



PRESIDENT'S MALARIA INITIATIVE

INDOOR RESIDUAL SPRAYING FOR MALARIA CONTROL



Liberia FY09 Work Plan

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

Contract GHN-I-01-06-00002-00

Prepared for:
United States Agency for International Development

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RTI International is one of the world's leading research institutes, dedicated to improving the human condition by turning knowledge into practice. Our staff of more than 3,800 provides research and technical services to governments and businesses worldwide in the areas of health and pharmaceuticals, education and training, surveys and statistics, advanced technology, international development, economic and social policy, energy, and the environment. RTI also employs about 1,200 term employees who support projects in more than 40 countries. For more information, visit www.rti.org.

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I. Introduction and Background

Malaria is the leading cause of death in Liberia and accounts for a large share of in- and outpatient utilization of health facilities. Along with the direct loss of life and health, the economic burden from malaria is enormous. Transmission of malaria occurs on a year round basis nationwide in Liberia.

Under the President's Malaria Initiative (PMI), the United States' Agency for International Development (USAID) awarded RTI International (RTI) the Indoor Residual Spraying (IRS) indefinite quantity contract (IQC) and Task Order 1 (TO1) under that IQC. Under the terms of TO1, USAID/Liberia has requested that RTI work with Liberia's Ministry of Health (MOH) and its National Malaria Control Program (NMCP) to provide technical assistance and support to IRS and other malaria control and prevention activities in Liberia.

Since 2003, several international nongovernmental organizations (NGOs) have worked with the Liberian MOH to conduct small-scale IRS in Liberia, mostly as a part of relief work in camps for refugees or internally displaced persons. The Mentor Initiative, Medecins Sans Frontieres (MSF), Project Concern, Merlin, Smile Africa and Swiss Development Cooperation have all been involved in IRS activities around the country. Liberia has made great strides in the years since conflict ceased. As Liberia moves further away from the years of conflict and upheaval, conditions are better suited for the use of IRS on a larger scale to address the urgent need for malaria prevention. The Liberia NMCP is an enthusiastic partner eager to take on the IRS challenge, but needing skills, resources, and capacity.

The PMI will support IRS through RTI's TO1 in fiscal year (FY) 2009 in Liberia by assisting in procurement of pesticides, support to spray operations, support to ensure that environmental safeguards are in place and the program adheres to environmental regulations, and capacity building in IRS. This work plan and accompanying budget describes those activities, their associated milestones, implementation plan, and costs. This work plan covers the period from January 1, 2009 to December 31, 2009.

II. Strategy for IRS Country Support

The overall objective of the PMI IRS project in Liberia is to help the MOH and the NMCP provide IRS to 85 percent or more of the targeted structures. RTI will work in support of and in full collaboration with the NMCP to support the IRS campaign as an integral part of the government's malaria control program.

It is important to include key stakeholders during planning and implementation and to emphasize an approach that is collaborative and participatory. RTI will work in partnership with the NMCP to plan and implement IRS operations in the target areas. In addition, the IRS program will collaborate with the MOH, NMCP, and other stakeholder institutions and organizations to coordinate IRS activities with other malaria control and prevention activities in country.

Based on contents of the 2009 Malaria Operational Plan (MOP) for 2009 and subsequent consultations with USAID/Liberia, RTI proposes the following indoor residual spraying activities for FY09 (other activities are discussed in the “Special Activities” section).

Environmental Compliance

RTI will conduct a supplemental environmental assessment (SEA) for IRS in Liberia, first for pyrethroid class pesticides for the initial spray round and then for organochlorine class pesticides for possible use in future rounds. The project will ensure compliance with 22CFR 216 and local environmental laws and regulations. RTI will implement an environmental monitoring and compliance program.

Logistics Planning and Procurement

RTI will determine the material, logistic, and financial support required for the IRS program and associated environmental compliance activities, including the procurement, delivery, storage, and distribution of IRS commodities. RTI will manage the use of sprayers, insecticides, and all other supplies required to carry out proposed IRS activities in compliance with Liberia's national policies, World Health Organization (WHO) guidelines, and the best locally available technical information. RTI will also identify secure storage and staging facilities to be used for IRS and bring them into compliance with environmental regulations as specified in the SEA, as well as take all reasonable steps to protect chemicals and equipment from theft and pilferage.

IEC Campaign

RTI will carry out community mobilization, education, and promotion of spraying activities in coordination with IRS operations to ensure maximum community acceptance of the intervention.

Training

RTI will train supervisors, team leaders, spray operators, storekeepers, washers, drivers, clinicians, data managers and other personnel in IRS operations, worker and beneficiary safety, environmental safeguarding, communications, and malaria control and prevention. Training activities will be designed to build the central and peripheral levels' capabilities in the planning and execution of a quality and cost effective IRS campaign and in field data collection and analysis, with an aim to create a core cadre of personnel in Liberia capable of carrying out quality IRS.

Implementation of Spray Operations

RTI will provide operational management support (including field oversight, planning and day-to-day management) of IRS activities and technical assistance. The establishment of an effective management structure in Liberia will allow RTI and the NMCP to efficiently implement the IRS

program with quality control measures and conformity to international standards as described in WHO guidelines on IRS.

III. Activities

Start-up

In November 2008, the RTI home office technical manager (HOTM), Jake O'Sullivan, visited Liberia to initiate program activities, investigate recruitment of program staff, develop partner relationships, and visit potential spray areas to conduct preliminary logistics assessments. Mr. O'Sullivan met with USAID and CDC counterparts, NMCP, and other organizations working in malaria prevention and control in Liberia. Discussions included the generic timeline for implementation of IRS, scheduling of required environmental and logistics needs assessments and RTI's scope of work. The HOTM also visited the NMCP to discuss planning for spray operations and provided additional briefings and presentations on IRS.

Further start up tasks for the first quarter of this work plan period include:

- Conduct the SEA
- Recruit key personnel including the IRS chief-of-party (COP) and finance officer
- Set up IRS program office
- Establish IRS bank accounts and set up project financial management systems
- Initiate recruitment process of district operations team
- Conduct susceptibility tests of malaria vectors to approved pesticides
- Complete geographical reconnaissance of the spray area once site selection is finalized.

Technical Approach

The first round of IRS will be used to suppress transmission of malaria in the homes of 100,000 Liberians and will serve as a training and capacity building exercise for NMCP and others upon which to build future rounds with broader coverage. The objective will be to establish acceptability of IRS, train a cadre of vector control specialists, and verify costs of IRS in the Liberian context. This information and these skills will be used to plan and implement future rounds of IRS.

Planning and Assessment

The first round of IRS will take place in March and April 2009 and will cover approximately 20,000 structures.

Logistics

An initial logistics assessment took place during the HOTM visit in November 2008. Both the suggested urban sites of Red Hill and Crab Hole, as well as the rural site of Mamba-Kaba were visited by a team comprised of RTI, PMI, and NMCP staff persons. The team recommended

pursuing the rural site for the first spray round. The Liberia Institute for Biomedical Research (LIBR), located close to the spray area, although not currently in use has withstood the years of conflict remarkably intact and could easily be used as a training and staging site for IRS. There is also an insectary that could be brought back into service.

A full logistics assessment and geographical reconnaissance will take place before the first spray round. This assessment will establish the final structure count, location of households, and resources available at the site. Because insecticide is valuable to householders and farmers and is a tempting target to thieves, security of equipment and pesticides will be a major concern in Liberia. The security environment in Liberia, while greatly improved over the last few years, is still problematic. RTI will make every reasonable effort to safeguard the IRS supplies at every step of the supply chain in country. Security measures will involve physical improvements of storage facilities and the use of security guards round the clock for facilities and could involve use of guards during transport.

Environmental Compliance

RTI will develop an SEA for Liberia including a safer use action plan in accordance with US environmental compliance requirements (22 CFR 216) and Liberian regulations. The initial SEA, conducted by Mr. Tito Kodiaga, will cover pyrethroid and carbamate class insecticides. The field visit took place in December 2008; his report will be submitted in January 2009. RTI will conduct a separate SEA for DDT use in Liberia during 2009 to be completed July or August. If it is determined to be necessary, RTI will upgrade any storage, staging, and disposal facilities to comply with 22CFR216 and the SEA to mitigate risk prior to spray operations. Additional environmental mitigation measures will include a pre-spray inspection as well as an environmental compliance inspection during spray operations.

Pesticide Selection

The class of insecticide to be procured in Liberia is the decision of the Minister of Health, as advised by the IRS Task Force within the NMCP. Initially, the MOH wanted to use organochlorine and pyrethroid class pesticides in an urban spray round in Monrovia to conduct a comparison between the two. RTI and PMI recommended, for ease of start-up and to facilitate timely implementation, the use of a pyrethroid pesticide in the initial spray round (or, as a second line chemical, a carbamate pesticide should the local vectors not prove susceptible to pyrethroids). This choice will allow time for thorough preparations for possible organochlorides (OC) deployment in the future, as the only approved member of this class of chemicals (DDT) requires more rigid environmental controls and a longer environmental assessment process.

Procurement

RTI's partner for procurement, Crown Agents USA, will support pesticide procurement for IRS in Liberia. Necessary pesticides and other equipment will also be procured, delivered in-country, and in place in the targeted areas in time for the spray round. For the initial round, RTI will

procure 150 spray pumps with the appropriate 8002E nozzle size, spare parts, and repair kits. Personal protective equipment (PPE) will be procured to equip 150 spray operators, plus team leaders, logisticians, washers, and warehouse and transport staff. See Attachment 4.

IEC Development and Implementation

A critical aspect of the IRS program is information, education, and communication (IEC) which informs beneficiaries about the IRS program, what they should expect, how it is beneficial to them and their family's health, how they need to cooperate with spray teams, and what precautions they need to take. The intent of the program is to prepare households and ensure their willingness to have their houses sprayed. To that end, RTI will lead efforts in community mobilization, conduct focus group discussions for the development of IEC materials, and manage education and training programs for the promotion of spraying activities. RTI will work closely with the NMCP and the MOH to identify existing mechanisms within the communities such as community health workers to educate the community and distribute IEC material. The key emphasis for IRS community mobilization is the door-to-door campaigns in tandem with spraying operations. Another critical element to community mobilization for IRS is advocacy with leadership—political, technical, traditional and religious.

IEC Material Design and Production

RTI will adapt and modify IEC materials used by RTI in other countries as well as the materials used successfully in Liberia in previous IRS activities.

Training of IEC Mobilizers

IEC mobilizers will be trained in the basics of IRS and in communication skills prior to community mobilization. These mobilizers will work with community level volunteers to inform communities on how IRS will benefit them and what actions they need to take in order to participate and benefit from having their homes sprayed. The project will make extensive use of local volunteers for community-based, door-to-door outreach, as this has proved to be very effective for IRS.

IEC Campaign Implementation

The IEC campaign will be implemented in two phases. During the first phase before the start-up of IRS, the IEC mobilizers will visit villages, chiefs, local leaders, and to the extent possible, individual households within the spray area to announce the upcoming spray activity and inform residents about IRS and how to cooperate with the IRS teams. During the second phase, one to two days before the IRS operators move into the designated area, the mobilizers and local volunteers will again announce the activity and visit each household to inform residents about spraying. During spraying, volunteers will assist householders with any questions they may have and with complying with the requirements of spraying (furniture removal, staying outside for at least two hours, providing at least 10 liters of water to sprayers, etc.) The IEC mobilizers will

distribute pamphlets about IRS and how to comply with IRS operations. Supporting the community-based IEC will be a radio campaign that also educates the public about IRS operations and announces dates.

IRS Operations

Training

RTI will lead a training of trainers in collaboration with the NMCP to provide staff and supervisors with information on IRS operations. The training of trainers will be followed by the training of spray operators recruited from the area to be sprayed. The training of trainers and spray operators serves as a critical aspect of the program to ensure trainers and spray operators are trained in application techniques including environmental monitoring and compliance, use and maintenance of spray equipment and ensuring the safety of the environment, the community and of themselves.

Similarly, RTI in collaboration with the NMCP will conduct training for IEC mobilizers and subsequently for village level volunteers on the communications requirements and skills for IRS.

Cleaning workers who wash PPE and other equipment will receive training on safety and quality aspects of their tasks. Drivers, storekeepers and any staff who will come into contact with pesticide will be trained in personal and environmental safety as it relates to their duties.

Spray Operations Support

The training of spray operators will precede the start of spray operations. Spray operators will be divided into teams of five comprising five spray operators and one team leader. Spray teams will be managed and monitored by supervisors and an operations coordinator to ensure RTI's goal of providing day-to-day operational management and support for IRS implementation, including monitoring and quality assurance.

RTI's environmental inspectors will undertake pre-spray inspection as well as inspection during the actual spraying to verify compliance with the mitigation measures proposed in the SEA.

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

Post Spray Operations

Post spray operations will be conducted in collaboration with the NMCP. The data collected during spray operations will be presented to the IRS team and all relevant partners. An end of spray round report will then be submitted to USAID in June.

All equipment and pesticide will be recaptured and stored in a secure location. All PPE will be cleaned, fixed, and stored for subsequent use. Pesticide packaging and other waste will be safely incinerated or repatriated to its country of origin for disposal. Spray personnel will be given medical examinations following the end of operations.

Immediately after the end of a spray round, RTI staff will begin to work in collaboration with NMCP in preparation for the next spray round.

Special Activities

Entomological Monitoring

RTI will conduct an entomological baseline data collection, recording vector species, baseline densities, resting behavior, and susceptibility or resistance of vector species to common IRS insecticides. Joseph Shilulu of Liverpool Associates in Tropical Health (LATH) a project partner of RTI in the IRS IQC will work with NMCP, the US Centers for Disease Control and Prevention (CDC) and the Integrated Vector Management 2 project to provide operational support to national partners for the assessment of the entomological situation in Liberia. Support to local partners will include the training of vector control technicians in entomological monitoring and surveillance, the documentation and monitoring of vector susceptibility in appropriate areas of the country, and monitoring of pesticide resistance.

Capacity Building

RTI will develop the operational capacity of Liberia's NMCP and their designated implementing partners to conduct effective, safe and well-managed IRS operations. The support provided to the NMCP will be designed to increase technical skills and capability of Liberia NMCP staff through short-term and long-term technical assistance.

Short-Term Technical Assistance Plan

- HOTM Mr. Jake O'Sullivan will undertake three trips to assist in 2009 spray preparation and participate in the end-of-spray workshops at the national and local levels.
- Entomologist Joseph Shilulu from Nairobi will make two trips, one in February and one in October to conduct entomology baseline and susceptibility tests.
- Field Coordinator Mohammed Nassor Saleh will undertake two trips from Zanzibar to set up and supervise trainings and the spray round.
- Regional Controller Mr. Sam Mesfin will undertake two trips to train finance staff on financial management and systems and regulations and provide oversight.
- Deputy Program Director Dr. John Chimumbwa will undertake one trip from Nairobi to set-up entomology activities and provide program oversight.
- Environmental Scientist Mr. Tito Kodiaga will undertake two trips to conduct field work for SEAs: one for pyrethroids/carbamates and one for organochlorines.

- Environmental Inspector Mr. Autman Tembo will undertake two trips from RTI's Nairobi Regional office to conduct environmental compliance inspections.
- Environmental monitoring specialist Judith Tukahirwa will undertake one trip from Uganda for the purpose of establishing DDT environmental baseline.

Table 1: Strategic Technical Assistance and TDY Plan

Name	Type of TA	Coming from	Tasks to be undertaken or activities to be supported	Number of visits
Jake O'Sullivan, HOTM	RTI employee	DC	Program planning and supervision and end-of-spray workshops at the national and local levels	3 (March, May, October)
Joseph Shilulu, Entomologist	RTI or LATH employee	Nairobi	Geographic reconnaissance of spray area, bottle assays for vector susceptibility, and site inspection of LIBR and others for possible use as warehouse, training site and staging area.	2 (February, October)
Trainer/Field Coordinator, Mohammed Saleh	RTI employee	Zanzibar	Set up and supervise trainings. Coordinate field activities for spray round	2 (February-April)
Sam Mesfin, Regional Controller	RTI employee	Nairobi	Orient COP/FM. Set up office systems.	2 (February and April)
John Chimumbwa, Deputy Program Director	RTI employee	Nairobi	Entomology program setup.	1 (timing TBD)
Tito Kodiaga, Environmental Scientist	RTI employee	Nairobi	Supplemental environmental assessment	2 (January, March)
Autman Tembo, Environmental Inspector	RTI employee	Nairobi	Environmental compliance inspections	2 (March, April)
Judith Tukahirwa, Environment Monitoring Specialist	RTI employee	Nairobi	Environmental monitoring baseline sampling for DDT visit	1 (July)

IV. Sustainability Plan

Liberia has limited experience in IRS and is faced with serious resource constraints. Developing the capacity of the NMCP to plan and implement IRS is a high priority for this project. The IRS sustainability chart, below, indicates the level of involvement of RTI and the NMCP in the first two spray rounds, and the change expected by the second round.

Figure 1. IRS Sustainability Chart: Partners' Proportional Responsibility Matrix

Activity	Round 2009		Round 2010	
	NMCP	RTI	NMCP	RTI
Partnership development				
Establish IRS oversight committees	100%		100%	
Environmental compliance				
Prepare Environment Assessment		100%	20%	80%
Environmental monitoring Plan		100%	20%	80%
Environmental compliance inspection	10%	90%	50%	50%
IEC Program				
Training of IEC mobilizers	10%	90%	40%	60%
Pre-IRS IEC mobilization	10%	90%	50%	50%
IEC coordination with IRS		100%	50%	50%
Post spray IEC survey		100%	50%	50%
Logistics procurement and management				
Field visit for logistics needs assessment		100%	30%	70%
Issue requisitions		100%	20%	80%
Logistics delivery		100%	20%	80%
Logistics chain of custody		100%	20%	80%
IRS operations				
Geographical reconnaissance	20%	80%	50%	50%
Micro-planning	20%	80%	50%	50%
Recruitment of spray operators	70%	30%	80%	20%
Training of supers and SOPs		100%	50%	50%
Physician training	10%	90%	20%	80%
Availability of drugs	100%		100%	
Spraying operations	10%	90%	20%	80%
Post spraying activities	20%	80%	50%	50%

V. Management Plan

Staffing and Organization

RTI will endeavor to recruit a Liberian national for the position of COP. In the post conflict environment of Liberia, at this time there is a strong possibility that a qualified candidate for the post may not be available as persons with experience in vector control and indoor residual spraying are hard to find in the best of circumstances. If the project is unable to recruit a qualified local candidate, RTI will recruit from outside the country. We will strive to have our COP in place prior to the start of spray operations.

In order to maintain the highest integrity and standards of the procurement and contracting process, the project will recruit and post a finance specialist to oversee the financial management of the project. This position will be a local hire.

Jake O'Sullivan (Washington) will serve as RTI's HOTM for Liberia. RTI maintains an IRS project office in Nairobi as the focal point for technical support to all IRS countries. Our COP of IRS Liberia will report directly to the Deputy Program Director for IRS, John Chimumbwa. The environmental compliance component for IRS TO1 is overseen by Tito Kodiaga in Nairobi, and Autman Tembo (also in Nairobi) provides support to IRS countries for environmental compliance inspections. This team is assisted by Jacob Williams, an integrated vector management expert.

VI. Monitoring and Evaluation

RTI will plan, implement, and document a monitoring and evaluation component for IRS operations. RTI will review indicators, methods, and data sources for monitoring and evaluation of IRS operations with the PMI Liberia team and NMCP. The M&E plan will focus on the following key elements:

- Entomological surveillance. As data become available, RTI in collaboration with NMCP, CDC, and the IVM project will document and report vector identification, densities and changes.
- Spray operations. RTI will maintain records of program performance reports which demonstrate adherence to WHO technical quality standards for training and supervision, procurement activities, and environmental compliance.

Spray forms for the collection of household level data by spray operators will be assessed and validated by key stakeholders and the data collection process monitored and reported on a daily basis during spray operations.

RTI will establish routine reporting procedures, expected formats, and deadlines for submission with the PMI and NMCP. Due to the complexities of managing IRS programs, RTI will ensure program reports document operational, technical, and financial management of IRS activities.

PMI indicators

Core indicators

- Number of eligible structures targeted (actual count of structures in target area)
- Number of structures sprayed
- Number of residents residing or occupying sprayed structures
- Number of people trained to deliver IRS

Additional indicators

- Supervisory ratio describing the number of team leaders and spray operators reporting to each supervisor
- Number of insecticide sachets in stock
- Number and percentage of empty sachets returned
- Number of empty sachets disposed

- Number of health facilities where health workers have been trained to treat cases of pesticide poisoning and exposure
- Number of female spray operators tested for pregnancy during spray operations

Additional vector control indicators:

- Number of pregnant women sleeping under LLINs the previous night
- Number of children under 5 years old sleeping under LLINs the previous night
- Number of people who receiving training in malaria prevention (by gender)
- Number of national and local health officials who participated in leadership roles for IRS planning or implementation during the last reporting period

Information Collection and Reporting Plan

Records and forms used by spray operators, team leaders, and supervisors, along with IEC mobilizers, will be used to gather information from the field daily. This information will then be compiled by the data clerks. During spray operations, reports will be sent weekly to the Mission, the IRS task force team, and other relevant partners to provide them information about the spray operations. RTI will also submit end of spray round performance reports documenting the planning and implementation process, key achievements, challenges faced, best practices utilized, and lessons learned. More importantly, the data collected daily will be collated, corrected and analyzed by field based staff to improve day to day operations in the field.

Attachment 1: Liberia Implementation Plan and Timeline

For period from December 2008 to February 2009

Component	Activity	Person/ partner Responsible	Project Month												Key Milestones			
			D	J	F	M	A	M	J	J	A	S	O	N		D		
Project Start-up/ Mobilization	Work plan submitted	RTI (Task Manager)	X															Country work plan approved by USAID.
	COP recruited	RTI (Task Manager)		X	X													
	Finance Specialist recruited																	
Environmental Compliance	SEA field visit	RTI (Tito Kodiaga)	X															SEA approved EC approval to spray
	Submit SEA for approval				X													
	Conduct pre-spray environmental compliance inspection	RTO (Autman Tembo)	X															
	Conduct mid-spray environmental compliance inspection	RTI (Autman Tembo)		X			X											
	DDT SEA field visit	RTI (Tito Kodiaga)				X												
	Conduct DDT environmental monitoring baseline						X	X										Baseline completed
Planning and Assessment	Discuss implementation timeline and workplan with USAID Mission and PMI partners	HOTM (Jake) COP (TBD)	X															Plans approved.
	Discuss upcoming spray operations, IRS program with NMCP	COP(TBD) OPS Manager	X	X	X													
	Update logistics needs assessment	LATH (Shililu)																
	Update geographic reconnaissance	LATH (Shililu)	X															
	Choose round two sites	COP (TBD)	X							X	X	X						
Procurement and Logistics	Develop technical specifications	RTI Vector Control Manager (Jean Desire)	X			X												Technical specifications released.
	Quantify procurement needs	RTI HOTM (Jake)	X															Vendors selected. Insecticide, PPE and equipment delivered
	Release tender notice for procurement	Crown Agents RTI Procurement		X														
	Receive pesticide, PPE and equipment, secure storage	Crown Agents—RTI COP	X		X	X												
IEC/BCC	Materials designed and tested	RTI			X													
	IEC TOT	RTI			X													
	Recruit and train mobilizers	RTI			X													
	Train village health volunteers	RTI			X													
	Conduct IEC in coordination with IRS	RTI			X	X	X	X										
Spraying Operations	Identify and recruit supervisors, team leaders	COP OPS Manger			X												District staff recruited and trained.	

Component	Activity	Person/ partner Responsible	Project Month												Key Milestones		
			D	J	F	M	A	M	J	J	A	S	O	N		D	
	Conduct TOT	RTI (TBD)			X												Medical check-ups completed. Training completed. Spraying launched. Spraying completed. Equipment and supplies recaptured.
	Conduct spray operators training	RTI (OPS) RTI (Tech) RTI (Env.)															
	Conduct storekeeper, driver, cleaning staff, training	RTI COP RTI OPS		X													
	Conduct clinicians training	RTI, OPS COP		X													
	Spray Operations	COP OPS		X			X										
Monitoring & Evaluation	Spray reports during operations	RTI (COP)				X	X										Reports submitted to USAID. Post-round evaluation completed.
	Post-spray evaluation report	RTI (COP)		X					X								
	MORA and other routine indicator reporting	RTI (COP) Tech (TBD) OPS (TBD)			X		X			X				X			
Post Spray Operations	Medical check-up of operators	MOH RTI COP															Equipment safely stored and/or handed over Meetings held
	Equipment recapture, maintenance, and inventory	COP OPS		X					X								
	Community assessment meetings	COP					X			X							
Entomology baseline and monitoring	Conduct entomology baseline and monitoring.	RTI, NMCP with CDC guidance LATH		X	X	X	X	X	X	X	X	X	X	X	X		Vectors identified, susceptibility verified, knockdown tests on sprayed walls conducted.

Attachment 2: Liberia Countdown Calendar

For period from December 1 2008 to December 31, 2009

Component	Key Milestone	Date to be Completed	Antecedent to:
Project Start-up/ Mobilization	Country work plan approved by USAID.	January 2008	Operations
	Recruit and orient Chief of Party	January/Feb 2009	Project implementation
Planning and Assessment	Agreement reached with USAID and government on pesticide selection.	December 2008	Final logistics assessment, procurement, operations
	Sites for IRS selected	November/December 2008	
	Supplemental Environmental Assessment draft completed.	January 9, 2009	Finalization of SEA and approval
	SEA approved by USAID	February 2009	Permission for spray operations
	EIA approved by Liberia EPA	February/March 2009	Permission for spray operations
	Conduct DDT SEA	October 2009	Permission to spray with DDT
Procurement & Logistics	Technical specifications for tenders approved and released.	January 2009	Ordering supplies for spraying
	Vendor selection and procurement process completed.	January 2009/Feb	Delivery
	Insecticide and PPE delivered	End of February 2009	Initiation of spray operations
IEC Development & Implementation	IEC implementation plan completed	February 2009	IEC material design/update
	IEC material designs and implementation plan approved.	February 2009	Production of materials
	IEC materials produced and delivered to project.	End of February 2009	Training of IEC implementers
	Training of IEC Mobilizers/Village Health Volunteers completed.	End February 2009	Implementation of IEC campaign
	IEC campaign launched.	March 2009	Spraying operations
Spraying Operations	Geographic reconnaissance completed	January February 2009	Team assignments and logistics arrangements
	District staff recruited, oriented and trained.	February 2009	Training and operations
	Operational logistics and	March 2009	Spraying operations

	environmental mitigation set up at operational sites.		
	Pre-spray environmental compliance inspection	Early March 2009	Permission to spray
	Clinicians training conducted	1-2 weeks prior to operations	Permission to spray
	Medical check-ups (including pregnancy tests) for sprayers, supervisors, warehouse staff, cleaners, etc. completed.	1-2 weeks prior to operations	Permission to spray
	Training of spray operators completed.	Mid March 2009	Spraying operations
	Spray operations launched.	Late March 2009	
	Environmental compliance inspection	March/April 2009	
	Spraying operations completed.	April 2009	Recapture and proper management of equipment and supplies
	Equipment and supplies recaptured and securely disposed or stored.	End of April 2009	Environmental compliance
	Post-spraying evaluation conducted.	May/June 2009	Final report production
	Final report produced and submitted to USAID.	June 30 2009	
	Lessons learned workshop	June 2009	Second round of IRS
Entomological surveillance	Susceptibility bioassays conducted	January/ 2009	Finalization of pesticide procurement
	Establish Insectary	June 2009	
	Entomology baseline	April 2009	
	Entomological surveillance	Monthly, starting June 2009	
	Resistance Monitoring	Second half 2009	

Attachment 3: Commodity Requirements for Round One

Item	Quantity
Pyrethroid pesticide sachets	25,000
10 liter sprayers with 8002 steel nozzles	150
Sprayer repair kits	20
Helmets	164
Visors for helmets	164
1 piece poly-cotton overalls	176
▪ XX Large	▪ 10
▪ X Large	▪ 20
▪ Large	▪ 20
▪ Regular	▪ 88
▪ Small	▪ 32
Black PVC Gumboots (pairs)	
▪ Large	▪ 35
▪ Medium	▪ 85
▪ Small	▪ 55
Heavy duty rubber gloves, size medium size	400
Disposable, vented dust masks	5,000
Reflecting Jackets	50
Cotton Sheets, 2 X 3 M	160

Product Specifications

Spray pumps currently in use in the Malawi Malaria Control Program are Hudson. Spray pumps purchased should be compatible to HD Hudson pumps if purchased from another manufacturer. Nozzles should be 8002 steel. Heavy rubber gloves must provide excellent snag, puncture, abrasion and cut resistance and should have the following specifications (see Picture 1):

Product Classification:	Chemical Resistant
Lining:	unlined or nonabsorptive lining
Exterior Finish:	Chlorinated
Coating Composition:	Nitrile
Cuff Finish:	Straight (unpinked)
Length:	12.75 in. (324 mm) min.

Performance Values:

Thickness		15 ± 2 mils (0.28 ± 0.05 mm)
Tensile Strength		> 3000 psi (> 20.7 Mpa)
300% Modulus	2500	psi (17.2 Mpa) Maximum
Elongation @ Break		$> 400\%$
Abrasion Resistance		Performance Level 4 (> 8000 cycles)
Puncture Resistance		Performance Level 2 (65 - 75 newtons)

Cotton overalls, helmets with visors, disposable face masks, and black PVC gumboots should be similar to items shown in Picture 2.

Picture 1.



Picture 2.

