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2018 BURKINA FASO
END OF SPRAY REPORT

SPRAY DATES: JUNE 05 – JULY 11, 2018

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2018 VECTORLINK BUKINA FASO END OF SPRAY REPORT

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ACRONYMS

BMP	Best Management Practices
BUNEE	*Bureau National des Evaluations Environnementales* / National Bureau of Environmental Assessment
CDC	Center for Disease Control
COP	Chief of Party
CSPS	*Centre de Santé et Prévention Sociale* / Center for Health and Social Prevention
DC	District Coordinator
DCV	Data Collection Verification
DEC	Data Entry Clerk
DHMT	District Health Management Team
DS	*District Sanitaire* /Health District
DOS	Directly Observed Spray
DRS	*Direction Régionale de la Santé* (Regional Health Directorate)
ICP	*Infirmier Chef de Poste* (Health Post Chief Nurse)
IEC	Information, Education, and Communication
IRS	Indoor Residual Spraying
IRSS	Institute of Research on Health Sciences/Centre Muraz
ITN	Insecticide Treated Nets
LLINs	Long-Lasting Insecticide-Treated Nets
M&E	Monitoring and Evaluation
MOH	Ministry of Health
MOP	Malaria Operational Plan
NGO	Non-Governmental Organization
NMCP	National Malaria Control Program
PMI	President's Malaria Initiative
PPE	Personal Protective Equipment
PSECA	Pre-Season Environmental Compliance Assessment
SEA	Supplemental Environmental Assessment
STTA	Short-Term Technical Assistance
TA	Technical Assistance
U.S.	United States
USAID	United States Agency for International Development
WHO	World Health Organization

EXECUTIVE SUMMARY

In September 2017, Abt Associates was awarded a five-year task order, the President's Malaria Initiative (PMI) VectorLink Project, to support malaria vector control activities, including the implementation of Indoor Residual Spraying (IRS) in up to 24 countries, including Burkina Faso. The purpose of the PMI VectorLink project is to support PMI in planning and implementing IRS programs and other proven life-saving malaria vector control interventions with the overall goal of reducing the burden of malaria in Africa.

In preparation for the campaign, Abt provided IRS related commodities procurement and logistical services; planning, organization, management, and IRS implementation. The project conducted spray operations from June 5, 2018 to July 11, 2018 with a spray target of 245,192 structures and a goal of protecting 814,369 people in the following districts in Burkina Faso: Kampti (South-West Region), Kongoussi (North-Center Region) and Solenzo (Boucle de Mouhoun Region). The project sprayed the organophosphate pirimiphos methyl (Actellic 300CS) insecticide in Kongoussi and Solenzo, and clothianidin (SumiShield 50 WG) in Kampti and Solenzo.

VectorLink Burkina Faso successfully completed its 2018 IRS campaign well within the scheduled timeframe designated by the National Malaria Control Program (NMCP). The VectorLink Burkina Faso Project benefited from the support of the UNITAID funded Next Generation IRS (NgenIRS) project, in the procurement of insecticide. The following are project achievements and key highlights of the 2018 spray campaign (See Table 1), which lasted 30 operational days:

- Sprayed 258,766 out of 266,765 eligible structures that spray operators (SOPs) found in the three targeted districts in Burkina, accounting for a coverage rate of 97 percent. The project protected 766,374 residents, including 125,206 children under five years of age and 14,183 pregnant women.
- Trained 2,227 individuals to deliver IRS in the three districts in Burkina Faso.
- The project used a total of 29,098 bottles of Actellic 300CS and 24,427 of SumiShield sachets with a utilization ratio of approximately 4.83 structures sprayed per bottle/sachet of insecticide.
- Wall bioassays conducted within two weeks of spraying, to assess the quality of spraying in the target districts, recorded mortalities of susceptible *An. gambiae* Kisumu strain at 100 percent with both insecticides Actellic CS300 and SumiShield 50 WG.

VectorLink Burkina Faso implemented the 2018 IRS campaign in close collaboration with PMI/Burkina Faso and with several Burkina Faso governmental partners, notably: the National Malaria Control Program (NMCP); Ministry of Health (MOH); Ministry of Agriculture; Ministry of Environment; National Directorate of Agriculture; National Bureau of Environment Assessment; Regional Directorates of Health, Agriculture and Environment; District Health Management Teams (DHMTs) in the three target districts.

As the primary partner, the NMCP was involved in all of the main activities, including the development of the operational plan, macro and microplanning meetings. Trained as core trainers, the NMCP trained head nurse (ICP) as trainers in the three districts. Furthermore, the NMCP took part in supervising IRS activities implementation in the targeted districts. The DHMT and local authorities were responsible for seasonal staff recruitment and training, and the regional directorate and provincial services of agriculture and environment assisted with the environmental compliance assessment.

Table 1: VectorLink Burkina in 2018 IRS Campaign Summary

	Kampti	Kongoussi	Solenzo	Total
Dates and length (in days) of PMI-supported IRS campaign	June 5 – July 11, 2018	June 5 – July 11, 2018	June 5 – July 11, 2018	30 operational days in each district
Insecticide used	SumiShield : 5,535	Actellic CS300: 20,688	Actellic CS300: 8,410 SumiShield: 18,892	53,525
Total targeted structures	29,666	119.497	105,029	245,192
Cumulative structures found by SOPs	29,379	131,675	105,711	266,765
Cumulative structures sprayed	27,489	126,961	104,316	258,766
Population in sprayed structures	91,851	361,006	313,517	766,374
Population of pregnant women in sprayed structures	1,826	6,663	5,694	14,183
Population of children under five in sprayed structures	14,653	61,156	49,397	125,206
Spray progress (%) based on targeted structures	92.7%	106.2%	99.3%	105.5%
Spray coverage (%) (based on structures found by SOPs)	93.6%	96.4%	98.7%	97.0%
Total number of people trained to deliver IRS in targeted areas*	406	1,017	804	2,227
M	321	795	673	1,789
F	85	222	131	439

**This is based on PMI indicator definition and only includes SOPs, Team Leaders and Supervisors.*

1. Country Background

Malaria remains a major public health issue and is endemic throughout the country, with a seasonal upsurge from May to November. In Burkina Faso, the rainy season duration varies across the country with corresponding variances in seasonal malaria transmission based on geographic zones. In the North, the rainy season is short (up to three months); in the central zone it lasts up to six months; and in the South, it can last up to nine months. Important components for reducing the burden of malaria morbidity and mortality include systematic use of diagnostic tools for suspected malaria cases and effective use of antimalarial medicines for confirmed cases, along with prevention strategies, such as the prevention of malaria in pregnancy, seasonal malaria prevention and vector control interventions such as promoting consistent use of long-lasting insecticide-treated nets (LLINs) and IRS.

Burkina Faso has strong entomological capacity and a history of malaria vector research including insecticide resistance monitoring. IRS implementation was carried out in 2010 and 2011 as a pilot intervention in the district of Diébougou, a high-transmission area located in Bougouriba Province in the southern zone of the country. The insecticide used was carbamate, and the IRS covered 36,870 structures, corresponding to 99.30 percent of the eligible structures, thus protecting 115,638 people. The NMCP has included IRS in its current Strategic Plan for Malaria Control for 2016-2020.

Two rounds of testing provided evidence of resistance to pirimiphos-methyl in several sites designated for IRS in 2018. The team conducted a repeat third round with new pirimiphos-methyl insecticide papers, and the test confirmed resistance in the four sites from the Southwest regions (Kampti, Gaoua, Mangodara, and Tiefora) with mortality rates below 80 percent. The mortality rates in Solenzo and Kongoussi (both designated for IRS) in the Northern region were higher at 95 percent and 97 percent, respectively. Subsequently, Sumishield 50WG was chosen for the 2018 IRS campaign in Kampti due to the higher frequency of pirimiphos-methyl resistance. The team also recorded resistance to pirimiphos-methyl in the Central region.

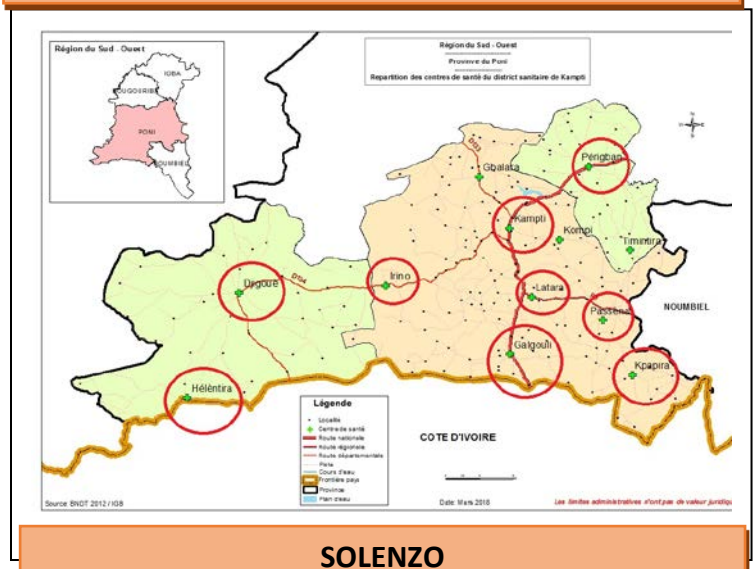
An. gambiae s.l. remains the main malaria vector in Burkina Faso in all regions sampled. Molecular analysis revealed that *An. gambiae* and *An. coluzzii* occur in sympatry in the Southwestern and Cascades regions, with *An. gambiae* s.s. predominating in Kampti and Mangodara. The Central and Northern areas were dominated by *An. coluzzii*. Few *An. arabiensis* were detected across all sites.

The proportion of *An. gambiae* s.l. infected with *P. falciparum* was highest in the Southwestern areas of Burkina Faso, with a mean infection rate > 6 percent (by polymerase-chain reaction [PCR]) in these four sites. The team detected *P. falciparum* infected *An. gambiae* s.l. in this area in June, with high positivity rates in August, September, and October from females collected both indoors and outdoors and as late as December in Southwestern sites and also in Seguenega, in the Northen region where parity rates were higher than in the Central and Northern sites.

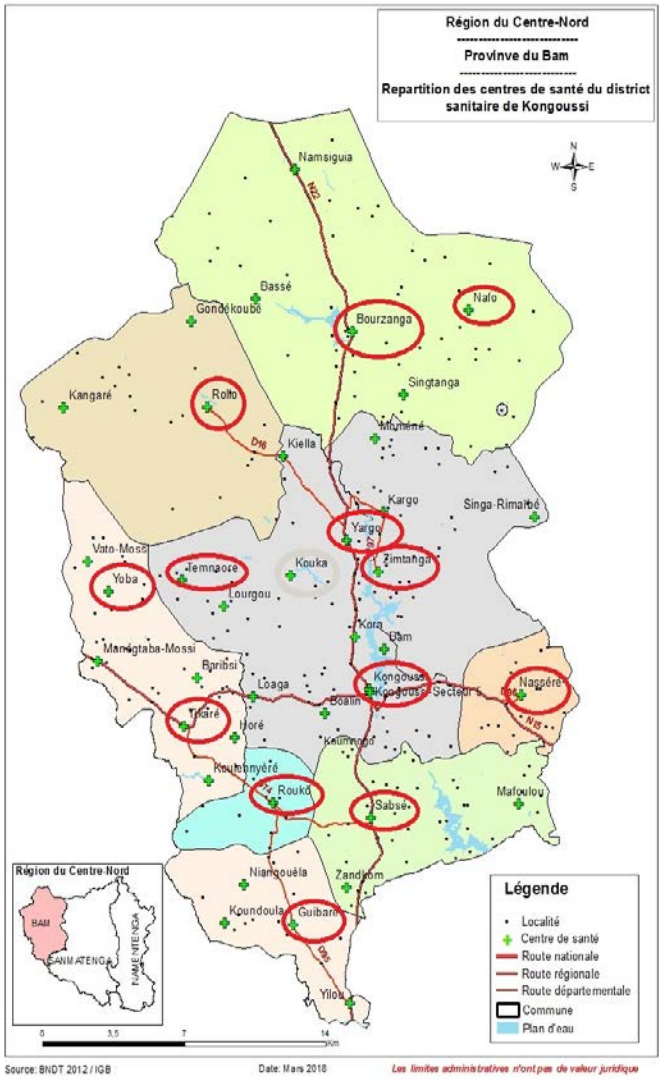
Figure 1: Operational Sites for IRS in Burkina Faso

Map of Burkina with the 3 districts

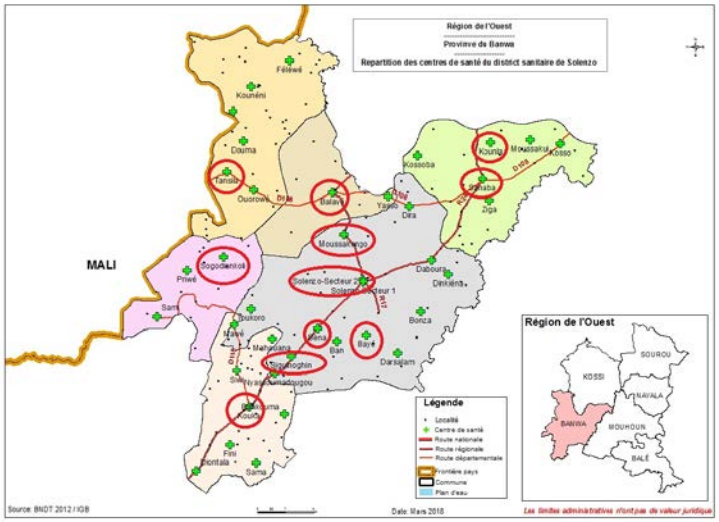
KAMPTI



KONGOUSSI



SOLENZO



2. 2018 IRS CAMPAIGN OBJECTIVES

As stated in the 2018 VectorLink Burkina Faso work plan, the three objectives for 2018 included:

- Cover at least 85 percent of eligible structures found in all three districts of Kampti, Kongoussi, and Solenzo
- Increase national and local capacity in planning, implementing, and supervising IRS
- Implement cost-efficient activities to save funds and ensure ease of management

Given these objectives, VectorLink Burkina Faso aimed to cover approximately 245,192 structures in the three districts of Kampti, Kongoussi, and Solenzo (see Table 2), and to protect as many of the estimated 814,369 people living there as possible.

To achieve these objectives, VectorLink worked with several partners including the MoH and NMCP; whose activities included: 1) validation of IRS training and management tools, including information, education, and communication (IEC) tools, data collection and verification forms, report forms, checklists, etc.; 2) support with planning the IRS campaign; 3) training IEC mobilizers and SOPs; 4) supervision during the IRS campaign; and 5) support with validating data collected.

Table 2: Estimated Population in Targeted Districts of Kampti, Kongoussi and Solenzo

Region	Districts	Targeted Population*	Estimated Eligible Structures
South-West	Kampti	96,970	29,666
Center-North	Kongoussi	365,430	119,497
Boucle of Mouhoun	Solenzo	351,969	105,029
Total		**814,369**	**245,192**

**Estimate based on 2018 data provided by NMCP/Center for Health and Social Prevention (CSPS) and based on 3.4 persons per structure*

3. PREPARATION FOR IRS CAMPAIGN

3.1 IRS CAMPAIGN PLANNING

The 2018 IRS campaign is the first IRS campaign conducted by VectorLink Burkina since IRS was stopped in 2012. In collaboration with PMI and the NMCP, VectorLink Burkina Faso developed an IRS activity calendar (road map). The calendar identified schedules for advocacy, national planning, micro planning meetings, recruitment, training of trainers and training of SOPs and launch of the IRS campaign. The calendar also included logistics arrangements, materials distribution, and the environmental compliance assessment, among other spray-related tasks. The campaign started on June 5, 2018 and ended July 11, 2018 in all districts, for a total of 30 operational days. Table 3 summarizes the activities the project undertook to plan for and organize the 2018 IRS campaign.

Table 3: 2018 IRS Planning and Organizational Areas

	Activities implemented
VectorLink Activities start-up and 2018 Workpan and budget Developement	Short term technical assistance (STTA) for VectorLink activities start-up including meetings with PMI Burkina Faso and NMCP, visit to the directorates of Agriculture and Environment, identification and selection of district warehouses, interview of selected candidates, draft of the 2018 IRS work plan and budget, and elaboration of the Supplemental Environmental Assessment (SEA) for Burkina Faso (November 1-30, 2017)
IRS activities planning	National-level planning (April 25, 2018) District-level planning (micro-planning), and development of spray calendar respectively in Kampti, (May 07- 08), Kongoussi (April 26-27)), and Solenzo (May 03-04)
Recruitment of seasonal personnel	PMI VectorLink temporary personnel: district coordinators, finance assistants, logistics assistants, May 2018 PMI VectorLink site seasonal personnel: site managers, team leaders, SOPs, May 2018 Auxiliary staff: drivers, storekeepers, repair technicians, washers, water suppliers (April 16-20)
Personnel capacity-building	Review of existing training manuals and tools Training of VectorLink district staff, including finance assistants, logistics assistants, DECs Training of master trainers NMCP, regions and district health team (April16-20) Country-level IRS training of trainers (May14-18) Gender training April/May Physicians' training on IRS-related poisoning case management and development of guidelines for ICP (May 19)
Environment	Identification and selection of operational facilities at the district and secondary sites Pre-inspection (April 4-12) and validation (May 25, June 3) for all IRS sites using smartphones SEA report for Burkina Faso submitted to home office and PMI for IRS environmental compliance Monitoring secondary IRS sites establishment and final inspections using smartphones Inspect all transport vehicles prior to signing a rental contract Training on environmental management of IRS campaign
M&E	Develop IRS and mobilization data collection tools Develop IRS and mobilization database based on Burkina Faso's context Recruitment of DECs for IRS and IEC mobilization by VectorLink Burkina and District Health Management Team (DHMT); training for all DECs on data entry. (May 21-24) Training and use of SMS for collecting and sending timely data and training of team leaders on Directly Observed Spray (DOS) (June 2)

	Activities implemented
Operations	Advocacy at the regional level on IRS information and local authority's implications in supporting the 2018 IRS implementation activities in target districts. (March 05-09) Advocacy for district's office space and operational sites as district health authorities and CSPS (Centre de Santé et Prévention Sociale/Center for Health and Social Prevention) As contribution to the project. District offices were located at the district health facilities and secondary sites at the CSPS. Deployment of project district personnel to spray districts (finance assistants, logistics assistants, DECs (April 16-20) Validation of spray calendars and communication plans Rehabilitation of IRS sites in compliance with environmental standards (April/May 2018) Production of training manuals and data collection tools Seasonal personnel's pre-IRS medical examination and pregnancy testing (May 27 June 3) Training of SOPs and auxiliary staff (drivers, storekeepers, repair technicians, washers) (May 25-June 3) Development of supervision plan for SOPs (May) Implementation of supervision tools, including smartphone use (June 2) Coordination and monitoring of SOPs Monitoring of spray performance tracking sheet
Logistics	Physical inventory of existing equipment (February 2-3) Quantification of insecticide and IRS equipment Shipment from Diebougou to Kampti of usable IRS equipment from the 2012 IRS campaign (May) Needs assessment for local and international procurement (March/April) Transportation needs assessment Training of logistics assistants and storekeepers (April16-20) Dispatching and delivery of materials from the central warehouse to districts and secondary sites(May 25 – June 3)
Communication	In collaboration with NMCP, developing IRS IEC plan and developing IEC materials, IEC material production and distribution, and validating districts' IEC plans Participation in IEC activities supervision including the Health Post Chief Nurse/ Infirmier Chef de Poste (ICP)'s orientation and IEC mobilizers and supervisors training
Partnership	Meetings and frequent phone calls as needed between NMCP Coordinator, PMI/Burkina team, and Abt's Chief of Party (COP) Meetings and phone calls between VectorLink Operations Manager, NMCP focal person to coordinate IRS activities Involving regional/district environmental officers for IRS EC inspections Using district Monitoring & Evaluation (M&E) staff as DECs
Administration & Finance, Procurement	2018 budget preparation IRS operations participants' agreements signing Vehicle rental tender process Spray operators (SOPs) payment process

3.2 Logistics Planning and Procurement

3.2.1 Personal Protective Equipment and Insecticide Procurement for the 2018 IRS Campaign

During the start-up activities, VectorLink conducted an inventory of the warehouse in Diebougou, where the 2012 spray campaign materials were stored. Items that could have been used for the campaign included: barrels, tanks, basins, remaining masks, coverall and boots. In addition to these materials, the VectorLink team developed a list of items to be procured locally and internationally. A full list of personal protective equipment (PPE) procured for the 2018 IRS campaign is included in Annex A.

The project procured a total of 44,462 bottles of Actellic®300CS (5,297 bottles shipped from Senegal to Burkina Faso, and 39,265 procured internationally) and 33,843 sachets of SumiShield.

3.2.2 Planning Logistics and Transportation for the 2018 IRS Campaign

Prior to the start of the spray campaign, the VectorLink Project staff conducted several field visits with NMCP. The VectorLink team also held meetings with local authorities in regards to geographical reconnaissance and conducted an evaluation of the rehabilitation of operational sites.

During the micro-planning workshop, the number of operational sites was determined based on the distance between the operational site and the spray sites. Renovation work done to operational sites followed the proper environmental safety standards listed in the PMI IRS Best Management Practices (BMP) Manual All the operational sites were composed of the required infrastructures, such as soak pits, separate restrooms and changing areas for both men and women, water storage barrels, danger and emergency signs, an emergency contact list, as well as storage for both the insecticide and the spray materials.

The 33 operational sites were located in the health centers and were all provided free of charge by the government of Burkina Faso.

3.3. Training

The VectorLink team, in close coordination with the National Malaria Control Program (NMCP) updated training materials in a review session before formally adopting the final training materials and tools. A few people from the NMCP were selected as Master Trainers and in turn provided training to others involved in the implementation of spray activities.

In addition, the VectorLink Burkina Faso team received short term technical assistance from VectorLink team members from Rwanda and Senegal. Important components of the training sessions included: IRS concepts and planning, environmental compliance and personal safety, M&E of IRS, gender awareness, social behavior change concepts, communication and information transfer techniques, management of operational sites, insecticide and equipment handling, spray techniques and proper use of PPE, logistics, storage, and management of IRS equipment. A total of 2,227 people of whom **1,789** (80.33%) were men and 438 were women (19.67%) attended the trainings**.** Table 4 below provides details of the types of training and key topics covered.

Table 4: IRS Topics Covered during trainings to improve spray quality

Type of Training	Participants trained	Key Topics Covered	Dates
Master training	22	Overview of malaria epidemiology and prevention strategies, insecticide selection; logistics, storage, safe handling, and environmental compliance in IRS; IEC and community mobilization; compression pump components, use and maintenance of pumps (Goizper® brands); spray techniques; monitoring and supervision; data quality assurance; gender awareness; IRS leadership and management by objectives.	April 16–21, 2018
Training of trainers for SOPs	291	Compression pump components, use and maintenance (Goizper®) of the pumps; spray techniques, filling out SOPs' data collection form, safety issues in IRS, and providing IEC messages through an interpersonal communication approach; gender inclusion and sexual harassment awareness.	May 14–18, 2018
Spray Operators	749 (322 Solenzo, 91 Kampti and 336 Kongoussi)	Insecticide and equipment handling, PPE usage; hazard management; environmental risk awareness; spray techniques; end-of-day clean-up; triple rinsing procedure; data collection; waste management; gender awareness.	May 28–June 1, 2018
One-day dedicated training for Team Leaders (selected from trained spray operators)	125 (54 Solenzo, 14 Kampti and 57 Kongoussi)	Team Leaders' roles and responsibilities as first line supervisors of IRS operation, time keeping, daily health checks for SOPs, proper handling of spray equipment and materials, team and spray operator performance targets, use of PPE, household mobilization and safety, supervising insecticide mixing and pressurizing the sprayer, supervising spray techniques, direct observation of spraying, triple rinsing procedure, first aid, repair and maintenance of spray pumps in the field, and supervision of end-of-day clean-up.	June 2, 2018
Community mobilizers	605 (175 Kampti, 292 Kongoussi and 138 Solenzo)	Interpersonal communication and information transfer techniques, key IRS concepts; human health and environmental safety, behavior change concepts; IEC/BCC; M&E (filling out IRS and mobilization data forms).	
Storekeepers	36 (9 Kampti, 15 Kongoussi and 12 Solenzo)	First expired/first out arrangement; stock card management; PMI IRS BMPs on warehousing; Key IRS indicators, environmental compliance and safety issues; managing operational sites.	May- June
Pump Maintenance Technicians	21	Spray pumps handling and preventive maintenance; calibration of spray equipment; assembling and maintenance of control flow valves; end-of-day clean-up; triple rinsing procedure.	June
Washers	98	Environmental and personal safety during washing of coveralls.	June 2
Security Guards	67	Security and safety of IRS equipment and premises	May 25

Type of Training	Participants trained	Key Topics Covered	Dates
Drivers	10	Management of the operational sites' terrain; safe handling and transport of insecticides and spray teams; health and environmental safety; handling IRS commodities; spillage management	May/June
District Coordinators, Logistics and Finance Assistants	9	District office management, coordination between VectorLink and field government partners (DHMT, ICP, local authorities. Logistics management at district level, dispatching of IRS materials, monitoring warehouse and site secondary stores stock cards, regular inventory Effective payment of field staff; monitoring of vehicle fuel consumption; payment tracking and documentation	May
DECs / M&E Assistants	56 (31 Clerks from June 5-July 10 & 25 Clerks from July 11-August 03)	Database error checking methods; data entry, validation, search / edit functions	May/July
Medical & Health staff	100 (9 doctors and 91 ICPs)	Physiological mechanisms involved in intoxication, insecticide poisoning management; poisoning prevention and practices; health hazard and side-effect management mitigation, case management procedure was developed during doctors training and provided to ICP	May/June

4. IEC ACTIVITIES

The VectorLink Burkina Faso focused on several IEC strategies that included: informational meetings at the district level by community health workers and local leaders, IRS posters, banners, town criers, and radio spots. The IEC messaging also focused on the continued use of LLINs in parallel with IRS. All communication activities and key messages were discussed and planned with the NMCP IEC unit. Messages from local radio shows and town criers included information about IRS and the insecticide used during the campaign.

Prior to implementing the IEC activities, ICPs, who trained the SOPs, received training from May 28 to June 1, 2018. The project conducted a separate training on June 3, 2018 for Mobilizers.

4.1. ADVOCACY MEETINGS

In addition to other IEC materials, VectorLink Burkina conducted advocacy meetings involving high level authorities (High Commissioner, Prefects, mayors, police and religious leaders) in each district to inform and raise awareness on the importance of IRS, emphasizing the crucial role they should play to mobilize beneficiaries for IRS acceptance.

4.2. IEC ACTIVITIES

IEC activities were led by the VectorLink Burkina Faso IEC Coordinator and supported by IEC supervisors at the field level.

Mobilization

Door-to-door mobilization was carried out two days before the spray campaign in all districts. Mobilizers used for the 2018 spray campaign in Burkina Faso were the community health workers, who were well known in the village. In addition, door-to-door mobilization was conducted throughout the campaign, generally two days prior to the arrival of the SOPs in the different localities. They reminded beneficiaries on safety precautions and house preparation during IRS operations as well.

In each village, one IEC mobilizer is chosen for door-to-door communication. In total, 605 IEC mobilizers (292 in Kongoussi, 138 in Solenzo and 173 in Kampti) participated in the IRS campaign. All participated in a one-day training on June 3, 2018 that focused on messaging and effective communication techniques, and filling in mobilization data collection forms. IRS posters were posted in each health facility to magnify IRS campaign.

Town Criers

In Burkina, town criers were used in larger towns, in particular in Kampti town and Guibare, and in areas where spraying was not completed in one day due to either heavy rainfall or scattering of households within a specific village. The town crier, in collaboration with the ICP, site manager, and heads of villages, informed household owners of date changes and reminded them of safety precautions before and after the spray.

Radio Broadcasts

Four community radio stations, two in Kongoussi, one in Kampti, and one in Solenzo, were contracted to broadcast the IRS campaign messages in French and in local languages. Messages focused on the benefits of spray, structures eligible for spray, and precautions that households needed to take to facilitate spray operations.

The radio station contracts covered the period from May 28 to July 10, 2018. Each radio station broadcasted 40 times IRS messages. Table 5 below presents a detailed list of communication materials developed by district.

Table 5: Communication Materials by District

DISTRICT	Posters	Banners	Number of messages broadcasted by radio
Kongoussi	50	15	40
Kampti	25	14	40
Solenzo	25	11	40
Total	**100**	**40**	**120**

4.3. IEC Activities and Outcomes

Nearly all household owners (98%) that received educational information from IEC mobilizers accepted IRS. Difficulties faced by IEC mobilizers included the absence of household owners during IEC visits, and conflicts with scheduled cultural ceremonies. Despite these difficulties, the campaign had high coverage and acceptance levels and structures readiness for IRS. See Table 5 for the results of mobilization efforts and radio station activities. Table 6 below presents an overview of the mobilization results among IRS sites.

Table 6: Overview of Mobilization Results

IRS Sites	Total Households found	Total Households Mobilized	Proportion of Households Mobilized	Population Sensitized			Total Households Accepting IRS	Percentage of Households Accepting IRS
				Men Sensitized	Women Sensitized	Total Population Sensitized		
Kampti District								
Djigoue	391	389	99.5	1,629	1,813	3,442	389	100
Galgouli	186	185	99.5	456	547	1,003	185	100
Helintira	412	412	100.0	1,584	1,515	3,099	412	100
Kampti	231	231	100.0	465	643	1,108	222	96.1
Kpapira	444	441	99.3	694	814	1,508	428	97.1
Latara	326	322	98.8	1,506	1,760	3,266	322	100
Passena	628	610	97.1	2,121	2,353	4,474	554	90.8
Perigban	213	212	99.5	160	233	393	144	67.9
Total Kampti	**2,831**	**2,802**	**99.0**	**8,615**	**9,678**	**18,293**	**2,656**	**94.8**
Kongoussi District								
Bourzanga*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Guibare*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Nafo	896	896	100.0	2,638	2,831	5,469	896	100
Rouko	321	319	99.4	995	1,024	2,019	319	100
Temnaore	263	263	100.0	797	1,189	1,986	263	100
Yalka	919	919	100.0	2,496	2,774	5,270	919	100
Yoba	180	180	100.0	342	428	770	180	100
Total Kongoussi	**2,579**	**2,577**	**99.9**	**7,350**	**8,363**	**15,713**	**2,578**	**100**

IRS Sites	Total Households found	Total Households Mobilized	Proportion of Households Mobilized	Population Sensitized			Total Households Accepting IRS	Percentage of Households Accepting IRS
				Men Sensitized	Women Sensitized	Total Population Sensitized		
Solenzo District								
Baye	1,165	1,165	100.0	3,111	3,364	6,475	1,162	100
Bena	1,457	1,457	100.0	2,781	3,349	6,130	1,440	98.8
Founa	291	291	100.0	1,260	1,408	2,668	291	100
Kouka	176	176	100.0	238	202	440	176	100
Sanaba	943	941	99.8	1,835	2,231	4,066	934	99.3
Siguinonghin	559	558	99.8	1,559	1,668	3,227	557	100
Sogodjankoli	562	561	99.8	878	1,004	1,882	528	94.1
Solenzo	1,152	1,141	99.1	1,781	2,673	4,454	1,139	99.8
Total Solenzo	**6,305**	**6,290**	**99.8**	**13,443**	**15,899**	**29,342**	**6,227**	**99.0**
Grand Total	**11,715**	**11,669**	**99.6**	**29,408**	**33,940**	**63,348**	**11,461**	**98.2**

**Data not provided on mobilization forms from these sites due to literacy issues among the mobilizers recruited in that area.*

4.4. World Malaria Day

The VectorLink team joined Burkina Faso NMCP and other health stakeholders to commemorate the 2018 World Malaria Day hosted on April 25, 2018 which took place at the Kamboisin CSPS in Ouagadougou. The VectorLink team had a stand with spray educational materials and equipment. The Minister of Health chaired the ceremony in the presence of the United States (U.S.) Ambassador to Burkina Faso and his delegation (see Figure 2) who provided positive feedback about the benefits of IRS.

Figure 2: U.S. Ambassador and VectorLink COP

5. IMPLEMENTATION OF IRS ACTIVITIES

5.1. SPRAY CAMPAIGN LAUNCH CEREMONY

Figure 2: PMI and CDC Team during the Spray Campaign Launch Ceremony on June 4, 2018

Several weeks before the spray campaign, the VectorLink team worked on the launching preparation with NMCP and the local authorities led by the High Commissioner of the Banwa Province. The 2018 IRS launch ceremony took place in Solenzo on June 4, 2018 and was marked by the presence of PMI and the U.S. Centers for Disease Control and Prevention (CDC) team in Burkina Faso. High level authorities in the targeted regions were also present. The ceremony was chaired by the Secretary General of the MoH. Cultural group exhibitions at the launch ceremony focused on the fight against malaria in Burkina Faso. Various speeches were given to recall the burden of malaria in the country and ongoing control strategies, including IRS as one of the key interventions of malaria vector control in Burkina. The different speeches were delivered by the Mayor of Solenzo commune, the Mayor parliamentarian of the Bam, the representative of USAID/PMI Bijou Muhura, who highlighted the continued partnership between the United States Government and the Government of Burkina Faso for malaria control. The Secretary General of the MoH emphasized the high incidence of malaria and the willingness of the U.S. Government to provide funding for one of the most expensive but effective strategies in malaria control.

Following the launch ceremony, the PMI/Burkina Faso team, including USAID and CDC staff, along with the the National Malaria Control Program (NMCP), visited Bena site in the Solenzo district. The team, who was nicely welcomed by the population of Bena, visited the site facilities and observed SOPs mix and apply insecticide on the wall. In addition, they observed mobilizers at work.

Figure 3: Speech by the USAID Burkina Faso Health Office Director (left) and exhibit by the MoH Secretary General (right)

5.2. Short-term Technical assistance

The Abt Home Office Technical Program Manager, Monitoring and Evaluation (M&E) Specialist, Cote D'Ivoire COP, the Regional Environmental Compliance Officer (ECO), Senegal's Finance and Administration Manager, Rwanda's Operations Manager and Monitoring and Evaluation Manager traveled to Burkina Faso to provide short-term technical assistance (STTA) to support the VectorLink team in-country before and during the implementation of the 2018 IRS campaign.

5.3. Spray Operation and Supervision

5.3. 1. Spray Operations

In collaboration with the district local authorities, the health system at the district and CSPS level, recruited all spray personnel (SOPs, team leaders, mobilizers, coordinators, supervisors, storekeepers, etc.) based on recruitment criteria shared by the project. The number of spray operations teams was based on the average number of 13 structures that a SOP could treat in a day. VectorLink Burkina provided all technical (training, monitoring, etc.) and logistical (store, soak pit, PPE, equipment supply, insecticide, consumables, transport, etc.) support required for the spray operations in the three districts. VectorLink project staff and NMCP, regional and DHMT supervisors were deployed to the sites during the implementation phase to provide supervision support.

Implementation Logistics

Spray materials and IRS supplies were dispatched to the different spray sites prior to the start of the spray campaign. Throughout the campaign, an assessment of the spray materials was done at the district level and all needs were addressed to avoid stock-out.

Household Preparation and resident safety

SOPs received instructions about actions to be taken before, during, and after a house has been sprayed, such as:

- Move out household items furniture, cooking materials, and all food prior to spraying
- Move all furniture that cannot be moved from the home to the center of the room and cover it with a tarpaulin
- Advise occupants to stay outside the home during spraying for two and a half hours after spraying
- If people are unable to be removed from the house, postpone the spraying of this structure for the mop-up period if possible
- Keep children and domestic animals far from structures

Supervisors ensured that house preparation was performed efficiently and to the desired standards.

Directly Observed Spraying (DOS)

VectorLink Burkina used the DOS approach for supervision. The DOS form represents a tool used by team leaders to evaluate the insecticide mixing and spray techniques performed by SOPs based on standard procedures. Team leaders use the form during the spray campaign to ensure that their spray teams mixed the insecticide well and used high quality spraying techniques. Each spray day, team leaders observed the mixing of insecticide and spraying technique of each SOP under his/her supervision and recorded their findings, related to insecticide mixing, triple rinsing of the bottle, wearing of PPE, house preparation, spraying techniques, pump integrity, etc. This allowed for on-the-spot corrective actions when necessary.

Daily Health Team Leader Checklist

The daily health team leader checklist was used to track SOPs' health status at the beginning of each spray day. The team leaders filled out this tool at the beginning of the day. The tool allows the team to monitor the health status of SOPs to perform spraying, including verifying that they have eaten breakfast, the presence of certain symptoms like fatigue and dizziness, weak performance of the SOP the previous day, and proper use of PPE.

Daily Performance Tracking

The project team explained the importance of the daily performance tracking tool to site supervisors, SOPs, and team leaders during the training of trainers and training of SOPs. At the end of each day, team leaders and storekeepers completed the sheet with nine indicators to gauge overall performance. The indicators recorded included: number of SOPs who worked, number of structures found, number of structures sprayed, number of insecticide bottles used, insecticide stock balance, average number of structures sprayed per bottle of insecticide, average number of structures sprayed per SOP, number of SOP supervisions completed, and number of red flags / issues recorded. This performance tracking tool enabled the VectorLink, NMCP and district health supervision teams to strengthen the capacity of team leaders.

Structure Marking

Structure marking during the spray operations aims to provide information related to the spray date, the district code (three digits), the code of the SOP who sprayed the structure, household code (eight digits) and the spraying status of the structure (P: sprayed, NP: not sprayed or X: awaiting spraying during mop-up). SOPs conducted this marking, and supervision allowed them to ensure it was properly done (Figure 5).

Figure 4: Marking of Structure by SOP

Marking structures with chalk during the spray campaign was extremely helpful for mop-up operations as it was easy to erase the previous marking according to the new spraying status (sprayed/unsprayed/) of the house.

Figure 5: SOP Giving Instructions to Household Member

Operational Site Coordination

VectorLink Burkina hired 33 site managers to manage spray operations in the three target districts. They were supported by two ICPs in each site. The DHMT provided three supervisors per district. Table 7 below outlines the operations site managers and supervisors per district.

Table 7: Operations Site Managers and Supervisors per District

District	Operations Site	Site Managers	Supervisor ICP	Team Leaders	District Supervisors (DHMT)	NMCP, DRS, Environment and Agriculture
Kampti	9	9	12	14	3	6
Kongoussi	13	13	40	57	3	6
Solenzo	11	11	39	54	3	6
Total	33	33	91	125	9	18

mHealth Use

Dimagi LLC conducted capacity building of the VectorLink Burkina staff through remote technical support. The team used the mobile system for reporting and supervised the set-up of the online server for reporting via CommCare. Dimagi and the VectorLink Burkina M&E team then built the capacity of mobile tool users and rolled out the mHealth component. This included reviewing the training materials and other system support. The VectorLink home office staff provided remote back-end support during IRS activities, including closely monitoring the performance monitoring tracker results and configuring the job aids and mobile supervisory forms.

In collaboration with Dimagi LLC, VectorLink Burkina used the mHealth system throughout all three districts to improve spray operations. The system enabled VectorLink Burkina staff and supervisors to conduct standard supervision, access daily spray data quickly, conduct data verification at the household level and remind temporary staff about regulations and operational procedures. The system minimized paperwork, enabled real time sharing of data and increased both the use of mobile technology and results-based decision making.

VectorLink Burkina and Dimagi LLC managed the supervisory system activities and data verification through CommCare, a cloud based platform that automatically aggregates data submitted via SMS and through the application on the smartphones, and monitored site-level spray progress through Telerivet (application that allows one to send and receive SMS messages through an Android phone).

The mHealth reporting tools for data collection and verification, which VectorLink Burkina used throughout the spray campaign, included:

***Performance Monitoring Tracker*:**

At the end of the spray day, team leaders collect all spray data from the SOPs, which they report on the team leader forms. These team leaders' forms are then used by the storekeepers at a particular spray site to report on the daily spray performance of that site. The daily performance monitoring tracker daily reports, which include four operational indicators (total number of SOPs who worked that day; total number of structures found by SOPs; total number of structures sprayed; and the total number of insecticide bottles used at the operational site) are then sent to the gateway phone linked to the Telerivet system. The gateway phone then sent the data to the Dimagi LLC server for processing and storage. The performance monitoring tracker information was not available every day due to connection issues in some sites. Data was collected at the field level and synchronized. Once in the district where the connection is available, the data is sent out. It was shared with supervisory staff from NMCP, Regional Directorate of Health (DRS), DHMT and VectorLink Burkina. Performance monitoring tracker data provided a spray progress overview and timely information for decision making purposes through a dashboard developed for this purpose.

***Supervisory Application*:**

Supervisors filled out the CommCare application forms on morning mobilization and transportation, household preparation and SOPs performance, storekeeper's performance and end of day clean-up. These forms were filled out and submitted to the CommCare system and provided information on field activities, spray performance and red flags during the campaign. A total of 13 red flags out of 124 supervisory forms were submitted, which included 3 cases of incomplete wearing of PPE, 7 cases of leakage of pumps, and 3 cases of marking issues, which were all addressed during the campaign.

***Data Collection Verification*:**

VectorLink Burkina collected information through data collection verification (DCV) forms at the household level on household spray status. Households were randomly selected to provide a sample population. After filtering households' data from the database, M&E assistants compared them with DCV form findings to match head of household, structures and rooms found, and spray status. DCVs enabled greater accuracy of

data reported by SOPs and facilitated the mopping-up process. Anomalies found were compiled during the evening meetings and used to relay feedback messages and corrective actions by spray teams. The DCV was housed in the same CommCare platform as the supervisory forms.

***Job Aid Messages*:**

Throughout the campaign, the VectorLink Burkina team sent daily messages reminding supervisors, SOPs, team leaders, and storekeepers about mandatory breakfast, proper wearing of personal protective equipment (PPE), gender related instructions, the daily number of targeted structures and non-consumption of food while on duty.

Composition and Management of Spray Teams

In collaboration with NMCP and the DHMT, the district health authorities provided operational sites and warehouses to the VectorLink team free of charge. VectorLink Burkina Faso has a team in each district comprising of one district coordinator, one logistics assistant, and one accountant. The district coordinator is responsible for managing IRS implementation in all sites in the district. The logistics assistant ensures the preparedness of all sites, the dispatching of materials and IRS supplies in all sites, and conducts periodic inventories. The accountant assists the DC and logistics assistant with financial aspects and ensures proper procedures are followed.

In each operational site, the composition of IRS staff comprised seasonal workers including one manager, a storekeeper, a pump technician, site guards, washers, water fetchers, and team leaders heading teams of SOPs and mobilizers. Each team had an average of five SOPs. SOPs reported directly to the team leader, who in-turn reported to the site manager. The site manager worked very closely with the ICP of CSPS to supervise the SOPs and to adjust the daily spray calendar when needed. The site manager reports to the VectorLink district coordinator. One site can cover more than one CSPS and each CSPS has one ICP; in collaboration with the DHMT, the ICPs supervise spray operations each day during the 30 operational days.

During the campaign period, spray operations took place from Monday to Saturday, while Sundays were rest days. The 627 SOPs recruited were divided into 125 spray teams. The number of spray teams per district was determined by the estimated number of targeted eligible structures found in each district, as well as the geographic accessibility of the site taking into consideration SOPs use of bicycles. Table 8 illustrates the distribution of spray teams by district.

Table 8: Distribution of Spray Teams by District

Districts	No. of spray teams	No. of eligible structures found by SOPs in 2018
Kampti	14	29,379
Kongoussi	57	131,675
Solenzo	54	105,711
Total	125	**266,765**

5.3.2. Spray Supervision

IRS Campaign Supervision by VectorLink Burkina Staff

VectorLink Burkina staff, including the COP, operations manager, ECO, M&E team, IEC coordinator, procurement/logistics coordinator, and IT manger traveled to the field based on the supervision plan. Following the supervision plan, counterparts from NMCP, DRS, representative of directorates of Agriculture and Environment and PMI Burkina traveled to the field to provide supportive supervision to seasonal staff using smartphones with CommCare applications (a platform that manages data sent by SMS through the Telerivet system). The purpose of their visit was to ensure that IRS campaign activities were performed

properly. Supervision activities, implemented through smartphones with CommCare applications, included but were not limited to:

- Observing SOP performance including house preparation, spray practices by direct observation in eligible structures, house marking, filling forms and compliance to other instructions
- Evaluating the support provided to SOPs by team leaders and proximity supervisors, and the proper filling of forms and checklists
- Evaluating the performance of storekeepers in the management of commodities, equipment, and products
- Assessing compliance to instructions regarding the handling of insecticide and other contaminated equipment, including PPE
- Addressing concerns raised by beneficiaries, seasonal staff, and other individuals involved in IRS operations
- Checking the performance of each SOP team using the daily performance tracking sheet
- Ensuring the quality of beneficiary mobilization and solving problems of refusal with further sensitization and advocacy

The VectorLink Burkina team, NMCP, DRS, and DHMT followed field activities and daily spray progress closely using daily updates that the district and operation site managers sent via SMS. These messages noted the number of structures sprayed each day (based on the site manager's review of the spray cards turned in daily) and any issues that arose in the field. This reporting allowed the VectorLink Burkina team to track progress against the IRS schedule, and to identify any campaign issues that needed quick action from the team.

Figure 6: SOP Spraying a Structure

Figure 7: Supervision of Spray Campaign by the Government of Burkina Faso

About 10 government officials contributed to the supervision of the campaign. This year, the Secretary General of the MoH, accompanied by the Director General of Public Health, the National Coordinator of NMCP and PMI representative conducted a visit to Kongoussi to observe spray activities, interview beneficiaries and discuss with district teams about spray related aspects. Six NMCP, two DRS (three visits for five days each) and nine DHMT (30 days) staff conducted supervision visits during the spray campaign. High level MoH officials including the Director General of Public Health, the NMCP coordinator, the Technical Secretary and others also visited the field. The regional directors of health, agriculture and environment conducted a two-day visit in the field. The VectorLink team built NMCP's capacity through the transfer of technical and managerial skills at the national and district level by conducting IRS campaigns with more autonomy and according to the required standards. Also, the daily debriefing meetings were often

chaired by the District Medical Officer or the representative of the DRS. Table 9 provides a breakdown of the supervision activities performed by local authorities during the 2018 IRS campaign.

Mid-term Evaluation Meeting of the Campaign

On June 22, 2018, a mid-term evaluation meeting of the campaign took place to discuss issues related to IRS implementation and included topics such as: logistics management for spray teams, distribution and dispatching of IRS materials and supplies to operational sites, and coordination between VectorLink, DHMT, DRS, CSPS and NMCP. Issues raised included the frustration of NMCP and district team because of lack of financial information, insufficient supervision days and low per diem rate for the health post nurses as well as organizational and coordination issues encountered in the first week of the campaign. At the end of the meeting, PMI encouraged all parties involved in the implementation of spray activities to work together within the allocated funds and form an integrated team with NMCP for a smoother implementation of IRS activities. Proposed areas of improvement included: better collaboration with NMCP to ensure effective supervision of spray operations, efficient management of IRS related activities expenses, identifying mobile payment options/companies to pay seasonal workers who are in remote areas, improve communication, involve NMCP as much as possible into IRS M&E activities and find suitable means of transportation for SOPs.

Table 9: Breakdown of Supervision by Government Structures

Government Level	Office	Number of People	Supervised Activities
National	Secretary General Director General of Public Health Technical Secretary (ST) NMCP	10	IEC and mobilization activities, spray operations, M&E and data collection
	National Directorate of Agriculture	1	Central warehouse identification, Environmental compliance
Regional	DRS	6	IEC and mobilization, environmental compliance, spray operations, M&E, trainings
	Directorate of Agriculture	1	Environmental compliance (pre-spray, mid-spray, and post-spray inspection), spray operations
	Directorate of Environment	3	Environmental compliance (pre-spray, mid-spray, and post-spray inspection), spray operations
District	DHMT	9	IRS training, mass mobilization, spray operations, M&E
	Environment Province	6	Environmental compliance (inspection spray operations)

5.4. Logistics and Stock Management

5.4.1. Insecticide for the 2018 IRS campaign

A total of 5,297 bottles of pirimiphos-methyl CS were shipped from Senegal (stock at the end of the 2017 AIRS spray campaign). In addition, 34,097 bottles of Actellic®300CS (833ml/bottle) and 33,843 sachets of SumiShield 50 WG (150g/sachet) were ordered for VectorLink Burkina Faso's 2018 IRS campaign and arrived respectively at the central warehouse on March 25 and April 28, 2018. To comply with the national import requirements, a total of six (06) bottles of Actellic CS insecticide were taken during customs

clearance by the National Laboratory for quality testing. A total of 29,098 bottles of Actellic®300CS and 24,427 sachets of SumiShield 50 WG were used during the 2018 IRS campaign.

5.4.2. Dispatching of IRS material to Operations Sites

VectorLink Burkina distributed PPE, insecticide and other IRS equipment to all 33 operational sites before the start of the IRS campaign. The team experienced some delays in delivering the spray materials as planned, specifically the coveralls/personal protective equipment (PPE) PE) due to delayed customs clearance process. Annex A summarizes the distribution of key PPE to each of the operation sites.

5.4.3. Stock Management during the IRS Campaign

The VectorLink Burkina team used Inventory Control Cards (ICC) and the stock registers to double track each item in the central warehouse and operation sites. In spite of the training of storekeepers, most of them made few mistakes during the first few days of the campaign.

At the beginning of each spray day, the storekeeper issued insecticide bottles/sachets to team leaders, who documented the number of bottles/sachets that they received. Thereafter, the storekeeper immediately entered the amount provided to the team leaders on the ICC and registered this amount to ensure accurate stock balances. At the end of each IRS campaign day, SOPs turned in their stock of bottles/sachets (empty and full) to the team leader, who submitted them to the storekeeper. The storekeeper recorded the full bottles/sachets on the ICC, updated the stock balance, and registered the used bottles on a daily utilization record form. The data on this form helped the VectorLink team in calculating trends in insecticide use. To validate the insecticide inventory, storekeepers worked with VectorLink Burkina logistics staff to compare the ICC for the unused insecticide bottles/sachets with the daily utilization records. This comparison also allowed the VectorLink team to note if SOPs were using too little or too much insecticide when spraying and if various operation sites needed more insecticide.

With respect to PPE, every morning, team leaders and storekeepers organized, distributed and signed out all PPE to be used for spray operations. Warehouse managers also organized and distributed all PPE to the washers and other IRS staff as needed. At the end of each day, all PPE were turned over to the washers for cleaning. After the PPE were washed, the washers turned the PPE over to the storekeepers and team leaders who completed another inventory to ensure that all the equipment was returned.

Additionally, the storekeepers prepared a comprehensive weekly stock report and submitted it to the VectorLink Burkina assistant logistics. The assistant logistics manager then generated aggregated total stock balances for the IRS campaign and noted where PPE and insecticide needed to be sent from the central warehouse to prevent stock outs.

Each day, the site manager sent the amount of insecticide used and remaining insecticide balance to the mHealth platform through SMS.

During the IRS campaign, supervisors conducted warehouse inspections in each operational site to monitor movement of materials and insecticides and to ensure environmental compliance. Supervisors ensured that storekeepers promptly updated their records and confirmed that records matched physical stock counts in the stores. VectorLink Burkina gave special attention to insecticide stocks, including empty bottles/sachets that SOPs returned from the field.

5.5. PAYMENT OF SEASONAL STAFF

Based on discussions with the district medical team about the feasibility of mobile payments in remote areas, the VectorLink team decided to further investigate as connection and reliable mobile payment providers would have been challenging. Therefore, to avoid significant payment delays, the VectorLink project deployed the financial team from Ouagadougou to the district level to facilitate payments in the field based on the seasonal workers' list, payment lists, sign-in sheets and verification of identification cards before payment. Unfortunately, this payment strategy took time to cover all the sites as some spray operators had to travel very long distances to collect their funds at the district level. VectorLink will investigate further on mobile payment options/providers for the 2019 campaign.

6. POST-SPRAY ACTIVITIES

6.1 SUMMARY OF POST-SPRAY ACTIVITIES

Post-spray activities included the following important activities:

- Demobilization of equipment from secondary warehouses to district warehouses (Kampti, Kongoussi and Solenzo)
- Release of all rented vehicles and tricycles
- Decontamination of secondary warehouses and rinsing areas
- Preparation of the final pay statements of seasonal workers and other vendors for pending invoices
- Repairing and maintaining spray pumps and other IRS material including PPE
- Inventory of equipment
- Proper disposal of waste generated during the campaign: recycling, incineration, grinding, etc.
- Post-campaign environmental inspection
- National Post –Spray campaign stakeholders meeting, which acknowledges a strong representation of the Ministry of Health including the NMCP, representatives from regional and district levels, the Ministry of Environment , Agriculture and administrative and local authorities and PMI Burkina.

6.2. DEMOBILIZATION OF COMMODITIES

VectorLink cleaned all IRS materials after the end of spray operations. The project then transported materials from IRS sites to the district warehouses (Kampti, Kongoussi and Solenzo) for the next campaign. The VectorLink team, with support from government stakeholders, conducted post-spray site decontamination, decommissioning and environmental compliance inspections in all IRS sites. The purpose of the post-IRS inspections was to ensure the collection and safe disposal of all wastes from each operational site, leaving the sites in an environmentally compliant condition. After the VectorLink Burkina project restored the sites to a well-maintained state and made them safe for the surrounding communities, the VectorLink team formally handed the sites back to the CSPS for safekeeping until the next IRS campaign.

6.3. INVENTORY ASSESSMENT

Immediately after the end of the spray campaign, all warehouses conducted a post-IRS inventory assessment. The inventory assessment report provides an update on the commodities the project used during the campaign and those remaining for future use. The report further indicates quantities of new, used, damaged or missing (requiring service or repairs) items. In addition, it provides a list of items scheduled for disposal. Subsequent to this, the VectorLink team conducted comprehensive insecticide reconciliation in all secondary warehouses and all unused insecticides and empty bottles/sachets recorded. All empty bottles have been transferred to Ouagadougou for recycling. Annex A shows the most current post-IRS inventory details.

7. ENTOMOLOGY

Entomological surveillance is essential in providing data for decision making. Cone bioassay data generated is used to assess the quality and efficacy of vector control interventions, including IRS. In Burkina Faso, IRSS conducted all entomological monitoring activities, including the quality of spraying.

7.1. IRS QUALITY ASSAYS

Indoor residual spraying operations by VectorLink Burkina Faso started in Kampti, Solenzo and Kongoussi districts on June 5, 2018. Two insecticides, Actellic 300CS (active ingredient pirimiphos-methyl) of the organophosphate (OP) class and SumiShield 50WG (active ingredient clothianidin) of the neonicotinoid class, were selected for the 2018 spray campaign. SumiShield 50WG is a new insecticide that was prequalified by WHO in October 2017 for indoor residual spraying. PMI VectorLink Burkina Faso sprayed SumiShield 50WG in Kampti and part of Solenzo. Kongoussi and the remaining parts of Solenzo district were sprayed with Actellic 300 CS. Quality assurance cone bioassay testing was conducted as per PMI guidance in all three districts within 14 days of spraying. In each district, two sites or villages (treated with Sumishield 50WG or Actellic 300CS) were sampled using wall bioassay tests in five randomly selected houses in the villages. The two sites (villages) per district were separated by at least 20km.

7.2. RESULTS

High mortality with both the susceptible strain and wild *An. gambiae* were observed following exposure to both mud and cement walls in all sites (Table 10). Overall mortality after 24 hours for houses treated with Actellic CS was 100%, indicating that the insecticide is highly effective and spray quality was good. Control mortality rates remained low (0%).

Table 10: Number of Mosquitoes Exposed and Percentage Mortality 24 hours after Exposure to Actellic 300CS in Kongoussi District (10 Houses) at T0.

District	Village	Wall type	Test					Control	
			Height			24 Hours		24 Hours	
			0.5	1	1.5	No.	% Mortality	No	% Mortality
***An. gambiae* s.s. Kisumu strain**									
Kongoussi	Ylou	Mud	28	26	29	83	100	30	0
		Cement	21	20	20	61	100	30	0
	Boalin	Mud	41	42	42	125	100	30	0
		Cement	10	11	10	31	100	20	0
Total			100	99	101	300	100	110	0
***An. gambiae* wild-population**									
Kongoussi	Ylou	Mud	31	26	30	87	100	30	0
		Cement	21	19	20	60	100	30	0
	Boalin	Mud	40	43	39	122	100	30	0
		Cement	10	11	10	31	100	30	0
Total			102	99	99	300	100	120	0

**Spraying was conducted on June 05 (Ylou) and June 25 (Boalin), 2018 and cone bioassay was done on the June 09 (Ylou) and June 20 (Boalin), 2018.*

Table 11: Number of Wild and Susceptible strain of An. gambiae Exposed and Percentage Mortality 24 hours after Exposure to Actellic 300CS in Mole (Actellic 300CS site) in Solenzo Districts (5 Houses) at T0.

An. gambiae ss Kisumu									
Districts	Villages	Wall type	Test					Control	
			Height			24 Hours		24 Hours	
			0.5	1	1.5	No.	% Mortality	No	% Mortality
Solenzo	Mole	Mud	32	32	30	94	100	20	0
		Cement	20	21	20	61	100	20	0
Total			52	23	50	155	100	40	0
***An. gambiae* wild-population**									
Solenzo	Mole	Mud	32	32	31	65	100	20	0
		Cement	18	20	21	59	100	20	0
Total			50	52	52	124	100	40	0

**Spraying was conducted on June 21, 2018 and cone bioassay was done on the June 2, 2018.*

Table 12: Number of Wild and Susceptible An. gambiae Kisumu Exposed and Percentage Mortality 24 hours after Exposure to SumiShield 50WG in Kampti and Solenzo Districts (15 Houses) at T0.

An. gambiae s.s. Kisumu strain									
District	Villages	Wall type	Test					Control	
			Height			24 Hrs		24 Hrs	
			0.5	1	1.5	No.	% Mortality	No	% Mortality
Kampti	Loglona	Mud	31	31	31	93	100	20	0
		Cement	20	21	20	61	100	20	0
	Irinao	Mud	40	39	40	119	100	20	0
		Cement	8	9	7	24	100	10	0
Total			99	100	98	297	100	70	0
Solenzo	Dienkena	Mud	44	42	41	127	100	30	0
		Cement	8	12	10	30	100	30	0
Total			52	54	51	157	100	60	0
***An. gambiae* wild-population**									
Kampti	Loglona	Mud	30	32	31	93	100	20	0
		Cement	21	22	21	64	100	20	0
	Irinao	Mud	41	41	40	122	100	20	0
		Cement	10	11	10	31	100	10	0
Total			102	106	102	310	100	70	0
Solenzo	Dienkena	Mud	42	42	39	123	100	30	0
		Cement	10	11	9	30	100	30	0
Total			52	53	48	153	100	60	0

**Spraying was conducted on June 5 (Kampti district) and June 8, 2018 (Solenzo district) and cone bioassay was done on June 09 (Loglona and Irinao), and June 13, 2018 (Dienkena).*

High mortality of both the susceptible strain and wild *An. gambiae* (Table 12) were observed following exposure to both mud and cement walls with SumiShield. Overall mortality at 24 hours in the houses treated with SumiShield samples was at 100% indicating that the insecticide is highly effective. The control mortality rates were also low (0%).

Fumigant assays in Actellic 300CS sprayed houses showed a higher effect in Solenzo, with a maximum of 60 percent mortality recorded. The mortality rate reached 40 percent five days after fumigant assays using wild population of *An. gambiae* during the fumigant test carried out in Kampti district (Table 13).

Table 13: Number of mosquitoes exposed and the percent mortality after 24h of susceptible An. gambiae and wild strains exposed to the fumigant effect approximately 1 m from the sprayed walls (indoor and outdoor) with Actellic 300CS in Boalin (Kongoussi district) and Mole (Solenzo district) and SumiShield 50WG in Kampti district.

District	Village	Insecticide	Species	Cage	% Mortality
Kongoussi	Boalin	Actellic CS	*An.gambiae* Kisumu	41	19.51
			An. gambiae s.l.	39	7.7
Solenzo	Mole	Actellic CS	*An.gambiae* Kisumu	43	60.46
			An. gambiae s.l.	40	47.5
Kampti	Loglona & Irinao	SumiShield WG	*An. gambiae* s.l.	82	40.24

7.3 CONCLUSION

The data showed that 100 percent mortality was observed with Sumishield 50WG within 24 hours of exposure as well as with Actellic 300CS. This data indicates that IRS was conducted to a satisfactory level in the houses tested.

8. MONITORING AND EVALUATION

Monitoring and evaluation for the 2018 IRS campaign closely followed the processes outlined in the annual VectorLink Work Plans and the VectorLink M&E Plan. The full M&E Plan can be found in Annex C.

8.1 KEY OBJECTIVES AND APPROACH

The key objectives of VectorLink Burkina M&E activities were as follows:

- Ensure consistency of data collected and the data entry process through a robust data management and reporting system
- Streamline and standardize data and information flows to minimize errors and facilitate timely reporting
- Ensure the security and storage of IRS data for future reference through the establishment and application of appropriate protocols
- Communicate IRS data and information to stakeholders in a clear and timely manner
- Document lessons learned and good practices observed in the implementation of project activities and build on them to improve future campaigns

8.2 Data Management and Processing

8.2.1 DATA COLLECTION

Three months before the 2018 IRS campaign, the VectorLink Burkina M&E team created data collection forms designed to capture data on all core PMI indicators. Before the beginning of mobilization and spray operations, those involved in data collection and supervision were trained in the data collection process and in filling out the forms. In the 2018 IRS campaign, IRS data was recorded in the database as quickly and accurately as possible on a daily basis to have real-time insight into the status of the spray campaign. The data collection forms went through several checks before being entered into the database.

8.2.2 DATA ENTRY

The IRS database was initially developed by the AIRS Project in Microsoft Access format in 2012, and has been improved over the years and adapted to VectorLink, in order to facilitate easy and rapid data verification during the entry process. The VectorLink Burkina Database Manager used several logic checks and controls to validate data entries and minimize data entry error. In the 2018 IRS campaign, one data entry center was used in each of the three spray districts: Kampti, Kongoussi, and Solenzo. VectorLink Burkina employed a total of 31 DECS, 4 in Kampti, 15 in Kongoussi, and 12 in Solenzo, to capture all the data generated by the three targeted districts. Due to difficulties in finding qualified DEC applicants in rural areas, the District Medical Officers in the three districts agreed to allow VectorLink Burkina Faso to temporarily employ the districts ' health system information agents, who are already familiar with data entry. Two additional DECs outside the district health team were recruited in Kongoussi. DECs performed a final verification of spray form data and arithmetic before entering the data into the database. For the purposes of quality control and timely production of weekly spraying progress reports, the standard was to enter all data within 48 hours of collection.

During the first two weeks of the campaign, data entry was slower than anticipated. As the DEC laptops were already distributed to the data entry centers, all updated SOP, TL, and Mobilizer codes (as the roster of seasonal hires was finalized) had to be pushed as updates to the DEC laptops through the cloud, which was difficult at times due to network connectivity issues in the target districts. The team experienced challenges with the database as some actors changed codes during the beginning of the campaign, which made it difficult to match some of the details with the database cleaner tool that normally uses SOP codes, geography, and date to link the totals and details records for verification. VectorLink Burkina Faso used spray totals data in this End of Spray Report rather than the spray details generated by the electronic database.

8.2.3 Data Quality Assurance

Data quality assurance tools including the Data Collection Verification (DCV), DOS Form and Data Entry Verification Form helped improve supervision and ultimately the quality of data collection and data entry during the 2018 spray campaign. The six M&E Assistants recruited also contributed to the improvement of data quality supervision. During the first days of the campaign, the majority of SOPs' forms had errors or missing data and had to be returned to the field to be completed.

Data Collection Verification (DCV) Form

This tool is used during randomized household visits to verify the accuracy of the data collected in the field, to ensure that the data recorded on the daily SOP forms matches the information households reported. A total of 45 out of 80 (56.25%) DCVs were completed to verify spray coverage data. Corrective actions on observed anomalies including, inaccuracies (over or underestimation) of structures, under-coverage of sprayed structures, counting of eligible structures in food stores, etc.

Directly Observed Spray (DOS) Form

Team leaders used the DOS Form to supervise and improve the performance of the SOPs and spray quality. Team leaders conducted supervisory visits throughout the spray campaign to observe the performance of the SOPs and to note whether the SOPs were correctly mixing the insecticide and complying with spray techniques and personal, household, and environmental safety procedures. Any deficiencies identified during the observed visit were recorded, corrected on the spot, and shared at debriefing meetings of supervisors each evening. This allowed supervisors to closely monitor the quality of SOPs' performance and take corrective action as necessary, and ensure better quality of operations. The most commonly observed errors were improper mixing of insecticide and improper household marking.

Data Entry Verification

SOPs collected spray data using standardized data collection forms designed to capture all core PMI indicators. Team Leaders and Supervisors verified data collected before it was transported to the data entry center. Data clerks performed a final verification of data collection forms (data and arithmetic) before entering the data into the database. Additionally, the database is designed to prevent the entry of inconsistent data through a series of logic checks. One issue that the team encountered related to poor road conditions and the need to return SOP forms with errors to the field for corrections, DECs were not always able to enter data within the standard 48-hour window.

Data Tracking, Storage, and Security

Data entry clerks filed and archived completed Daily SOP Forms at each of the data centers. Forms were arranged by date and stored in three-ring binders. At the end of each day, DECs backed up all databases electronically on the cloud-based system and saved a local file. The daily SOP Forms and laptops are secured in the VectorLink office in Ouagadougou.

8.3 Data Reporting to Stakeholders

Weekly progress reports are generally sent to the Client.

- Weekly Progress Report: submitted once a week to PMI/USAID and other partners NMCPA and to the health districts: This reports provides a high-level summary of weekly spray progress toward operational targets.
- Daily District Summary Report: This report is sent to the project technical leads and to the district coordinators for critical feedback and daily planning. The technical leads and the district coordinators use the data provided in the daily report to address any performance related matters. The report provides information on structures found and sprayed, spray progress and coverage, insecticide use, number of SOPs who worked, and the average number of structures sprayed per SOP for each operations site and district.

9. RESULTS

9.1 MHEALTH RESULTS

SMS Reminder: A total of 12,779 reminders were sent to the seasonal cadres (Team Leaders and Supervisors) during the 30 operational days of the 2018 IRS campaign. The SMS reminders focused on environmental compliance (e.g., proper wearing of PPE) and SOPs' performance (i.e., reminders of the number of structures to be sprayed every day to reach the goal).

- Mobile based supervisory tools: 45 DCV forms and 124 supervisory forms successfully completed.
- Mobile Performance Tracker: Supervisors submitted daily reports on four key targets indicators (i.e., the number structures found or sprayed) via SMS. A total of 236,432 sprayed structures were tracked via SMS against 258,766 sprayed structures captured with IRS data collection forms in the three intervention departments. Data gathered through SMS informed daily decision-making, but the data collected through data collection forms remained the project's official data source, given that these forms collected more comprehensive information and underwent thorough data entry verification and cleaning process. Table 16 shows the comparison between the two data sources.

Table 14: Comparison of SMS Structures to Confirmed Structures

	Data Collection Form	SMS
Number of structures found	266,765	245,306
Number of structures sprayed	258,766	236,432
Coverage rate	97.0%	96.4%

9.2 STRUCTURES FOUND AND POPULATION PROTECTED

9.2.1 STRUCTURES FOUND

During the 2018 IRS campaign, 258,766 structures were sprayed out of 266,765 found by SOPs in the three health districts with a coverage rate of 97 percent. The overall coverage rate and spray coverage for each district is described in Table 17.

Table 15: Spray Coverage Based on Structures Found by SOPs per District

Region	District	Eligible Structures Found by SOPs	Eligible Structures Sprayed 2018	Coverage Rate 2018
South West	Kampti	29,379	27,489	93.6%
Center North	Kongoussi	131,675	126,961	96.4%
Boucle Du Mouhoun	Solenzo	105,711	104,316	98.7%
Total		**266,765**	**258,766**	97.0%

All of the districts exceeded the minimum required coverage rate of 85 percent. The highest refusal rate was observed in Kampti, mostly Kampti town. The main reasons for structures not sprayed was the household refusal to move belongings outside during rainfall. Other reasons for non-spraying include transformation of certain rooms in an eligible structure into granaries and illness of an inhabitant. Table 18 provides a breakdown of the reasons structures were not sprayed.

Table 16: Reasons for Not Spraying a Structure by District

District	Refusal	Sick person inside	Transformed into granary	Other	Total	
					#	%
Kampti	1,193	64	39	104	1,400	57.5
Kongoussi	153	84	98	133	468	19.2
Solenzo	268	63	166	69	566	23.3
Total	1,614*	211	303	306	2,434	100.0

**The reasons for refusal are not included in the forms. Most of the refusal cases occurred in Kampti, Due to false rumors about IRS (ex. False rumors about 45 people dying in Loropeni because of IRS, which was not true)*

9.2.2 Population Protected

IRS provided protection to 766,374 people, including 363,340 men (47.41%) and 403,034 women (52.59%) throughout the 2018 IRS campaign. Those protected included vulnerable populations: 125,206 children under five years old (16.33%) and 14,183 pregnant women (1.85). Table 19 provides a breakdown of the population protected during the 2018 IRS campaign per commune.

Table 17: Population Protected During 2018 IRS Campaign per District

Districts	Total Population			Pregnant Women	Children <5 years
	Men	Women	Total		
Kampti	42,666	49,185	91,851	1,826	14,653
Kongoussi	167,109	193,897	361,006	6,664	61,180
Solenzo	153,565	159,952	313,517	5,693	49,373
Total	363,340	403,034	766,374	14,183	125,206

9.3 Insecticide Use and SOP Performance

During the spraying campaign, SOPs used 24,427 packets of SumiShield 50WG and 29,098 bottles of Actellic CS300 to spray 258,766 structures. Each SOP sprayed an average of 12 structures per day and about 4.8 structures were treated per bottle or sachet of insecticide. Table 20 provides a breakdown of the average number of structures covered by one bottle, per district.

Table 18: Insecticide Used Per District

Districts	Structures Sprayed	Insecticide Used*		# of Structures per Bottle
		Actellic	SumiShield	
Kampti	27,489	0	5,535	5.0
Kongoussi	126,961	20,688	0	6.1
Solenzo	104,316	8,410	18,892	3.8
Total	258,766	29,098	24,427	4.8

**Four (4) bottles of insecticide were used for lab analysis*

At the end of the campaign, there was a total of 24,774 full bottles/sachets of insecticide left: 15,358 bottles of Actellic CS300 with an expiration date of February 2020 and 9,416 sachets of SumiShield 50 WG with an expiration date of January 2021. The leftover insecticide will be used for the 2019 spray campaign in Burkina.

10. ENVIRONMENTAL COMPLIANCE

In accordance with the Supplemental Environmental Assessment (SEA) amended and approved in 2018, the VectorLink-Burkina project used an organophosphate (pirimiphos-methyl CS formulation) for the spraying of the entire district of Kongoussi and part of the district of Solenzo. The project also used clothianidin in the entire district of Kampti and part of Solenzo. In reference to the PMI BMPs, there was a need for a robust monitoring system to ensure that environmental compliance requirements were adhered to during the IRS campaign so as to protect spray personnel (i.e., project staff, seasonal staff, beneficiaries), and the environment. Activities performed to protect these potential components are presented below.

10.1. PRE-SEASON ENVIRONMENTAL COMPLIANCE ASSESSMENT

As during the first pilot experience of IRS in Burkina Faso, IRS operational sites were established within the CSPS, which provided enough space and facilities and established IRS as part of the health center activities. The VectorLink team conducted a geographical reconnaissance of the three target districts from April 4-12, 2018. The reconnaissance identified compliance areas for 33 operational sites within the CSPS to develop before the implementation of the 2018 IRS campaign. VectorLink Burkina conducted the initial Pre-Season Environmental Compliance Assessment (PSECA) from April 4-12, 2018 evaluating compliance with current environmental regulations and established standards. The results of the initial PSECA, completed by a smartphone checklist, generated a work list outlining the actions required for each operations site.

The VectorLink Burkina team conducted the final PSECAs 10 days before spray operations began. The final PSECA verifies that the Vectorlink district team completed the actions included in the worklist generated from the initial PSECA prior to the start of spray operations.

The VectorLink Burkina ECO completed the initial and final PSECAs using a smartphone with the Open Data Kit (ODK) application for each operations site. Each form completed by the ECO was submitted and then scored information was sent to a central database through an automated server at Abt's home office. The server analyzed the submitted data and identified sites as qualifying or non-qualifying for hosting IRS operations. Table 21 summarizes the repairs completed in each site prior to the 2018 IRS campaign.

The Burkina VectorLink project set up a total of 34 soak pits and 33 storage rooms at the operational sites for the 2018 IRS campaign. Each operational site had separate toilets, showers, and changing areas for men and women.

Table 19: Construction and Refurbishment of 2018 Operational Sites

District	Number of sites	Site Established (rinsing area, soak pit, storeroom, fence, etc.)
Kampti	9	9 rinsing area established 9 storage facilities refurbished 9 fences
Kongoussi	13	13 rinsing area established 13 storages facilities refurbished 13 fences
Solenzo	11	12 rinsing area established 12 storage facilities refurbished 12 fences

Figure 8: Standard IRS Site with Washing Slab, Soak Pit, and Water Reservoir

IRS poison management is the responsibility of everyone with guidance given by the Abt home office Environmental Compliance Team. The initial PSECA noted the availability of atropine in 33 health facilities.

Because of time constraints and late arrival of active charcoal as well as Tyvek and Guatemala type of PPE, VectorLink Burkina was not able to use mobile soak pit using Tyvek PPE. This activity will take place in 2019 IRS campaign.

In May 2018, a total of 942 seasonal personnel (including 193 women) were examined as part of the pre-IRS medical check-up in all districts, or 357 in the district of Solenzo, 106 in the district of Kampti, and 479 in the district of Kongoussi. These 193 women underwent pre-campaign pregnancy tests, 18 of whom tested positive (17 in the district of Kongoussi, and 1 in the district of Solenzo).

10.2. MID- POST-SPRAY ENVIRONMENTAL INSPECTIONS

The environmental compliance inspections were based on standard VectorLink checklists. The VectorLink Burkina ECO, along with a representative from each of the District/Provincial Environment Service were actively involved in supervision. Four major checklists were performed based on supervision plans developed by VectorLink Burkina and shared with the government counterparts including: morning mobilization and transport vehicle inspection; home owner preparation and SOP performance; storekeeper performance; and end-of-day cleanup. Supervisors were charged with the task of providing corrections and guidance to SOPs on the spot. At the end of each inspection, the team held a general discussion on the status, achievements, shortcomings, and constraints found, and forwarded the recommendations for further corrective actions to site managers and to VectorLink supervisors. For SOPs and TL transportation, VectorLink provided tricycles or allowed SOPs to use their own bicycle. The use of motorbikes was forbidden because of the risks of accident due to high speed. Vehicles (9) were mostly used for district team supervision and dispatching of IRS materials to operational sites.

During the 2018 spray round, 79 females underwent a second pregnancy test in July 2018. No positive test has been recorded.

The VectorLink Burkina team conducted post-spray inspections in all three districts from July 18 to July 21 for Kongoussi; from July 25 to July 31 in Kampti and Solenzo. Using smartphones, data was recorded for each of the 33 IRS sites, districts storerooms and warehouses; all forms were uploaded to the cloud database, which is accessible by the home office.

10.3. INCIDENTS ENCOUNTERED DURING THE IRS OPERATIONS

The team observed and reported seven incidents through coordinated supervision efforts by supervision teams. Actions have been taken to manage these incidents and to prevent risks from similar accidents as outlined below:

- 24 Empty bottles lost in the field during the transport of Tansila to Solenzo, district of Solenzo, on July 17, 2018

Management measures: Awareness of drivers to avoid night traffic, to secure the transport materials properly, to avoid loading high-level equipment, and to drive slowly.

- One empty sachet of insecticide lost (SumiShield) lost in the field in Solenzo operational site, district of Solenzo on 06/13/2018

Management measures: Alerting operators to vigilance to avoid loss, and warning team leaders to supervise the operators correctly

- Suspected insecticide exposure of an operator in the operational site of Solenzo, district of Solenzo on June 20, 2018

Management measures: sensitization of operators to the appropriate use of PPE and to comply with safety instructions; reminded team leader to supervise the operators in the follow-up of the safety instructions;

- Accident of transport of operators (inclination of the tricycle, which caused an operator to fall and sustain minor wounds) on June 25, 2018 in the operational site of Kouka, district of Solenzo

Management measures: Reminder of tricycle drivers to stay within the project-set speed limits.

- Suspected insecticide exposure of an operator during the spray of a structure in the operational site of Yalka, district of Kongoussi on June 8, 2018

Management measures: sensitization of operators to the appropriate use of PPE and to compliance with safety instructions; reminder of the team leader to supervise the operators in the follow-up of the safety instructions

- Suspected insecticide exposure of an operator during the spray of a structure in the operational site of Kampti, district of Kampti on June 11, 2018

Management measures: sensitization of operators to the proper use of PPE and to comply with safety instructions; reminded team leader to supervise the operators in the follow-up of the safety instructions

10.4. IRS WASTE DISPOSAL

At the operational site level, solid waste was inventoried separately, placed into boxes, and labeled. At the end of the spray operations, VectorLink Burkina collected solid wastes for proper disposal. This waste included gloves and plastic sheets with holes decontaminated by washing and sun-drying, and packaged for disposal. It also included used masks, empty Actellic bottles, and empty SumiShield sachets which team members packaged and transferred to the central warehouse in Kongoussi for disposal.

Three different methods will be used to dispose waste. These methods include incineration and grinding, followed by recycling (for solid waste with high-density of polyethylene, particularly the insecticide bottles), and burying of used low-density polyethylene such as unusable gloves. VectorLink is in the process of signing

an agreement with SAPHYTO (African company of phytosanitary products and insecticides) for the recycling of Actellic empty bottles and the incineration of empty SumiShield bags. Table 22 illustrates the types of solid waste, disposal methods and sites.

Table 20: 2018 Burkina Waste Quantification Chart

Waste Type	Amount of Waste	Disposal Method	Disposal Site	Date of Disposal
Empty bottles ACTELLIC 300CS	29,074 Bottles (24 bottles lost)	Recycling	SAPHYTO Recycling Plant	September 24–October 31
Non Contaminated Cardboard	2,824 Boxes	Used as containers for bags or vials of insecticides	SAPHYTO Re-use or incineration	September 24–October 31
Non Contaminated and Contaminated Cardboards damaged	90 units	Incineration	Hospital in each districts	August 17–September 04, 2018
Empty sachet of SumiShield	24,426 sachets (1 sachet lost),	Incineration	SAPHYTO	September 18–30; End of October for Solenzo because of accessibility)
Empty ink cartridges,	3 empty ink cartridges,	Recycling	Recycling Private Printing company	September 24–end of October
Nose Covers	17,813 Units	Incineration	Hospital in each district	August 17–September 04, 2018

11. IRS Country Capacity Building

For this first round of IRS in Burkina Faso, VectorLink built the capacity of local staff and government counterparts, exposing them to new IRS implementation ideas and methods. As part of a hands-on approach to capacity building, NMCP/vector control unit officers were fully involved in the supervision of IRS in the three target districts. In addition, to strengthen ownership, medical officers and the district health team, regional health team (Regional Director and/or Health Promotion Manager) and the provincial levels of Agriculture and Environment participated in IRS supervision in their respective districts; furthermore, ICPs were involved in the daily supervision of IRS activities and replanting/updating the spray progress calendar in collaboration with the site managers and VectorLink district team.

12. GENDER

VectorLink Burkina recognizes gender equality and female empowerment as development goals in their own right as well as approaches to achieving its vector control goals. The project identifies and then addresses inequalities between men and women across spray operations. As a new country in IRS campaigns, approaches envisaged for achieving an impact include:

- Sessions on inclusion of gender issues in all training modules, working directly with local hiring authorities and women's groups to facilitate women's engagement as seasonal workers. Staff shared information on the importance of hiring female SOPs and presented data that show that women are as effective as their male counterparts in terms of structures sprayed per day. The project emphasized placing qualified women into supervisory roles and into highly gender-segregated roles, such as pump technicians, drivers, and security guards.
- Promotion of a respectful working environment through the project's sexual harassment policy for all employees, including seasonal workers. Gender training was conducted during the training of site managers. Posters on sexual harassment and sexual violence were posted at all the operational sites in French.
- Ensuring that recruitment, mobilization, and training include women and respect women's time constraints (when possible).
- Ensuring that women who are pregnant and recruited during the campaign are assigned to roles without exposure to insecticide.
- Ensuring women have accommodations in operational sites where they feel safe and comfortable, including separate bathrooms and showers equipped with sanitary bins and PPE in appropriate sizes.
- Creating a buddy system so that at least two women are together on each spray team.
- Providing sex-disaggregated data for all indicators, as appropriate.
- Used micro-planning meetings with all district and sector authorities to discuss the importance of increasing the number of women SOPs during IRS operations.
- Encouraging health districts to recruit more women as pump technicians.

During the 2018 IRS campaign, women represented 20.22 percent of the seasonal staff, with females occupying 100 percent of washer roles and less than 5 percent of the six other cadres. The project experienced challenges related to some cultural and religious traditions practiced in the IRS intervention areas that have hindered the achievement of its female recruitment target in IRS activities. Local gender norms limit women's mobility, give men decision-making power over women's employment and call into question the appropriateness of IRS work for women. In 2019, the VectorLink gender focal person will work local PMI and NMCP gender focal persons to increase training on gender-related questions that will increase the number of females in IRS implementation as well as other malaria activities. Table 23 provides details on female participation during the 2018 IRS campaign.

Table 21: Seasonal workers disaggregated by gender during the 2018 IRS Campaign

Category	Female	Male	Total	% of female
Mobilizers	114	491	605	18.84%
Team Leaders	24	101	125	19.20%
Supervisors (Mobilizers)	12	90	102	11.76%
Spray Operators	129	620	749	17.22%
Data Clerks	8	23	31	25.81%
Site Supervisors	34	237	273	12.55%
Spray Pump Technicians	0	21	21	0.00%
Washers	98	0	98	100.00%
Storekeepers	1	35	36	2.78%
Guards	0	68	68	0.00%
Assistants (Finance, Logistics,)	2	4	6	33.33%
District Coordinator	0	3	3	0.00%
Regional and provincial Environment Officers	0	3	3	0.00%
Rental Car Drivers	0	9	9	0.00%
Total	422	1,705	2,129	19.82%

13. Challenges, Lessons Learned and Recommendations

13.1. Challenges

The main challenges experienced during the 2018 IRS campaign included the following:

- There were communication issues between VectorLink, NMCP and DHMT (district health management team). Few NMCP supervisors were not very helpful in facilitating and coordinating IRS activities in the field. ICPs (infirmiers chefs de postes/ health post nurses) were not available for IRS supervision as planned due to other pressing health center activities. The VectorLink team met with the NMCP Coordinator to discuss these issues and find a solution.
- Low adherence to VectorLink' s selection criteria for seasonal staff recruitment by the district level in some operational sites, which resulted in poor performance of some IRS spray actors, including inadequate house marking and data recording
- Limited storage space to accommodate bulky Actellic bottles in the district warehouse of Solenzo.
- Frequent power outages and poor network connectivity in many operational sites led to delays in data reporting. Refusals recorded particularly in more urban settings such as Kampti and Solenzo towns due to people being unwilling to move household items out of their houses because of the rain and large amount of personal items.
- Use of tricycles and bicycles versus motorbikes delayed the spraying activities during the first few days as several SOPs quit, refusing to use bicycles or tricycles, insisting on using their motorcycles. In addition, NMCP informed the VectorLink team that the use of tricycles for public transportation is not allowed in certain parts of Burkina Faso.
- Payment to seasonal workers in some remote areas was problematic due to the lack of financial institutions, including mobile kiosks in those areas; thus, the SOPs had to travel long distances to collect their funds at the district level.
- Using district health staff as data clerks was not effective; they were not fully dedicated to entering project data, which caused delays with data entry.
- Difficulty reaching some sites for supervision during heavy rain.
- ICPs and the district health teams were often unavailable to support daily supervision
- Low literacy level among certain seasonal workers, including mobilizers.
- Delays in finalizing the list of SOPs, TLs, and Mobilizers and their assigned codes caused delays in data entry due to the need to correctly configure the final list of actors to upload to the database and challenges in matching spray totals and details records in the database.

13.2. Lessons Learned

- Daily feedback meetings between project and government supervisors are helpful for the smooth implementation of IRS operations and achievement of high spray coverage.
- The participation of government leaders and health managers in IRS operations enhances their interest and ownership of the project activities.

13.3. RECOMMENDATIONS

- Improve communication and coordination between VectorLink and partners (NMCP) through better IRS activities planning (micro-planning, training and supervision)
- Ensure supervisors use the smartphone supervisory tools more regularly.
- Identify a larger operational site in Solenzo for future campaigns
- Strengthen training for spray pump technicians to raise their skill level in addressing spray pump issues, particularly the proper maintenance and the calibration of pumps.
- Adopt mobile payment for future campaigns and identify possible solutions for remote areas.
- Hire dedicated DECs whose sole responsibilities will be to enter campaign data during the IRS campaign.
- Determine the proper means of transportation of SOPs for future campaigns and ensure that tricycles can be used for SOP transportation in the selected spray districts.
- In close coordination with the district level authorities who are involved in the seasonal workers' recruitment, emphasize on the need of respecting recruitment requirements (i.e. education level, etc...)
- Finalize list of seasonal hires sooner in order to assign actor codes in advance to prevent delays with finalizing the database.

ANNEX A: PROCUREMENT (LOCAL & INTERNATIONAL) AND POST SPRAY STOCK BALANCE

IRS Commodities and Inventory

Item	Initial Stock before IRS Campaign	Stock after Campaign	Defective Items after IRS Campaign + Consumables	Stock Usable in 2019
Cordova N95 Respirator Mask w/Exhale Valve	15720	2489	0	2489
Gateway Molded Clear Polycarbonate Faceshield	2500	2056	367	1689
Lime Mesh Vest w/1 Reflective Tape, One size Fits Most	200	236	0	236
Man First Aid Kit	107	102	40	59
Best 22--mil Green Nitrile Chemical Glove 19" Long	1296	1267	130	1267
Atlas 772 Nitrile Coated Chemical Glove, Cotton Lined	204	205	0	205
Gateway Molded Clear	1216	1216	222	994
Quarrow 70 Lumen LED Head Lamp with Adjustable Strap for One Size Fits	648	482	166	482
Rayovac Ultra Pro AA A Cell Alkaline Battery, Shrink Wrapped	168	119	49	16
Tingley Black PVC Boot, Plain Toe	1025	1025	0	1025
Yellow PVC/Polyester Apron	118	110	8	110
Pyramex White Hard Hat w/4-pt Pinlock Suspension	1625	1625	0	1625
Pyramex Dielectric Nylon Universal Faceshield Bracket	1552	1332	220	1332
Pump to spray	650	650	0	650
Filtatech	15	15	0	15
Fire extinguisher	34	34	0	34
Thermometers	33	33	1	32
Cooler 60L	33	33	0	33

Item	Initial Stock before IRS Campaign	Stock after Campaign	Defective Items after IRS Campaign + Consumables	Stock Usable in 2019
Water Tank of 500L	27	27	0	27
Plastic keg 100L	33	33	0	33
Plastic keg 160L	84	83	1	83
Plastic keg 200L	84	84	0	84
Pot 1L	1151	992	159	992
Bucket 20L + cover	211	211	0	211
Plastic Bucket 10L	1092	1044	48	1044
Bassin 40L	248	248	0	248
Plastic chair	198	197	1	197
Plastic table	33	33	0	33
Solar fans	33	33	0	33
Solar Lamps	33	27	6	27
Solar Pan	3	3	0	3
Calculator	198	187	11	187
Flipchart	33	31	2	31
Operators bags	671	610	61	610
Pell/brush	651	622	29	622
Laundry brushes	132	108	24	108
Socks for operators	920	311	609	311
Broom for court	66	30	36	30
Plastic Broom	66	65	1	65
Toothbrush	1421	714	707	714
Hard Brush	42	42	0	42
Towel	1013	105	908	105
Mat	33	29	4	29
Trash	33	27	6	27

ANNEX B: MONITORING AND EVALUATION PLAN

#	Performance Indicator	Data Source(s) and Reporting Frequency	Disaggregation(s)	Annual Targets and Results									
				Year 1		Year 2		Year 3		Year 4		Year 5	
				Target	Result	Target	Result	Target	Result	Target	Result	Target	Result
Objective 1: Implementation of Malaria Vector Control Interventions													
1.1	**Successfully execute IRS and other malaria vector control programs**												
1.1.1	Number and percentage of complete annual country work plans developed and submitted on-time	Project records Annually	Country	1; 100%	1;100%	1; 100%		1; 00%		1; 100%		1; 100%	
1.1.2	Number of eligible structures targeted for spraying	Project records Annually	Country	245,192	266,765	TBD		TBD		TBD		TBD	
1.1.3	Number of eligible structures sprayed with IRS	Project records Annually	Country	208,413	258,766	TBD		TBD		TBD		TBD	
1.1.4	Percentage of total structures targeted for spraying that were sprayed with a residual insecticide (Spray Coverage)	Project records Annually	Country	85%	97.0%	85%		85%		85%		85%	

#	Performance Indicator	Data Source(s) and Reporting Frequency	Disaggregation(s)	Annual Targets and Results									
				Year 1		Year 2		Year 3		Year 4		Year 5	
				Target	Result	Target	Result	Target	Result	Target	Result	Target	Result
1.1.5	Number of people protected by IRS	Project records Annually	Country Sex Pregnant women Children <5	867,715	766,374 Males: 363,340 Females: 403,034 Pregnant Women: 14,183 Child<5: 125,206	TBD		TBD		TBD		TBD	
1.1.6	Number and percentage of vector control project country programs submitting an EOSR within 45 days after the end of spray (including completing MEP and Environmental Mitigation and Monitoring Report (EMMR)	Project Annually	Country	1; 100%	1; 100%	1; 100%		1;100%		1; 100%		1; 100%	
1.1.7	Number of IRS country programs that conduct a Post-spray Data Quality Audit within 90 days of spray completion	Data Collection Forms Annually	Country	N/A	N/A	TBD		TBD		TBD		TBD	
1.1.8	Number of Insecticide Treated Nets (ITNs) distributed, by channel	Project Records Annually	Country Channel	N/A	N/A	TBD		TBD		TBD		TBD	

#	Performance Indicator	Data Source(s) and Reporting Frequency	Disaggregation(s)	Annual Targets and Results									
				Year 1		Year 2		Year 3		Year 4		Year 5	
				Target	Result	Target	Result	Target	Result	Target	Result	Target	Result
1.1.9	Number and percentage of ITN country programs that conduct at least one process assessment of the quality of ITN distribution planning, the quality of household registration, and or ITN distribution implementation during a mass ITN distribution campaign	Project Records Annually	Country Channel	N/A	N/A	TBD		TBD		TBD		TBD	
1.1.10	Number and percentage of ITN country programs with operational routine monitoring systems for continuous ITN distribution, disaggregated by channel	Project Records Annually	Country Channel	N/A	N/A	TBD		TBD		TBD		TBD	
1.1.11	Number and percentage of countries completing ITN durability monitoring data collection on time as planned in a given project year	Project Records Annually	Country	N/A	N/A	TBD		TBD		TBD		TBD	
1.2	**Provide technical assistance and planning support for IRS and other integrated malaria vector control activities**												
1.2.1	Number of VC project training workshops targeting NMCP and other host country staff	Project Training Records Annually	Country Technical Area Job Function	N/A	N/A	TBD		TBD		TBD		TBD	
1.2.2	Number of NMCP and other vector control host country staff accessing DHIS2	DHIS2 Logs Annually	Country Job Function	N/A	N/A	TBD		TBD		TBD		TBD	

#	Performance Indicator	Data Source(s) and Reporting Frequency	Disaggregation(s)	Annual Targets and Results									
				Year 1		Year 2		Year 3		Year 4		Year 5	
				Target	Result	Target	Result	Target	Result	Target	Result	Target	Result
1.3	**Ensure safe and judicious use of insecticides and other malaria vector control products**												
1.3.1	Number of vector control personnel trained in environmental compliance and personal safety standards in vector control implementation	Project Training Records Annually	Country Sex (# and %) Job Function	2,171	2,227	TBD		TBD		TBD		TBD	
1.3.2	Number of health workers receiving insecticide poisoning case management training	Project Training Records Annually	Country Sex (# and %)	66	98	TBD		TBD		TBD		TBD	
1.3.3	Number of adverse reactions to pesticide exposure documented	Incident Report Forms Annually	Country Type of Exposure	0	3 Suspected inhalation insecticide (2 cases) and insecticide spillage on SOP PPE (1 case)	0		0		0		0	
1.4	**Strengthen capacity of NMCPs, vector control personnel, and other institutions to implement and manage IRS and other vector control activities**												
1.4.1	Total number of people trained to support VC in targeted areas	Project Training Records Annually	Country Sex (# and %) VC Intervention Type	2,205	2,227 Males : 1789 Females :438	TBD		TBD		TBD		TBD	
1.4.2	Number of people trained during IRS Training of Trainers	Project Training Records Annually	Country Sex (# and %)	128	274Males: 240, 87.9% Females: 34, 12.5%	TBD		TBD		TBD		TBD	

#	Performance Indicator	Data Source(s) and Reporting Frequency	Disaggregation(s)	Annual Targets and Results									
				Year 1		Year 2		Year 3		Year 4		Year 5	
				Target	Result	Target	Result	Target	Result	Target	Result	Target	Result
1.4.3	Total number of people hired to support VC in target districts	Project Records Annually	Country Sex (# and %) Job Function VC Intervention Type	1,808	1,147 M: 958, 83.5% F: 189, 16.5% SOPs: 749 TLs: 125 Supervisors: 273	TBD		TBD		TBD		TBD	
1.4.4	Number of government/district officials who acted as supervisors during VC campaigns	Project Records Annually	Country VC Intervention Type	33 IRS	36 Males : 32 Females :4	TBD		TBD		TBD		TBD	
1.5	**Promote gender equality in all facets of planning and implementation**												
1.5.1	Number of women hired to support VC campaigns	Project Records Annually	Country Returning female seasonal workers hired in a more senior capacity	632; 35%	4538 19,67%	TBD; 40%		TBD; 45%		TBD; 50%		TBD; 50%	
1.5.2	Number and percentage of women hired in supervisory roles in target areas for vector control activities	Project Records Annually	Country VC Intervention Type Job Function	78; 50% IRS	Females 36, 13.19% Team Leaders 24; 19.20% Site Manager: 1; 3.03% NMCP : 1; 16.67% ICP : 10, 10.99%	TBD; 50% IRS		TBD; 50%		TBD; 50%		TBD; 50%	

#	Performance Indicator	Data Source(s) and Reporting Frequency	Disaggregation(s)	Annual Targets and Results									
				Year 1		Year 2		Year 3		Year 4		Year 5	
				Target	Result	Target	Result	Target	Result	Target	Result	Target	Result
1.5.3	Number and percentage of staff (permanent and seasonal) who have completed gender awareness training	Project Training Records Annually	Country Sex Job Function	2,006; 100%	2227/2006; 110% Males : 1789 /2227; 80,33% Females: 438/2227; 19,67%	TBD; 100%		TBD; 100%		TBD; 100%		TBD; 100%	
1.5.4	Number and percentage of women in senior leadership roles in VectorLink country offices	Project Records Annually	Country Sex (# and %)	2; 50%	1/2; 50%	TBD; 50%		TBD; 50%		TBD; 50%		TBD; 50%	
1.6	**Implement and support social behavioral change communication and mobilization activities**												
1.6.1	Number of radio spots and talk shows aired	Project Records Annually	Country VC Intervention Type	120	120	TBD		TBD		TBD		TBD	
1.6.2	Number of print materials disseminated	Project Records Annually	Country VC Intervention Type	140	140	TBD		TBD		TBD		TBD	
1.6.3	Number of people reached with vector control and/or SBCC messages via door-to-door messaging	Project Records Annually	Country VC Intervention Type Sex	867,715	63,348* Door-to-door by IEC mobilizers (messaging was mostly done via radio spots)	TBD		TBD		TBD		TBD	

#	Performance Indicator	Data Source(s) and Reporting Frequency	Disaggregation(s)	Annual Targets and Results									
				Year 1		Year 2		Year 3		Year 4		Year 5	
				Target	Result	Target	Result	Target	Result	Target	Result	Target	Result
1.6.4	Number and percentage of people who feel that the proposed action (sleeping under an ITN/accepting IRS) will reduce their risk of malaria	Project Records Annually	Country	N/A	N/A	TBD		TBD		TBD		TBD	
1.6.5	Number and percentage of people with a favorable attitude toward the practice/product (i.e., ITNs, IRS)	Project Records Annually	Country VC Intervention Type	N/A	N/A	TBD		TBD		TBD		TBD	
1.6.6	Number and percentage of people who believe that the majority of their friends and community members practice the behavior	Project Records Annually	Country VC Intervention Type	N/A	N/A	TBD		TBD		TBD		TBD	
1.7	**Environmental compliance**												
1.7.1	Number and percentage of SEAs (with EMMPs) or Letter Reports submitted at least 60 days prior to the commencement of vector control campaigns	Project Records Annually	Country	1; 100%	1; 100%	TBD; 100%		TBD; 100%		TBD; 100%		TBD; 100%	
1.7.2	Number and percentage of permanent and mobile soak pits inspected and approved prior to IRS campaigns	Project Records Annually	Country Soak Pit Type	34; 100%	34; 100%	TBD; 100%		TBD; 100%		TBD; 100%		TBD; 100%	
1.7.3	Number and percentage of storehouses inspected and approved prior to IRS campaigns	Project Records Annually	Country Storehouse Type	37; 100%	36; 97%	TBD; 100%		TBD; 100%		TBD; 100%		TBD; 100%	

#	Performance Indicator	Data Source(s) and Reporting Frequency	Disaggregation(s)	Annual Targets and Results									
				Year 1		Year 2		Year 3		Year 4		Year 5	
				Target	Result	Target	Result	Target	Result	Target	Result	Target	Result
1.7.4	Number and percentage of fixed soak pits that are compliant with PMI's Best Management Practices	Project Records Annually	Country	30; 88%	34, 100%	TBD; 70%		TBD; 80%		TBD; 90%		TBD; 90%	
2.	**Entomological and Epidemiological Data to Drive Decision-Making**												
2.1	**Vector control activities monitored via entomological and epidemiological data**												
2.1.1	Number and percentage of project-supported entomological sentinel sites established to monitor vector bionomics and behavior (vector species, distribution, seasonality, feeding time, and location)	Entomological Reports Annually	Country VC Intervention Type	6; 100%	6;100%	TBD; 100%		TBD; 100%		TBD; 100%		TBD; 100%	
2.1.2	Number and percentage of entomological monitoring sentinel sites measuring all five basic PMI entomological monitoring indicators (i.e., species composition, abundance, and seasonality of malaria vector; insecticide susceptibility and resistance intensity; mechanism of resistance; quality assurance and residual efficacy monitoring of IRS programs; or vector behavior: feeding time &, location)	Entomological Reports Annually	Country VC Intervention	6; 100%	6;100%	TBD; 100%		TBD; 100%		TBD; 100%		TBD; 10%	

#	Performance Indicator	Data Source(s) and Reporting Frequency	Disaggregation(s)	Annual Targets and Results									
				Year 1		Year 2		Year 3		Year 4		Year 5	
				Target	Result	Target	Result	Target	Result	Target	Result	Target	Result
2.1.3	Number and percentage of entomological monitoring sentinel sites measuring at least one advanced PMI indicator (i.e., identification of mosquito infectivity; parity rates; or blood-meal analysis)	Entomological Reports Annually	Country VC Intervention	6; 100% IRS	6; 100%	TBD; 100%		TBD; 100%		TBD; 100%		TBD; 100%	
2.1.4	Number and percentage of insecticide resistance testing sites that tested at least one insecticide from pyrethroid, organophosphate, carbamate, clothianidin, and chlorfenapyr insecticides	Entomological Reports Annually	Country Insecticide Type	21; 100%	TBD	TBD; 100%		TBD; 100%		TBD; 100%		TBD; 100%	
2.1.5	Number of wall bioassays conducted within 2 weeks of spraying to evaluate the quality of IRS	Entomological Reports Annually	Country	90	90	TBD		TBD		TBD		TBD	
2.1.6	Number and percentage of cone bioassays conducted within two weeks of spraying with greater than 98% test mortality recorded	Entomological Reports Annually	Country (# and %)	90; 100%	90, 100%	TBD		TBD		TBD		TBD	
2.1.7	Number of wall bioassays conducted after the completion of spraying at monthly intervals to evaluate insecticide decay	Entomological Reports Annually	Country Insecticide Type	540 Actellic and Sumishield[1]	TBD	TBD		TBD		TBD		TBD	

[1] Assuming six months of bioassay collection at the three sites (30 bioassays * 3 sites per month for 6 months)

#	Performance Indicator	Data Source(s) and Reporting Frequency	Disaggregation(s)	Annual Targets and Results									
				Year 1		Year 2		Year 3		Year 4		Year 5	
				Target	Result	Target	Result	Target	Result	Target	Result	Target	Result
2.1.8	Number of vector susceptibility tests for different insecticides conducted in selected sentinel sites	Entomological Reports Annually	Country Insecticide Type	5	TBD	TBD		TBD		TBD		TBD	
2.1.9	Number of countries with an integrated vector control analytics dashboard available for decision making	Project Records Annually	Country	N/A	N/A	TBD; 100%		TBD: 100%		TBD; 100%		TBD; 100%	
2.1.10	Number of staff (VectorLink-contracted or non-VectorLink) trained in entomological monitoring	Project Training Records Annually	Country Sex (# and %) Job Function	8	10 Males : 7, 70% Females :3, 30%	TBD		TBD		TBD		TBD	
2.2	**NMCPs develop country-level IRS and other malaria vector control strategies**												
2.2.1	Number and percentage of countries with an integrated malaria vector control strategy, including a plan for monitoring and managing insecticide resistance supported by the project	Project Records Annually	Country	N/A	N/A	TBD; 100%		TBD; 100%		TBD; 100%		TBD; 100%	
2.2.2	Number and percentage of countries with integrated data and visualization landscaping for vector control decision making complete	Project Records Annually	Country	N/A	N/A	TBD; 100%		TBD; 100%		TBD; 100%		TBD; 100%	
2.2.3	Number and percentage of countries that implement sub-national insecticide as part of an IRM strategy	Project Records Annually	Country	N/A	N/A	TBD; 100%		TBD; 100%		TBD; 100%		TBD; 100%	

#	Performance Indicator	Data Source(s) and Reporting Frequency	Disaggregation(s)	Annual Targets and Results									
				Year 1		Year 2		Year 3		Year 4		Year 5	
				Target	Result	Target	Result	Target	Result	Target	Result	Target	Result
2.3	**Build capacity of NMCPs and local institutions to collect, analyze, and use data for strategic malaria control decision-making**												
2.3.1	Number of individuals trained from NMCPs and national institutions to review and interpret data for integrated vector control decision making	Project Training Records Annually	Country Job Function Organization	N/A	N/A	TBD		TBD		TBD		TBD	
2.3.2	Proportion of targeted individuals who report using new analytical tools and/or skills in their planning, resourcing, implementation, or measurement activities	Capacity Assessments Thrice Over Project Life	Country Job Function Organization	N/A	N/A	TBD		TBD		TBD		TBD	
3.	**Procure insecticides for IRS and support the delivery and storage of IRS and other malaria vector control products**												
3.1	**Cost-effective procurement mechanism established**												
3.1.1	Number and percentage of insecticide procurements that had a pre-shipment QA/QC test at least 60 days prior to spray campaign	Procurement Records Annually	Country Insecticide Type	1; 100%	1; 100%	TBD; 100%		TBD; 100%		TBD; 100%		TBD; 100%	
3.1.2	Number and percentage of insecticide procurements received on-time to allow for the initiation of spray operations as scheduled	Procurement Records Annually	Country Insecticide Type	1; 100%	1; 100%	TBD; 100%		TBD; 100%		TBD; 100%		TBD; 100%	

#	Performance Indicator	Data Source(s) and Reporting Frequency	Disaggregation(s)	Annual Targets and Results									
				Year 1		Year 2		Year 3		Year 4		Year 5	
				Target	Result	Target	Result	Target	Result	Target	Result	Target	Result
3.1.3	Number and percentage of targeted countries with international equipment procurements, including PPE, received on-time to allow for the initiation of vector control campaigns as scheduled	Procurement Records Annually	Country VC Intervention Type	1; 100%	1; 100%	TBD; 100%		TBD; 100%		TBD; 100%		TBD; 100%	
3.1.4	Number and percentage of targeted countries with local procurements for PPE received on-time to allow for the initiation of spray operations as scheduled	Procurement Records Annually	Country	1; 100%	1; 100%	1; 100%		1; 100%		1; 100%		1; 100%	
3.1.5	Number and percentage of countries with PPE procured according to workforce composition	Procurement Records Annually	Country	N/A	N/A	16; 100%		TBD; 100%		TBD; 100%		TBD; 100%	
3.2	**Robust inventory management and logistics systems established**												
3.2.1	Number and percentage of logistics and warehouse managers trained in vector control supply chain management	Project Training Records Annually	Country VC Intervention Type Sex	36; 100%	40;100%	TBD; 100%		TBD; 100%		TBD; 100%		TBD; 100%	
3.2.2	Number and percentage of operations site warehouses where physical inventories can be verified by daily stock records	Inventory and Stock Records Annually	Country Insecticide Type	36; 100%	36; 100%	TBD; 100%		TBD; 100%		TBD; 100%		TBD; 100%	

#	Performance Indicator	Data Source(s) and Reporting Frequency	Disaggregation(s)	Annual Targets and Results									
				Year 1		Year 2		Year 3		Year 4		Year 5	
				Target	Result	Target	Result	Target	Result	Target	Result	Target	Result
3.2.3	Number and percentage of IRS countries that successfully completed spray operations without an insecticide stock-out	Inventory and Stock Records Annually	Country Insecticide Type	1; 100%	1; 100%	16; 100%		TBD; 100%		TBD; 100%		TBD; 100%	
4. Innovation													
4.1	**Conduct operational research or monitoring to scale up new tools, methods, and approaches**												
4.1.1	Number of operational research studies on promising new tools or new methods/approaches to existing tools that are implemented	Project Records Annually	Type of Innovation	N/A	N/A	TBD		TBD		TBD		TBD	
4.2	**Create and share knowledge through dissemination of best practices and lessons learned**												
4.2.1	Number of innovations, best practices, and other data or lessons learned shared with other partners or international institutions for global reporting on the Vector Learning Exchange	Project Records Annually	Country Technical Area	N/A	N/A	TBD		TBD		TBD		TBD	
4.2.2	Number of individual members who use the Vector Learning Exchange	Project Records Annually	N/A	12	12	TBD		TBD		TBD		TBD	
4.2.3	Number of symposia and/or presentations submitted to and accepted at global conferences	Project Records Annually	Country Technical Area	N/A	N/A	TBD		TBD		TBD		TBD	
4.2.4	Number of success stories written or videos produced and shared on the VectorLink project website	Project Records Annually	Country	2	3	TBD		TBD		TBD		TBD	

#	Performance Indicator	Data Source(s) and Reporting Frequency	Disaggregation(s)	Annual Targets and Results									
				Year 1		Year 2		Year 3		Year 4		Year 5	
				Target	Result	Target	Result	Target	Result	Target	Result	Target	Result
4.2.5	Number of peer-reviewed journal articles submitted and accepted	Project Records Annually	Technical Area	N/A	N/A	TBD		TBD		TBD		TBD	
4.2.6	Number of critical guidance, standards, or plans that incorporate disseminated findings/best practices	Project Records Annually	Technical Area	N/A	N/A	TBD		TBD		TBD		TBD	
4.3	**Develop and deploy cost-savings approaches**												
4.3.1	Number of innovative or novel approaches implemented to achieve cost savings in IRS and integrated malaria vector control programs	Project Records Annually	Country VC Intervention Type	TBD		TBD		TBD		TBD		TBD	
4.3.2	Number of cost effectiveness assessments of existing approaches in the implementation of IRS and integrated malaria vector control programs	Project Records Annually	Country VC Intervention Type	1	1	1		1		1		1	
4.4	**Cultivate public-private partnerships**												
4.4.1	Number of private sector entities engaged with to establish public private partnerships to increase the quality and coverage of malaria vector control activities globally	Project Records Annually	Country Private Sector Organization	1	1	TBD		TBD		TBD		TBD	

ANNEX C: NUMBER OF PEOPLE TRAINED

Categories of Persons Trained	Training on IRS Delivery										Other Trainings																Total
	Training of Trainers		Spraying Operations		Data Capture		Logistics Training		Technical Maintenance		Structure Enumeration/ IEC TOT		Structure Enumeration/ IEC Training		Poison Control		Environmental Compliance		Coveralls Washing		Fire Security		Finance		Transport Security		
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
District coordinators	3	0																									3
Site Supervisors	237	34																									271
Spray Operators			620	129																							749
Team Leaders			101	24																							125
Data Entry Clerks					23	8																					31
Logisticians							2	1																			3
District Store Keepers							3	0																			3
Sector Store Keepers							33	1																			34
Finance Assistants																							2	1			3
Pump Technicians									21	0																	21
Sector IEC Assistants& Supervisors											90	12															102
Village IEC Mobilizers													491	114													603
Adverse Effects Teams (Clinicians)															84	16											100

Categories of Persons Trained	Training on IRS Delivery										Other Trainings																Total
	Training of Trainers		Spraying Operations		Data Capture		Logistics Training		Technical Maintenance		Structure Enumeration/ IEC TOT		Structure Enumeration/ IEC Training		Poison Control		Environmental Compliance		Coveralls Washing		Fire Security		Finance		Transport Security		
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
Environmental Compliance Officers																	3	0									3
Washers																			0	98							98
Security Guards																					68	0					68
Drivers																									9	0	9
TOTAL M/F	240	34	721	153	23	8	38	2	21	0	90	12	490	113	84	16	3	0	0	98	66	0	2	1	9	0	2227
TOTAL/Training	274		874		31		40		21		102		605		100		3		98		68		3		9		2227

**Counted towards indicator 1.4.1 - Total number of people trained to support VC in targeted areas.*

ANNEX D: ENVIRONMENTAL MITIGATION AND MONITORING REPORT FORM

VectorLink Burkina Faso

ENVIRONMENTAL MITIGATION AND MONITORING REPORT (EMMR)

ANNUAL REPORTING FORM

Implementing Organization: Abt Associates, Inc.

Geographic location of USAID-funded activities: **North-Central Region, south-west and the Boucle of Mouhoun in Burkina Faso**

Period covered by this Reporting Form and Certification: **January-December 2018**

Mitigation Measure	Status of Mitigation Measures	List any outstanding issues relating to required conditions	Remarks
1. Education, Technical Assistance, Training. • Training on all components of IRS implementation	Availability of appropriate teaching modules	N/A	N/A
2. Research and Development: vector control research • Implement laboratory environmental, health, and safety (EHS) manuals with standard operating procedures (SOPs), or use existing SOPs, for laboratory operations in accordance with country-specific compliance mechanisms. • Implement SOPs for the safe storage, transport, and use of equipment, chemical reagents, insecticides, and supplies in accordance with international guidelines (e.g., WHO, FAO) and host country requirements. • Provide training to workers on the approved SOPs or Waste Management Plan (WMP) developed for properly handling and disposing of wastes	Activities entrusted to IRSS Institute of Research on Health Sciences/Centre Muraz (Center complying with international guidelines).	N/A	The center reports directly to USAID/PMI.

Mitigation Measure	Status of Mitigation Measures	List any outstanding issues relating to required conditions	Remarks
4. Small-Scale Construction • Implement rehabilitation activities in conformance with USAID best practices and host country laws and regulations. Refer to the "Small-Scale Construction" chapter of the USAID Sector Environmental Guidelines (www.usaidgems.org/sectorGuidelines.htm • Only non-hazardous materials may be used for rehabilitation of facilities. In particular, asbestos and/or lead-based paint or plumbing will not be used, even if allowed by host country. • If existing hazardous materials are identified during planning or rehabilitation, implementing partners will cease rehabilitation activities until all such materials have been removed by other qualified parties in compliance with host country regulations. • Implementing partners and/or sub-contractors will provide training to workers on applicable best practices. • Implementing partners and sub-contractors will follow best practices, for properly disposing of waste resulting from renovation or rehabilitation activities. Contractors will train workers on the proper use of PPE, and best practices for handling and disposing of waste. • If the presence of asbestos is suspected in a facility to be renovated, the facility must be tested for asbestos before rehabilitation works begins. Should asbestos be present, implementing partners and sub-contractors must cease work until removal is carried out by others in conformity with host country requirements. Work may not re-commence until the facility is retested to demonstrate that asbestos removal has been effective. • All results of the testing for asbestos shall be communicated to the COR.	VL-Burkina Faso has identified already built infrastructures such as insecticide storage stores, toilets, locker rooms and equipment stores. The only facilities built are sumps and wash areas.	The lack of changing rooms to accommodate a large number of operators and spraying equipment. The lack of a cloakroom and toilets in some operational sites has led VL Burkina to build them	Operational sites are located in health facilities (hospitals, health centers, etc.), and schools. Some stores are concessions given by the population.

Mitigation Measure	Status of Mitigation Measures	List any outstanding issues relating to required conditions	Remarks
7.Vector Control • Insecticide selection for any USAID-supported malaria program is subjected to the criteria listed in the USAID Programmatic Environmental Assessment, country SEAs, and host country requirements.	VectorLink Burkina Faso operates under a Supplemental Environmental Assessment (SEA) approved by USAID in 2016. The SEA covers the nationwide use of all WHO-recommended insecticides for IRS (with the exception of DDT), including pyrethroids, organophosphates, carbamates, and chlorfenapyr (once recommended by World Health Organization Pesticide Evaluation Scheme) for the period 2016-2020. The Environmental Compliance Certificate issued in 2008 by the ABE (Burkina Fasoese Environment Agency) remains valid.	Low capacity for insecticide analysis in the country	The analysis of the insecticide will be done by a private laboratory via Plant Protection Directorate (DPV)
• Procurement and inventory logs must be maintained.	Procurement and inventory logs are regularly updated		
• Ensure storage facility and personal protective equipment (PPE) are appropriate for the active ingredient used and in accordance with approved SOPs.	• Storage facilities were refurbished and inspected by the ECO to ensure environmental compliance prior to the start of IRS operations. • Appropriate PPE was provided to all staff involved in IRS operations.		
• Distribute insecticides to facilities that can manage such commodities safely in storage, use, and disposal (i.e., in a manner generally equivalent to Implementing partner's own SOWs/WMP).	All sites are inspected to ensure the proper management of insecticide storage, use, and disposal.	Facilities for quality control of insecticides in the country remain low	All EC gaps noticed in storage facilities during the PSECA1 were corrected prior to the start of the IRS campaign.
• Inspect and certify vehicles used for insecticide or team transport prior to contract.	10 vehicles used for the transportation during the campaign were inspected and certified according to best practices. Replacement vehicles have been inspected and certified in accordance with	All transport vehicles were changed because they broke down.	All vehicles were equipped with first aid kits. For the transport of large equipment, 10-ton trucks have been rented for this purpose
• Train drivers	All drivers were trained in safe handling and transport of insecticides; human, personal health, and environmental safety; handling IRS commodities; and spill management.		
• Ensure availability of cell phone, PPE and spill kits during insecticide transportation.	All drivers had their cell phone and PPE on board; every transport vehicle was provided with a spill kit.		
• Initial and 30-day pregnancy testing for female candidates for jobs with potential insecticide contact.	193 female candidates for IRS operations participated in the initial pregnancy screening. The pregnancy testing took place from May 27- June 03, 2018 in all districts. 18 of initial pregnancy testing are positive. The second pregnancy test took place from June 27-29 with 79 women. In the second pregnancy test no cases of pregnancy were not detected	The other positions to which they were eligible were already saturated	
• Health test all spray team members for duty fitness.	A medical check-up for 942 seasonal staff was conducted a few days before the IRS campaign.		

Mitigation Measure	Status of Mitigation Measures	List any outstanding issues relating to required conditions	Remarks
• Procure, distribute, and train all workers with potential insecticide contact on the use of PPE.	All seasonal workers received full PPE and were trained on PPE usage; and insecticide spill management.		
• Train operators on mixing insecticides and the proper use and maintenance of application equipment.	All spray operators were trained on insecticide mixing hazard management; environmental risk awareness; spray techniques; end-of-day clean-up; and the triple rinsing procedure in addition to proper pump maintenance.		
• Provide adequate facilities and supplies for end-of-day clean up.	All the area flushing and evacuation of effluent have been designed to collect all effluents. These areas have been inspected and approved before the start of the operations of the IRS.		
• Enforce application and clean-up procedures.	All supervisors are required to enforce application and clean-up procedures.		The team leaders, site supervisors, and site coordinator received daily automated messages to enforce application and clean-up procedures.
• Implement Information, Education and Communication (IEC) campaigns to inform homeowners of responsibilities and precautions, including washing itchy skin and going to health clinic if symptoms develop and do not subside.	Mobilizers and public criers were ordered to educate households on safety procedures to observe, including the observation of 2 h 30 before we have their premises and washing when they observe itching after their entry in their powdered premises. Operators were also ordered to raise household therefor	• 8% (2/25) of residents were not informed in advance about the spray activities	Strengthening the awareness of households the next few campaigns
• Ensure health facility staff is aware of insecticide poisoning management.	• Before the start of the campaign, 9 doctors, including three in each district have been trained in the management of the side effects of insecticides. These 9 doctors form their laps 34 personnel of health measures taken in charge cases of poisoning. • Documentation on technical characteristics, the precautionary measures and measures to be taken in case of organophosphate poisoning was published on each operating site.	The lack of time has not allowed to train all personnel of health in the districts of Kampti and Solenzo	
• Storage facilities and transportation vehicles must be physically secured to prevent theft.	Each store has a double locking system and guard 24 hours a day by day a guard and a night watchman. The vehicles are brought not drivers at their home		
• Maintain records of all insecticide receipts, issuance, and return of empty containers.	36 storekeepers were trained on the proper warehouse management including the maintenance of all records with a focus on insecticide and PPEs.	The lack of time has not allowed to train all storekeepers in the districts of Kampti	

Mitigation Measure	Status of Mitigation Measures	List any outstanding issues relating to required conditions	Remarks
• Conduct analysis comparing number of houses treated vs. number of containers used.	258,766 structures were treated with 53,525 units of insecticide: one bottle treated on average 4.83 houses.		24,774 units of insecticides are in stock and will be used in the next campaign (15358 bottles of Actelic expire in February 2020; and 9416 sachets of SumiShield, in January 2021)
• Examine houses treated to confirm application	Direct Observation Spraying was conducted by supervisors to assess the quality.	8.83 % (16/181) of Team Leaders did not use the Error Eliminator to check the accuracy of Spray Operators data.	The error eliminator form has been changed this year into spraying directly observed form filled by the team leader.
• Perform physical inventory counts during application season.	Storekeepers are trained to perform physical inventory counts during the campaign. The storekeepers regularly performed the physical inventory counts. They are often helped with physical counting by supervisors	Stocks of nose masks sometime were not update in register. Stock cards are often poorly informed	Appropriate recommendations for the tracking of nose mask's use will be made for future campaigns It is necessary to strengthen the training of storekeepers and to increase the follow-up
• For shipments of insecticide over water, sachets/bottles will be packed in 220 liter open top barrels with a water-tight top and a locking ring, or in a similar durable container. Waterproof labeling must be affixed to the barrel, with the identity of the pesticide, number of bottles inside, the weight, the type of hazard posed by the contents, and the personal protective equipment to be worn when handling the barrel.	PMI VL Burkina Faso did not transport insecticide over water during the course of the campaign for IRS.		
• Train applicators on SEA operational requirements, SOPs, PMI BMPs, and approved WMP, developed for the safe and effective storage, distribution, application, and disposal of insecticides	SOPs were trained about BMP guidelines and Burkina Faso environmental compliance's laws which included SOPs and the WMP.		
• Ensure application equipment and PPE are appropriate for the active ingredient used and in accordance with approved SOPs, and maintain equipment to avoid leaks.	SOPs and other seasonal workers donned the appropriate PPE for Organophosphates during spraying and clean-up in accordance with approved standard operating procedures.	The wearing of individual protective equipment is not respected by certain operators throughout the chain of spraying activity	Reinforce supervision for a proper and complete wearing of PPEs.

Mitigation Measure	Status of Mitigation Measures	List any outstanding issues relating to required conditions	Remarks
• Maintain application Equipment	The pumps are washed and stored at the end of the day after the gradual rinsing. When pumps fail, they are assigned to maintenance for repair	There is often a deficiency in the external cleaning of the pumps. Lack of spare materials often	Advanced training of pump technicians is planned for the management of more complex breakdowns.
• No application of insecticides within 30 yards of beekeeping sites	During training, Applicators were ordered not to spray beekeeping sites and other protected areas.		
• Handling, treatment, and disposal of nonhazardous (general waste) and hazardous wastes must be in accordance with the approved WMP/SOPs and the PMI BMPs.	• VectorLink to sign a contract with Saphyto, a structure specialized in the management of hazardous waste (empty SumiShield and empty bottles of Actelic) for recycling and incineration. • Other contaminated wastes, such as masks, torn gloves, and other wastes, are to be incinerated in district incinerators. All. • All incinerators are inspected and certified according to the standards in force in Burkina Faso before considering any incineration action • uncontaminated or decontaminated and reusable waste is left at the disposal of the operators	Absence of specialized structures for the management of certain types of wastes (batteries and other metal wastes)	Research is underway to find other battery recycling structures, ink cartridges and for recycling SumiShield bags in the future.
• The WMP, which outlines SOPs for managing waste processes, must be in accordance with PMI best practices and host country requirements	Burkina Faso waste management plan has met all requirements of the country and the 22 CFR.		
• Choose sites for disposal of liquid wastes, including fixed and mobile soak pit sites, according to PMI BMPs.	All soak pits were constructed to standards required for the proper disposal of liquid waste during the campaign.		
• Construct fixed and mobile soak pits with charcoal according to BMPs to adsorb insecticide from rinse water	All fixed and mobile soak pits contained charcoal according to BMPs to adsorb insecticide from rinse water	No mobile sump construction from the late arrival of activated carbon	Fixed sumps are built in all operational sites
• Maintain soak pits as necessary during season	Soak pits have been maintained as necessary during season. Weeds were removed near the rinsing areas. Those with a bad slope were repaired		
• Monitor waste storage and management during campaign	Every day, the waste is inventoried by the storekeeper and stored. At the end of the campaign, all waste is sent to the District warehouse for disposal		
• Monitor disposal procedures post-campaign	Post-campaign disposal procedures are underway, monitoring is ongoing and disposal certificates will be issued by the recycling companies.		

Mitigation Measure	Status of Mitigation Measures	List any outstanding issues relating to required conditions	Remarks
• Waste will only be disposed in incinerators that comply with PMI BMPs. Collect and maintain treatment and disposal documents and records on file.	Incinerators in the health districts of Kampti, Kongoussi and Solenzo comply with the PMI BMPs standards.		
• Country-level USAID EC documentation must contain guidance on proper disposal of wastes	Waste management plan was developed and followed up by the PMI VL Burkina Faso Environmental Compliance Officer.		
8. Testing of Insecticide-Treated Nets • Store nets only in storerooms secured with sturdy doors, double locks, and barred windows. • Dispose of waste materials according to PMI BMPs.	Testing and distribution of insecticide treated nets were not a part of the campaign this year.		

ANNEX E: DCV FORM

USAID CDC
U.S. President's Malaria Initiative

PNLP

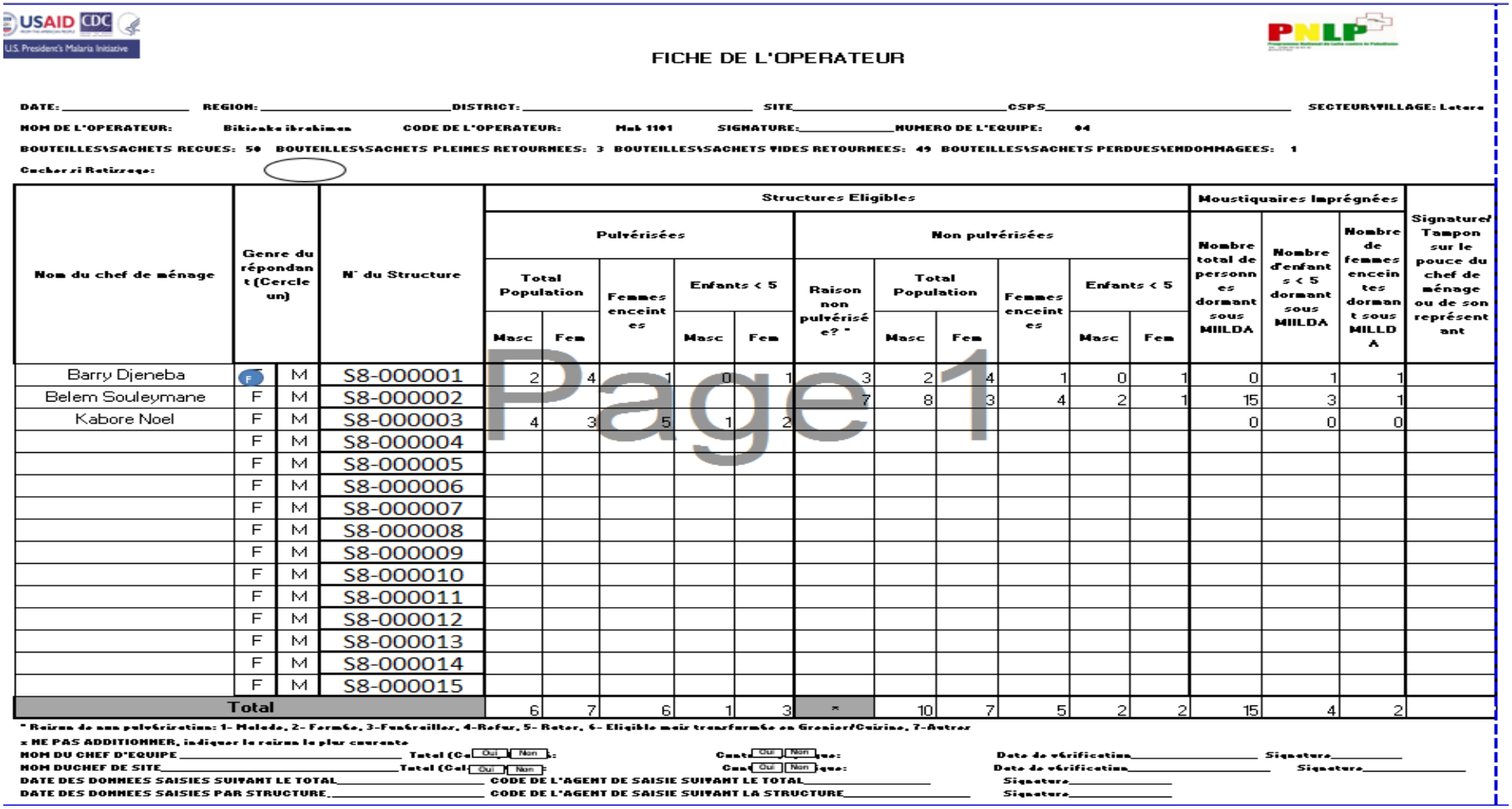
Campagne de pulvérisation intra domiciliaire
Fiche de vérification des données sur le terrain

Date de vérification: _____ Nom du superviseur: _____District: _____ CSPS: _____ Secteur/Village:_____

N°	Nom du Chef de Ménage	NOMERO DE STRUCTURE	Statut (Cocher)		Si Non Pulvérisée, Indiquer la raison* (Voir raisons en bas de	Date de Pulvérisation ou de non pulvérisation (Date de passage de l'opérateur)	Code de l'Opérateur (qui a pulvérisé la structure)	Code du Mobilisateur (qui a sensibilisé le ménage)	Total des Habitants	Total des femmes enceintes	Total des enfants <5 ans
			Pulvérisée	Non Pulvérisée							
1		LLI-LLLLLLI									
2		LLI-LLLLLLI									
3		LLI-LLLLLLI									
4		LLI-LLLLLLI									
5		LLI-LLLLLLI									
6		LLI-LLLLLLI									
7		LLI-LLLLLLI									
8		LLI-LLLLLLI									
9		LLI-LLLLLLI									
10		LLI-LLLLLLI									
11		LLI-LLLLLLI									
12		LLI-LLLLLLI									
13		LLI-LLLLLLI									
14		LLI-LLLLLLI									
15		LLI-LLLLLLI									

* Raison de non pulvérisation: 1= Malade, 2= Fermée, 3=Funérailles, 4=Refus, 5= Rater, 6= Eligible mais transformée en Grenier/Cuisine, 7=Autres

ANNEX F: SPRAY OPERATION FORM



USAID CDC — U.S. President's Malaria Initiative

PNLP

FICHE DE L'OPERATEUR

DATE: _____ REGION: _____ DISTRICT: _____ SITE _____ CSPS _____ SECTEUR\VILLAGE: Latara

NOM DE L'OPERATEUR: Bikienke ibrahimen CODE DE L'OPERATEUR: Mali 1101 SIGNATURE: _____ NUMERO DE L'EQUIPE: 04

BOUTEILLES\SACHETS RECUES: 50 BOUTEILLES\SACHETS PLEINES RETOURNEES: 3 BOUTEILLES\SACHETS VIDES RETOURNEES: 49 BOUTEILLES\SACHETS PERDUES\ENDOMMAGEES: 1

Cocher si Ratissage:

Nom du chef de ménage	Genre du répondant (Cercle un)		N° du Structure	Structures Eligibles										Moustiquaires Imprégnées			Signature/ Tampon sur le pouce du chef de ménage ou de son représentant
				Pulvérisées					Non pulvérisées					Nombre total de personnes dormant sous MIILDA	Nombre d'enfants < 5 dormant sous MIILDA	Nombre de femmes enceintes dormant sous MILLDA	
				Total Population		Femmes enceintes	Enfants < 5		Raison non pulvérisée? *	Total Population		Femmes enceintes	Enfants < 5					
				Masc	Fem		Masc	Fem		Masc	Fem		Masc	Fem				
Barry Djeneba	F	M	S8-000001	2	4	1	0	1	3	2	4	1	0	1	0	1	1	
Belem Souleymane	F	M	S8-000002						7	8	3	4	2	1	15	3	1	
Kabore Noel	F	M	S8-000003	4	3	5	1	2							0	0	0	
	F	M	S8-000004															
	F	M	S8-000005															
	F	M	S8-000006															
	F	M	S8-000007															
	F	M	S8-000008															
	F	M	S8-000009															
	F	M	S8-000010															
	F	M	S8-000011															
	F	M	S8-000012															
	F	M	S8-000013															
	F	M	S8-000014															
	F	M	S8-000015															
Total				6	7	6	1	3	x	10	7	5	2	2	15	4	2	

* Raison de non pulvérisation: 1- Malade, 2- Fermée, 3-Fuit/Travailler, 4-Refus, 5- Retard, 6- Eligible mais transformée en Grenier/Cuisine, 7-Autres

x NE PAS ADDITIONNER, indiquer la raison la plus courante

NOM DU CHEF D'EQUIPE _____ Total (Co Oui Non): Cont Oui Non que: Date de vérification _____ Signature _____

NOM DUCHEF DE SITE _____ Total (Col Oui Non): Cont Oui Non que: Date de vérification _____ Signature _____

DATE DES DONNEES SAISIES SUIVANT LE TOTAL _____ CODE DE L'AGENT DE SAISIE SUIVANT LE TOTAL _____ Signature _____

DATE DES DONNEES SAISIES PAR STRUCTURE _____ CODE DE L'AGENT DE SAISIE SUIVANT LA STRUCTURE _____ Signature _____