



# Integrated Community-Based Model for Controlling Mosquito-Borne Diseases in Kassala State, Sudan

## Project Information

- ◆ **Funded by:** Global Institute for Disease Elimination (GLIDE)
- ◆ **Implemented by:** GHD | EMPHNET

## Background & Rationale

Kassala State faces a growing burden of mosquito-borne diseases, including dengue, chikungunya and malaria exacerbated by:

- *Rapid urban expansion and population displacement*
- *Increased vector breeding sites due to environmental conditions*
- *Emergence risks (including *Anopheles stephensi*)*
- *Strained public health and surveillance systems*

Kassala City's population has nearly doubled due to displacement, increasing outbreak risk, and transmission intensity.

Building on a successful 2024 pilot community volunteer model, this project aims to scale a structured, sustainable, and data-driven community-based vector control system.

## Overall Goal

To strengthen and institutionalize an integrated community–health system approach to reduce mosquito breeding, prevent outbreaks, and enhance resilience against mosquito-borne diseases in Kassala State.

## Strategic Objectives

1. Enhance community engagement and ownership of vector control.
2. Establish data-driven micro-stratification for targeted intervention.
3. Strengthen local health authority capacity for planning and response.
4. Institutionalize real-time digital surveillance and reporting.
5. Build a sustainable volunteer workforce model integrated within the Ministry of Health structure.

## Main Interventions

### A. Community-Based Vector Control

- Training and deployment of 300 additional community volunteers
- Household-level larval source management (LSM)
- Environmental clean-up and safe water storage practices
- Targeted use of larvicides (e.g., Spinosad)
- Promotion of LLIN use, malaria vaccination uptake, and early care-seeking

Volunteers operate under the supervision of Locality Vector Control Teams, aligned with Sudan's Integrated Vector Management (IVM) strategy.

## B. Data-Driven Targeting & Surveillance

- GIS mapping of high-risk zones
- Baseline and monthly entomological surveys (House Index, Container Index)
- Risk-based micro-stratification of interventions
- Integration of data into Ministry systems

This ensures efficient resource allocation and adaptive targeting.

## D. Capacity Building for Health Authorities

- Training for vector control specialists
- Data interpretation and response planning workshops
- Supportive supervision system
- Institutionalization of reporting and monitoring mechanisms

## Expected Results

- Reduction in mosquito breeding indices (HI, CI)
- Increased household adoption of preventive behaviors
- Improved early treatment-seeking practices
- Strengthened Ministry capacity for data-driven response
- Institutionalized community-led vector control model for replication in other states

The project is expected to indirectly benefit over 5.9 million people across Kassala State.

## Strategic Value to the Ministry

- Aligns with Sudan's Integrated Vector Management Strategy
- Strengthens decentralization and community ownership
- Enhances digital surveillance capacity
- Builds a scalable, low-cost, sustainable model
- Supports outbreak prevention rather than reactive response

## C. Digital Real-Time Reporting System

- Deployment of a Kobo Toolbox-based digital platform
- Weekly reporting by volunteers
- Automated dashboards and alerts
- Rapid response to emerging hotspots

This strengthens accountability and accelerates decision-making.

## E. Sustainability & Institutionalization

- Structured volunteer retention system
- Quarterly recognition mechanisms
- Integration into MOH planning processes
- Evidence generation through entomological and epidemiological evaluation
- Publication and dissemination of results for national scale-up

## Decision Points for the Ministry

- Endorsement of the community volunteer institutionalization framework
- Facilitation of the coordination with the state
- Support integration of digital reporting into MOH systems
- Consider scale-up pathway beyond Kassala

**GHD|EMPHNET Information:** Global Health Development (GHD) Eastern Mediterranean Public Health Network (EMPHNET) works at achieving its mission by responding to public health needs with deliberate efforts that allow for health promotion and disease prevention.

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