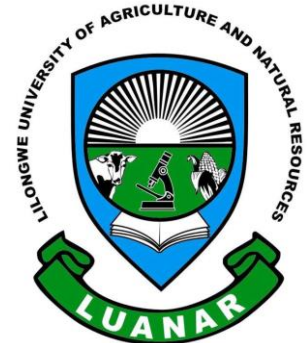




Irrigation Rice Farming and Malaria Sud Prevalence in Karonga District

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Background

- ☀️ Malaria and irrigated rice farming are two opposing sides of the development challenges facing Malawi.
- ☀️ The First Ten-Year Implementation Plan (MIP-1) of Malawi's long-term development plan (Malawi 2063), calls for investments in sustainable irrigation (NPC, 2021)
- ☀️ MIP-1 calls for the development of a healthy population with improved life expectancy through the reduction of the death rate due to malaria (NPC, 2021)
- ☀️ Research evidence shows that irrigated farming could potentially aid in the malaria transmission cycle (Mangani et, al. 2022)

Background

Collaboration

- The Catholic Relief Services (CRS),
- Kamuzu University of Health Science (KuHES),
- the Lilongwe University of Agriculture and Natural Resources
- MwAPATA Institute (MwAPATA)

Objectives

To determine malaria risk attributed to agricultural rice production within households engaged in rice irrigation in Karonga District

- To evaluate the effect of rice irrigation on the prevalence of malaria infection among household members in rice irrigation schemes in Karonga district.
- To assess the effect of proximity of human dwellings (households) to rice irrigation on indoor densities of anopheline mosquitoes in rice irrigation schemes in Karonga district;
- To evaluate the effect of participation in formal irrigation schemes on household food production.
- To describe knowledge and perceptions of household scheme members on climate.
- To evaluate impact of malaria control intervention(s) on prevalence of malaria infection and indoor densities of anopheles mosquitoes among household members in the rice growing communities

Study Site

Mphinga and Wovwe Irrigation Schemes in Karonga district

- 13 villages within 5km radius of Wovwe irrigation scheme under TA Mwilang'ombe and TA Wasambo
- 9 villages within 5km radius of Mphinga irrigation scheme under TA Wasambo
- https://www.google.com/maps/d/edit?mid=1L2h_YaPAjbE01_t1K9DbtJ_J6B-rO5nI&ll=-10.41486377939275%2C34.11509088071918&z=13

Study Design

Treatment and control sites

- Estimated distances from the irrigation site to households
 - Households within 1.5km radius were treated, otherwise control.

Panel data structure

- Implemented two phases of data collection
 - Phase I-October-Nov 2022
 - Phase II-April 2023

Study Design

Five survey components

- Agriculture Household survey
 - Household agricultural production (irrigated and rainfed)
- Demographic Household Survey
 - Household demographic information include use of LLIN
- Biomarker survey (individual level)
 - Malaria and mRDT information
- Mosquito collection
 - Human-landing catches (HLC) were conducted indoors and outdoors
- Distance measurement (GPS)

Sampling Approach and Sample Sizes

Two stage stratified sampling approach

- First stage selected villages within a 5km radius
- Second stage randomly selected households living in the selected villages using PPS
 - List of households provided by the IOVCY project formed the sampling frame

Sample sizes

STUDY SITE	Survey One		Survey Two	
	N	(%)	N	(%)
Wovwe	209	(47.0)	201	(46.4)
Mphinga	236	(53.0)	232	(53.6)

Data Collection and Analysis

- ☀ Questionnaires were programmed using the World Bank's Survey Solutions application
- ☀ Data collection using CAPI
- ☀ Data analysis using Stata 17 Software.



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