

INITIAL ENVIRONMENTAL EXAMINATION: AMENDMENT

PESTICIDE EVALUATION REPORT AND SAFER USE ACTION PLAN (PERSUAP)
FOR
INDOOR RESIDUAL SPRAYING (IRS) FOR MALARIA CONTROL
AMENDED FACE SHEET

PROGRAM/ACTIVITY DATA:

Program/Activity Number:

Country/Region:

Uganda, Africa Bureau, East Africa

Program/Activity Title:

SO8: Improved Health Status of Ugandans

Sub-activity:

IRS using lambda-cyhalothrin for Malaria Control, Kanungu, Rukungiri, Gulu, Kitgum, Pader, Amoru, Lira, Dokolo, Amolatar. Kabermaido, Amuria, Soroti, Apac, Oyam Districts and other districts falls under similar eco-epidemiological zones.

Funding Begin: FY07

Funding End: FY10

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Current Date:

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IEE Amendment (Y/N): Y

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ENVIRONMENTAL ACTION RECOMMENDED: (Place X where applicable)

Categorical Exclusion___

Negative Determination_X_

Positive Determination ___

Deferral___

ADDITIONAL ELEMENTS: (Place X where applicable)

CONDITIONS_X__

PVO/NGO:___

SUMMARY OF FINDINGS:

The U.S. President's Malaria Initiative (PMI) in Africa seeks to reduce malaria mortality by 50% in up to 15 countries in sub-Saharan Africa by 2010. The United States will work in partnership with host governments and build on existing national malaria control plans, policies, and resources. The Initiative will support and complement efforts of the Global Fund (GFATM), the World Bank, and other members of the Roll Back Malaria (RBM) Partnership. The Initiative will include detailed reporting on inputs, outputs, and results. Uganda was one of the first three countries selected for this initiative.

Indoor residual spraying (IRS) is one of four strategies employed by PMI to combat malaria. In June 2006, The United States Agency for International Development (USAID) launched an IRS campaign in Kabale District using ICON Wettable Powder (WP), composed of the active ingredient lambda-cyhalothrin, covering approximately 103,000 households.

Because of the success of this program, in its second year, USAID supported a second round of spraying in Kabale in February 2007 as well as spraying in the neighboring district of Kanungu, protecting over 120,000 households. In May-July and November 2007, IDP camps in highly endemic areas of Kitgum, Pader and Amuru were also sprayed, covering an additional 332,000 households. In accordance with Ministry of Health and PMI priorities, PMI Uganda plans to expand spraying in northern highly endemic districts of Uganda using both ICON-WP or ICON in its capsule suspension formulation (CS) – a longer-lasting insecticide, and therefore more cost effective formulation of the same insecticide.

This abbreviated PERSUAP amendment is an extension of the “PERSUAP for Indoor Residual Spraying for Malaria Control in Kabale District” (approved 3/24/2006), permitting use of lambda-cyhalothrin in Kabale, and the “Malaria IRS SEA: Pyrethroid-based IRS and piloting of DDT-based IRS for malaria control in Uganda” (approved /2008), permitting limited use of DDT in Apac and Oyam. The need for this third document is warranted because a) there are additional districts under consideration for IRS implementation, and b) a different formulation (same chemical) of the previously selected insecticide is proposed.

In addition to spraying in the districts of Kabale, Oyam, and Apac, USAID is seeking to spray in Kanungu, Rukungiri, Gulu, Kitgum, Pader Amuru, Lira, Dokolo, Amolatar, Kabermaido, and Amuria Soroti Districts. According to “The Basics of Indoor Residual Spraying Environmental Health Assessments for Malaria Control,” additional environmental assessments for IRS activities are only needed when 1) the project expansion area differs from the pilot area in environment, agriculture, and cultures; 2) additional pesticide is needed (for resistance management); or 3) DDT is used.

USAID, in consultation with the National Malaria Control Programme of Uganda, proposes to use ICON CS instead of or in addition to the WP formulation in the proposed ten additional districts and, pending results from the IRS campaign in Apac and Oyam, might switch to ICON CS in these previously-covered two districts. Field tests in other countries (e.g., Tanzania) demonstrate efficacy from six to nine months on various substrates, an improvement over the three to six month recommended efficacy of ICON WP. ICON10% CS is a World Health Organization Pesticide Evaluation Scheme (WHOPES)-recommended insecticide for IRS against malaria vectors and was recently registered as a public health insecticide in Uganda.

Overview of Proposed Districts

Kanungu and Rukungiri are situated alongside Kabale; all three comprise a portion of the Southwestern Highlands of Uganda and are similar in terms of their environment, agriculture, socio-economic status and malaria disease epidemiology. All three districts are characterized by highlands with elevation ranging from 1200m to 2400m above sea level and a bimodal rainfall pattern. Small-holder subsistence farms characterize the agricultural sector.

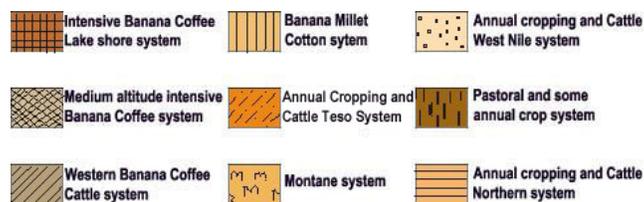
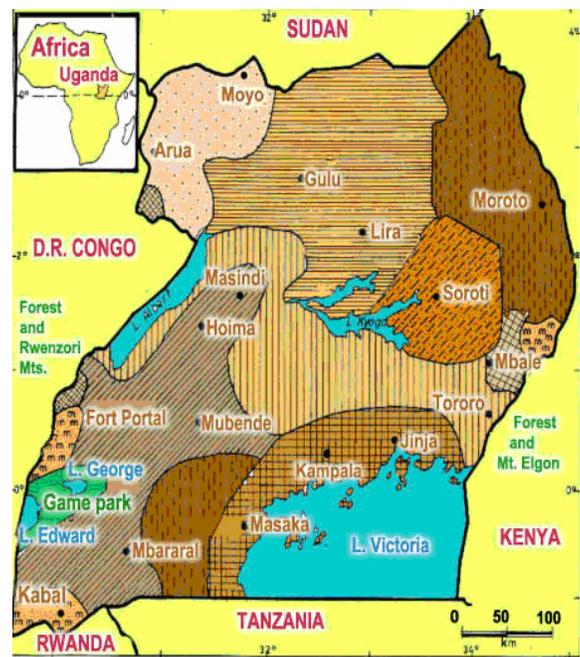
The northern Ugandan districts of Gulu, Kitgum, Pader, and Amuru belong to Acholi sub-region and are traditionally inhabited by the Acholi ethnic group. This region has been devastated socially and economically due to a 21-year long conflict and approximately 1.4 million Internally Displaced Persons (IDPs) reside in these camps. The districts of Lira, Dokolo, Amolatar, and Apac/Oyam* belong to the Lango sub-region and are also partially affected by the conflict. These two sub-regions lie in the northern agro-ecological zone and rainfall is unimodal and too low

* Although a complete environmental assessment of IRS in Apac and Oyam was recently completed for DDT, USAID may elect to spray with ICON CS for resistance prevention management or other operational considerations.

(under 800 mm) and erratic for satisfactory crop production. The dry season is so severe that drought tolerant annuals are cultivated; these include finger millet (*Eleusine coracana*), simsim, cassava and sorghum. Tobacco and cotton are major cash crops. The grassland is short and communal grazing abounds. This area is well-known for its pastoral system with seminomadic cattle herding.

The districts of Kaberamaido, Soroti and Amuria belong to the Teso sub-region and the main inhabitants of this region are the Teso and Kumam ethnic groups. This regions falls under the agro-ecological zone of Taso system. This area receives bimodal rainfall on sandy-loams of medium to low fertility. The dry season is longer, from December to March. The vegetation association is moist *Combetrum/Butyrospermum* and grass savannas; short grassland which is ideal for grazing. The staple foods are millet, maize and sorghum; other crops are oil seed crops (groundnuts, simsim - *Sesamum indicum* - and sunflower) with cotton as the major cash crop. Mixed agriculture (crops and livestock) is practiced; cultivation by oxen is the main agricultural technology. Livestock are kept extensively in those areas which are tsetse-fly free. The use of crop residues is very common in the Teso System. The average farm size is about 3 hectares.

Figure 1: Agro-ecological Zones in Uganda



Reference: <http://www.fao.org/ag/agp/agpc/doc/counprof/uganda/uganda.htm>

There are lake and river edges, wetlands and a variety of habitat types in the lower part of Lango (Apac, Amolotar and Dokolo) and Taso region (Kaberamaido and Soroti) districts. Table 1, published by the Ministry of Water, Lands and Environment (2003), illustrates that the region has a considerable number of wetlands, water bodies, forest reserves and National Parks. Many central forest reserves have largely been depleted of woody biomass (and other biodiversity) and have been magnets of colonization.

Table 1: National Biomass Study

District	Local Forest Reserve (Ha)	Central Forest Reserve (Ha)	National Parks (Ha)	Wetland
Apac/Oyam	105	11,373	6	41
Gulu/Amuru	25	29,965	107,972	41
Kaberamaido	11	2,569	0	30
Kitigum	30	67,906	0	0
Lira/Dokolo/Amolatar	298	9,649	0	0
Pader	61	10,386	0	0
Soroti	324	4,894	0	5

Rationale for IRS Expansion

The proposed areas are all the most malaria affected regions in Uganda. The temperature and rainfall are sufficient to allow a stable, year round (perennial) malaria transmission at high levels with relatively little seasonal variability. Malaria ranks as the number one reporting disease, causing high morbidity and high economic and social impact. It is estimated that a single case of malaria in Uganda costs a sum equivalent to ten working days. The entomologic inoculation rates (EIRs) are high (1564 infective bites/man/yr). The climatic condition, geography (low elevation) and availability of ample breeding places allows the major malaria vectors *Anopheles funestus* and *Anopheles gambiae s.l.* to breed and spread the disease. The EIR in Apac has been measured at 1,564 infective bites per person years (Okello, 2006) which is the highest reported in the world. Northern Uganda has suffered from political instability for the last 20 years, resulting in a degraded health care system that has exacerbated the burden of malaria.

Despite the conditions and mitigation actions recommended in the initial PERSUAP, there were five isolated incidences of inappropriate uses of insecticide reported by residents or spray supervisors in Kabale district. RTI prepared and submitted incident reports to MOH and USAID. Two cases were not related to IRS (preexisting stomach flu and malaria), two were related to residents re-entering their house shortly after spraying to avoid rain, and one case was accidental ingestion of ICON by a resident. The spray operator was disciplined in this case for inappropriate handling of the pesticide. To prevent such incidences from future IRS programs, the following additional actions are to be implemented during the upcoming and subsequent spray seasons, in addition to the conditions detailed in the previous environmental documents covering IRS for Malaria control in Uganda.

1. **A detailed analysis of the area:** This must be completed to determine which areas will not be sprayed with insecticides prior to the spraying of ICON 10% CS due to factors such as ecological sensitivity.
2. **Involvement of district Environment, Forest and Agriculture officers:** Engage district environmental officers, forest officers and agricultural staff and other relevant agencies for selection of safe and environmentally sound workplaces for insecticide handlings, storage, and environmental monitoring and reporting.

3. **Inventory checks:** Conduct unannounced inventory checks on insecticides and other IRS commodities.
4. **Coding system:** Use bar coding or numbering of insecticidal sachets and allocate specific serial numbers to designated spray operators. This will help to track insecticides and prevent leakages.
5. **Collect used insecticide sachets by project staff on daily basis:** In previous programs, the used sachets were collected by supervisors daily but handed over to the project staff/MOH at the end of the program. It is suggested that project staff collect used sachets daily, and store them for repatriation by the insecticide vendor.
6. **Combined spray units:** Combine spray teams and conduct spraying in a given locality within shorter periods (one or two days). This will allow more supervision by limited number of supervisors and completion of spray operations in a shorter time frame.
7. **Spray squad arrangement:** In previous campaigns, operators were sent individually to houses for spraying allowing them to sell insecticides to households and to follow inappropriate spraying techniques. Therefore, it is recommended that at least two spray operators are sent to houses in future campaigns.
8. **Comprehensive IEC package to educate communities:** Educate communities on unsafe practices and the dangers of IRS insecticide use for purposes other than IRS and encourage communities to prevent misuse by reporting any abuses and getting involved with local leaders, local security, and other influential groups to curb such situations.

A negative determination with conditions is recommended for this project. The same conditions and mitigation measures specified in the “PERSUAP for Indoor Residual Spraying for Malaria Control in Kabale District” and summarized in the Safer Use Action Plan and section on Required Mitigation Measures are applicable in these additional districts as well. As per ADS 204.3.4 if, during the pilot phase, the SO Team, CTO or Activity Manager determines that the activity is not in compliance with the Safer Use Action Plan (e.g. inappropriate use of the pesticide) or the additional conditions listed above, they must modify or end the activity.

As required by USAID’s Automated Directives System (ADS) 204.5.4, the Strategic Objective (SO) team will actively monitor ongoing activities for compliance with the recommendations in this PERSUAP, and modify or end activities that are not in compliance. If additional activities are added to this program that are not described in this document, an amended PERSUAP or Environmental Assessment must be prepared and approved prior to implementation of those activities. This includes any commodities, pesticide products being considered under the program but not covered in the present PERSUAP.

APPROVAL OF ENVIRONMENTAL ACTION RECOMMENDED:

CLEARANCE:

Mission Director, USAID Uganda: _____ Date: _____
Margot Ellis

CONCURRENCE:

Environmental Officer, Bureau of Global Health: _____ Date: _____
Michael Zeilinger

Environmental Officer
Africa Bureau: _____ Date: _____
Brian D. Hirsch

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ADDITIONAL CLEARANCES:

Uganda PHN Director _____ Date: _____
Kathryn Panther

Mission Environmental Officer
USAID/Uganda: _____ Date: _____
Jody Stallings

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Walter I. Knausenberger