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## President's Malaria Initiative

# UGANDA INDOOR RESIDUAL SPRAYING (IRS) PROJECT QUARTERLY PERFORMANCE REPORT OCTOBER 1<sup>ST</sup> THROUGH DECEMBER 31<sup>ST</sup>, 2009



### January 2010

This publication was produced for review by the United States Agency for International Development. It was prepared by Uganda IRS Project, Abt Associates Inc.



**Abt Associates Inc.**

UGANDA IRS Quarterly Performance  
Report  
OCTOBER 1<sup>st</sup> THROUGH DECEMBER  
31<sup>st</sup>, 2009

The author's views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

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Uganda Indoor Residual Spraying Project  
A USAID funded project  
Contract No. AID-617-C-09-00001

This report was submitted by Abt Associates Inc. / January 2010

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## ACRONMYS

Abt	Abt Associates, Inc
BCC	Behavior Change Communication
CDC	Center for Disease Control
CDFU	Communications for Development Foundation Uganda
COOPERS	Coopers Uganda Limited
COTR	Contracting Officer's Technical Representative
DDHS	District Director of Health Services
DDT	Dichloro-Diphenyl-Trichloroethane
DHE	District Health Educator
DHO	District Health Officer
DHT	District Health Team
FAQ	Frequently Asked Questions
GIS	Geographic Information System
GoU	Government of Uganda
GPS	Global Positioning System
HHS	U.S. Department of Health and Human Services
IEC	Information, Education and Communication
IEE	Initial Environmental Examination
IR	Intermediate Result
IRS	Indoor Residual Spraying
LC	Local Council
M&E	Monitoring and Evaluation
MOH	Ministry of Health
MOU	Memoranda of Understanding
NEMA	National Environment Management Authority
NMCP	National Malaria Control Program
PMI	Presidential Malaria Initiative
PMP	Performance Management Plan
PSC	Pyrethrum Spray Collections
SEA	Supplementary Environmental Assessment
TA	Technical Assistance
TOT	Training of trainers
USAID	U.S. Agency for International Development
WHO	World Health Organization
VCD	Vector Control Division

## Introduction

This report presents Uganda Indoor Residual Spraying (IRS) Project’s progress in the quarter starting October 1<sup>st</sup> to December 31<sup>st</sup> 2009. The report outlines the key project activities and achievements, the challenges and constraints faced, lessons learned, and recommendations for future implementation.

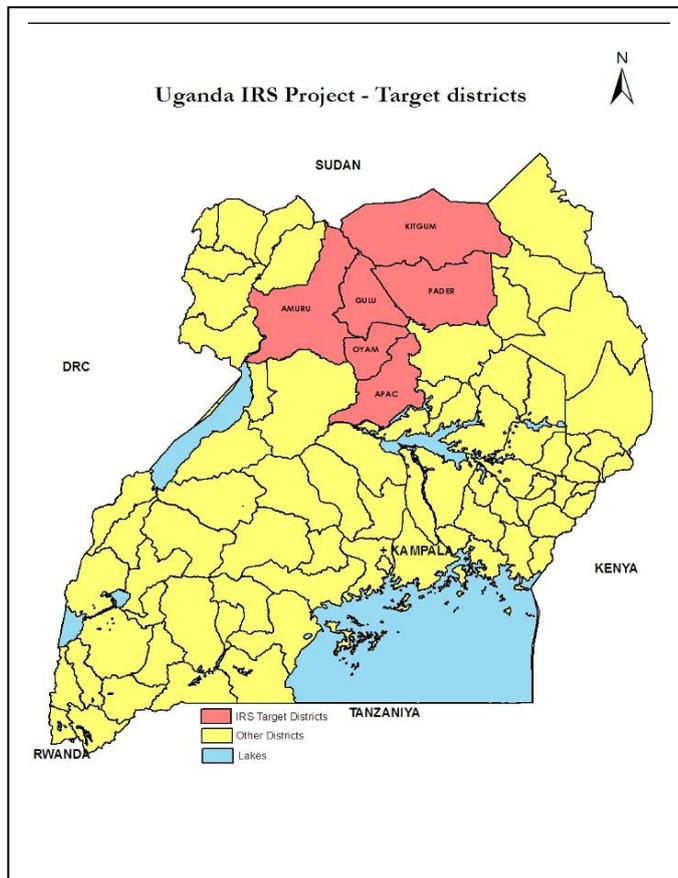
## Background

The purpose of the Uganda IRS Project is to achieve the Presidential Malaria Initiative (PMI) Uganda targets in indoor residual spraying. In particular, the Uganda IRS Project contributes to IR.8.1: Effective use of social sector services through three main objectives:

- Implementation of a high quality IRS program
- Conducting comprehensive monitoring and evaluation of the IRS program
- Developing the national capacity to conduct IRS.

The goal of PMI is to reduce malaria-related mortality by 50% by the end of 2010 in vulnerable groups: children under five, and pregnant women. PMI/Uganda has a five-year strategic plan and an annual malaria operational plan for Uganda which guides current implementation and scale-up of activities. IRS is the largest component of malaria operational plan and is the cornerstone of the PMI/Uganda program.

The Uganda IRS program activities are being carried out with full collaboration of the Uganda National Malaria Control Program (NMCP) and cover six priority districts: Apac, Amuru, Gulu, Oyam, Pader and Kitgum.



Abt Associates, Inc. (Abt) as prime contractor of this program manages and directs all technical component activities in support of IRS planning, procurement, implementation, monitoring, and capacity building. In addition to Abt, the project is supported through two subcontractors: **Communications for Development Foundation Uganda (CDFU)** which provides expertise and support for IEC/BCC activities in support of IRS program campaigns and population sensitization and, **Cooper Uganda Limited (Coopers)**, which supports IRS logistics related to commodity clearance, safe storage, and distribution, as well as support for logistics related to IRS spray operator training, district and sub-county level spray implementation and operations, under the direction of Abt technical staff.

## **Project Activities/Achievements**

The project's first phase focused primarily on Kitgum and Pader districts which are located in post-conflict areas of northern Uganda. Spraying in Kitgum began on November 4, 2009 in Palabek Kal sub-county and in Pader on November 5<sup>th</sup>, 2009.

### **Administrative/Startup Activities**

The main project office in Kampala and the field office in Gulu were established in August, 2009 and September, 2009 respectively. Two district level offices were also established within the district health offices of Kitgum and Pader to coordinate the IRS activities during the spray phase. Senior management staff was recruited as planned and all personnel were in place by the end of November, 2009. The project is using electronic banking for the project operations with a bank account in Barclays Bank. Internet and telephone facilities in the Kampala and Gulu office are fully functional.

Abt Associates took possession of all spray equipment, insecticides, office equipment and other materials including three vehicles inherited from previous IRS program. A limited amount of additional furniture and equipment was purchased for the Kampala office in line with the approved budget. Fresh quantification was carried out and inventories were prepared in Gulu storage facility; a separate quantification was conducted for insecticides.

### **Work Plan and Budget**

The work plan and budget for the period September through December, 2009 was approved by USAID/PMI in October, 2009. The draft work plan and budget for the period January to September, 2010 was submitted to USAID/PMI, awaiting approval. The PMP presents the strategy and indicators that the Uganda IRS Project will employ to monitor and evaluate progress in each of the key result areas of the program. This document was approved by the COTR. The Branding & Marking Plan was submitted to USAID/PMI by October 26, 2009 as projected for approval.

### **Spray Operation Activities**

#### *Launch of Spray Activities*

The spray round kicked off on 4th November 2009 with a focus on Kitgum and Pader districts. All the 21 sub-counties in Kitgum and 19 in Pader had completed spraying by December 23rd 2009. The spray round took 43 days to complete using 1,507 Spray Operators. The initial target was to spray the two districts within 40 days. The various

sub-counties in the two districts began spraying on different dates within a period of about two weeks. The staggered launch of spraying was a result of the national immunization campaign that was winding down around the same time. The immunization campaign dates were changed at short notice to coincide with the launch of spraying in the two districts. A total of 336,452 households were found in Kitgum and Pader of which 330,663 households were sprayed (98.3%, exceeding the target of 85% coverage). The total population found was 1,261,665 of which 1,243,654 (98.6%) were protected after IRS.



**Table 1: Summary of Households Data in Kitgum and Pader**

District	Target	Total Found	Fully Sprayed	Partly Sprayed	Total Sprayed	Not Sprayed	Coverage (%)
Kitgum	105,475	162,799	157,083	899	157,982	4,817	97
Pader	135,719	173,653	171,620	1,061	172,681	972	99.4
<b>Total</b>	<b>241,194</b>	<b>336,452</b>	<b>328,703</b>	<b>1,960</b>	<b>330,663</b>	<b>5,789</b>	<b>98.3</b>

Kitgum exceeded the targeted households for spraying by 54.3% while Pader by 27.2%. Due to the prevailing peace in Northern Uganda, the people in the camps are now re-locating to their villages. They have put up structures in the villages but kept the other structures in the camps where the elderly and the children are staying for easy access to social factors near the camps like schools, safe water and health units.

**Table 2: Summary of Population Data**

District	Target	Actual	Protected	<5yrs Protected	Pregnant women Protected
Kitgum	353,222	593,666	578,867	128,542	20,920
Pader	450,100	667,999	664,787	162,980	30,093
<b>Total</b>	<b>803,322</b>	<b>1,261,665</b>	<b>1,243,654</b>	<b>291,522</b>	<b>51,013</b>

The total population found is higher than the target because some people who had left the districts during the war have come back to their villages. This increased the number of houses as well leading to use of more insecticide than earlier anticipated.

**Table 3: Summary of IRS Output Indicators for Kitgum and Pader**

Indicator	Target	Actual
No of districts sprayed	2	2
Total households	241,194	336,452
Households fully sprayed		328,703
Households partly sprayed		1,960
Total households fully and partly sprayed	205,015	330,663
Households not sprayed		5,789
% of households partly or fully sprayed	85%	98.3%
% of households not sprayed at all		1.7%
Total population	803,322	1,261,665
Total population protected	682,824	1,243,654
% of population protected	85%	98.6%
No. of children under five protected	176,731	291,522
No. of pregnant women protected	40,166	51,013
<b>Other household data</b>		
No. of mosquito nets found		283,901
No. of children under 5 sleeping under a net		211,334

*Pilot Spraying at Parish Level*

The project piloted a cost effective innovative initiative in two sub-counties, Parabek Ogili in Kitgum and Laguti in Pader. The initiative required spray operators to use bicycles as their means of transport, rather than relying on project supplied vehicles for transportation. Currently, 40% of the spray operations budget is spent on transportation, primarily truck hire; a shift to bicycles for use by spray operators could have significant impact on overall cost of IRS operations. Village Health Team (Local individuals working as volunteers for community health services) were recruited as spray operators instead of importing labor from neighboring sub-counties, thus building the capacities of the districts at parish level. The pilot was well received by the community and spray operators themselves. The spray operators were happy to rent (at USD 1 per day) their bicycles to the program as this provided an additional source of income for them. Because of the poor state of the roads in the region, the bicycles allowed the spray operators to penetrate deeper into the villages. The spray operators in the pilot sub-counties were



Ogili sub-county; spray operators used bicycles as their means of transportation enabling them to reach areas trucks could not access.

able to cover their targeted houses per day since they did not have to worry about missing the ride on the truck back to the stores. Plans to replicate the exercise at district level in Oyam district and two sub-counties in Apac district are underway.

*Planning Meetings*

The Abt team worked with USAID to schedule meetings to officially introduce the project to GoU partners (central & Districts) and other stakeholders. Formal introductions were conducted through introductory meetings with district key leaders to allow the project to quickly engage in detailed planning efforts with government counterparts and local stakeholders involved in IRS and related program activities. The project prepared memoranda of understanding (MOUs) with the NMCP and the district health offices to clarify roles, responsibilities, relationships, timeframe expectations, and resource commitments.

A National IRS Planning meeting was held on September 11<sup>th</sup> 2009 in Imperial Royale Hotel, Kampala. The purpose of the meeting was to present the work plan for the fourth round of spraying for Kitgum and Pader to the relevant stakeholders and to give a broad overview of the proposed plans for the three-year life of the Uganda IRS Project. The meeting was attended by a total of 16 stakeholders from NMCP/MOH, CDC/PMI, USAID, Pilgrim, WHO, EARN/RMB, Coopers, CDFU and Abt Associates. The attendance was unfortunately derailed by the unrest on the Kampala streets that day which made it difficult for most of the invited stakeholders to attend the meeting and caused the meeting to adjourn prematurely. However, the objective of the meeting was met. The meeting endorsed the plan presented by Abt Associates and the various stakeholders committed to support the program.

In addition, the project in collaboration with the sub-contractors Coopers and CDFU participated in initial project meetings and were actively engaged in the planning and implementation phases of IRS in Kitgum and Pader districts. Two 1-day IRS micro-planning meetings were conducted in Kitgum and Pader districts on 22<sup>nd</sup>/9/09 and 23<sup>rd</sup>/9/09 respectively. The purpose of the meetings was to plan for the fourth round of IRS, share previous IRS experiences and way forward and discuss human resource issues. In attendance were 47 IRS supervisors and 27 DHT members from both districts. CDFU carried out IEC and BCC activities in both Kitgum and Pader districts prior to commencement of IRS activities while Coopers engaged in logistic management especially organizing transport of spray equipments, insecticides with the districts and on transporting spray teams to and from sub county stores.

**Table 4: Micro-Planning Meetings Attendance in Kitgum and Pader**

	<b>Kitgum</b>	<b>Pader</b>	<b>TOTAL</b>
IRS Supervisors	21	26	47
DHT Members	17	10	27
<b>Total</b>	<b>38</b>	<b>36</b>	<b>74</b>

*Trainings*

Abt and Coopers conducted a training needs assessment identifying previously trained spray operators, spray operator trainers, supervisors and new recruits in the targeted districts. A combination of training and refresher training courses were developed to engage a cadre of spray personnel for spraying activities in each of the two districts.

MOH and DHO identified IRS supervisors and vector control officers who participated in the trainings.

**Table 5: Training of Trainers; Kitgum and Pader Districts**

No.	Cadre of personnel	Numbers of participants	Sex		Status	
			Male	Female	Previously Trained	New
1	DHT members	19	16	3	N/A	N/A
2	Supervisors	47	34	13	39	8
3	Team leader	215	214	1	196	19
	<b>Total</b>	<b>281</b>	<b>264</b>	<b>17</b>	<b>235</b>	<b>27</b>

The training of trainers was followed by sub-county-level trainings for spray operators, and refresher training sessions for previously trained spray operators.

**Table 6: Spray Operators Training**

Category	Pader District				Kitgum District			
	Previous trained	New recruits	Male	Female	Previous trained	New recruits	Male	Female
Supervisors	19	7	25	1	21	0	10	11
Team Leaders	91	23	108	6	89	12	96	5
Spray Operators	572	224	769	27	505	206	642	69
Wash Persons	60	20	32	48	51	20	29	42
Store Keepers	18	10	27	1	17	7	23	1
Mobilizers	19	0	19	0	12	9	21	0
<b>Total</b>	<b>779</b>	<b>284</b>	<b>980</b>	<b>83</b>	<b>695</b>	<b>254</b>	<b>821</b>	<b>128</b>

Training of spray operators and supervisors was conducted by a combination of Abt staff, Coopers staff, CDFU staff, and representatives of the Malaria Control Program of Ministry of Health.

### **IEC Development and Implementation**

Social mobilization, sensitization and information, education and communication

#### *District Leaders' sensitization meetings.*

Project partner CDFU took the lead in organizing and coordinating the District leaders' meetings in the two districts (Kitgum and Pader). About 150 participants were sensitized on the IRS exercise in the two districts: Kitgum District had **76** participants while Pader District had **73** participants.

#### *Sub-county community leaders' sensitization*

CDFU in collaboration with DHTs conducted community leaders' sensitization meetings in the 40 sub-counties of Kitgum and Pader Districts. Over 1,244 leaders participated (603 from Kitgum and 641 from Pader).

*Community mobilization using Ministry of Health (MoH) film vans*

The vans held talk shows during the day and in the evening showed the IRS video. The purpose was to mobilize the communities, in particular by asking them to prepare households for the spraying exercise. At both the talk shows and video shows, the DHEs moderated discussions. The shows took place in all the 40 sub-counties of Kitgum (19) and Pader (21).

*Radio talk shows*

A total of 27 radio talk-shows were held in the 2 districts on local and regional radio stations during the quarter. The composition of the guest speakers included politicians (e.g. LC V chairman), technical people (e.g. vector control officers) and DHT members who mobilized the respective communities to support and participate in the IRS activities. Three of the radio talk shows were held after the conclusion of the spraying exercise to remind the population in the two districts about the appropriate behavior post IRS. A high level of enthusiasm and interest was exhibited by the audiences of the interactive shows.



*The Assistant DHE, D/RDC and Vice Chairman LCV- Pader at Luo FM radio talk Show in Pader.*

*Print materials*

A total of 1,450 leaflets with IRS Frequently Asked Questions (FAQs) were packaged and distributed in the two Districts during the spray round to the District and Sub county Community leaders.

**Table 7: IEC/BCC Activities**

Activity	Kitgum	Pader	Total
District level meetings conducted	1	1	2
Participants in district meetings	76	73	149
Community meetings	19	21	40
Participants in community meetings	603	641	1,244
Radio spots aired	250	250	500
Radio talk shows	13	14	27
Cinema shows	19	21	40
No. of people who attended the cinema show (estimates)	6080	5880	11,960
FAQ Print materials	690	760	1,450

## Entomological Monitoring and Studies

Following several meetings with MOH/NMCP/VCD and the district vector control personnel and after obtaining the available baseline data and the set up of the vector control division at national and district level, a comprehensive entomological monitoring plan was prepared for all districts.

### *Pyrethrum Spray Collections*

Pre IRS entomological monitoring (Pyrethrum Spray Collections) was done in Kitgum and Pader districts in October, 2009. Three sentinel sites were established in each district. Pre IRS monitoring in the two districts was initially limited to PSC collections and 10 houses in each sentinel sites were included.

**Table 8: Pre-IRS Pyrethrum Spray Collections (PSC) Summary Results**

#### **Pader District (10 houses in each sub county)**

Sub county	An. gambiae		An. funestus		Culex		Other	
	M	F	M	F	M	F	M	F
Patongo	4	18	0	0	21	54	0	0
Parabongo	49	134	0	0	1	15	0	0
Atanga	3	4	0	0	124	132	0	0

#### **Kitgum District( 10 houses in each sub county)**

Sub county	An. gambiae		An. funestus		Culex		Other	
	M	F	M	F	M	F	M	F
Namakora	40	202	0	0	6	39	0	0
Kitgum TC	31	80	0	0	21	52	0	0
Palabek Kal	2	9	0	0	12	8	0	0

**Table 9: Post-IRS Pyrethrum Spray Collections (PSC) Summary Results**

#### **Pader District (10 houses in each sub county)**

Sub county	An. gambiae		An. funestus		Culex		Other	
	M	F	M	F	M	F	M	F
Patongo	00	02	00	05	309	213	00	00
Parabongo	00	01	00	00	66	43	00	01
Atanga	00	00	00	00	33	46	00	00

#### **Kitgum District (10 houses in each sub county)**

Sub county	An. gambiae		An. funestus		Culex		Other	
	M	F	M	F	M	F	M	F
Namakora	00	00	00	00	50	20	00	01
Kitgum TC	00	03	00	04	411	210	00	05
Palabek Kal	00	02	00	00	100	70	00	00

*CDC Bottle bio test: Vector susceptibility to Insecticides*

Bottle bio assay tests which were developed by CDC for detecting vector resistance in



CDC Entomologist with MOH VCOs carrying out bioassay testing in Kitgum District

field situations were also carried out in Kitgum district for Alpha Cypermethrine, DDT and Bendiocarb with the guidance and assistance of Dr. Ray Beach, Entomologist (CDC/PMI) who was on a short consultant visit in early November, 2009. Eight (8) Vector Control Officers from both central MOH/VCD and district level attended, and a short training on these tests was also carried out simultaneously. All the mosquitoes tested were 1-2

days old females from larval collections from Kitgum district)

**Table 10: Summary of results CDC bottle test Knock Down (KD) %**

Exposure Time	0 min	15 min	30 min	45 min	60 min	75 min
Alpha Cypermethrin	0	40	60	80	90	100
DDT	0	15	20	22	30	39
Bendiocarb	0	18	100	100	100	100

*AlphaCypermethrin(12.5µg per bottle) 12 replicates–10-25 mosquitoes per replication*

*DDT- (100 µg per bottle) 8 replicates – 10 mosquitoes per replication*

*Bendiocarb-(12.5 µg per bottle) 4 replicates – 10 mosquitoes per replication*

Post IRS entomological activities in Kitgum and Pader were conducted in December, 2009. The same sentinel sites were used. These monitoring activities confined to PSCs tests to find out residual efficacy after insecticide spraying. As a training session, bio assay tests were also conducted in the sprayed houses in both districts using wild caught mosquitoes.

### Environmental Monitoring and Compliance

Assessment of environmental compliance for pre-IRS operations was carried out in Kitgum and Pader districts. The main stores in Gulu and Sub stores in Kitgum and Pader districts and all the sub county stores were included. This was done by the Environmental Compliance officer in close collaboration with district environmental officers under the guidance of the IRS advisor. The activity covered:



**Washing bay;** wash persons were required to be fully protected from lingering insecticides on the garments. Periodic inspection of the soak pits was carried out to ensure environmental compliance.

- Assessment of insecticide storage facilities, soak pits and washing bays to establish compliance with relevant laws and standards;
- Development of environmental compliance monitoring plan and checklists for the insecticide storage facilities, soak pits and washing bays and safety responses required.

The Environmental Officer worked with NEMA to constantly monitor the spraying activities to ensure environmental compliance during the spray round.

**Table12: Environmental and Entomology Monitoring**

<b>ENVIRONMENTAL</b>	<b>Annual Target</b>	<b>Spray Round Actual</b>
Environmental compliance inspections	24	4
% of washing bays and soak pits inspected	90%	95%
<b>ENTOMOLOGICAL</b>		
Number of Entomological surveys conducted	16	2
Number of susceptibility tests conducted	12	0
Number of wall bioassay tests conducted	210	24
Number of PSCs carried out	1,080	120
No. of district level digital maps prepared	12	4

**Geographical Information System (GIS) and Global Positioning System (GPS)**

GIS based maps were developed at parish level for all the 6 target districts over the reporting period. Of these, 3 were project area maps. However, the maps need continual updating to incorporate the mushrooming new districts, sub-counties and parishes. The project received 23 GPS receivers from the previous contractors.

**Logistics**

Coopers supervised the activities of the store keepers and security personnel for the sub-county stores and also ensured that the sub-county stores were appropriately stocked. In addition, they participated in support supervision of the spray activities, with particular focus on the activities related to stores and logistics. Coopers managed the activities of the vehicles used at the sub-counties during the spray period. During the spraying, Coopers in coordination with Abt staff oversaw and managed the logistics involved with the sub-county stores and also managed the movement of spray personnel to and from the households to be sprayed daily.

*Procurement*

Abt initiated a procurement process for a consignment of new insecticide for the remaining districts and expecting the new stocks by mid of February 2010. All procurements are done in accordance with USAID procurement guidelines. Further more, Abt completed quantification, selection, and costing for additional spraying

equipment, spares, and PPE stocks as needed to complement and replace existing equipment procurement.

**Table 13: Insecticide Usage**

District	Insecticide Sachets (223,370)	
	Used	In stock
Kitgum	96,225	7,352
Pader	104,872	3,380
<b>Total</b>	<b>201,097</b>	<b>10,732</b>

On November 30, 2009, Abt met with officials from Coopers and Avima over the plans to re-export the DDT in store in northern Uganda. The project also discussed plans to export the DDT waste currently held in Gulu. Avima informed the project that they planned to export both the DDT and the waste during December, 2009 and January, 2010. However, by the end of December there was no progress recorded, and Avima has not yet submitted indicative cost implications to Abt and USAID. Abt will continue to work with Avima to receive the cost information and export the excess DDT and waste material.

### Successful intervention/Innovative Approaches

#### Payments of Spray Personnel: An Innovative Approach



It is all there! A payee verifies his cash at Madi Opei paying centre as others await their turns.

Previously, the Uganda IRS project required its spray personnel to have bank accounts where their wages would be posted at the end of the spray round. However, this requirement faced various challenges. Most spray operators did not have bank accounts and they could not get any one with a bank account as a recommender for opening an account. Some spray operators who knew of someone with a bank account usually ‘borrowed’ the account number which they would submit as their own causing their

payments to bounce. Another challenge was the bank location; most would spend more than 30,000UGX in transport cost to and fro just to collect their payments. On average it would take 50km to reach the nearest bank. Considering all these challenges, most of the spray personnel were not happy with the idea of bank accounts causing them to mistrust banks. With this in mind, Abt contracted PostBank to implement payment of spray personnel through the project span using their mobile banking services. This service allows spray personnel to receive their wages without opening bank accounts, a most efficient and effective service. This intervention has benefited both Abt from handling large sums of money and spray personnel in getting their payments in time. Now PostBank mobile banking services manage payments for all trainings and spray personnel at the end of the spray round. In this case, all

supervisors, team leaders, spray operators; wash persons and store keepers received their payments for the entire spray round by December 24<sup>th</sup>, 2009. Post Bank successfully paid approximately 1,900 spray personnel.

### Palabek Children's Ward: A Successful Intervention



A full Children's ward in Palabek sub-county. 90% of patients were malaria cases. Taken a day before spraying started (3<sup>rd</sup> November 2009)



Children's ward in Palabek sub-county; the effect of spraying is felt immediately as realized by the empty children's ward. Taken a month after beginning of spraying (December 2009)

During the training of spray operators, the Project staff while on a monitoring activity, paid visits to some health centers and took photos. The above photos were taken in Palabek sub-county health center III before the spray operations and the children ward was fully occupied by patients, majority of whom were severe malaria cases. A month later through the spray, the health center was virtually empty. The Health worker said that she had been redundant in the last one week. Indoor residual spraying has that rapid impact on malaria prevalence. The challenge is to sustain a timely, high quality and high coverage spraying.

### Challenges/Constraints

- Reports of increasing insecticide resistance: Several studies conducted over the past few years have indicated a significant increase in vector resistance to certain types of insecticides commonly used in IRS. Specifically, a study carried out by STOP Malaria Project/Malaria Consortium identified high levels of resistance to DDT and pyrethroid class insecticides. Implications to future IRS activities are significant- to ensure continued effectiveness of IRS activities, the program and NMCP should expand options for future rotations of insecticides to include Carbamates and Organophosphates.
- Poor Infrastructure: Especially the storage facilities at sub-county level and access roads to the villages tend to pose a real challenge to smooth running of the project.
- Poor water supply: In some sub-counties availability of water for washing uniforms and cleaning equipment became a challenge.
- Spray team transport: Increasing cost of transport which affects the sustainability of the program.
- Storage facility: In several sub-counties the program was required to pay rent for the storage space utilized during the spray round. The district was expected to give storage space as a contribution to the program.

## Lessons Learned and Recommendations

- Close supervision is key for quality results to be achieved. The field supervision structure for spray campaigns has been revised. The spray team leaders' responsibilities have been revised to enhance their supervisory function. There will also be more direct engagement with the team leaders. The basic unit of supervision has been shifted from the sub-county to the parish.
- Timely data is critical for performance monitoring of field operations. The operations and M&E departments have strengthened the monitoring system to be able to take timely remedial action.
- It is recommended that few health facilities with malaria laboratory diagnosis to be identified to monitor the trends of malaria confirmed cases in each district where IRS has been conducted.
- Involvement of various leaders (political, religious and opinion) at the district and sub county levels through sensitization sessions promotes acceptability/ownership of the spraying exercise by the households.
- Combining political/religious leaders with district technical staff during the interactive radio talk shows enables clarification of issues, promotes positive attitudes towards the spraying exercise, builds support and confidence for the IRS intervention among the community members.
- Sensitization meetings, interactive radio talk shows and the film van mobilization provide an opportunity to address misconceptions, rumors and define clearly the expected roles of the different stake holders during the spraying exercise.
- Greater involvement of schools as a vehicle for disseminating IRS communication information.

## Planned Activities for the next Quarter

Spraying of Apac, Oyam, Amuru and Gulu is planned for the next quarter and this will include:

- Carry out rapid needs assessment of the districts
- Introductory meetings with the districts administration
- Procurement of supplies including insecticides and spray pumps
- Micro-planning with the district health office
- Training of Trainer (TOT)
- Sensitization of political leaders and heads of department
- Entomological studies
- Environmental compliance inspection
- Logistical supplies to the sub-counties
- Training of spray operators
- Actual spraying