PWV; and 3) replace older nets that may be work or ineffective during the first half of 2010 until the roll-out of the Universal Campaign is completed. PMI support for the TNVS beyond FY09 funding will be determined by evaluating the actual effects of these two campaigns on the TNVS. If the voucher program is no longer viable, the funds will be reprogrammed into other "keep up" strategies. *($1,200,000 for net procurement and $200,000 for training)*

Zanzibar

d. Support to Zanzibar's Universal Coverage Campaign: PMI will procure and distribute approximately 20,000 LLINs to support Zanzibar's Universal Coverage Campaign. Zanzibar's Universal Coverage Campaign is expected to occur mid to late 2009, if Zanzibar is awarded the Round 8, Global Fund grant. *($137,000)*

H.2 Urban Malaria Control – Larviciding –Mainland

Current Status

Mainland

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 the collections of water where the female mosquitoes lay their eggs. This reduces the numbers of larvae that mature into pupae and ultimately into adulthood, resulting in fewer vectors feeding upon humans and transmitting malaria parasites.

PMI funding in FY06 and FY07 supported 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 of Health and the Ifakara Health Institute (IHI) delivering effective larviciding services to a large population in urban Dar es Salaam. Field teams map mosquito breeding habitats, conduct regular inspections and treat 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).

Funding from the Bill and Melinda Gates Foundation will support rigorous monitoring of parasitological outcomes through household surveys, school-based cohort surveys and health facility-based surveys. Prevalence and incidence rates from selected sites within intervention and non-intervention wards will be used to quantify reductions in malaria admissions, positive blood slides and anemia that are achieved by the intervention.

Progress to Date

In FY08, PMI provided $500,000 to scale-up the larviciding intervention from nine wards to 15 wards in urban Dar es Salaam, covering 55 sq km and protecting 614,000 persons. The Urban Malaria Control Program has successfully built a community based program with over 250 field staff that conducted weekly inspections to determine the productivity of potential breeding sites, identify new breeding sites and treated breeding sites with *Bacillus thuringiensis var israelensis H-14* for open habitats and *Bacillus sphaericus* for closed habitats. The teams also systematically monitor adult mosquito vector densities on a weekly basis and conduct the equivalent of outbreak investigations in response to any local resurgence of the vector.

The program has provided a scalable model for rolling out larval control in other urban settings. Systematic larval monitoring showed a 97% reduction in late instar larvae. Adult mosquito surveillance data have shown an 80% reduction in human-biting rates by *An. gambiae* with a similarly dramatic drop in mean annual transmission intensity, measured as the entomologic inoculation rate (EIR). More importantly, there was a 69% reduction in malaria prevalence among children under five years of age. Much lower reductions of non-vector nuisance mosquitoes (circa 30%) were observed as the primary breeding sites for these vectors were not emphasized in monitoring and follow up activities.

Proposed USG Activities

Mainland

Provide ongoing support for larviciding in Dar Es Salaam, protecting up to 1 million residents: In FY09, PMI will provide $500,000 to allow a scale-up, using the current larviciding procedures, from fifteen to thirty wards in urban Dar es Salaam. The remaining wards will serve as a comparison group. The total population covered by this larviciding intervention is estimated to be 1 million persons, but the entire city of 2.5 million people could be covered with concomitant funding. Although the FY09 funding level is similar to FY08, the Urban Malaria Control Program will scale-up by reducing the cost to $0.50 per person/year, which is half of the FY08 cost. This will be achieved by using a more cost-effective but less intensive larval surveillance system. Ongoing entomological monitoring will enable verification of the performance of this intervention. *($500,000)*

H.3 Indoor Residual Spraying – Mainland & Zanzibar

Current Status

Mainland

NMCP's 2008-2013 Medium-Term Strategic Plan includes a plan for scaling-up IRS to 60 (approximately 50%) of the Mainland's 123 districts over a five-year period. The plans call for use of Diphenyl-Trichloroethane (DDT) and lambda cyahalothrin. Currently, PMI is the only donor contributing to NMCP's IRS program. Unfortunately, neither GoT nor GFATM resources have been secured to achieve this ambitious IRS plan. Coverage of a smaller geographic area with IRS may be the best alternative.

Muleba and Karagwe districts, located in Kagera Region, were chosen to launch PMI funded spray operations in 2007. These districts are located in North Western Tanzania, on the shores of Lake Victoria, and are characterized as having seasonal, stable transmission with annual increases in malaria mortality and morbidity in late May through July toward the end of the "long rains". Given the epidemiology and other factors, NMCP decided to conduct pre-emptive IRS in the affected areas which began with PMI funds in late 2007.

Expansion of IRS in late 2009 and 2010 will be in up to an additional four districts in Kagera Region (population 2.2 million), plus Muleba and Karagwe, which continues to experience the highest burden of malaria among all 21 regions of the Mainland. Malaria prevalence among children 6-59 months of age was recently estimated at 41.1% in Kagera (2007-08 MIS). As spraying is expanded in Kagera in 2009, simultaneous efforts will be made to scale back IRS coverage in Muleba (via support from a campaign to implement universal coverage with LLINs) pending sufficient epidemiologic and entomologic evidence to support this decision. Data are being collected from Muleba District Hospital on an ongoing basis (one of NMCP's health facility-based sentinel surveillance sites). RTI is also subcontracting with NIMR to collect entomologic (species, density, sporozoite rates) and epidemiological data (anemia and parasitemia) in Muleba every six months.

This effort will help Tanzania begin to move toward a targeted approach to controlling malaria in the western potion of the Lake Victoria Basin, an area where Uganda and Rwanda have also employed IRS.

Zanzibar

In Zanzibar, following a fourth round of complete IRS coverage, the future IRS strategy will shift to focal coverage in both Pemba and Unguja. The first application of focal IRS would be expected in mid-2009.

Current collection of the necessary epidemiologic data (household and health facility-based), complemented by ongoing entomologic data, will provide NMCP and RTI to make informed decisions regarding the implementation of focal IRS. Within a 12 month period beginning in mid 2007, at least 5 different independent sources of data indicate that cross-sectional prevalence in general population is <1%. The weekly early epidemic detection system is being scaled up to an additional 30-40 dispensaries (representing approx 70% of all dispensaries). Given that the average distance between health facilities in Zanzibar is 3-4 miles, this will represent excellent coverage by the Malaria Early Epidemic Detection System (MEEDS) (see Section J.1). Entomologic data are also flowing in from six sites in Zanzibar and the entomologic lab is now performing bioassays.

Scaling back on IRS is contingent upon Zanzibar increasing LLIN coverage of the general population. Without increased universal coverage, the focal spraying strategy will be revisited.

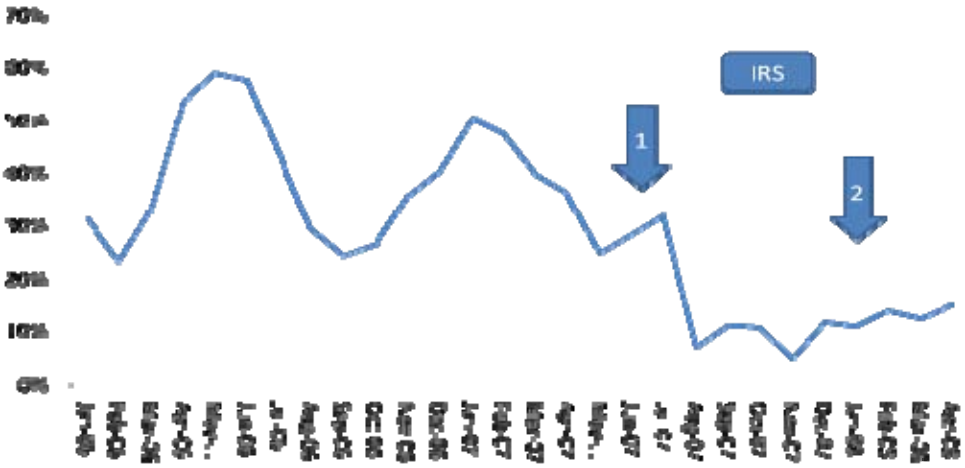
Progress To Date

Mainland

The mainland NMCP has continued IRS operations in Muleba district and has begun in Karagwe. Muleba and Karagwe districts are contiguous and have similar transmission intensities, with seasonal peaks during March to June. After IRS was done in Muleba in May – July 2007, a new round was conducted in January – February 2008. This second round targeted 40,197 households of which 90.5% or 36,371 were reached (approximately 180,000 population). The population targeted was 200,000. In Karagwe a total of 60,061 households were targeted in the first round of IRS of which 59,177 were reached (98.5%). In both cases a wettable powder formulation of lambda-cyhalothrin was used without any significant logistical, implementation or disposal problems.

Initial data from Rubya District Hospital, the main hospital for Muleba District, shows very encouraging results. Figure 1 shows a steep decline in blood slide positivity rate in patients seen in the out-patient service after the implementation of the first round of IRS and a continued low level after the second round (Jan – Feb 08). As a result, the number of daily admissions due to malaria, anemia and transfusions has also declined significantly. Initial numbers also show important decreases in deaths from malaria in Rubya District Hospital These results have motivated Members of Parliament (MPs) from other districts and regions to demand that their constituent's households be sprayed too.

Figure 3: Blood slide malaria positivity rate in OPD of Rubya District Hospital in Muleba District after two rounds of IRS



Zanzibar

A fourth round of complete IRS coverage will be conducted in September/October 2008. In the third round of spraying, 211,388 households (99% of target) were sprayed with IRS in Zanzibar. Over 90% of targeted houses in Zanzibar have received IRS three times.

Proposed USG Activities

Mainland

a. Provide support to IRS in Karagwe district and up to an additional four districts in Kagera Region: PMI will support expansion of IRS in up to an additional four districts in Kagera Region and continued spraying in Karagwe. Spraying will be continued in Muleba, if needed, based on epidemiological and entomologic surveillance data and universal coverage of LLINs in that area. The four additional districts, plus Karagwe and Muleba district, cover approximately 360,000 households. *($7,265,300)*

Zanzibar

b. Provide support for focal spraying in Zanzibar: Following a fourth round of IRS coverage in September 2008, PMI will support a shift to focal coverage in both Pemba and Unguja. Current collection of the necessary epidemiologic data (household and health facility-based), complemented by ongoing entomologic data, will provide ZMCP to make informed decisions regarding the implementation of focal IRS. The first application of focal IRS would be expected in mid-2009. *($500,000)*

H.4 Malaria in Pregnancy

Current Status

Mainland

Focused Antenatal Care (FANC) is the WHO-supported strategy into which IPTp has been integrated in Tanzania. The Mainland MOHSW has been implementing FANC in all public health facilities since 2004, and the TDHS in 2004 showed that only 22% of pregnant women received IPTp. Current RCHS policy for IPTp continues to be two doses of Sulfadoxine-Pyrimethamine (SP) given as directly observed therapy, at first visit after quickening (20 – 24 weeks gestation) and four weeks later. The Tanzania Service Provision Assessment (TSPA 2006) found that only 9% of first visit ANC clients are counseled regarding the 2nd dose of IPTp – a missed opportunity to increase uptake of IPTp. The 2007 – 2008 THIS/MIS preliminary report shows that IPTp2 has come up to 57%.

PMI has been supporting the Government of Tanzania to strengthen FANC services at all health facilities and improve uptake of IPTp. The ACCESS program, funded by PMI, has scaled up FANC/ MIP services nationwide through 1) development and dissemination of a standardized training package; 2) training health providers via both in-service and pre-service programs; 3) strengthening supervision and quality improvement of ANC services (addressing availability of SP at ANC clinics); 4) creating demand for ANC services and advocating safe motherhood issues through the White Ribbon Alliance.

The strategy to improve IPTp has been highly successful as evidenced by the increase in coverage reported in the THIS/MIS 2007. However, key issues remain related to policy and quality of services. For example, advocacy is required for a policy change promoting the provision of IPTp after quickening in the second trimester and after four weeks. Removing language recommending dosing during specific weeks of pregnancy will increase the likelihood that women who attend ANC services early will actually receive all requisite malaria interventions, and that those who come late will not get short changed because of policies promoting SP dosing within pre-determined weeks of pregnancy. Continued attention is required to ensure the availability of SP at the facility level and to strengthen supervision at the facility level.

Zanzibar

According to the THIS/MIS 2007 survey, coverage of IPTp2 has reached 57% on Zanzibar. Although the endemicity of malaria in Zanzibar has fallen as a result of its successful malaria control program, the ZMCP has opted not to dismantle the current ANC MIP program, and continue conducting IPTp as directly-observed therapy. Nevertheless, the ZMCP acknowledges the need for continued promotion of ITN use by pregnant women and the need for prompt and appropriate diagnosis and treatment of malaria in pregnancy to ensure the safety of pregnant mothers. SP availability is high, and antenatal care and SP are free. Community-level BCC is being implemented to increase understanding and use of malaria preventive measures in pregnancy. 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 for and intensive monitoring of women who receive this treatment inadvertently.

The RCHS division of the MOHSW in Zanzibar has requested support in training its providers in FANC/MIP and in improving the quality of antenatal services to improve outcomes. Antenatal care is high in Zanzibar, with 85% of women making at least one antenatal visit to a public health facility during their pregnancy (TDHS 04/05). Nevertheless attendance is late (median months pregnant at first visit is 5.6), and knowledge of interventions to prevent malaria in pregnancy is limited (only 28% knew about IPTp and 59% knew about ITNs).

Progress to Date

Mainland

The 2007 – 2008 THIS/MIS preliminary report shows that IPTp2 coverage has reached 57%--a significant increase from the 22% coverage reported in the DHS 2004/2005. At the request of the MOHSW, using the national FANC in-service training package, PMI has supported the training of 711 FANC district trainers, building local training capacity in every district of mainland Tanzania. These trainers have conducted cascade training to over 2,500 providers, from 1,386 facilities (28%) in approximately 50% of the districts in Tanzania. The pre-service curriculum has been updated and tutors and clinical preceptors from all 51 nurse-midwifery schools in Tanzania, leading to approximately 1,600 new graduates per year with skills in FANC since 2006.

In collaboration with MOHSW, Facilitative Supervision workshops were initiated for supervisors from nine regions to enable supervisors to facilitate quality service provision and support the establishment of on-going facility based QI cycles in FANC. The FANC performance standards serve as the basis of the quality improvement tools. For program monitoring, ACCESS implemented a sentinel site surveillance system in which key quality data are collected from 30 facilities. During the third quarter of 2007, the sentinel sites reported IPTp2 uptake at 43%, six months later, during the first quarter of 2008, IPTp2 uptake was up to 62%.

To address demand creation for quality services, ACCESS has collaborated with a local marketing organization, T-MARC, to integrate key antenatal messages into a reproductive health radio show; partnered with faith-based institutions to sensitize religious leaders to integrate messages on ANC and MIP into their sermons; and supported the White Ribbon Alliance of Tanzania which has brought high profile attention to Safe Motherhood issues in Tanzania.

Zanzibar

In FY08, PMI supported technical assistance to ZMCP and Zanzibar-RCHS to develop strategies to address the prevention and treatment of malaria in pregnancy in Zanzibar and to implement quality Focused Antenatal Care in ANC clinics. Through advocacy meetings for district and regional medical officers as well as other national level stakeholders the FANC/MIP quality improvement strategy was introduced and FANC/MIP activities training was budgeted for in regional and district annual budgets. The Malaria in Pregnancy Guidelines were updated and include proper malaria case management of pregnant women including those who are HIV-infected. Tutors from the Zanzibar pre-service school for nurse-midwifery education participated in training updates on FANC and the quality improvement process, and to improve teaching skills.

Proposed USG Activities

Mainland

1. Continue support to IPTp/FANC implementation: FY09 PMI funding will support training of an additional 1,152 providers in FANC with an additional 250 providers trained in collaboration with District Health Management Teams. In total, the number of providers to be

trained in FANC/MIP by 2010 will exceed 6,000, representing all ANC providers in Tanzania.

As districts take more of the responsibility for implementing the provider training, the focus will transition to support the MoHSW to improve the quality of FANC service provision and institutionalize the facility-based QI approach. ACCESS will collaborate with the MOHSW and its Health Services Inspectorate Unit (HSIU) to 1) integrate FANC standards into the national supervision system; 2) reinforce supervision skills of Zonal, Regional and District RCHS Coordinators; 3) provide tools to assist the supervision process; 4) develop a recognition mechanism for facilities providing high quality FANC services (possibly linked to the currently planned Payment for Performance scheme being implemented by the MOHSW); 5) strengthen current sentinel site system and link it to the PMI sentinel site system so that real time data can be used to improve service provision. *($1,800,000)*

Zanzibar

1. Continue support for MIP activities in Zanzibar: In FY09, PMI will continue to support ZMCP and RCHS to implement FANC/MIP activities in Zanzibar. Activities will include the comprehensive training of ANC providers in diagnosis and treatment of malaria in pregnancy; the institutionalization of ANC-based quality improvement practices including routine monitoring, facilitative supervision of health facilities and developing a recognition system for high achieving facilities in FANC/MIP service delivery. In order to provide data to inform policy shift in Zanzibar regarding IPTp in a low prevalence setting, data will be collected through the sentinel sites on relevant maternal and newborn indicators (such as parasitemia, anemia, and low birth weight). Finally, a critical community component of success is mobilization of pregnant women to seek ANC services early and increase their knowledge of the risks associated with malaria in pregnancy and the importance of the use of preventive measures for malaria. *($100,000)*

H.5 Behavior Change & Communication

Current Status

Mainland

In October 2007, PMI started Tanzania's first comprehensive Behavior Change and Communication, the "Communication and Malaria Initiative in Tanzania" (COMMIT) project, by awarding a Cooperative Agreement to Johns Hopkins Center for Communication Programs. Until this time, BCC efforts in the Mainland were piecemeal, focusing on different interventions and implemented by different NGOs. For instance, generic social marketing of ITNs had been supported by the SMARTNET project, which was implemented by PSI Tanzania. Radio and rural communication efforts for the Tanzania National Voucher Scheme was handled by World Vision Tanzania. ACT promotion, on the other hand, had been led by NMCP with the participation of several NGOs: PSI, Africare/Tanzania Plan International and the Tanzania NGO Alliance Against Malaria (TaNAAM). PSI worked primarily with media, including radio, television (including mobile 'road shows'), and print media. Africare and Plan focused on interpersonal communication and community mobilization through theatre performances and drama. TaNAAM worked on NGO coordination. ACT promotion was funded under GFATM Round Four. RTI had been handling promotion of IRS in Muleba, and the Reproductive and Child Health Services

division of the MOHSW handled, with some support from the ACCESS project, general messages on pregnancy, including IPTp.

COMMIT was designed to address household behaviors across the key PMI interventions, ITN, Case Management and ACT use and IPTp in an integrated fashion, to ensure that PMI coverage targets are met. IRS will also be included, but only in targeted regions where it is taking place. COMMIT was designed to be closely integrated with the GFATM's main BCC partner, PSI; it is anticipated that COMMIT and PSI working together will achieve national coverage for BCC activities. The majority of resources for both COMMIT (70%) and PSI are focused on rural communications activities, as uptake of malaria interventions such as ITNs remain considerably lower in rural (30%) versus urban (60%) areas.

Zanzibar

Zanzibar has an extremely high acceptance and use of all malaria interventions, including ITN use (over 70% for target groups, pregnant women and children under five), houses sprayed with IRS (more than 90%), as well as use of ACTs. IPTp use is impressive, with 56% of women receiving 2 doses, but could be improved with further BCC efforts.

PMI has been working 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.

Progress to Date

Mainland

In its first year of activities, COMMIT selected 25 priority districts to roll out an intensive Rural Communications Initiative. In these districts, COMMIT will employ a network of Rural Engagement Team Leaders who will engage local government officials (at district, ward and village levels) and community members to develop community-specific action plans for malaria prevention and control. These action plans will be implemented by local organizations (NGOs, CBOs and FBOs) and by community change agents, who will work with communities directly to address key household behaviors such as the need to sleep under an ITN every night, seek early treatment for fevers, attend clinics early for antenatal care (including IPTp). Targeted districts were selected based on 1) the prevalence of malaria, 2) ITN voucher utilization rate – with a focus on districts with a low utilization rate and 3) proportion of the population that is disadvantaged in terms of socio-economic status, geography and/or educational levels. COMMIT is currently in the process of training rural engagement team leaders, engaging with districts, subcontracting local organizations, and selecting community-change agents.

Intensive, community focused activities are supplemented by External Rural Engagement activities. These include rural road shows using mobile video units and local theatre groups, school campaigns, sports events, and other cultural events promoting key malaria prevention and treatment behaviors. A national mass media campaign using radio and print material will also reinforce the Rural Communications Initiative.

In the first year of implementing the Rural Communications Initiative, it is expected that COMMIT will reach 600,000 people directly (one on one communication) through community change agents, about 1,600,000 people via the External Rural Engagement activities, and an estimated 80% of the national population with radio programming and other mass media initiatives.

In addition, COMMIT will work at health facility level to improve the interpersonal skills of health providers in malaria prevention and control, including provision of job aids to counsel providers and clients on IPTp provision, ITN use, and correct treatment of malaria using ACTs. It is expected that COMMIT will train 200 providers in its first year of implementation, and will eventually reach 5,000 providers.

Utilizing FY 2008 funding, COMMIT will expand its Rural Communications Initiative to an estimated additional 40 districts (for a total of 65 districts): actual districts covered by COMMIT will be decided with the GFATM BCC contractor, PSI, when PSI is awarded the RCC sub-grant. External Rural Engagement and Mass Media activities will continue, as will work at the heath facility to improve interpersonal skills of health providers. COMMIT and PSI will also work together on promotion of the Under Five Catch-Up Campaign, (including ensuring children actually sleep under the nets they have received) and sales of ACTs through the private sector ADDOs.

To measure progress in implementation of BCC activities, COMMIT will use rapid monitoring and evaluation methods, such as sentinel sites, cluster surveys, client intercepts, focus groups, rapid surveys, to monitor key behavioral determinants (knowledge and awareness of the importance of the behavior, access to commodities, perceived self-efficacy in ability to perform behavior, perceived risk if behavior is not implemented) to monitor progress towards achieving PMI coverage goals. Methods already in place, or being currently planned will be used if at all possible (voucher redemption rates, existing sentinel surveillance sites, etc). Information gained from monitoring will be used to target program messages appropriately, and as a means to make changes in program direction as necessary. Progress in acheiving key behavioral determinants will be compared with data from coverage surveys (MIS, DHS, etc) to ensure continued progress towards meeting PMI targets.

Finally, COMMIT will work to improve the capacity of local partners, specifically the Information, Education, Communication Cell (IEC) of NMCP, to lead Tanzania in BCC implementation. A quick needs assessment will be used to determine specific activities, but could include provision of audio-visual equipment, technical assistance in finalizing the national BCC strategy and a BCC 'users-guide' for NMCP managers, and training sessions on strategic communication with a focus on malaria.

Zanzibar

IEC/BCC activities to date in Zanzibar have included the formation and training of community health committees, journalists, and road shows for the promotion of 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.

To further refine BCC activities in Zanzibar, PMI will provide technical assistance via a TDY visit from Washington. Emphasis will be placed on strengthening links between

communities and health facilities, setting up mechanisms to monitor and evaluate current BCC activities for their effectiveness, as well as determining new behavior change communication needs in Zanzibar as the malaria prevalence continues to drop in Zanzibar.

Proposed USG Activities

Mainland

1. Continue support for IEC/BCC across all intervention areas—ITNs, IRS, IPTp, and Case Management: The emphasis for BCC in Year 4 will be to strengthen activities started in Year 3. Demand creation campaigns will continue to strongly focus on rural, underserved communities; it is anticipated by the end of year 4 (year 3 of implementation of COMMIT), the Rural Communications Initiative will have rolled out nation-wide, with support from COMMIT and GFATM contractor PSI. External Rural Engagement and Mass Media activities will continue, as will work at the health facilities to improve interpersonal skills of health providers, and capacity building of NMCP's IEC cell.

In PMI years two and three, 60% of funds for COMMIT were used to emphasize ITNs, PMI's main intervention on the mainland. The remaining 40% of funds focused on ACTs, IPTp and IRS. However, PMI has recognized that along with ITNs, there is great need for more BCC focus on Case Management. BCC efforts are needed to promote ACT sales in the private sector (as opposed to SP or mono-therapy, which are the big sellers today), early treatment seeking, and prompt and appropriate (full course) treatment with ACTs. COMMIT may also work with health facility to promote RDT use as it rolls out in the mainland. Therefore, PMI will use 40% of funds for ITN promotion ($1,000,000), which will include continued promotion of the voucher scheme, and support for the Universal Coverage Campaign. PMI would increase support for ACTs to 30% ($750,000). Support for IPTp would be at 20% ($500,000) and for IRS at 10% ($250,000). (*$2,500,000)*

Zanzibar

1. Continue support for IEC/BCC across all intervention areas—ITNs, IRS, IPTp, and Case Management. BCC activities in Zanzibar in PMI Year Four 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. 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. Capacity for peripheral areas to provide information, education, communication materials will be strengthened. Community-based approaches to BCC, in which ZMCP IEC staff work directly with Shehia health committees and selected community-based organizations, will continue to promote ITNs, IPTp and focal IRS, as well as advocacy for prompt treatment seeking behavior. Support will also be provided for limited mass media activities and training of journalists . (*$175,000)*

I. INTERVENTIONS – CASE MANAGEMENT

I.1 Diagnosis

Current Status

Mainland

Malaria diagnostics have been singled out by NMCP as a key programmatic area that needs PMI support to strengthen overall case management. Since 2006 PMI has supported the procurement of RDTs for purposes of evaluating different approaches to scaling-up this diagnostic tool on the mainland. Initial results from these efforts show that RDTs could be deployed in most of the country. The IMALDIA, CDC/IHI and JMP projects have found that given appropriate supervision and quality control health workers can effectively perform the test and deal with the results appropriately. Among results from the research sites are: 1) ICT® seems to conform better to health worker skills; 2) Malaria is extensively over treated (presumptively), especially in the non-rainy season and urban areas; 3) Even in facilities where there is microscopy there seems to be a preference for RDTs; 4) Over prescription of anti malarials is rampant due to presumptive treatment of febrile illness.

Almost every survey and study that has looked at the microscopy situation has found extremely poor performance. For example, the Improving Malaria Diagnostics (IMALDIA) project found a microscopy sensitivity of 70% and specificity of 45%. IMALDIA is funded separately from PMI by other donors. Other studies by CDC and the Joint Malaria Project (JMP) have found similar if not worse results. Finding from these studies also include: 1) Microscopy is very poor at almost all levels of the health system; 2) There has been a concurrent decrease in use of microscopy as a diagnostic tool and increase in quality of microscopy (because there are less slides to analyze and lab technicians have more time to analyze them);

The NMCP is taking steps to address this and has been successful in its application to the GFATM Round Seven for obtaining support for improved diagnostics. The total amount of the grant is $52,545,828 of which $15,517,564 are for the procurement of RDTs and for quality assurance of both RDTs and microscopy. Part of the GFATM grant will go for RDT purchases for national deployment over five years. NMCP's objective is to increase to 80% laboratory-confirmed cases of malaria in public health facilities from a baseline of 20%.

According to the new guidelines, all suspected malaria cases should be parasitologically confirmed prior to treatment, including children under five. A total of 26 million RDTs will be purchased over the timeframe of the project. The rollout will be phased in starting September 2008, starting in areas of low/moderate transmission and expanding to areas of stable/high transmission. Close follow up on health worker performance and adherence to guidelines will be provided through research institutions in certain areas.

NMCP wants to make sure that its deployment of RDTs in the country will have strong implementation support and has sought PMI assistance. Resources in this activity will support improvements in the quality of microscopy in higher level facilities.

Zanzibar

Through PMI support in FY06 and FY07, ZMCP has distributed RDTs to 105 of 146 facilities lacking microscopy for malaria diagnosis. Now virtually all public health facilities in Zanzibar have malaria diagnostic capacity. ZMCP has recently revised their malaria case management guidelines to move away from the practice of presumptive malaria treatment for persons with febrile illness. Instead the revised guidelines include laboratory confirmation of malaria for all cases of fever. To date, these new guidelines have not yet been implemented in Zanzibar. Nevertheless, the recently developed and implemented malaria early epidemic detection system in Zanzibar relies heavily on use of RDTs to detect malaria cases among febrile patients at peripheral health facilities.

Progress To Date

Mainland

PMI has supported the introduction and use of RDTs in Tanzania since 2006 when PMI first began operations. PMI's first Malaria Operational Plan (MOP) allocated resources to purchase 875,000 RDTs (775,000 for mainland and 100,000 for Zanzibar). Mainland RDTs were for investigational purposes only, to see how different brands (i.e. Paracheck® and Parahit®) performed under operational conditions. RDTs were distributed to four research projects in early 2007 and continued through 2008. Additionally RDTs were provided to the Tanzania HIV Indicator Survey (THIS) to test all children under five present in a subset of households during the survey. Also, approximately 400,000 RDTs were procured and distributed to the United Nations High Commissioner for Refugees (UNHCR) for use in refugee camps in northwestern Tanzania.

In year three, a small centrally-funded operational research activity has been added. This research activity will explore how to incorporate RDT results into the regular health management and information system forms that health workers use in health facilities in the mainland.

Zanzibar

PMI has supported the procurement and distribution of 250,000 RDTs for Zanzibar since the start of the PMI.

Proposed USG Activities

Mainland

a. Provide support to strengthen malaria diagnosis through RDTs and Microscopy, including procurement of laboratory equipment. PMI will work with NMCP to obtain microscopy equipment and enhance training and supervision of laboratory workers. In addition to GFATM-provided resources, PMI will support the establishment of quality assurance mechanisms for both RDTs and microscopy. If necessary, laboratory equipment will be procured for higher level facilities. (*$400,000)*

b. Support for development of quality assurance/quality control package for RDTs. Ifakara Health Institute (IHI), based on their extensive field experience with RDT implementation, will work to develop a comprehensive quality assurance/quality control package to assist NMCP's efforts to scale-up the nationwide availability of RDTs funded by Round 7 GFATM resources. (*$165,000*)

Zanzibar

c. Procure RDTs and support establishment of quality assurance system. PMI will continue to support the ZMCP in procuring and distributing RDTs for its health facilities. *($240,000)*

d. Establish quality assurance and supervisory system to improve quality of diagnosis. PMI will provide support to ZMCP establish quality assurance system that includes regular supervisory visits. *($138,000)*

I.2 Case Management

Current Status

Mainland

ACTs were officially launched in mainland Tanzania on December 15th, 2006. The NMCP adopted artemether lumefantrine as the first line treatment for malaria on the Mainland. Quinine is used for treatment of severe malaria. Funding for ACTs in the public sector has been supported primarily by GFATM Round 4 funding. To date, approximately 24 million treatments have been distributed to 4,800 health facilities in Tanzania.

Pharmaceutical Management and Logistics

The roll out of artemether lumefantrine (AL) began in December 2006. 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. For the most part, the roll out has gone smoothly and there have been no major supply issues to date. A PMI supported supervisory exercise deployed to 116 facilities in 16 out of 21 regions found that AL was available across weight bands in approximately 80% of facilities surveyed.

The initial quantification of the need for ACTs was done based on morbidity data and health facility attendance. An updated quantification exercise for all malaria medicines in Spring 2008 revealed there is likely to be a shortage of AL in the public sector in late 2009 when Round 4, Phase 2 funding for ACTs is expended. NMCP expects to request additional funding for ACT procurement through GFATM Round 9. However, assuming that Round 9 is successful, there is likely going to be a gap for ACT funding in the first quarter of 2010 while Round 9 is negotiated and finalized. If Round 9 is unsuccessful, there will be a very significant ACT gap in Tanzania which will likely require additional emergency PMI support.

In the past year, MSD has focused on rolling out a new integrated logistics system. The ILS is a transition from a push to a pull system. By the end of 2008, all 21 regions in the country will be using an ILS system. A key challenge for malaria has been to integrate the new AL into this new logistics pull system. This new system is expected to result in better quantification and rational use of all medicines, including AL.

Training

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 and

clinical 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. Phase 1 has been completed with FY 2006 support from PMI and GFATM. Phase 2 is being supported by FY 2007-2009 PMI through the Zonal Training Centers where trainers are trained who then provide cascade training in the regions and districts. The training of Trainers is a two week residential course. The District based training is a shorter (five days for nurses and two days for clinicians) residential training in management of uncomplicated malaria, malaria in pregnancy, malaria in children and management of complicated cases of malaria funded by PMI and district funds. GFATM Round 7 funds will be used to provide the Phase 3 RDT training and Phase 4 training for private providers and drug outlets per the private sector.

Private Sector

AL is currently available in Tanzania through public health, faith based and parastatal facilities. Inadequate access to these facilities, especially in rural settings, is a recognized impediment to the provision of early malaria treatment and therefore Tanzanians seek treatment through the private sector. According to reports from NMCP approximately 35% of fevers in children under five are treated in the private sector. ACTs of variable quality are found in the private sector but they constitute less than 7% of sales of anti-malarials at this time (see section I.8). The most common antimalarial drug sold in the private sector drug outlets is SP and unsubsidized ACTs are virtually unaffordable for the average rural Tanzanian.

The NMCP working with the Tanzania Food and Drug Authority (TFDA) has been very proactive in addressing malaria treatment issues in the private sector. The TFDA permitted the sale of subsidized ACTs through the accreditation and regulation process of the Accredited Drug Dispensing Outlet (ADDO) program in 2007. The ADDO program transforms unlicensed drug vendors, called the Duka La Dawa Baridi (DLDB), into outlets licensed to dispense ACTs along with other specified prescription drugs. This program was undertaken in collaboration with TFDA, NMCP, local government authorities, ADDO owners, and other stakeholders. The program developed policies, standards, trainings, and regulatory systems to establish ADDOs in which sales of ACTs were permitted. It is expected that by the end of 2008 the number of ADDOs will increase to 1,082 in 21 districts in the four regions (Ruvuma, Morogoro, Rukwa and Mtwara).

At this time, the TFDA and NMCP are programming funds they have received from the GFATM Round 7 Malaria Program to “increase access to and use of appropriate and affordable anti-malarial treatment for children under five”. The long-term plans are to recruit all of the approximate 4,600 DLDBs across the country in the ADDO system in a phased manner. In 2008 the TFDA is planning to develop ADDOs in six new regions (funded by GF, DANIDA and the GoT) while completing the developments of ADDOs in the current four regions. At the same time the MOHSW/ NMCP plans to conduct targeted trainings to get ACTs out rapidly and safely throughout the country’s DLDB network as the ADDOs are expected to dispense ACTs before the full ADDO system is in place. Both tracks will require strong regulatory and monitoring components. Medical Stores Department will procure ACTs for both the private and public sector with GF monies.

On the policy side, the NMCP and TFDA are taking steps to improve the quality of antimalarial drugs and remove artemisinin monotherapies from the market. 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 antimicrobial resistance. In the private sector, which accounts for 40% of all malaria treatment in Tanzania, artemisinin drugs are often sold as mono-therapy. 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. Importation of counterfeit drugs is also a problem in Tanzania.

Zanzibar

ACTs were deployed for the first time in Zanzibar in 2003. The first line treatment in Zanzibar is artesunate amodiaquine. ACTs have been widely available in health facilities and health worker compliance with appropriate use of ACTs has been documented at approximately 70%.

With the decrease in malaria case load in health facilities, there now needs to be increased focus on diagnosis and attention to non-malaria causes of fever and death in children under five. The IMCI strategy for low malaria endemicity is included in the newly revised malaria case management guidelines and will soon be implemented in Zanzibar.

Progress To Date

Mainland

PMI has focused on filling in gaps of NMCP's case management strategy including ACTs for refugees, supporting private sector pilot activities, training on case management, and technical assistance for pharmaceutical management.

UNHCR: UNHCR GFATM, Round 4 funding for ACTs for the public sector did not include funding for refugee-affected communities under the authority of the United Nations High Commissioner for Refugees (UNHCR). As a result, approximately 276,000 refugees and people in surrounding communities would have been unable to access ACT treatment. In response, PMI provided funding to support ACTs for this population in 2006, 2007, and 2008. Since 2006, PMI has supported the procurement and distribution of 574, 890 ACT treatments for refugee camps and surrounding communities. As a result of declining refugee population and pipeline from 2007 and 2008, UNHCR is not anticipated to need further support for ACTs in 2009.

Training: Year 1 (FY06) PMI funds supported Phase 1 training of health workers on the use of ACTs. A total of 8,527 health workers were trained through a two day orientation session, of which 3,755 were supported by PMI. Year 2 (FY 07) PMI funds were used to support Phase 2 training of nurses for comprehensive malaria case management, including severe malaria. Through the Zonal Training Centers (ZTCs), a total of 95 District Trainers have been trained from 24 districts. In turn, they have trained 615 registered nurses in malaria case management. By the end of September 2008 an additional 300 trainers and registered nurses will be trained in Tanzania mainland. With Year 3 (FY 08) funds an estimated 813 trainers and nurses will be trained and cascade training will continue.

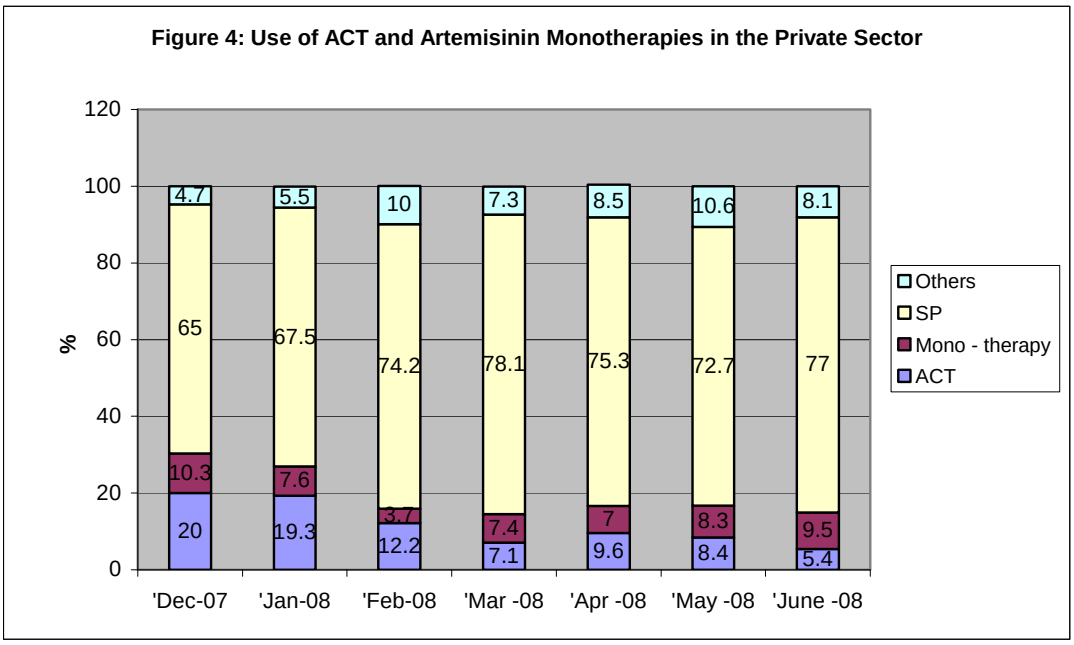
Pharmaceutical Management and Logistics: PMI has continued to support the roll out of the ACTs through support to MSD and the new integrated logistics system. Support has focused on integrating AL into the new integrated logistics system, which is a transition from a push to a pull system. By the end of 2008, all 21 regions in the country will be using an ILS system. The work on integrating AL into this system has focused on training, development of new forms and a new database that incorporates AL consumption. The system is expected to result in better quantification and rational use of all medicines including AL. The malaria commodity logistics work has also included a storage and warehousing assessment report and development of new inventory control procedures.

Severe malaria: Multiple options exist for treating severe malaria at peripheral health facilities (rectal artesunate, intramuscular artemether or quinine), but NMCP has little information regarding which strategy is preferred by healthcare workers. FY07 and FY08 PMI funds have been used by IHI to implement a severe disease in children package that aims to improve health workers' assessment, classification, treatment, and medical referral of severly ill children <5 years old. The project has been implemented in 43 health facilities across four districts, with 242 health workers trained in the IMCI algorithm. Commodities for treating severe febrile illness and for providing pre-referral care have been purchased and distributed to all 43 health facilities. Data are currently being collected concerning proper classification of severely ill children and preferences for pre-referral treatment.

ADDOs: PMI funds were also used to support preparations for costing, ordering, receiving and distribution of ACTs for the ADDOS, and to strengthen pharmacovigilance systems and routine monitoring of the safety of ACTs in ADDOs. An estimated 550,770 AL treatments have been purchased from Novartis for the ADDOs and arrived in Tanzania in August 2007. One main private pharmaceutical distributor was selected in the country to handle warehousing, customs, etc. and two regional distributors to provide ACTs directly to ADDOs. In order to improve timely distribution of ACTs to the ADDOs, further distribution points at the district level have been negotiated.

Subsidized ACTs are being sold at a price of $1.20 and $0.40 for adults and children respectively. To date, 120,196 doses have been dispatched to the distributors and 93,538 doses have been purchased by ADDOs. The uptake has been slower than expected in the private sector but changes to the program should improve demand. To address issues of quality of services and drugs, in collaboration with TFDA, SPS will provide support to Council Health Management Teams to strengthen oversight and regulation of ADDOs. Support will include the conduct of supportive supervision visits to dispensing facilities and outlets, and the encouragement of routine consumption reporting on ACTs. Additionally, SPS will work with T-MARC to support NMCP in adapting/ developing/ distributing educational materials for ACT private sector dispensers and with COMMIT to improve BCC in the community regarding provision of first line treatment for malaria in the private sector. These initiatives should ensure that uptake of ACTs through the private sector will improve.

ACT Promotion and Awareness: Using FY2007 PMI funding, AED T-MARC conducted seven months of retail audits of Tanzanian private drug sellers in four regions and found that artemisinin mono-therapy sold in the private sector was on average 8% of sales. Additionally, they found that SP, which is not very effective in treating malaria given high levels of resistance, accounted on average for 73% of sales. Although ACT sales seemed to start up strong, by the end of the seven month period ACTs sales fell to 5.4% of antimalarial sales.



FY08 funds are being used to continue the retail audit and expand it to districts with ADDOs in order to quantify any differences in the two private sector approaches. Additionally, FY08 funds will develop materials based on outcomes of a mystery client survey in private sector outlets to initiate awareness on the part of private providers and drug sellers of the importance of ACTs as first line therapy for malaria, and to highlight the dangers of mono-therapies and inefficacy of SP.

Zanzibar

In FY08, PMI provided funds to support improved health worker skills through malaria case management training, use of ACTs, and interpersonal skills for instructing caretakers how to comply with recommendations. Resources are also being provided to strengthen implementation of updated IMCI guidelines, particularly in low transmission settings. This activity will begin in October 2008 after funding is received.

Proposed USG Activities

Mainland

a. Procure ACTs for public sector and possible emergency needs (UNHCR or ADDOs). In FY09, PMI will support the procurement of a three month supply of artemether lumefantrine for the mainland public sector as Tanzania transitions from GFATM Round 4 grant funding to Round 9. In addition, PMI will fill in any needed gaps for the ADDOs or UNHCR in the event that funding does not materialize as expected or consumption rapidly increases. *($2,335,000.)*

b. Continue support to ADDOs and private sector ACT roll out. Resources under this activity are mainly to provide subsidized ACTs to the accredited drug dispensing outlets in the four established regions (Ruvuma, Morogoro, Rukwa and Mbeya). PMI will provide technical support to TFDA and NMCP to develop the new "fast track" ACT dispensing training for the future private sector ACT outlets. This two step process will fast-track the development of ACT dispensing outlets in the rural private sector. The Strengthening Pharmaceutical System

(SPS) Project will continue to monitor the distribution and tracking of sales of AL by ADDOs that receive PMI- subsidized AL contributing to efforts in monitoring performance of ACTs in the private sector and providing relevant information from field experience to the NMCP and TFDA. The collective experience will inform policy implementation and suggest adjustments to improve regulatory and distribution systems and pricing structures as needed. Future stock forecasts for the ADDOs will be undertaken with input from SPS and USAID|DELIVER Task Order Three. *($300,000)*

c. Continue support to Phase 2 training of nursing health cadres. With FY09 funding, the focus will be to train all the clinicians and nursing health cadres in comprehensive malaria case management. By directly training 1,500 trainers, nurses and clinicians, PMI will help ensure that all 3,700 nurses and 10,000 clinicians will have been trained in management of malaria through the ZTC cascade training system. PMI will also support development, printing and distribution of training materials as instructed by the NMCP. *($800,000)*

d. Strengthen pharmaceutical management and supply chain system for malaria medicines. In FY09, support for malaria commodity logistics will continue to focus on monitoring the ILS system to ensure continued availability of ACTs and other antimalarial medicines at the facility level. The supply chain work will focus on ensuring the availability and analysis of accurate consumption data through the ILS database and supervision tools. In FY09, additional support will be provided on inventory control procedures at the central, regional and facility levels. Support will also be provided in managing the PMI funded AL procurement. This activity will also provide supply chain support for the large scale roll out of GFATM Round 7 RDTs through the public sector. This will include maintaining "cool chain" transport and warehousing, quality control, and integration into the ILS.

Pharmaceutical and supply chain strengthening activities will also include end-use verification/monitoring of availability of key antimalarial commodities at the facility level. Specifically, this will entail regular supervisory/monitoring visits to a random sampling of health facilities and regional warehouses to detect and trigger further action on the following critical areas: ACT (or other drug) stockouts; expiration dates of ACTs at health facilities; leakage; anomalies in ACT use; and verifying quantification/ consumption assumptions. (*$500,000)*

e. Support awareness and promotion of ACTs in the private sector. This activity will be continued in FY09 to support the TFDA's decision to enforce its ban on artemisinin mono-therapy. Messages to the private providers and drug sellers will stress the importance of ACT, and support consumer awareness and demand for the recommended treatment product. In collaboration with the TFDA and NMCP, the campaign will emphasize where and how providers can identify genuine ACT products. While not advertising any single ACT product, this campaign will complement TFDA and NMCP efforts to ensure that, as ACTs become available to the private sector, only legitimate ACTs are sold in the private sector and that sales of artemisinin mono-therapies, counterfeit ACTs and SP are eliminated. This generic social marketing of ACTs is consistent with NMCP plans to introduce an over-branded ACT with GFATM resources in the private sector. Knowledge, attitude and practice surveys and continued retail audits will be used to measure the effectiveness of the campaigns in reducing mono-therapy artemisinin use in the private sector. This activity will coordinate with the ACT promotional campaigns aimed at the general public described in the BCC activity above. *($250,000)*

Zanzibar

f. Procure Artesunate Amodiaquine to cover potential shortfalls in ACTs. PMI will procure and distribution up to 250,000 treatments of artesunate amodiaquine to cover a potential shortfall due to a GFATM funding gap. (*$250,000)*

g. Continue support of malaria case management through IMCI. PMI will support ZMCP to continue strengthening case management and diagnosis of malaria and other febrile illnesses, focusing on the needs of a low malaria endemicity setting. *($25,000)*

J. EPIDEMIC SURVEILLANCE & RESPONSE

J.1 Epidemic Surveillance & Response

Current Status

Zanzibar

Epidemic malaria is defined as 'an acute exacerbation of disease out of proportion to the normal to which the community is subject.' It is estimated that 110,000 people die as a consequence of malaria epidemics in Africa (perhaps 10% of all malaria deaths). True malaria epidemics do not normally occur on the Tanzania mainland, but seasonal increases in transmission certainly exist. PMI will focus epidemic surveillance and response activities in Zanzibar where malaria has become an uncommon occurrence.

Sustainable early epidemic detection systems are needed in epidemic-prone Zanzibar. The limited exposure to *P. falciparum* parasites currently experienced by the population leaves them more susceptible to severe illness and death should sudden increases in transmission occur. High incidence of severe morbidity and mortality and negative economic consequences can be averted if ZMCP anticipates epidemics and detects them early.

Progress To Date

Zanzibar

In FY2008, PMI provided technical and financial support to ZMCP to develop and implement a malaria early epidemic detection system (MEEDS) in Unguja and Pemba. The system includes a strategy to collect daily data for three key indicators among outpatients visiting peripheral health facilities (total visits, confirmed malaria positive, confirmed malaria negative). The system was inaugurated at 10 facilities in April 2008. Weekly aggregate data, stratified by under 5 and ≥5 years of age, are transmitted from each health facility using a customized cell phone menu. All data are received by a computer server operated by a Tanzanian telecommunications company.

The weekly data are processed by the server and packaged into two useful formats: 1) text messages with weekly data summaries sent to cell phones of key ZMPC staff and district medical officers and 2) cumulative weekly data made available for viewing over a secure web site. Epidemic thresholds are being refined to determine when an epidemic response should be elicited from ZMPC and district-level health officials. In June 2008, ZMCP responded to the first suspected malaria epidemic detected by this novel system.

Proposed USG Activities

Zanzibar

Scale-up the implementation of the new MEEDS to at least 50% of all health facilities by the end of 2009. This equates to approximately 60 health facilities and will include a mix of public and private clinics. Epidemic confirmation procedures will be strengthened and prearranged mechanisms will be developed to deploy a small cadre of trained staff to investigate suspected epidemics. Readiness for malaria epidemic investigation and response (e.g., active case detection using RDTs, mass treatment of fever cases in the affected community, and supplies for management of severe malaria) requires sufficient stocking and rotation of commodities. Systems to ensure Zanzibar's rapid and effective response to confirmed epidemics will be a major component of this funding. *($260,000)*

K. HIV – MALARIA

Current Status

Mainland

Persons living with HIV/AIDS (PLWHA) are more vulnerable to malaria and warrant focused efforts from PMI and the President's Emergency Plan for AIDS Relief (PEPFAR). Data from several parts of Africa suggest that recurring episodes of malarial fever may cause transient increases in viral load among persons infected with HIV. Persons are more likely to transmit HIV through sexual contact during these periods of elevated viral load. Susceptibility to malaria illness is also enhanced in the presence of HIV infection. Although the HIV prevalence in Tanzania is lower (6% in the 2007-08 HIV Indicator Survey) than in many other African countries, this still translates to over 2 million persons experiencing the negative interaction between malaria and HIV.

The PEPFAR 2007 Country Operational Plan for Tanzania includes $750,000 for the purchase and distribution of LLINs for persons living with HIV/AIDS (PLWHA) and enrolled in home-based palliative care. 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. A third strategy 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).

Progress To Date

Mainland

In FY2008, PMI specifically targeted resources to PLWHA. Among approximately 200 HIV care and treatment centers (CTCs) in Tanzania currently providing antiretroviral therapy to over 75,000 PLWHA, 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). PMI will support malaria rapid diagnostic capacity (RDT implementation) and ACT supply and distribution to selected CTCs in districts with high malaria transmission. This activity will 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 viremia.

One major accomplishment should be noted. In 2007-08, Tanzania mainland and Zanzibar conducted the first-ever, combined HIV/AIDS Indicator Survey and Malaria Indicator Survey (MIS), with little added cost. This demonstrated remarkable collaboration between both disease control programs and numerous donors. Preliminary results of the MIS are currently available and are being used by NMCP, ZMPC, and PMI for planning purposes. A final report will be released in September 2008.

Proposed USG Activities

Mainland

Continue PMI Tanzania and PEPFAR Tanzania collaboration in ways that synergize their respective efforts to reduce the combined burden of malaria and HIV/AIDS. The PEPFAR-funded activities listed above are not yet fully implemented and require attention from NMCP and further assistance from PMI staff. Likewise, PMI-funded activities targeted to PLWHA are not yet implemented and require considerable attention. We will spend FY2009 as a year to catch-up with implementation of these activities. *No funding requested for FY2009.*

L. CAPACITY BUILDING NMCP FELTP

L.1 Capacity Building NMCP FELTP

Current Status

Mainland and Zanzibar

Two PMI resident technical advisors each spend approximately 50% of their time at the offices of the NMCP and make frequent visits to the Zanzibar Malaria Control Program. PMI resident advisors are a short-term strategy to provide increased technical capacity within NMCP and ZMCP. Longer-term, more comprehensive training of human resources is a key area where PMI can help assure sustainability of malaria control programs. In FY2008, PMI began to support a two-year training program known as the Field Epidemiology and Laboratory Training Program (FELTP). FELTP is a public health training program to enhance competencies in applied epidemiology, implementation and evaluation of disease interventions, monitoring and evaluation, surveillance strengthening, epidemic preparedness, and public health decision making and leadership skills. MoHSW staff trained in these competencies will be critical to maintaining the progress achieved by PMI and other partners.

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) have worked with Tanzanian colleagues since February 2007 to develop a plan for a Tanzania FELTP. Implementation of the program in Tanzania began in early 2008 and considerable planning has been achieved. The FELTP office is now

located in the National Institute of Medical Research (NIMR) building within the NIMR/CDC/WHO/NMCP compound.

Progress To Date

Mainland and Zanzibar

The public announcement for applications to the Tanzania FELTP was issued in early June 2008. Following a competitive selection process, the first 10 FELTP residents will be selected in August 2008 and will initiate training in October 2008 through partial support with PMI FY2008 funds. The PMI resident advisors will fully participate in the ongoing development plan for the Tanzania FELTP, including curriculum planning, the candidate selection process, and implementation of an M&E plan.

The first 10 residents of the Tanzania FELTP will finish their introductory training in early November 2008. The residents will then be dispatched to field assignments throughout the mainland and Zanzibar, including specific assignments working with district and regional malaria control and program evaluation efforts. Residents will be assigned to a mentor in Dar es Salaam while pursuing their field activities and a regional supervisor will help monitor their day-to-day activities.

Proposed USG Activities

Mainland and Zanzibar

Continue support to Tanzania FELTP program. PMI will continue support to the FELTP program and contribute to the development of 10 Tanzanian epidemiologists. The trainees will receive continuous mentoring and participate in malaria field assignments throughout mainland and Zanzibar. *($150,000)*

M. COMMUNICATION 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. The close collaboration with the GFATM and World Bank in planning the under-five ITN catch-up campaign—in which the three partners bring to bear resources with a common objective—is one example.

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 four years. This year, there was a marked increase and diversity in participants to our consultative meeting. More ideas, issues and concerns were shared and PMI benefited from this increased participation.

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 maintains 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 meets regularly with NMCP personnel to sort out issues and problems. To ensure that PMI partners are clear that NMCP is the ultimate leader of their activities, partners participate in the monthly meetings and report on their activities and plans to NMCP and PMI. Such meetings are held at NMCP. 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

In 2008, PMI/Tanzania initiated its first private sector partnership to help strengthen malaria control in Zanzibar. The development of a malaria early epidemic detection system in Zanzibar required use of new information technology to expedite the reporting of new malaria cases diagnosed at health facilities. PMI sought assistance from Selcomwireless, a locally-owned software and telecommunications company.

Current Status

Selcomwireless has worked closely with ZMCP to develop a customized cell phone menu for entering and transmitting weekly malaria data from peripheral health facilities to a central database. To date, Selcomwireless has received no compensation for their development and implementation of the system. Data for the first 8 months of 2008 have been successfully entered and transmitted at 10 health facilities using the customized cell phone menus. The secure website displaying the cumulative surveillance data has functioned consistently throughout this piloting phase. In May 2008, the system detected and confirmed a 3-fold increase in malaria cases during 3 consecutive weeks at one health facility. This triggered Zanzibar's first malaria epidemic investigation and response in this new era of malaria control. Weekly number of malaria cases returned to normal following action taken by ZMCP and the district health management team.

Proposed USG Activities

Continue engagement of public private partnership. In FY09, the early epidemic detection system will be further refined to include geospatial maps of weekly data, an improved interactive website, and more readily generated automatic reports. Implementation of the system will also be scaled-up to cover over 50% of all health facilities in Zanzibar. Selcomwireless will begin to receive compensation for general maintenance of the system, but will continue to work with ZMCP and other partners to enhance the system, eventually expanding the system to other reportable conditions covered by Zanzibar's planned

Integrated Disease Surveillance and Response plan. *(Covered under Section J, Epidemic Surveillance and Response)*

O. MONITORING & EVALUATION

Rigorous monitoring and evaluation (M&E) with capacity to capture, manage, and report quality, actionable data in a timely manner are key to ensuring progress. Many partners 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 overall M&E needs of NMCP and ZMCP must also be considered and integrated (consistent with the UNAIDS "Three Ones" principle[5]). To date, PMI has worked closely with colleagues from NMCP, ZMCP, GFATM, WHO and other sectors of the MOHSW (e.g., National Bureau of Statistics) to promote coordinated M&E efforts.

The M&E framework supported by PMI 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 *evaluation* will be based on impact indicators (all-cause and malaria-specific mortality and anemia and parasite prevalence) measured at baseline, midpoint, and in the 5th year of PMI implementation. Data used to evaluate coverage of malaria interventions and impact will be collected through nationally representative household surveys (DHS, MIS). Ongoing *monitoring* of program inputs and outputs will be used to guide program implementation.

There has been considerable progress made with PMI's M&E investments. One of the most notable achievements is the successful collaboration with PEPFAR on the THIS/MIS 2007 survey. The completion of this survey has provided PMI, NMCP, and ZMCP with mid-point outcome indicators, documented in Section E. In addition, the PMI-funded TNVS survey was completed in December 2007 and provided valuable information on the voucher scheme, leading to important changes in LLIN policy. Baseline impact indicators, particularly 2006 malaria-related mortality among infants and children under five years of age (from DSS data) will be finalized in 2008.

As seen in Table E below, many malaria surveys (nationally representative or otherwise) have been conducted in Tanzania in recent years. Several surveys warrant special attention: 1) baseline data for coverage indicators and overall impact of PMI will be based on 2004-05 Tanzania DHS data; 2) mid-point data will originate from a 2007-08 MIS; and 3) the next DHS in 2009-10 will include important all-cause mortality data as well as estimates for coverage indicators in PMI Year 5 (following four years of PMI implementation).

[5] 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.

Table E: Major Malaria Coverage and Impact Indicator Surveys 2001 - 2010, Tanzania.										
Calendar year	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
PMI Year						**Yr 1**	**Yr 2**	**Yr 3**	**Yr 4**	**Yr 5**
DHS (a)				X					X*	
THIS/MIS (b)							X			
NMCP survey (c)	X		X		X			X*		
TNVS survey (d)					X	X	X*	X	X	X
ZMCP survey (e)			X		X		X*		X	
Zamruki survey (f)			X		X		X		X	
ZMCP mortality (g)								X*		
DSS (Rufiji /Ifakara) (h)					X	X*	X*	X*	X	X

PMI-supported M&E activities in Tanzania are coordinated jointly by the PMI in-country staff and representatives from NMCP and ZMCP. The following objectives have been pursued over the past two years:

1. Support RBM efforts to carry out M&E System Strengthening Tool workshop. In late 2007, a workshop was convened in Tanzania to conduct the RMB M&E System Strengthening Tool (MESST) exercise. The goal of the workshop was to identify M&E needs for NMCP, ZMCP, and other key stakeholders including PMI and GFATM. The workshop resulted in a costed M&E plan to focus efforts on improving: 1) malaria control M&E staffing; 2) data management capacities of the M&E cells; and 3) data collection and reporting systems per malaria intervention area.

2. Encourage written M&E plans and timelines. PMI has supported the development of written M&E plans for both NMCP and ZMCP in 2008. These written plans are critical for planning purposes and serve as useful documents to facilitate writing and submitting GFATM proposals and PMI Operational Plans.

3. Finalize baseline estimates of outcome and impact indicators. Careful documentation of malaria indicators prior to initiation of 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. Currently, all available baseline estimates of outcome indicators have been finalized.

4. 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.

5. 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 (provided by HMIS), conducts periodic coverage surveys, and provides occasional supportive supervision. Unfortunately, these basic monitoring and evaluation activities are poorly staffed and under funded. Insufficient resources are available to complete any more than a fraction of proposed supervisory 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 and inadequate analysis of data.

6. Establishment of health facility-based sentinel surveillance. Household surveys (DHS, 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 current malaria control program achievements or failures. Out-patient and in-patient data on malaria morbidity and mortality collected prospectively from selected sentinel health facilities with laboratory diagnostic capacity throughout Tanzania will provide a basis for this strategy.

7. Strengthen entomologic monitoring. Routine and systematic entomological monitoring has rarely been conducted on the Mainland or Zanzibar to provide the necessary information to guide long-term vector control programs. To remedy the lack of up-to-date entomologic information and to target the use of IRS and ITNs in the most cost-effective fashion, PMI is assisting the NMCP and ZNMCP in the establishing entomologic monitoring and evaluation programs.

8. Ensure timely planning and implementation of next TDHS. National and regional level data for key malaria intervention coverage indicators and estimates of infant and child mortality are dependent upon the next Tanzania Demographic and Surveillance Survey. PMI is working with other donors and stakeholders to ensure this survey is conducted in 2009-10.

PMI-Tanzania's FY09 M&E activities will focus attention on items 5-8 listed above.

O.1 Strengthening Malaria Databases and Support Supervision

Current Status

Mainland

The HMIS is intended to provide the MOH at the central and peripheral levels with a steady supply of reliable and timely information about the status of health indicators nationwide to help in the planning and implementation of health activities. Unfortunately, the quality of information coming from the HMIS in Tanzania is of questionable value for evaluating malaria control efforts. In theory, information provided by the HMIS should be used by local, regional, and national decision makers and managers responsible for malaria control activities.

The NMCP strategic plan acknowledge that planned supervision visits occur only rarely, usually for lack of funds. NMCP currently has little opportunity to improve the implementation and delivery of its interventions and work with regional and district health management teams to improve implementation of malaria control measures. Examples of practices that require ongoing monitoring 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 visits, 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 ownership and use in households.

Zanzibar

Challenges with HMIS data are also experienced by ZMCP, however it is generally felt that data from Zanzibar's system is of higher quality. Health facility-based data have been collected since 1999 to the present and are maintained by ZMCP. Support supervision activities funded by PMI in 2007-08 has been enabled ZMCP to more closely monitor the implementation of RDTs throughout all of Unguja and Pemba, but more challenges persist. Healthcare providers remain largely unaware of changes in malaria case management guidelines following substantial reductions in malaria risk in Zanzibar.

Progress to Date

Mainland

NMCP's malaria database is becoming more comprehensive. It now includes longitudinal data from household surveys conducted in 2001, 2003, 2005, and 2008 (biomarker data included for 2005 and 2008) across 21 Districts. These data are supplemented each year by HMIS data contributed by district malaria focal persons during NMCP's annual malaria/IMCI conference. These data are summarized annually and include indicators for outpatients, laboratory results, hospital admissions, and deaths between 2003 and 2008. The dataset includes information from 21 regions, 128 districts, and over 5,000 health facilities. These data will be useful for assessing overall trends for various indicators.

The PMI funded activities to improve supervision and quality assurance has allowed NMCP staff to visit health facilities and households to interview staff, view supplies of drugs and vouchers, review registers, observe case management and provide immediate oral or written feedback before departing. In 2008, PMI funds allowed NMCP to conduct the first of multiple rounds of systematic support supervision visits. The first round included visits to nine regions (three disticts per region) where a check-list of activities were undertaken at over 100 facilities. NMCP staff will be summarizing findings from these supervisory visits and will address critical issues during regular 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.

Zanzibar

The malaria database maintained by ZMCP now includes data from three household surveys (2003, 2005, 2007) and one mortality survey (2008). ZMCP published a frequently quoted document in January 2008 (Roll Back Malaria Indicator Survey Main Report) that summarizes these previous surveys for planning and funding purposes.

Proposed USG Activities

Mainland

a) Support improvement of routine malaria control databases. HMIS data 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. PMI support will enable availability of quarterly HMIS data. This will assist malaria control planners in marking trends in malaria cases and delivery of interventions. These funds will also support health information systems data from the national malaria control program surveys on quantity of ACTs purchased and used, human resources, and financial inputs from all reporting health facilities in the country. *($30,000)*

b) Support to strengthen supervision and quality assurance. PMI funds will support 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, and levels of endemicity 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. (*$45,000)*

Zanzibar

c. Support ZMCP's data collection, management and supervision. PMI will continue to support data collection and data management to assist ZMCP's monitoring of malaria interventions and cases. PMI funds will support ZMCP staff to complete supervision visits every other month, including per diem and vehicle expenses to help ensure district staff are regularly briefed regarding the evolving progress of malaria control and the ever-changing epidemiology of malaria in Zanzibar. ZMCP faces challenges in providing adequate support supervision in Pemba due to difficulty in traveling to a separate island. (*$30,000)*

O.2 Health Facility-based Sentinel Surveillance

Current Status

Mainland

NMCP has 21 sentinel districts where they have previously conducted surveys on malaria prevalence, treatment seeking behavior, and health facility surveys. However, until recently there have been no ongoing sentinel health facilities currently operating on the mainland. Funding from PMI in FY2008 has allowed NMCP to plan and implement a health facility-based sentinel surveillance system to enhance M&E capacity for reporting timely data. This surveillance system is based on health facility reports of malaria morbidity and mortality from a small set of sentinel sites within malaria endemic zones in a country.

Zanzibar

Similar to the mainland, ZMCP has had sentinel areas which are used for periodic surveys but no dedicated sentinel health facilities which have reported timely malaria data for M&E purposes. PMI FY08 funding has helped establish seven sentinel surveillance sites in Pemba and Unguja Islands.

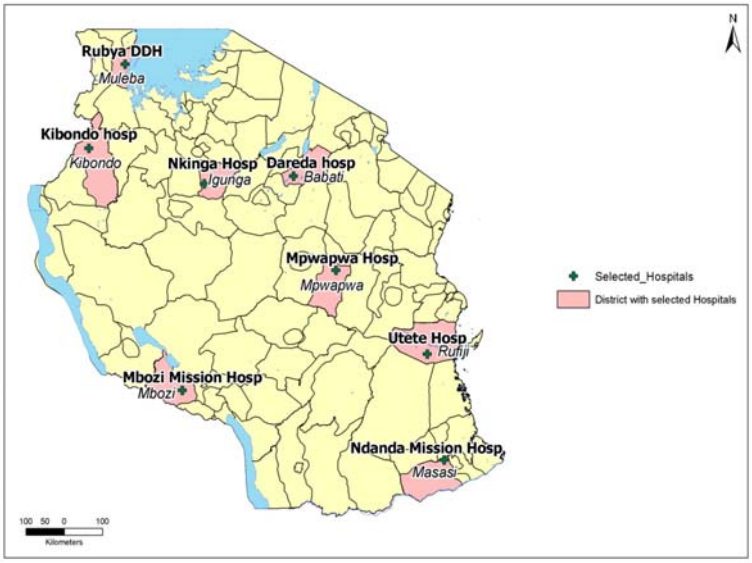
Progress to Date

Mainland

The sentinel site surveillance system has been launched on the mainland. Eight facilities have already selected and implementation is underway at five sites by September 2008. The distribution of the Mainland's sentinel health facility sites is illustrated in Figure 5. Pending

successful implementation and reporting of data by three additional mainland sites funded in FY 2008 (for total implementation of eight sites during 2008), the number of sites will be increased to 16 in FY09.

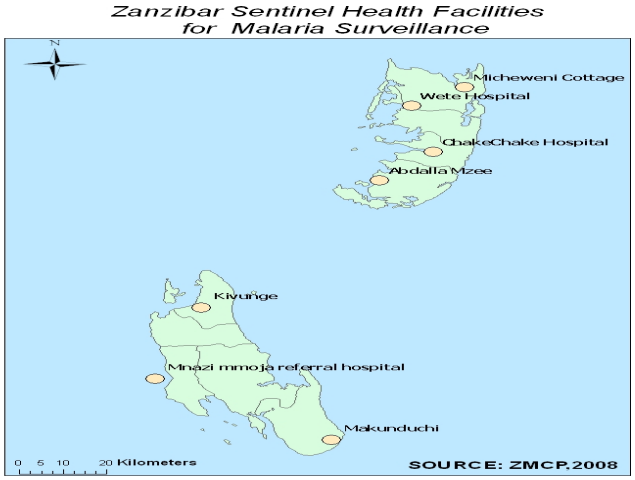
Figure 5. Distribution of first eight health facility-based sentinel surveillance sites on Mainland, 2008.



Zanzibar

Another key achievement has been the establishment of seven sentinel surveillance sites in Zanzibar, see Figure 6. As Zanzibar is aiming to completely suppress local malaria transmission, the seven sentinel facilities there will be further strengthened to ensure the collection and reporting of the highest quality data.

Figure 6. Distribution of sentinel surveillance sites in Zanzibar



Proposed USG Activities

Mainland

a. Continue support and scale up of sentinel surveillance sites. PMI will increase the number of sentinel surveillance sites to 16 in Year 4, pending the successful implementation and report of the existing sites. Many of the current sentinel facilities are remote districts that require up to 2 days of travel time, one-way. Frequent visits to each site by a team of at least three people will be necessary to successfully scale-up this M&E approach. (*$300,000)*

Zanzibar

b. Continue support and scale up of sentinel surveillance sites. PMI will continue support of the seven sentinel surveillance sites in Zanzibar. Efforts will focus on ensuring timely reporting and high data quality. (*$70,000)*

O.3 Entomologic Monitoring

Current Status

Mainland

The 2008-2013 Malaria Medium Term Strategic of the NMCP, Mainland Tanzania places considerable emphasis on vector control and recommends IRS, ITNs, as well as larviciding as part of an Integrated Malaria Vector Control (IMVC) strategy. Entomological monitoring aims to measure impact and vector response to insecticide selection pressure and changes in behavior with on-going IRS and ITNs/LLINs prevention programs. However, routine and systematic entomological monitoring has rarely been conducted on the Mainland to support these activities and provide information to monitor the vector control program. To remedy the lack of up-to-date entomologic information and to target the use of IRS and ITNs in the most cost-effective fashion, PMI is assisting the NMCP to establish entomologic monitoring and evaluation programs through increased collaboration with two other Tanzanian institutions with considerable entomologic experience and expertise: NIMR and IHI.

Zanzibar

The 2008-2012 Malaria Medium Term Strategic of the ZMCP also places considerable emphasis on vector control and inlcudes IRS, ITNs, as well as larviciding as part of an Integrated Malaria Vector Control (IMVC) strategy. Fortunately, PMI funding for entomologic monitoring in Zanzibar has helped move this process forward. Preliminary results from entomological monitoring indicate that the man-vector contact in Unguja and Pemba has been reduced significantly from 4.33 and 4.50 bites per man per night in 2005 to 0.54 and 0.20 bites per man per night respectively during the post-spray period (2007-2008). The impact of IRS on mosquito survival rates is demonstrated by the low parity rates, 0.19 and 0.14 in Unguja and Pemba, respectively, in the post-spray period.

Progress to Date

Mainland

Progress in entomologic monitoring on the Mainland has been slow, in part due to lack of sufficient resources to date. Increasingly, there is recognition of the need for NMCP to synergize efforts with other national groups (NIMR and IHI) in order to achieve the necessary entomologic surveillance. In late 2008, NIMR will initiate a national-level insecticide resistance survey. NMCP will collaborate with NIMR to ensure districts will be included that rely on PMI-funded scale-up IRS and LLIN coverage.

Zanzibar

Routine and systematic entomological monitoring is now occurring in Zanzibar. Ongoing mosquito collections are performed at seven sites (four in Unguja and three in Pemba) twice per month (using man-landing, light traps, pit traps, and pyrethrum spray catches) The entomological monitoring provides data on vector species, man-biting densities, parity rates, sporozoite rates and human blood index. In mid-2008 the ZMCP entomology laboratory in Unguja began to have success with rearing a colony of susceptible Anopheles gambiae s.s., and contact bioassays to monitor the efficacy of the insecticide on sprayed surfaces have been preformed. Efforts are on-going to increase mosquito production to meet the requirements for insecticide efficacy monitoring and evaluation. In May 2008, ZMCP collaborated with the Liverpool School of Tropical Medicine to perform insecticide resistance assessments. ZMCP is also discussing establishment of Enzyme-Linked ImmunoSorbent Assays (ELISA) facilities in ZMCP to estimate sporozoite rates and identification of blood-meal sources in the mosquitoes collected.

Proposed USG Activities

Mainland

a. *Support to entomological monitoring.* Support to entomologic surveys will consist of collaborative management by NMCP and CDC with logistic and supervisory support from RTI. Activities will focus on building entomologic capacity within the NMCP in Dar es Salaam via strong collaborations with NIMR and IHI. Specific attention will be paid to monitoring vector populations and insecticide resistance where both IRS and LLINs are used. There will also be a focus of building capacity at the district level to monitor changes in parameters contributing to malaria transmission including changes in human biting, mosquito behavior (i.e., biting times and whether biting/resting occurs indoors or outdoors), and species composition. (*$200,000)*

Zanzibar

b. Support to entomological monitoring. PMI will continue support of ZMCP to monitor the risk of malaria transmission and conducte mosquito surveillance activities to assess the impact of high coverage rates with IRS and LLINs. Pyrethroid, DDT, and carbamate resistance data will be collected using the WHO susceptibility assays and ELISA for knock-down resistance (kdr) mutations. With the decrease of malaria in Zanzibar, PMI will assist ZMCP to develop entomological guidelines for malaria early warning system. *($100,000)*

O.4 Tanzania Demographic and Health Survey

Current Status

Mainland and Zanzibar

The 2004-05 Tanzania Demographic and Health Survey (TDHS) was carried out by the National Bureau of Statistics from October 2004 through January 2005. The main objectives of the TDHS was to measure levels, patterns, and trends in demographic and health indicators in both the Mainland and Zanzibar. Key malaria intervention coverage indicators used by PMI (e.g., proportion of pregnant women sleeping under a bednet the previous night) as well as infant and under-5 mortality rates are obtained in the TDHS. The timing of the 2004-05 survey relative to the initial implementation of PMI activities in Tanzania (2006) makes the results appropriate for baseline estimates of key coverage and impact indicators needed to monitor the progress of PMI.

Progress to Date

Mainland and Zanzibar

Another TDHS is currently planned for Tanzania in 2009-10. A contract with MEASURE DHS III has been awarded and will preparations to implement the TDHS have begun. In addition to PMI funding in FY08, other USAID sources (Maternal and Child Health, Family Planning and Reproductive Health) were also committed to initiate preliminary activities in mid-2008. PEPFAR will also commit resources in FY09.

Mainland and Zanzibar

Support to Implementation of 2009 DHS. PMI funds will be used to support planning and implementation of the 2009-10 DHS. Results of the survey will be essential for evaluating over 4 years of PMI activity in Tanzania. This complements FY09 funding allocations from Family Planning and Reproductive Health, Maternal and Child Health, and PEPFAR. *($400,000)*

P. MANAGEMENT & ADMINISTRATION

Current Status – USAID/Tanzania - CDC

The Tanzania PMI is implemented under the authority of the USAID Mission Director and is based in the USAID Health and Population Office under the supervision of a USAID Direct Hire Foreign Service Officer. Two full-time expatriate health professionals have been hired to help manage the PMI in Tanzania, one CDC Resident Advisor, funded through the CDC

Interagency Agreement (IAA) and one representing USAID/Tanzania contracted through a Personal Services Contract. In addition, one full-time USAID Foreign Service National (FSN) was hired to support the PMI team and a full-time FSN Administrator has been hired through the CDC IAA. An additional USDH under a Junior Officer Placement Authority and a US Personal Services Contractor assist the PMI team part time as Cognizant Technical Officers or Activity Managers and are partially supported by PMI funding. All PMI staff members are part of a single inter-agency team led by the USAID/Tanzania Mission Director 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.

The PMI professional staff work 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. 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.

$380,000 in Administration and Technical Support Funds are retained by USAID to fund the following:

Partial Salary and Benefits of the Junior Officer Placement Authority Officer	$80,000
Partial Salary and Benefits of the US Personal Services Contractor	80,000
USAID Monitoring and Evaluation Contract	100,000
IT Cost Recovery	20,000
Other	100,000

FY09 PMI CDC Management and Administrative activities in Tanzania will continue to require collaborative support at both in-country and Atlanta-based levels. Direct operational, technical and administrative activities will be managed in Tanzania by the CDC PMI Resident Advisor. A recently hired CDC FSN Administrator will provide critical support to the CDC PMI Resident Advisor covering all aspects of managing PMI programs and activities. Together they will be located at the CDC Tanzania Offices near the NMCP Office. Additional technical and administrative support from CDC will be provided through Atlanta-based TDYs. FY09 MOP funding of all administrative costs for the PMI CDC Resident Advisor, the CDC FSN Administrator and CDC Atlanta TDY support are provided in the total amount of $644,700 and administered through the USAID/CDC IAA.

The PMI CDC Resident Advisor provides direct technical support to two Ministries of Health and Social Welfare (MoHSW), and is actively engaged in the management of the increasingly rapid scale-up involving all PMI activities in Tanzania and Zanzibar, as well as to the Ifakara Health Institute (IHI), formerly the Ifakara Health Research and Development Centre (IHRDC), and to other PMI partners.

Rapid scale-up of PMI activities in TZ/ZAN has generated a significant increase in the PMI CDC Malaria Advisor's responsibilities in programs management, and has thus established the need for this contracted FSN position. Funding of the CDC Foreign Service National (FSN) Administrator assigned to the PMI CDC Malaria Advisor has been authorized since the FY07 PMI Malaria Operational Plan (MOP) for TZ/ZAN, and is currently in the final stages of hiring.

Through consultative TDYs, Atlanta-based support will continue to provide several services, including entomological, technical and administrative for planned activities such as MOP consultant meetings, M&E activities, establishing/maintaining funding mechanisms, and other support as needed.

Funding of all FY09 PMI CDC Management and Administration costs in the total amount of $644,700 will be administered through the USAID/CDC IAA according to the following:

PMI CDC Resident Advisor	$500,000
CDC FSN Administrator	$ 60,000
CDC Atlanta TDY support (See ANNEX Q5. TABLE 5)	$ 84,700
	$ (644,700)

Q. 1 ANNEXES

Table 1

PMI Year Four (FY09)

Timeline of Activities

		2008	2009	2009							2010				
	ACTIVITY	Oct Dec	Jan May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
H.	**INTERVENTION - PREVENTION**														
H.1.a	Support for Universal Coverage Campaign - Mainland														
H.1.b	Under-Five Catch-Up Campaign - Mainland														
H.1.c	Support to the Tanzania National Voucher Scheme - Mainland														
H.1.d	ITNs - Zanzibar														
H.2	Urban Malaria Control - Larviciding - Mainland														
H.3	Indoor Residual Spraying - Mainland & Zanzibar														
H.4	Malaria in Pregnancy - Mainland & Zanzibar														
H.5	Behavior Change & Communication - Mainland & Zanzibar														
I.1	**INTERVENTIONS CASE MANAGEMENT**														
I.1.a	Diagnostics Support - Mainland														
I.1.b	RDT Curricula Development														

1.1.c	RDT Procurement, Implementation and Support - Mainland & Zanzibar														
1.2.a	ACT Procurement - Mainland & Zanzibar														
1.2.b	Private Sector ACTs - Mainland														
1.2.c	Case Management Training--Mainland and Zanzibar														
1.2.d	Pharmaceutical Management														
1.2.e	Promotion and Awareness ACTs														
J.1	**EPIDEMIC SURVEILLANCE & RESPONSE**														
	Epidemic Surveillance & Response - Zanzibar														
L.1	**CAPACITY BUILDING NMCP FELTP**														
	Capacity Building NMCP FELTP - Mainland														
O	**MONITORING AND EVALUATION**														
O.1	Strengthening HMIS & Support Supervision – Main & Zanzibar														
O.2	Establishment of Sentinel Surveillance Sites Main & Zanzibar														
O.3	Entomological Monitoring														
O.3	Implementation of 2009-10 TDHS														

ANNEX Q.2: TABLE 2 – PLANNED OBLIGATIONS YEAR 4 - FY09

Table 2
President's Malaria Initiative - *Tanzania Mainland and Zanzibar*
Planned Obligations for FY09 ($000)

Proposed Activity	Mechanism	Budget (*commodities)*	Geographic Area	Description of Activity	Page Ref.
H. PREVENTIVE ACTIVITIES					
H.1 Insecticide Treated Nets					13
a. Universal Coverage Campaign	MEDA	10,250 (10,250)	Mainland	Procure and Distribute LLINs	17
b. Under Five Catch-Up Campaign	MEDA	1,600 (1,600)	Mainland	Procure and Distribute LLINs	17
	World Vision	200	Mainland	Training, registration	17
c. Support to TNVS	MEDA	1,200 (1,200)	Mainland	Procure and Distribute LLINs	17
	World Vision	200	Mainland	Training, registration	17
d. Universal Coverage Campaign - Zanzibar	MEDA	137 (137)	Zanzibar	Procure and Distribute LLINs	17
H.2 Urban Malaria Control Larviciding	RTI	500	Regional Mainland	Larviciding in urban wards of Dar es Salaam	19
H.3 Indoor Residual Spraying					
a. Mainland IRS	RTI	7,265.3 *(2,200)*	Regional Mainland	Focused IRS in malaria hotspots	21
b. Zanzibar IRS	RTI	500 *(200)*	National Zanzibar	Focused IRS in malaria hotspots	21
H.4 Control of Malaria in Pregnancy					
a. Mainland MIP	ACCESS	1,800	National Mainland	Implement FANC including IPTp	24
b. Zanzibar MIP	ACCESS	100	National Zanzibar	Support ZMCP in implementing IPTp	24
H.5 Behavior Change & Communication					
a. Mainland BCC	COMMIT	2,500	Regional Mainland	BCC for all aspects of malaria control	27
b. Zanzibar BCC	TBD	175	National Zanzibar	BCC for all aspects of malaria control	27
SUBTOTAL: Preventive Activities		**26,427.3 *(15,587)***			

I. CASE MANAGEMENT ACTIVITIES					
I.1 Diagnostics					
a. RDTs and Microscopy	TBD	400 *(200)*	Regional Mainland	Strengthen malaria diagnosis through RDTs and Microcopy	29

Table 2 President's Malaria Initiative - *Tanzania Mainland and Zanzibar* Planned Obligations for FY09 ($000)					
Proposed Activity	**Mechanism**	**Budget (*commodities)***	**Geographic Area**	**Description of Activity**	**Page Ref.**
b. RDT Curricula Development	IHI	165	National Mainland	Develop curricula and QA plan for RDT	29
c. RDT Procurement Implementation and Support Mainland	USAID| Deliver Task Order Three	240 *(240)*	National Zanzibar	Procure RDTs and support establishment of quality assurance system	30
d. RDT Procurement Implementation and Support Zanzibar	ZMCP	138	National Zanzibar	Continue support for RDTs in Zanzibar	23
I.2 Case Management					
a. ACTs for public sector	USAID| Deliver Task Order Three	2,335 *(2,300)*	Regional Mainland	Procure ACTs for public sector and other gaps	34
b. Manage ACTs for ADDOs	SPS/MSH	300	Regional Mainland	Distribute ACTs in ADDOs	34
c. Training	ZTCs	800	Regional Mainland	Train nurses and clinicians	35
d. Logistics	USAID| Deliver Task Order Three	500	National Mainland	Strengthen pharmaceutical management and supply chain system for malaria medicines	35
e. Promote ACTs with Providers	T-MARC	250	National Mainland	Support awareness and promotion of ACTs in the private sector	35
f. ACTs in Zanzibar	USAID| Deliver Task Order Three	250 *(250)*	National Zanzibar	Procure Artesunate Amodiaquine to cover potential shortfalls in ACTs	36
g. IMCI in Zanzibar	ZMCP	25	National Zanzibar	Support of malaria case management through IMCI	36
SUBTOTAL: Case Management		**5,403 *(2,990)***			
J. EPIDEMIC SURVEILLANCE AND RESPONSE					
J.1 MEEDS	RTI	260	Zanzibar	Implementation of the new MEEDS	37
SUBTOTAL: Epidemic Surveillance		**260**			
L. CAPACITY BUILDING					
L.1 Field Epidemiology and Laboratory Training Program	CDC IAA FELTP	150	National	Support for 2-year training in applied EPI	39
SUBTOTAL: Capacity Building		**150**			
O. MONITORING AND EVALUATION					
O.1 Strengthening Malaria Databases and Support Supervision					

Table 2 President's Malaria Initiative - *Tanzania Mainland and Zanzibar* Planned Obligations for FY09 ($000)					
Proposed Activity	**Mechanism**	**Budget (*commodities)***	**Geographic Area**	**Description of Activity**	**Page Ref.**
a. Databases	NMCP	30	Mainland	Improvement of routine malaria control databases	45
b. Supervision & QA		45		Supervision & QA	45
c. Zanzibar	ZMCP	30	Zanzibar	Data collection and management	45
O.2 Health Facility-based Sentinel Surveillance					
a. Mainland	RTI	300	Mainland	Increase the number of sentinel surveillance sites to 16	47
b. Zanzibar	RTI	70	Zanzibar	Continue support of the seven sentinel surveillance sites	47
O.3 Entomologic Monitoring					
a. Mainland	NMCP	200	Mainland	Build entomologic capacity in NMCP	48
b. Zanzibar	ZMCP	100	Zanzibar	Develop entomological guidelines for malaria early warning system	49
O.4 Tanzania Demographic and Health Survey	Measure DHS III	400	Nationwide	Implement MIS in TDHS	49
SUBTOTAL MONITORING AND EVALUATION		**1,175**			
P. MANAGEMENT AND ADMINISTRATION					
P.1 USAID Technical Advisor	USAID	500			
P.2 USAID FSN	USAID	60	National	PMI Management	49
P.3 USAID Admin & Technical Support	USAID	380	National	PMI Management	49
P.4 CDC Technical Advisor	CDC	500	National	PMI Management	49
P.5 CDC FSN Administrator	CDC	60	National	PMI Management	49
P.6 CDC Admin & Technical Support	CDC	84.7	National	PMI Management	49
SUBTOTAL: Management and Administration		**1,584.7**			
GRAND TOTAL		**35,000** ***(18,577)***	***Commodities represent* 53*% of total budget***		

ANNEX Q.3: TABLE 3 – BUDGET BREAKDOWN BY INTERVENTION

Table 3

President's Malaria Initiative - Mainland Tanzania and Zanzibar
Year 4 (FY09) Budget Breakdown by Intervention

Area	Commodities		Non-Commodity*		Total
	$	%	$	%	
Insecticide Treated Nets	13,187	90%	1450	10%	14,637
Indoor Residual Spraying	2,400	27%	6,415.3	73%	8,815.3
Case Management	2,990	46%	2,963	54%	5,953
Intermittent Preventive Treatment	0	0%	2,425	100%	2,425
Epidemic Preparedness & Response	0	0%	260	100%	260
HIV/Malaria	0	0%	0	0%	0
Capacity Building	0	0%	150	0%	150
Private Sector Partnerships	0	0%	0	0%	0
Monitoring & Evaluation	0	0%	1,175	0%	1,175
Administration	0	0%	1,585.7	0%	1,584.7
Grand Total	**18,577**	**53%**	**16423**	**47%**	**35,000**

* Non-Commodity Costs includes BCC

BCC - Mainland has been broken down as follows:	
ITN	1,000
IRS	500
Case Management	500
IPTp	500
Total	**2,500**

BCC - Zanzibar has been broken down as follows:	
ITN	50
IRS	50
Case Management	50
IPTp	25
Total	**175**

Note: Larviciding (Urban Malaria Control) is within IRS

ANNEX Q.4: TABLE 4 – BUDGET BREAKDOWN BY PARTNER

Table 4

President's Malaria Initiative - Mainland Tanzania and Zanzibar
Year 4 (FY09) Budget Breakdown by Partner ($000)

Partner Organization	Geographic Area	Activity	Budget	Total
ACCESS	Mainland	H.4.a Malaria in Pregnancy	1,800	1,900
	Zanzibar	H.4.b Malaria in Pregnancy	100	
CDC	Mainland	L.1 Capacity Building NMCP FELTP	150	810
	National	P.4 CDC Technical Advisor	500	
	National	P.5 CDC Administrator	60	
	National	P.6 CDC Admin & Technical Support	85.7	
IHI	Mainland	I.1.b RDT Procurement, Implementation & Support	165	165
JHU BCC COMMIT	Mainland	H.5.a BCC	2,500	2,500
MEASURE DHS III	National	O.4 Implementation of 2009 TDHS	400	400
MEDA	Mainland	H.1.a Support for Universal Campaign	10,250	13,187
	Mainland	H.1.b Under Five Catch-Up Campaign	1,600	
	Mainland	H.1.c Support to TNVS	1,200	
	Zanzibar	H.1.d ITNs - Zanzibar	137	
MSH	Mainland	I.2.b Private Sector ACTs	300	300
NMCP	Mainland	O.1.a Strengthening HMIS & Support Supervision	75	275
	Mainland	O.3.a Entomologic Monitoring	200	
RTI	Mainland	H.2 Urban Malaria Control	500	8,880
	Mainland	H.3.a IRS	7,265.3	
	Zanzibar	H.3.b IRS	500	
	National	J.1 Epidemic Surveillance & Response	260	
	Mainland	O.2.a Sentential Surveillance Sites	300	
	Zanzibar	O.2.b Sentential Surveillance Sites	70	
TBD	Mainland	I.1.a Diagnostics Support	400	575
	Zanzibar	H. 5.bBCC	175	
T-MARC	Mainland	I.2.e ACT Promotion and Awareness	250	250
USAID	National	P.1 USAID Technical Advisor	500	940
	National	P.2 USAID FSN	60	
	National	P.3 USAID Admin & Technical Support	380	
USAID | DELIVER	Zanzibar	I.1.c RDT Procurement, Implementation & Support	240	3,325
	Mainland	I.2.a ACT Procurement	2,335	
	National	I.2.d Malaria Commodity Logistics	500	
	Zanzibar	I.2.f ACT Procurement	250	
World Vision	Mainland	H.1.b Under Five Catch-Up Campaign	200	400
	Mainland	H.1.c Support to TNVS	200	
ZMCP	Zanzibar	I.1.d RDT Procurement, Implementation & Support	138	293
	Zanzibar	I.2.g Health Worker Training	25	
	Zanzibar	O.1.b Strengthening HMIS & Support Supervision	30	
	Zanzibar	O3.b. Entomological Monitoring	100	
ZTC	Mainland	I.5 Health Worker Training	800	800
GRAND TOTAL			**35,000**	**35,000**