



Year 6 Quarter 2 Report

(January 1, 2010 – March 31, 2010)

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Abt Associates-HSSP

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Abbreviations/Acronyms

DHMT	District Health Management Team
HMIS	Health Management Information System
HSSP	Health Services and Systems Program
IRS	Indoor Residual Spraying
ITNs	Impregnated Treated Nets
M&E	Monitoring and Evaluation
MIP	Malaria in Pregnancy
MIS	Malaria Indicator Survey
MOH	Ministry of Health
NA	Not Applicable
NMCC	National Malaria Control Centre
NMCP	National Malaria Control Program
RDT	Rapid Diagnostic Test
TOT	Training of Trainers
USAID	United States Agency for International Development

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1 Malaria (Indoor Residual Spraying)

1.1 Background

The goal of the malaria program is to contribute to the national effort of reducing malaria morbidity and mortality.

The objective of the Indoor Residual Spraying (IRS) program is to provide technical, logistical, and managerial assistance to the National Malaria Control Program (NMCP) in support of its target of reducing the incidence of malaria by 85% in selected IRS areas by the end of 2011.

According to the 2008 national Health Management and Information System (HMIS) data, malaria is still the number one cause of mortality and morbidity in Zambia, although a positive trend in reduced morbidity and mortality has been observed over the past three years, 2006, 2007, and 2008. The malaria incidence rate was 412 per 1000 population in 2006, 358 per 1000 population in 2007, and 252 per 1000 population in 2008. IRS is one of the core interventions adopted by the Ministry of Health (MOH) to prevent malaria.

The Zambia Health Services and Systems Program (HSSP) began implementing IRS in collaboration with the National Malaria Control Center (NMCC) in 2006, with a mandate to cover 15 districts. The MOH expanded IRS coverage to a total of 36 districts in 2008 and 54 districts in 2010. During the 2009 spray season, HSSP support enabled the district teams to spray 779,180 structures (90.4% of targeted coverage) in 15 districts. Overall 1,191,517 structures were sprayed in 36 districts (90.6 % of the targeted coverage).

In partnership with NMCC, HSSP has provided technical, logistical, financial and managerial support to the implementation of the IRS cycle. IRS operations are highly time-bound and must follow a strict schedule to assure that planning, procurement, training, commodity deliveries, spray operations, and entomological studies occur according to a set calendar. Adherence to technical guidelines and maintaining high productivity require careful and continuous monitoring and supervision.

HSSP IRS experts have provided Training of Trainers (TOTs) for district trainers to manage district-level IRS operations and to train and supervise spray operators. Prior to the launch of each spray season, HSSP provides logistical, financial and technical assistance to the cascade training of spray operators. Finally, during the spray period HSSP staff provide critical monitoring and supervision of the spray program in collaboration with NMCC. HSSP also supports annual IRS district assessments, geo-coding of structures, environmental monitoring activities, entomological studies, and IRS data management. Entomology training for districts, entomological field work, and insectary operations are also supported. HSSP procures personal protective equipment and provides logistics support in several areas, including the removal and repatriation of DDT waste.

In 2008, HSSP extended its reach to support the national Malaria Indicator Survey (MIS), rehabilitation of three storage facilities and, in addition to managing the 15 HSSP districts, the HSSP team assisted NMCC in its scale-up to 36 districts by providing technical assistance in training of trainers (TOT), cascade training of spray operators, and monitoring of training and spray operations for the newly phased-in 21 districts. In 2010, HSSP has also supported the Needs Assessment and the quantification of spray requirements for an additional newly phased-in 18 districts, bringing the total number of districts supported in 2010 to 54.

1.2 HSSP Mandate Extended (December 2009 to July 2010)

The rationale for extending HSSP mandate was reached at when a pending gap in support to the IRS program was foreseen, with the close-out of HSSP in November 2009, and the follow-on project was not expected until around mid-year 2010.

From an IRS monitoring by the HSSP team that was carried out from 28th September 2009, many gaps in supervision, evident in incorrect practices, and weak management of the spray teams were found. It was noted that the NMCC IRS staff and the resources to assist with this effort during the 2009 spray season were inadequate. HSSP had addressed this issue with NMCC leadership, however, NMCC human resources constraints had not yet been resolved. Similarly, at District Level, monitoring reports indicate that HSSP-trained IRS managers/master trainers had generally not been deployed to carry out monitoring and supervision in the field. This resulted in the major burden of work and responsibility remaining with HSSP.

These gaps pointed to the need for intensive and uninterrupted technical and logistical support for monitoring the spray operations. NMCC was experiencing a leadership transition, and had neither the human resources, nor the immediately accessible financial resources to support the 2009 IRS monitoring needs and orderly completion of the spray season.

A gap in support to the IRS operations at that critical time could have resulted in reduced coverage and diminished impact on malaria. Support was needed to prevent such a set-back to the highly successful and effective program. Beyond the spray season, from January 2010, the ongoing calendar of IRS activities had to be maintained, to assure a well managed and successful season in 2010. It was observed that while capacity had been developed in many individuals, NMCC does not have available fully dedicated staff to carry out this work. HSSP had already four full-time specialists: IRS Specialist, IRS Information Systems Specialist, Malaria Entomology Specialist, IRS Logistics Officer; and four part-time insectary technicians. Withdrawal of these human resources, and of the logistical and financial support to provide management, capacity building and supervision, was seen to be untimely. Therefore, a request for a costed extension was submitted in November and awarded in early December, covering the period December 2009 through July 2010. The extension period covers all routine IRS support activities, and retains the IRS team and core management and support staff.

1.3 Activities during the IRS Eight-Month Extension

During the 8 month extension (December 2009 to July 2010), HSSP will:

- Provide NMCC, provinces, and district IRS technical teams with logistical, technical and managerial assistance to carry out monitoring and supervision during the spray season and mop-up period
- Provide technical and logistical support to conduct the Post IRS Review Meeting
- Carry out IRS situation analysis/assessments for the 15 districts
- Update enumeration and mapping of structures in the 15 districts
- Provide technical and financial support for the Malaria Indicator Survey
- Support NMCC to maintain the national entomology laboratory and insectary to enable implementation of entomological monitoring and resistance studies
- Support NMCC to conduct entomological investigations including pre- and post-spray and insecticide resistance studies
- Procure protective equipment for spray operations in the 15 districts
- Provide planning support for the 2010 spray season including central and district planning and budgeting, insecticide quantification
- Support NMCC and the Environmental Council of Zambia (ECZ) to monitor environmental safety and compliance in safe insecticide use
- Coordinate and manage the repatriation of DDT waste, including all logistics and stakeholder coordination
- Conduct national training of trainers (master trainers) in IRS

1.4 Year 6 Quarter Two achievements

IRS indicators

Table 1 shows the key IRS indicators, targets and status.

Table 1: Key indicators - Improved IRS coverage and quality

Indicators	Quarter 2 (Jan - Mar 2010) Achievements	End of Project (EOP) ¹		
		Target	Total Achieved to date	Status (%)
1. Number of houses sprayed with insecticide with USG support	NA	861,514 ² (900,000)	779,180	90.4% (86.6%)
2. Proportion of housing units in targeted area for IRS that have been sprayed in the last 12 months	NA	85%	90.4% (86.6%)	90.4% (86.6%)

¹ The end of project (EOP) targets and achievements will be revised upwards to most of the indicators at the end of the HSSP extension period, in July 2010, to accommodate what was achieved before the extension.

² Revised targets set by districts, based on resources and geographical reconnaissance while 900,000 is a USAID target. The status in brackets (86.6%) is what is obtaining if the target was 900,000. The same reasoning is applicable to indicator # 2

Indicators	Quarter 2 (Jan - Mar 2010) Achievements	End of Project (EOP) ¹		
		Target	Total Achieved to date	Status (%)
3. Value of pharmaceuticals and health commodities purchased (IRS)	NA	NA	NA	NA
4. Number of host country institutions with improved management information systems (IRS)	37	55	37	67.3% ³
5. Number of people trained in malaria treatment or prevention (IRS)	NA	45	0	0%
6. Number of people trained in monitoring and evaluation (IRS)	0	100	40	40% ⁴
7. Number of people trained in strategic information management with (IRS)	147	150	147	98%
8. Number of special studies conducted	1	4	1	25.0% ⁵
9. Number of information gathering or research studies conducted in malaria	2	7	4	57.1% ⁶

2009 Post Spray Meeting

The IRS Post Spray Meeting took place at Edinburgh Hotel in Kitwe from 1-2 February, 2010. There were 109 participants in attendance, including representatives from national, provincial, and district levels, the private sector, cooperating partners, and representatives from other public and private bodies. Some key recommendations from provincial working groups included timely disbursement of operational funds, rehabilitation of storage facilities, improvement of environmental management, and improved work culture among IRS managers. It was also recommended that in 2010 IRS cycle, provincial medical officers, district directors of health, store keepers and drivers should be included in the training program. The meeting provided an opportunity for districts to share experiences on the spray campaign and discuss the way forward. The report was produced.

³ The status now is at 67.3% because MOH has expanded the number of IRS districts to 54 (plus NMCC = 55)

⁴ The number is expected to rise in Q3 after the TOT

⁵ The completed study is the impact of IRS on mosquito densities. Other studies including the malaria incidence, insecticide resistance and susceptibility, and the MIS will be finalized in quarter three

⁶ Monitoring and supervision, mosquito/larva collection, Needs assessment, and DDT redistribution were done. Other information gatherings will be carried out during the remaining period.

IRS Technical Working Group Meeting

The IRS Technical Working Group Meeting took place at Edinburgh Hotel in Kitwe on 3 February, 2010. HSSP provided financial and technical support. During this meeting the 2010 IRS cycle of activities was defined. Key policy issues discussed include the expansion of IRS to an additional 18 districts, continuation of spray activities in Lusaka District pending introduction of a surveillance system which would allow targeted interventions, DDT re-distribution and that no expired DDT should be used.

2010 National Malaria Indicator Survey planning and implementation



A lab technician testing for malaria during the MIS training field practical

HSSP participated in the technical planning and implementation of Malaria Indicator Survey (MIS). During the planning meetings, some of which were chaired by HSSP, issues pertaining to the budget and logistics were discussed and consensus reached among the stakeholders. HSSP ensured that a good number of clusters sampled represented IRS areas. An eight-day training workshop, from 24th to 31st March 2010, was conducted at Barn Motel to prepare field staff for the field exercise. A total of 136 field staff was trained. HSSP offered significant technical support to PDA training and use as tool for

data collection. Further, HSSP supported the transportation of field staff in the field and procured medical supplies required for the survey.

Malaria Indicator Survey (MIS) provides a comprehensive assessment of the coverage of the key malaria interventions and a useful benchmark against which progress toward scale-up can be measured. Further it provides a nationally representative measure of both anemia and malaria parasite prevalence among children under five years of age. For evaluating the overall success of malaria scale-up efforts, the MIS is repeated at regular intervals.

Enumeration updates of structures

To ensure that supervisors and enumerators have basic knowledge to use geocoding tools in the district, three districts were supported to carry out enumeration updates of structures. The purpose of enumeration is to improve the efficiency of planning for spray operations. Enumeration updates were done for Kabwe, Kafue, and Chongwe districts. Personal data assistants (PDAs) were used. Data retrieval from PDAs and analysis will be done this coming quarter as soon as enumeration has been conducted in the remaining four districts. Eleven supervisors and 29 enumerators were trained in the three districts.

Needs Assessment in 54 districts

IRS needs assessments for the 2010 round of spraying were conducted in 54 districts. The purpose of the needs assessment was to carry out a systematic process to acquire information that will assist the national malaria control program and the implementing

districts determine the requirements for implementation of a cost-effective and efficient Indoor Residual Spraying campaign. Assessments were done in the 36 old districts and 18 new districts. Assessments ensure that planning for the next spray season is conducted early to allow for procurement of insecticides, spray pumps and personal protective equipment (PPE) at least three months prior to the beginning of the next spray season. Conducting early needs assessment also ensures that issues related to storage facilities and environmental compliance are attended to in time. The report showing the number of structures that were sprayed and quantities of insecticides used in 2009 in 36 districts, targets of structures to be sprayed in 2010 in 54 districts, as well as quantities of insecticides and equipment to be procured was prepared and information used to initiate the procurement process.

Support the maintenance of national entomology lab and insectary

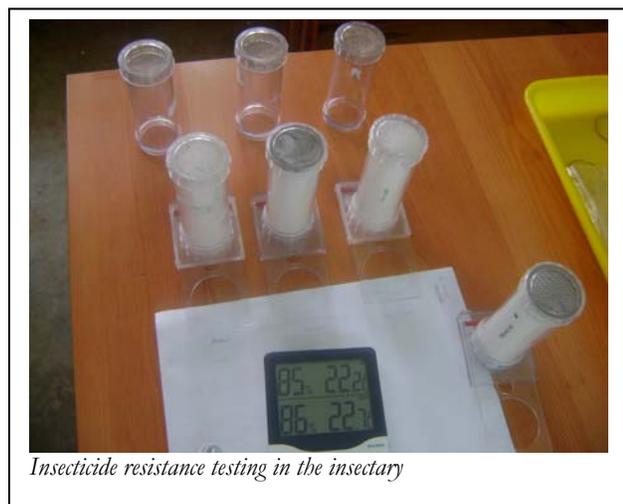
The national insectary, which was established in 2009, has remained functional without interruption and mosquito population has increased. Three field trips to Ndola, Mufulira and Kabwe respectively, were conducted to collect mosquitoes and larvae. Intensive and sustained effort at larval collection resulted in achieving viable breeding colonies of mosquitoes for use in entomological studies. In addition, HSSP continued to pay wages to four insectary technicians. In order to sustain the operations of the insectary, equipment and consumables were listed and ordered. Electrical maintenance was carried out in order to maintain optimal environmental conditions of an insectary.

Entomological Studies

Post spray entomological surveys were intensified and districts were encouraged to conduct their own surveys with the aid of the provided entomological kit. Post spray survey showed alarming Anopheles indoor resting densities in Chipulukusu and Mushili commando in Ndola District. The collected data was shared with the DHMT, on which basis they instituted a mop up operation of 300 structures in Chipulukusu. A follow up survey showed that the mosquito threat had abated, but mosquitoes collected on re-sprayed walls survived for 16 – 30 days when brought back to the insectary and laid eggs. This F1 generation provided more than 200 mosquitoes used for insecticide resistance tests with DDT. Other insecticides tested on the mosquitoes were Delta Methrin, Lambda Cyhalothrin, Permethrin, and Malathion.

A preliminary insecticide resistance report was presented and discussed by the technical committee at NMCC. The technical committee chaired by NMCC advised not to release any findings yet as more mosquitoes needed to be collected in order to meet the 20 mosquitoes per test as recommended by the WHO protocol. More WHO insecticide resistance test kits have been ordered.

The high indoor resting densities observed in Chipulukusu were exceptionally high and can be explained by a number of factors such as the close proximity of wetlands, IRS failure or insecticide



resistance. Mosquitoes generally avoid insecticide sprayed houses due to the excitatory effects of insecticides like DDT, but there were as many mosquitoes in unsprayed houses as the sprayed ones. What is of concern is the fact that as many as 80-100% of the live mosquitoes aspirated from DDT sprayed houses were not knocked down or dead 24 hrs after being collected from the sprayed walls, in fact they lived long enough to produce eggs. The mosquitoes from these eggs were tested for resistance in the insectary. Discussion should be broadened to include the efficacy of spraying in order to help explain high densities of mosquitoes found in sprayed structures. To this effect contact bioassays are the standard methods for assessing the adequacy of IRS.



Collecting larvae from breeding sites for testing in the insectary

The impact study of IRS on densities of indoor resting mosquitoes in selected districts has been completed and the IRB informed accordingly. Malaria health facility data from Solwezi was collected while that from Mwinilunga will be collected next quarter. The final report on the impact of IRS on malaria incidence will be finalized in quarter three. Due to the large numbers of Anopheles mosquitoes collected, four biology

graduates have been engaged to assist with mosquito morphological identification. Some preserved mosquitoes were sent to Liverpool by NMCC for genetic typing for the knock down resistance genotype.

Disposal of chemical waste

Empty DDT sachets were collected from Kazungula, Livingstone Mazabuka, and Kafue districts. DDT waste will be returned to the supplier observing the laws prevailing in transit countries and the recipient country. A total of 1,138.3 kg of waste was collected from the four districts. Collection of remaining waste from the 11 districts will be collected in the next quarter.

DDT Re-distribution and use

In order to facilitate the use of DDT that was due to expire before the next spray season, HSSP developed an emergency re-distribution plan to help districts that had quantities beyond what they could manage to use for mop-ups before expiry in June, 2010. So far 2,039 of the 3,762 sachets have been used. Table 2 shows the re-distribution and use of DDT as well as the budget required for the remaining sachets.

Table 2: DDT Re-distribution and Use

No.	District	Quantity			Available Funds	Expected Cost	
		Initial	Used	Available		K	US\$ @ K4,700
1	Kazungula	240	120	120	-	6,500,000	1,383
2	Mazabuka	250	97	153	-	9,500,000	2,021
3	Ndola	1,100	280	820		30,600,000	6,511
4	Luanshya	367	367	-	-		-
5	Chingola	200	10	190	-	10,000,000	2,128
6	Solwezi	400	200	200	-	10,500,000	2,234
7	Mufulira	1,000	840	160	-	9,800,000	2,085
8	Kalulushi	125	125	-			-
9	Kabwe	80	-	80	-	5,000,000	1,064
	Total	3,762	2,039	1,723	-	81,900,000	17,426

Environmental Mitigation and Monitoring Plan table

Table 3 shows the progress towards implementation of the Environmental Mitigation and Monitoring Plan. An Environmental Monitoring and Mitigation Plan was prepared and approved by USAID in 2009.

Table 3: Environmental Mitigation and Monitoring Plan

No.	Indicator	Status
1.	Develop IRS storage guidelines	Completed and distributed
2.	License storage facilities annually by ECZ	Only Mufulira storage facility was licensed during this quarter. - Districts have been advised to apply and pay K900,000=00 to ECZ for licensing
3.	Document regular supervision and monitoring of storage practices and environmental conditions	Supervision and monitoring of storage practices and environmental conditions documented as part of the Needs Assessment
4.	Annual TOT includes training in storage and transportation of insecticides	Store keepers and drivers have been included in the 2010 training program. The training has been planned for third quarter.
6.	Presence of fire fighting equipment, thermometers, and warning signs	All the 15 districts have fire fighting equipment

1.5 Challenges/Solutions

The following were the challenges and how they were resolved during the quarter:

No.	Challenges	Solutions
1.	Unavailability of 100% susceptible strain have hindered contact bioassays	Engaged ministry of agriculture to expedite paper work to order the strain
2.	Near expiry of insecticides in some districts	Districts funded the utilization of the remaining insecticides through mop-ups
3.	Inadequate anopheles mosquitoes to carry out conclusive resistance tests	Intensified mosquito/larvae collection
4.	Failure by districts to apply and pay for licensing of storage facilities	Worked with ECZ to emphasize the need to license all IRS storage facilities in the districts

1.6 Successes/Best Practices

- HSSP's active participation in the planning and implementation of the 2010 Malaria Indicator Survey.
- Maintenance of the national insectary at NMCC which has permitted conducting of entomological studies
- Post spray entomological surveys provided Ndola District with information that led to the re-spray of 300 structures

1.7 Key Products/Deliverables

The following are the key results produced during the quarter:

- 2010 Needs Assessment Report
- DDT re-distribution plan
- IRS impact study in three IRS and three non IRS districts

1.8 Focus for the next quarter

- Carry out enumeration and mapping of structures in the six districts
- Provide technical and financial support for the Malaria Indicator Survey
- Support NMCC to maintain the national entomology laboratory and insectary to enable implementation of entomological monitoring and resistance studies
- Support districts to conduct entomological surveys
- Support NMCC and the Environmental Council of Zambia (ECZ) to monitor environmental safety and compliance in safe insecticide use
- Coordinate and manage the repatriation of DDT waste, including all logistics and stakeholder coordination
- Conduct national training of trainers (master trainers) in IRS (June/July)

- Collect malaria health facility data from Mwinilunga District

2 Monitoring and Evaluation

The goal of the Monitoring and Evaluation unit is to establish and maintain a system for tracking and evaluating program performance.

The overall objective of the Monitoring and Evaluation (M&E) unit is to develop tools and procedures for planning and monitoring and ensure that management and technical staff are routinely updated on the status of given program indicators.

2.1 Key Achievements

Year 6 Quarter 1 Report

The M&E team, working in consultation with management, coordinated the Year 6 quarter 1 review meeting. The Year 6 quarter 1 report was consolidated and submitted to USAID on schedule.

Updated Malaria Indicator Tracking Form

The Malaria Indicator Tracking Form has been updated to include new achievements as well as indicators from the Environmental Mitigation and Monitoring Plan. The M&E team is working to assure that all indicators and results are promptly and correctly reported during this HSSP extended period.

IRS Entomological Studies

The M&E Unit provided technical assistance to the Impact Assessment Study of IRS on Malaria Transmission in Solwezi District through data analysis and report writing. The report on the Impact of Indoor Residual Spraying on Densities of Indoor Resting Mosquitoes in Selected Districts of Zambia was completed and shared with USAID.

Needs Assessment Report

HSSP provided technical assistance in the revision of the Needs Assessment tools. The tools were used in the assessments of 54 IRS districts. The final report has been used to cost the 2010 spray season requirements.

2010 National Malaria Indicator Survey

The M&E unit formed part of the core planning and implementation team of the 2010 Malaria Indicator Survey (MIS). The M&E specialist worked as facilitator, supervisor, and co-secretary to the weekly 2010 MIS technical working group (TWG) meetings that were held at NMCC. The unit reviewed the laboratory field data collection tool and ensured that a good number of clusters sampled represented IRS areas.



An MIS field officer entering malaria data using a PDA

Year 6 (December 2009 – July 2010) Deliverables

During the quarter, the M&E Unit, working in consultation with management, prepared a list of expected HSSP deliverables in Year 6, December 2009 – July 2010. The list is used for tracking the status and whether a given deliverable/product has been produced.

2.2 Key Products/Deliverables

The following are the key products produced during the quarter:

- Year 6 Quarter 1 Report
- Updated Malaria Indicator Tracking Sheet
- IRS Post Spray Meeting Report
- IRS Post Spray Technical Working Group Meeting Report
- Needs Assessment Report
- List of expected Year 6, December 2009 – July 2010, Deliverables

2.3 Focus for the next quarter

- Consolidate and submit Quarter 2 report to USAID
- Consolidate and share the IRS annual report
- Participate in the malaria indicator survey
- Participate in the IRS studies
 - Assist collect and analyze the Malaria Test Lab Results by month and year for Mwinilunga District for the period 2004 - 2009
- Revise IRS M&E Checklist
- Prepare and submit the PEPFAR report through the Zambia Partner Reporting System
- Documentation
 - End of project report
 - Finalize all the reports to be written
 - Update the HSSP list of products/deliverables

3 Administration and Finance

The Goals for the administration and finance unit are to:

- Provide cost effective, efficient financial and administrative support for all project operations
- Provide accurate timely reporting of all financial and administrative transactions for the project to all stakeholders

The objectives are:

- To guide HSSP to achieve 100% USAID and Abt Associates financial and administrative compliance
- To safeguard project inventory and cash
- To provide local human resources management support

- To provide logistics support to the program

3.1 Key Achievements

Financial accounting activities

- Successfully conducted an auction sale of eight of the ten HSSP vehicles.
- Successfully tracked overall project and field expenditures

Overall Budget and Expenditures

As at March 26, 2010 HSSP had spent a cumulative total of \$47.4 million. The cumulative obligated amount for the same period to March 26, 2010 was \$48.4 million. The total project ceiling amount is \$48.9 million. Cumulatively, HSSP had spent 97.9% of total obligated funds and 97% of total project ceiling funds. The remaining obligated funds as at March 26, 2010 were \$1 million.

Monthly Average Burn Rate

The overall monthly burn rate for the project is \$252,016 for the quarter. This figure also represents the future burn rate for HSSP. Historical monthly burn rate averaged \$708,018.

Compliance of financial contract reports

Federal Financial Report 425 for the quarter ended December 31, 2009 was submitted to USAID on January 13, 2010.

Human Resources

HSSP has a human resource establishment of 11, comprised of 1 management staff, 5 technical staff and 5 support staff. There was no change in staffing levels during the quarter.

3.2 Key products/deliverables

The following are the key results produced during the quarter:

- Monthly ROVs for January, February and March 2010

3.3 Focus for the next quarter

- Management and monitoring of IRS extension budget
- Work on auctioning of non-expendable assets not handed over or rolled over to the follow-on project

Success Stories

Gender Balance Linked to High Performance in Indoor Residual Spraying Program

On a dusty and hot October day in Kalingalinga; one of the compounds in Lusaka, Zambia; indoor residual spraying (IRS) against malaria is taking place. Moving through the crowded streets and footpaths, pairs of workers carrying steel spray cannisters are easy to spot in their bright blue overalls and yellow helmets. Many among them are women. Across 15 of Zambia's most populous districts, PMI-funded IRS is in full operation, protecting over four million people.

Each year IRS campaigns employ a large temporary workforce. In the Health Services and Systems Program, in Zambia, about 1,300 spray operators are engaged each year. The work is heavy, hot, and demands mental and physical stamina. Spray operators wear full-body protective clothing, carry pumps weighing up to 20 pounds or 9.1 kilograms, and often walk a mile or more during a day's work. Despite the physical rigors of the job, women participate actively in all aspects of IRS, and get high marks for their performance.

“Women householders appreciate seeing women doing this work in the community, and don't hesitate to let us enter their homes.”
IRS Supervisor Alphonsina Hamalala

Gender in the IRS program has implications for health, equal opportunity, social roles, decision making and leadership. Recognizing its importance, HSSP aims for a cross-cutting gender approach to assure appropriate gender targeting, balanced gender participation and attention to how interventions engage and impact men and women differently. The program has tracked gender balance and encouraged female participation in this traditionally male-dominated activity.

Women make up more than 30% of the IRS workforce in Zambia, although pregnant and lactating women are not eligible for spraying work. In Ndola, the capital of Zambia's Copperbelt Province, females outnumbered male spray operators (69 females, 60 males) in 2009. IRS managers and supervisors have reported frequently that women are honest and reliable, and can carry out the same work as their male peers.



Female supervisor giving daily orders to her spray team

In addition to working as spray operators, female Environmental Health Technicians serve as supervisors of spray teams, and earn the respect of their teammates, armed with skills and knowledge gained through HSSP-supported training. “I have no trouble leading my spray team. They see that I am on the ground, solving problems and meeting our targets,” says supervisor Alphonsina Hamalala in Lusaka. Members of the Neighborhood Health Committee are also circulating in the area to motivate the community to accept spraying. The Kalingalinga NHC includes six women and four men – another positive sign of high women's participation.



IRS geocoding information being recorded by a female enumerator in Zambia

During the pre-spray period, enumerators with hand-held personal data assistants (PDAs) visit communities to collect geocoding data on households to be sprayed. This includes geographic location, number of inhabitants, types of wall surfaces, and availability of bednets. This geo-referenced data enables mapping, targeting and commodity estimation. In the enumeration activity as well, women have excelled. Geographic information systems specialist, Brian Chirwa, commented: “Among our top ten performing geocoding enumerators this past year, eight were

women.”

These promising trends support the aim of the President’s Malaria Initiative to reduce gender-related vulnerability to malaria, and also help to counteract the effects of gender norms which often limit female participation.