



PRESIDENT'S MALARIA INITIATIVE



INDOOR RESIDUAL SPRAYING FOR MALARIA CONTROL

Ethiopia FY08 Work Plan

Indoor Residual Spraying (IRS) Indefinite Quantity Contract (IQC)
Task Order 1

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I. Introduction, Background and Summary of Country MOP

The U.S. Agency for International Development (USAID) has identified Ethiopia as one of the countries to receive funding under the President's Malaria Initiative (PMI). The Ethiopian Federal Ministry of Health (FMOH), through the National Malaria Control Program and Regional Health Bureaus (RHB), would like to make greater use of a number of effective malaria interventions, including Indoor Residual Spraying (IRS) as the means through which to achieve a significant reduction in the impact of the malaria burden on the Ethiopian population. In recent discussions, USAID and the National Malaria Control Program (NMCP) identified the Oromia Region as the principal area for PMI support in general, and IRS activities in particular. IRS has a long history of use in Ethiopia and is still a key component of the national malaria control strategy. However, shortages of equipment, human resources, and operational funds have led to limited coverage. Thus, during the 2008 IRS round, USAID through PMI, plans to support IRS operations, procurements, monitoring and evaluation, and environmental compliance and control in the Oromia Region of Ethiopia.

The Ethiopia IRS program under PMI will run from 2008 to 2010. The aim of the IRS intervention will be to lower the malaria incidence and reduce the frequency of malaria epidemics.

RTI International, Inc. (RTI) is the prime contractor for USAID's Indoor Residual Spraying IQC. Under the Indoor Residual Spraying IQC Task Order, USAID has requested that RTI provide technical support to the anticipated IRS program in Ethiopia.

This work plan covers the period from October 2007 to December 2008.

General Goal

To provide technical, strategic, managerial and operational support to implement IRS, in realization of PMI's goal of reducing malaria-associated mortality within the Oromia Region of Ethiopia.

Specific Goal

In targeted areas of Oromia Region, achieve 50% malaria related mortality reduction through greater than 85% population coverage with IRS in targeted areas.

Objectives

As indicated in the Malaria Operational Plan (MOP) for Ethiopia, during FY 2008, with direction from USAID/Ethiopia, and in collaboration with the NMCP, Oromia Regional Health Bureau, and other Roll Back Malaria (RBM) partners in health and other related sectors, RTI will support IRS and other activities aimed at significant morbidity and mortality reductions in accordance with PMI targets by 2010; specifically:

- Undertake the necessary environmental review and compliance, through the preparation of Environment Assessment (EAs) and quality control mechanisms, including at the Adami Tulu pesticide plant, to obtain the necessary endorsements and to ensure compliance with the Ethiopian government statutes.
- Support the implementation of technically sound IRS activities in targeted areas of Oromia in order to annually protect up to 1.7 million people from malaria between 2008 and 2010.
- Build sufficient capacity of the NMCP and Oromia RHB malaria control structures to enable them carry out IRS planning, organization, and management and to undertake safe and effective IRS independently in future.
- Facilitate the building of the monitoring and evaluation capability of the Oromia RHB, which is relevant for program improvement, including performance monitoring and adherence to WHO IRS technical standards and procedures.

Through work-planning discussions with the Oromia RHB, the East Showa zone and select districts in Arsi and West Arsi zones have been identified as the target support area for IRS activities in 2008. It is intended that RTI will work with the RHB and Zonal and District health offices to strengthen the quality of spray operations, improve data gathering and mapping to assist with future targeting of IRS, and monitor the effectiveness of the intervention within the zone, with a view to expanding to additional zones in Oromia Region in subsequent years.

Expected Results

In targeted areas of Oromia Region, more than 1.7 million people will have been protected through judicious application of IRS to households during the life of the project (2008-2010).

II. Overview of Strategy for IRS Country Support

RTI is the prime contractor for USAID's IRS IQC. Under the IRS IQC Task Order, USAID has requested that RTI provide technical support to the IRS program in Ethiopia. While RTI is the prime contractor, there are various IQC, and national partners with whom RTI will be working.

- Crown Agents Ethiopia, an IRS IQC partner with RTI, will assist RTI with procurement of IRS materials and equipment, and provide logistics support as needed.
- Oromia Regional Health Bureau, RTI's main national partner, will work with RTI to organize and participate in IRS preparation, implementation and evaluation activities, provide supervision for zonal and district health office personnel working on IRS, and document IRS activities and findings after spray operations are completed.
- Oromia Zonal and District Health Offices for target areas will work with RTI to develop district-specific activity plans and a schedule of IRS operations, and will provide supervisory personnel for IRS activities in target areas.
- RTI will support Ethiopia's FMOH, NMCP, Oromia Regional Health Bureau, district health teams, CAME (Coalition Against Malaria in Ethiopia) and other stakeholder institutions to form and maintain a national IRS coordinating committee.

- RTI will coordinate the formation of a comprehensive entomological monitoring body for Oromia Region by working with relevant partners including the Ethiopian Health Nutrition Research Institute (EHNRI) and Addis Ababa University's Laboratory of Pathobiology.
- RTI will also work in collaboration with the FMOH/NMCP, USAID, CDC, Ministry of Agriculture, National Environmental Protection Authority (EPA), WHO and other implementing partners as directed by USAID.

III. Project Activities

Start-up

RTI will initiate country activities by undertaking a project start-up visit to meet with USAID/Ethiopia, the FMOH and the Oromia Regional Health Bureau. This visit will serve to outline activities to be supported under PMI and begin discussions on target areas, program needs and IRS planning. *(RTI conducted a start-up visit October 20 – November 9, 2007).*

Planning and Assessment

- Logistics Planning: Through a collaborative process with the Oromia Regional Health Bureau and district officials, RTI will determine the materials, logistical, and financial support required for the IRS program and associated environmental compliance activities. RTI will engage district officials in the planning process to establish their capabilities to plan future IRS operations. These actions will comply with USAID requirements and WHO guidelines and specifications.
- Environmental Assessment and Compliance: RTI will conduct an environmental review that satisfies the regulatory requirements of 22 CFR 216 and prepare an Environmental Assessment (EA). The EA will document results of the review and will detail procedures that must be followed to minimize potential risks to human health and the environment from the use of pesticides in IRS. The EA will be prepared in close collaboration with designated staff and officials of relevant Ethiopian ministries, e.g. Health, Agriculture, and Environment. The review will also identify any specific legal requirements that must be met under Ethiopian law before the IRS program can proceed. Following a public hearing for the use of DDT in the Oromia Region, RTI will facilitate the FMOH and Oromia Regional Health Bureau to fulfill any environmental regulatory requirements through providing the necessary TA to undertake the task. *(The EA was submitted to USAID on March 28, 2008 and was approved on June 24, 2008).*
- Environmental Monitoring and Compliance: The purpose of an environmental monitoring and compliance plan is to assist IRS operations in the safe use of insecticides, specifically DDT, to minimize potential risks to human health and the environment. The intent of the environmental monitoring program is to establish best practices for sampling and analyzing exposure concentrations from insecticides used for IRS. The monitoring program will focus on agricultural products and environmental exposure pathways and will include a sampling plan and a quality assurance plan.

- **Pesticide Selection:** The government of Ethiopia has already formulated an IRS strategic framework covering three classes of insecticides: organophosphate, organochlorides, and pyrethroids. For the 2008 IRS campaign, di-chloro di-phenyl tri-methyl chloride (DDT) 75% WP will be used in line with the country's IRS guidelines and existing practices. RTI and its partner LATH shall assess the susceptibility status of the principal vector to the various insecticides, including DDT and malathion in 2008, the results of which will guide the selection of insecticide for IRS activities beyond 2008.

Procurement and Logistics

- **Procurement:** In light of sufficient quantities of DDT being available, RTI does not anticipate making any significant insecticide purchases for the 2008 malaria season, but will facilitate the in-country transportation and safety of the products. RTI will, however, in coordination with its partner Crown Agents, arrange all procurement, shipping, delivery, and storage of other essential materials and equipment, including compression sprayers, personal protective equipment (PPE), and supplies for entomological surveillance. These actions will comply with USAID requirements and WHO guidelines and specifications.

Current procurement needs include (but will not be limited to):

- 970 compression sprayers
- 300 spare part kits
- 1500 sets of PPE
- Malaria Reference Center insectary equipment as identified by the RHB (please see table below)

Item	Unit	Quantity
Enamel Tray	each	30
Enamel Tray	each	30
Beaker (250cc)	each	80
Mosquito cage	cage	20
Pipette	box	10
Petrie dish	each	100
Heater Turbo	each	6
Humidifier	each	6
Thermometer (max min in C°)	each	10
Thermometer (max/min in Fahrenheit)	each	10
Thermometer max/min wet and dry bulb	each	10
Filter paper		100
Wax pencil	each	30
Distiller, aquatic	each	6

Distiller spare parts	each	4
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Additional procurement needs will be quantified following the micro-planning meeting with target districts.

- **Pesticide Management:** In accordance with the EA, RTI will implement a strict chain-of-custody system of pesticide management to ensure that all insecticide is accounted for at every step of the program implementation process. Storekeepers and district supervisors will receive sufficient training on insecticide tracking and record keeping. A DDT control officer will be identified in the district to monitor insecticide movement and distribution throughout the district. All empty sachets will be collected at the end of each day and double checked against earlier distribution records.

IEC Development and Implementation

- **IEC Development:** In prior years, Information, Education, and Communication (IEC) specific activities have not been conducted in Ethiopia. While the district health offices maintain some health education materials in support of malaria control and prevention, there has been no formal IEC campaign conducted as part of IRS activities in Ethiopia. RTI plans to discuss IEC strategies for use in Ethiopia with regional, zonal and district health officers during the district micro-planning meeting prior to IRS. In consultation with these partners, RTI will develop an IEC plan to be piloted during IRS campaigns in target districts to include:
 - Radio spot messages
 - Community sensitization and mobilization by malaria agents and health extension workers (HEWs)
- **IEC Campaign:** RTI will support the Regional Health Bureau in IEC/BCC/community mobilization by carrying out effective community mobilization campaigns to increase the promotion of IEC for spraying activities. These activities will be aimed at educating communities on what IRS is, its benefits and risks, and proper procedures for safety and community participation. A key message that will also be delivered will regard the replastering of houses and the length of time home owners should wait before undertaking this activity. Sensitization messages will be disseminated throughout the target communities beginning two weeks prior to spray activities in the target district, and will continue throughout spray operations. The IEC campaign will include pre and post-spray surveys to ascertain how IRS is perceived and how to better target communication and outreach prior to and during the spraying exercises.

Indoor Residual Spraying Operations

RTI and its partners will provide operational support for IRS implementation, including all aspects of training, logistics, supervision, monitoring, and quality assurance. RTI will assist the Oromia Regional Health Bureau in implementing an efficient IRS program with quality control measures in conformity with WHO and other international guidelines. Within the 3 Zones in Oromia chosen for PMI IRS support in 2008 (East Shoa, Arsi and West Arsi), a total of 23 target

districts have been identified. RTI will engage Ethiopian staff as necessary to collaborate with RHB staff to oversee the work of the IRS teams on the ground. The program will also receive technical, logistical and administrative back up from our Nairobi and Washington project offices. The following activities will be conducted in support of day-to-day operational management.

- Micro-planning: RTI will assist in the organization of a yearly micro-planning meeting where RTI, RHB and other key stakeholders shall identify the number of zones, districts, and villages to be included in USAID-supported IRS operations. A detailed plan of action will be prepared to include the setup and organization of spray teams, supplies, insecticide requirements, transport, date and itinerary for each spray team, number of houses, and estimated time period needed to complete the spraying for each district. (*Micro-planning meeting was held on April 16th and 17th and representatives from each district attended, save for Dugda district*).
- Organization of Spray Teams: In collaboration with the RHB, RTI shall organize the spray teams in such a way that effective implementation of the IRS activities and adequate safeguards to prevent pilferage of insecticides for non-vector control uses will be ensured. RTI intends to work with the RHB to maintain a staffing structure where team leaders and direct supervisors of spray men are permanent RHB employees (e.g. malaria control and environmental health officers at district level) who would be accountable for IRS implementation and any misconduct that may happen during field operations.
- Mapping: In collaboration with other partners, RTI will develop a strategy to allow the targeting and mapping of houses for IRS, which will promote improved planning, monitoring and evaluation of implemented IRS activities. For the 2008 campaign, such mapping will be undertaken in the target areas of East Showa, Arsi and West Arsi where it is anticipated all sprayed houses will be mapped using personal digital assistants (PDAs) and geographical information systems (GIS).
- Training: RTI and its partners will work with the RHB to identify stakeholders at national, regional and district levels, and create awareness about IRS at these levels for policy and administrative authorities. RTI will determine the number of required personnel for IRS, from spray operators to team leaders to supervisors and logisticians. RTI will conduct and/or assist in comprehensive (refresher) training for all health professionals and spray men involved in IRS activities. Training modules for trainees will be adapted to include sections on malaria prevention and control, IRS environmental compliance, and monitoring and evaluation. Training will also be provided on the use of GIS/GPS-based mapping of households and data collection, as well as management of the collected data. RTI will work with the RHB to run awareness workshops for health workers in health facilities to support IRS in management of insecticide poisoning and ensuring pharmaco-vigilance. RTI will work with the EPA in training Zonal and District store keepers to enable them to manage stock effectively. Other support cadres such as drivers will also be trained to enable them work in the same environment to improve their own safety and those of fellow workers.

- Adaptive Management: Following successful operations on the ground, each district will carry out an in-depth assessment of “their” IRS activities, involving all stakeholders; including: the FMOH, RHB, RTI, malaria program and local government leadership, looking at lessons learnt, challenges and key outcomes in terms of coverage and impact of the last cycle. The key outcomes will then be shared with regional and national levels. Recommendations will then be made to improve the following IRS round in terms of planning and logistics.
- Implementation and Supervision: RTI will intensively collaborate with the RHB to successfully implement IRS activities according to the plan of action developed in the micro-planning meeting, which will include continuous supervision of spray teams, liaison with the population and local leadership, and on-the-job training as well as ensuring that the operational support to successfully complete IRS activities is made available. During spray operations, RTI will provide financial support to the district health teams for the payment of daily rates of spray men, guards and other seasonal hires, as well as per diem for government employees tasked with IRS roles.

Each district health office will identify one or two (depending on the size of the target district) service areas (with an attached permanent camp site) from which IRS operations for the district will be controlled. IRS squads will be transported to and from district service areas at the beginning and at the end of each work day. Each service area will consist of wash areas, insecticide and equipment storage areas suitable to the needs of the squads necessary to implement IRS operations in that particular district.

Within the 3 Zones chosen for PMI IRS support in 2008 (East Shoa, Arsi and West Arsi), a total of 23 target districts have been identified. Through discussions during the district micro-planning meeting, RTI will work with districts to determine start dates and length of IRS operations for this year’s campaign. *(District micro-planning meeting was held on 16th and 17th of April and an IRS start date of May 19th was decided, with anticipated 30 days of actual work, using a 6 day work week, for the spray campaigns in each district. In consultation with the Regional Health Bureau, the start date for operations has since been revised to June 23, 2008).*

Other Activities

- Entomological Surveillance: RTI and its partners will establish entomological surveillance sentinel sites in selected districts of Oromia Region, provide technical assistance and/or training for health professionals who will be involved in the entomological work, supply all the necessary entomological equipment for the sentinel sites, co-coordinate and lead the entomological surveillance. The entomological surveillance should include (but should not necessarily be limited to) monthly monitoring of larval and adult mosquito densities and species composition, and bioassay tests to evaluate the efficacy and residual effect of insecticides using a susceptible colony of the vector, as well as yearly monitoring of insecticide susceptibility using field collected mosquitoes for the three main classes of insecticides in 10 selected sites including 4 entomological sentinel sites. Data on the resting and feeding habit of the vector species

will also be collected. In general RTI and its partners are expected to provide sufficient entomological information to guide in-country vector control measures.

- Support for Environmental Compliance at Adami Tulu Plant: RTI will support the existing quality control laboratory at the plant and the training, safe handling, storage and transport of DDT. Systems will be reviewed and developed that will enable the tracking, use, and disposal of produced insecticide and sachets. To the latter end, an option to leverage funds for the procurement of an incinerator will be assessed. Technical assistance will be provided to explore collaboration with FAO, UNEP, the Global Environment Facility and other stakeholders.
- Rehabilitation of Adama Malaria Reference Training Center: Following a needs assessment and discussion with USAID and the RHB, RTI will rehabilitate and equip the Adama Malaria Reference Training Center, including the training and entomological laboratories, insectary, animal house, and storage facilities; operational systems for the use of the facilities will be reviewed and established in conjunction with the RHB and USAID, with training center staff trained in their use. It is hoped that the GoE will be able to match funding for refurbishment and will also provide funding for operational costs.
- Capacity Building: RTI and its partners will develop increased operational capacity of the Ethiopia NMCP at the central, regional and district levels to conduct safe and well-managed IRS programs in the future. RTI will utilize a mentoring and “training of trainers” approach to develop increased operational capacity within the program and increase technical skills of Regional, Zonal and District level staff. RTI will also support entomological training for district malaria officers and environmental health workers to strengthen their capacity for entomological surveillance at district level, especially in those districts selected as entomological sentinel sites. Additionally, RTI will provide field training opportunities in the form of “learning by doing” to district officials such as district environmental managers and district malaria control workers on environmental monitoring and entomological surveillance.
- Support for Malaria Indicator Survey: The 2007 Malaria Indicator Survey (MIS) will be undertaken to provide information to address the monitoring and evaluation needs of the various programs implemented by the MOH, NMCP, the Malaria Control Support Team (MCST) and other stakeholders. The MIS will collect information on coverage of core malaria interventions (including indoor residual spraying, net coverage, and net use), household risk factors, use of health services, malaria parasite prevalence, and anemia status in children. The main objective of the malaria survey will be to measure progress toward achieving the goals and targets set in the Ethiopia National Strategic Plan for Malaria Prevention and Control (NSPMPC) 2006-2010. RTI will provide support for activities to prepare and carry out the survey in Ethiopia by acting as a funds ‘pass through’ agent for the Carter Center in Ethiopia as requested by USAID (*This work was performed by the Carter Center September through August, 2007*).

IV. Management Plan

RTI will establish an effective and efficient management structure in Ethiopia to implement the IRS program with quality control measures, in conformity with international standards as described in WHO guidelines on IRS. RTI will identify and hire a Chief of Party (COP) based in Addis Ababa, who will ensure that all of RTI's corporate systems and procedures are mobilized appropriately to support management of this project. S/he will be the principal point of contact with PMI and will bear ultimate responsibility for all project management tasks, including quality and cost control, performance monitoring, reporting, and client relations. The COP will retain overall responsibility for managing RTI and partner activities in Ethiopia. S/he is the key point person for the project and will oversee spraying activities; coordinate with PMI, the FMOH and Oromia RHB on project performance and implementation issues. The COP will be joined by a Finance Officer and Logistics Officer to assist with coordination and implementation of all IRS related activities.

In addition, RTI will hire 3 technical coordinators who have excellent knowledge, skills and practical experience of malaria entomology and IRS. These technical coordinators will provide technical support to the Regional, Zonal and District health offices in the IRS planning, training of health professionals and spray men as well as implementation and reporting of IRS and entomological activities. The technical coordinators will also assist in system strengthening and monitoring and evaluation of implemented IRS and entomological activities.

Currently, RTI has identified the need for the following technical expertise for the coordinator positions:

- Entomology
- Environmental management and procedural quality
- Information management

Depending on project requirements, other technical or administrative staff will need to be hired.

RTI also plans to work with the Oromia RHB to identify gaps in and strengthen capacity at the Zonal and District health levels. In the event that human resource gaps are identified, RTI will work with the RHB to support the recruitment of capable staff to fill vacant and necessary positions for IRS sustainability.

RTI intends to recruit Ethiopian citizens for all in-country positions. RTI will work to ensure that each level within the IRS structure is connected with counterparts within the Federal Government of Ethiopia. The Chief of Party will interface with top level staff at Oromia RHB, NMCP, other Federal Government agencies, while the other technical staff will work directly with Zonal and District Health Offices, Environmental Coordinators, local government leadership, and other sector level site managers. Patricia Preware (RTI/Washington) will serve as Task Manager and will provide home-office backstop functions. The in-country team will also receive technical and administrative support from RTI staff in Nairobi and Washington.

Strategic Technical Assistance and TDY Plan

The Ethiopia IRS program will be supported by RTI staff in the Nairobi Regional Office, as well as the Washington DC home office. The following technical and administrative assistance will be provided:

- Overall technical strategy development
- Work plan and budgeting assistance
- Orientation and training in RTI and USAID systems
- IRS and IEC training
- Environmental assessment, monitoring and compliance
- Financial management
- Operational quality assurance
- Entomological monitoring assistance

The table below provides a summary of TA to be provided.

Table 1: Strategic Technical Assistance and TDY Plan

Name	Type of TA (consultant, RTI employee, local, international)	Coming from (USA or Nairobi)	Tasks to be undertaken or activities to be supported	Number of visits
Patricia Preware	RTI employee	USA	Technical and administrative support under the role of country task manager to include work plan and budget development, overall project management and operations assistance	4
Cheri Brown-Alexander	RTI employee	USA	Administrative support under the role of project administrative specialist for the country project to include orientation to RTI and USAID administrative procedures and management	1
Eugene Brantly	RTI employee	USA	Technical support under the role of IRS project director to include work plan development and overall technical strategy development	1
John Chimumbwa	RTI employee	Nairobi	Technical support under the role of technical director for the IRS program to include training of trainers and key national technical meeting attendance	2
Joaquim Canelas	RTI employee	Nairobi	Operational and logistics support under the role of operations and logistics director for the IRS program to include logistical assessments and needs planning	1
Jacob Williams	RTI employee	USA	Environmental Assessment development and follow-up, under the role of IVM technical director to include preparations for environmental compliance and trainings	3
Tito Kodiaga	RTI employee	USA	Environmental monitoring and compliance support under the role of environmental scientist for the IRS program to include environmental monitoring plan development, trainings and assessments	1
Sam Mesfin	RTI employee	Nairobi	Financial management support under the role of comptroller for the IRS program	2
Autman Tembo	RTI employee	Nairobi	Undertake environmental compliance inspections and reporting under the role of environmental compliance inspector for the IRS program	1
Entomologist (TBD)	Consultant	Ethiopia	Entomological baseline monitoring and preliminary activities until a full time candidate has been successfully recruited	1

V. Monitoring and Evaluation

RTI and its partners will plan, implement and document a monitoring and evaluation component for IRS operations. RTI will collect baseline data that will also involve geographical reconnaissance to verify estimates for logistics on the ground, including vector bionomics. Through LATH and MRC, RTI will review indicators, methods, and data sources for monitoring and evaluation of IRS operations with CDC, USAID and FMOH/NMCP, and will develop a Performance Monitoring Plan.

1. *Operational Indicators.* With regard to operational achievements RTI will ensure that the recommended dosages of insecticides are being used, that the quality of the insecticides are the required standard, that the percentage of houses and rooms sprayed in relation to the targeted number of houses or rooms are adequate and that the insecticide is applied at the appropriate time in relation to the onset of transmission. Ethiopia's New Year coincides with peak transmission of malaria and most Ethiopians are presumed to plaster their houses for the holiday. If the proportion of houses re-plastered after spraying is relatively high, it is very clear that the activity negatively affect the outcome of the intervention. Hence, houses will also be checked for re-plastering.

Process and output indicators will include:

- Number of people who have been trained with U.S. government (USG) funds to deliver IRS according to protocol;
- Number of occupied houses in the IRS program target area sprayed with a residual insecticide in the most recent round with USG funds;
- Number of occupied houses in the IRS program target area sprayed with a residual insecticide / total number of occupied houses;
- Percentage uptake of IRS IEC/BCC messages one week and three months after dissemination;
- Number of IRS IEC materials printed and disseminated in the target communities;
- Number of children under 5 residing in houses sprayed with a residual insecticide;
- Number of pregnant women residing in houses sprayed with a residual insecticide; and
- Number of houses with re-plastered walls within three months of IRS / total number of houses sprayed.

2. *Entomological Indicators.* Entomological surveillance will be carried out to ensure the (entomological) impact of IRS activities as well as to assess insecticide susceptibility over time. RTI shall collaborate with the Centers for Disease Control and appropriate in-country entities, organizations and academic institutions to deliver these services, e.g., RHB Adama Malaria Reference Training Center, Addis Ababa University Pathobiology Laboratory, and Ethiopian Health Nutrition and Research Institute.

RTI shall maintain records of program performance which will demonstrate adherence to WHO technical standards quality of training and supervision, procurement activities and environmental compliance, including environmental monitoring.

Entomological indicator data to be collected in entomological surveillance will include:

- Proportion of gravid and half gravid mosquitoes collected from sprayed houses to total female mosquitoes collected;
- Proportion of parous mosquitoes collected from sprayed houses as compared to pre-spraying period of the same village or compared with non-sprayed villages;
- Average number of mosquitoes collected per house per night or per house per one person bait as compared to pre-spraying time within the same village and compared with non-sprayed village;
- Larval density per 100 dips comparing sprayed and unsprayed villages;
- Number of insecticide resistance tests done as compared to original plan;
- Number of bioassay tests performed as compared to the plan; and
- Number of villages surveyed for vector population as compared to the plan.

Deliverables

RTI anticipates preparing the following deliverables and will consult with USAID/Et hiopia, the FMOH/NMCP, and USAID's CTO for the IRS IQC to confirm the formats and schedule for the following reports:

- Pre-Operational Period
 - Supplemental Environmental Assessment (SEA)
 - Memorandum of Understanding (documenting environmental compliance requirements; to be agreed among USAID, RTI and cognizant Ethiopian ministries (e.g., Health and Environment))
 - Logistics Assessment
 - IRS Work Plan, including
 - Operations Schedule
- Operational Period
 - Weekly progress reports
- Post-operational Period
 - End of Round Spraying Performance Report
 - Annual Report
- Quarterly Financial Report (including 1-2 page narrative on progress)
- Reporting inputs to USAID reporting systems (e.g., MORA, PMI, and FY OPs)

Attachment 1: Ethiopia Implementation Plan and Timeline

For period from October 2007 to December 2008

Component	Activity	Person/ partner Responsible	Project Month												Key Milestones			
			O	N	D	J	F	M	A	M	J	J	A	S		O	N	D
Project Start-up/ Mobilization	Project scoping visit		X															Country work plan approved by USAID. MOU/aide memoire signed.
	Project planning visit with USAID and NMCP, Oromia RHB					X												
	Conduct district micro-planning meeting	RTI							X									
	Hire staff required for IRS operations	RTI						X	X	X	X							
	Establish satellite offices	RTI								X								
	Sign MOU/aide memoire with NMCP and DPS	RTI, NMCP									X							
	Work plan submitted	RTI							X									
Planning and Assessment	Conduct logistics planning meetings with district offices	RTI							X									Logistics & baseline entomology assessments completed. SEA approved. Pesticide selected.
	Conduct environmental review	RTI	*	*														
	Conduct public comment meeting	RTI, NMCP, RHB	X															
	Prepare and submit Supplemental Environmental Assessment	RTI	X	X	X	X	X	X										
	Prepare and submit environmental monitoring and compliance plan	RTI								X	X							
Procurement and Logistics	Select pesticide	USAID, FMOH/NMCP	*	*														Technical specifications released. Vendors selected. Insecticide, PPE and equipment delivered
	Develop technical specifications for equipment	RTI						X	X									
	Release tender notice for procurements	RTI, Crown Agents							X	X								
	Review and select vendors	Crown Agents								X								
	Receive PPE, and equipment	Crown Agents, RTI								X	X							
	Identify district storage and warehouses	RTI, DPS								X								
	Transport equipment and materials to storage facilities	RTI, Crown Agents								X	X							
	Transport insecticide from zonal warehouse to district storage areas	RTI, Zonal health offices								X								
	Train storekeepers and district supervisors on insecticide tracking and record keeping	RTI								X								
	Identify and train a DDT control officer in districts	RTI								X								
Arrange and oversee transportation of IRS personnel, equipment and insecticide									X	X	X							

Component	Activity	Person/ partner Responsible	Project Month												Key Milestones			
			O	N	D	J	F	M	A	M	J	J	A	S		O	N	D
	Collect empty insecticide sachets and check against distribution records	RTI											X	X				
IEC Development & Implementation	Tailor IEC materials for local use	RTI								X	X							
	Train staff and district personnel in IEC	RTI IEC Coordinator								X	X							
	Disseminate IEC messages via radio, workshops, pamphlets	RTI								X	X	X	X					
	Conduct IEC mobilization	RTI									X	X	X					
	Conduct pre- and post-spray surveys on IEC effectiveness	RTI									X			X				
Spraying Operations	Perform logistics assessment and geographical reconnaissance at district level	RTI							X									
	Recruit and hire spray personnel	District health offices								X								
	Conduct training of trainers (TOT) and spray operator training	RTI, DPS									X							
	Perform pre-, during, and post-operational inspection of environmental safety measures	RTI								X	X		X					
	Hire vehicles for logistics support	RTI								X	X							
	Conduct spraying	RTI, DPS, DHOs									X	X	X					
	Conduct mop-up visits	RTI, DPS, DHOs										X	X					
	Conduct monitoring visits	RTI, Multi-sectoral monitoring committee									X	X	X					
	Collect, clean, enumerate, and store materials and equipment	RTI											X	X				
Monitoring & Evaluation	Meet with NMCP, CDC, and USAID to discuss monitoring and evaluation plan	RTI										X	X					
	Review indicators and develop a Performance Monitoring Plan	RTI									X							
Other Activities: Reporting	Submit quarterly financial report	RTI			X			X			X			X				
	Submit end of spray round report	RTI												X				
Other Activities: Entomological	Develop baseline and post-IRS vector collection and data analysis plan	RTI, CDC							X	X								

Component	Activity	Person/ partner Responsible	Project Month												Key Milestones				
			O	N	D	J	F	M	A	M	J	J	A	S		O	N	D	
Monitoring	Perform baseline and post-spray entomological assessments	RTI, LATH										X			X				
Other Activities: Capacity Building	Conduct refresher training for spray operators and supervisors	RTI										X							
	Assist NMCP,DPS, DHOs in development of planning and reporting tools	RTI							X						X				
	Develop sustainability plan with NMCP, DHOs	RTI													X				

** Activity completed prior to work plan period.

Attachment 2: Ethiopia Countdown Calendar

For period from October 2007 to December 2008

Component	Key Milestone	Date to be Completed	Status (e.g., date achieved)	Antecedent to:
Project Start-up/ Mobilization	Country work plan approved by USAID	May, 2008		Producing MOU and/or aid memoires
	MOU/aide memoire signed with government and/or key partner	June, 2008		Initiating planning activities with government and/or key partners
Planning and Assessment	Logistics assessment completed	April, 2008	Achieved April 2008	Planning scope and scale of operations and procurement to be required
	Baseline entomology assessment completed	June, 2008		Pesticide selection
	Agreement reached with USAID and government on pesticide selection	**	Achieved (2007)	Permission for spray operations
	Environmental Assessment completed	March, 2008	Achieved March 28, 2008	Finalization of EA and approval
	EA approved by USAID	April, 2008	Pending	Permission for spray operations
	EA approved by national environmental agency, if required	N/A		Procurement
Procurement & Logistics	Technical specifications for tenders approved and released	March, 2008	Achieved April 4, 2008	Ordering supplies for spraying
	Vendor selection and procurement process completed	End of May, 2008	Pending	Delivery of supplies for spraying
	Compression sprayers delivered	Mid May, 2008	Pending, expected arrival May 27, 2008	Spray operator training
	Insecticide and PPE delivered	Mid May, 2008	Pending	Initiation of spray operations
IEC Development & Implementation	IEC material designs and implementation plan approved	June, 2008		Production of materials
	IEC materials produced and delivered to project	June, 2008		Training of IEC implementers
	Training of IEC implementers completed	Beginning of June, 2008		Implementation of IEC campaign
	IEC campaign launched	Beginning of June, 2008	Spr	aying operations
Spraying Operations	Geographic reconnaissance completed	May, 2008	N/A, Ethiopia teams already aware of district areas	Team assignments and logistics arrangements
	District staff recruited, oriented and trained	Mid May,	Ongoing	Completion of operational logistics and

		2008		EM set up
	Operational logistics and environmental mitigation set up at operational sites	Mid May, 2008	Ongoing, expected completion June 20, 2008	Spraying operations
	Training of spray operators completed	Mid June, 2008	Spr	aying operations
	Spray operations launched	June 23, 2008		
	Spraying operations completed	Mid August, 2008		Recapture and proper management of equipment and supplies
	Equipment and supplies recaptured and securely disposed or stored	End of August, 2008	Env	ironmental compliance
	Post-spraying evaluation conducted	September, 2008	Fi	nal report production
	Final report produced and submitted to USAID	End of October, 2008		

** Activity occurred prior to current work plan period