



Quality Control Laboratories Installed in Nigeria and Tanzania

LLINs (long-lasting insecticide treated nets) have become the product of choice of the international malaria community and the main malaria prevention product distributed by governments and donors. Quality control is important to certify that the LLIN has the proper dosage of pyrethroid that will enable it to meet the LLIN standard of 90% knockdown and mortality of the anopheles mosquito up to 20 washes. For polyester netting treated with deltamethrin, an HPLC system (high pressure liquid chromatograph) is the standard equipment for testing and quality control recommended by the WHO Pesticide Evaluation Scheme (WHOPES). An HPLC system generally costs \$60--\$70,000. AED NetMark helped two organizations install HPLC systems: Sunflag Ltd for quality control of its insecticide and nets at its LLIN production facility in Lagos, Nigeria; and the Tanzanian Foods and Drug Authority in Dar es Salaam to test LLINs and other products in the marketplace.



SUNFLAG LTD, LAGOS, NIGERIA

Sunflag Ltd., Nigeria's largest net manufacturer, installed a capacity to convert its finished nets into LLINs using the Misting Approach developed by USAID NetMark Project, Bayer Environmental Science, Tana Netting, and Anovotek LLC. The treatment process uses an electronic chemical feed system and industrial washer to spray a fine mist of insecticide and binder on nets tumbling in the washer. The amount of insecticide and binder is closely controlled as is the rotation of the tumbling nets in the washer. After a 20 minute cycling of treatment in the washer, the treated nets are shifted to an industrial dryer for a 25 minute cycle of drying. Then the



LLINs are folded and packed for shipment. Quality control is particularly critical at two points in the process. First, the insecticide and binder formulation need to be tested to ensure that there is an optimal mix. Then the treated LLINs must be tested to ensure that the correct dosage has been applied and that the variation of insecticide levels on different sections of the nets are within the manufacturing parameter. As part of the installation process, AED helped Sunflag define the specifications of the HPLC system most suitable to its needs and then arranged for training of three staff in its use by a Nigerian expert which consisted of classroom time and intensive use of the equipment to test the deltamethrin and LLINs. One month after the training,



AED had the expert return to the factory to help the staff conduct multiple tests during the final optimization of the treatment equipment. Sunflag began full production of its Power Net Plus LLIN in December 2009 after receiving registration approval from the National Agency for Food and Drug Administration and Control that allowed it to put its LLIN into the marketplace.

TANZANIA FOODS AND DRUGS AUTHORITY (TFDA)

AED NetMark provided TFDA with an HPLC system (high pressure liquid chromatograph). NetMark arranged for the South African equipment supplier to help with initial installation of the system during which it finalized an assessment of the training needs of TFDA staff. Using that information, Chemetrix prepared and delivered a three-day training for TFDA laboratory personnel. In addition, AED NetMark purchased and delivered a twelve-month supply of consumables and spare parts. The machine will be used to test treated nets and other products that come under TFDA's mandate.

