Community Engagement & Control of Vector-borne Diseases in Malindi, Kenya

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Introduction

- Vector borne diseases: Malaria, Dengue, Yellow fever, Chikungunya, Filariasis (Lymphatic Filariasis) e.t.c
- Pose an immense public health concern
- Major impediments in the path of socioeconomic development
Why community engagement?

- Community engagement (CE) is grounded in the principles of community organization - fairness, justice, empowerment, participation, and self-determination.

- CE enhances:
  - Partnerships and participation by all
  - Resource mobilization
  - Ownership
  - Sustainability

- Promotes participatory and bottom-up approach
The bottom up approach

- Start with the people
- Identify the issues affecting them
- Spell out their roles and responsibilities
- Understand community needs and expectations
- Identify community resources and structures
Objectives

- Advocacy and social mobilization
  - To increase the visibility of the program and increase its acceptance

- Intra and intersectoral Collaborations
  - To strengthen coordination and partnership development for malaria prevention and control

- Capacity building
  - To strengthen Human Resource and Laboratory capability to support IVM strategies

- Integrated approach:
  - To conduct operational research in IVM

- Evidenced-based decision making
  - To develop an IVM malaria intervention model using adaptive management system

- Monitoring and Evaluation
The study was undertaken in Malindi town on the Kenyan Coast.

The area was divided into grid cells measuring 1 km by 1 km. Each grid cell was assigned to a mosquito scouts.

The mosquito scouts are laypersons who are trained on aspects of mosquito biology, larval and adult sampling techniques and communication skills and data collection.

Information on mosquito breeding areas, mosquito larvae and adult and promoting ITN use.

Information collected was used to make decisions on mosquito control actions in the area.

Participation in vector control was sought by local level involvement through community and/or inter-sectoral participation.
Mosquito scouts capacity building process

**Phase 1**
- Identified mosquito scouts
- Assessed knowledge and skills gaps
- Mapped and developed grid cells

**Phase 2**
- Trained mosquito scouts
- Conducted post-training assessment
- Assigned cells to mosquito scouts

**Phase 3**
- Survey of mosquito breeding places in the assigned cells.
- Educate household owners — neighborhood campaigns.
- Promote various control methods: EM, mosquito net use and care, larviciding using BTI
- Educate Mosquito school club members
- Additional training if needed
Participatory capacity building sessions

- Mosquito scouts commonly referred to as “mosquito doctors”
- Participatory, practical and field based training approach
- Use of real objects for demonstration
Low knowledge of mosquito biology

- Larvae was perceived both as beneficial and harmful
  - “I always see them in water but I have never associated them with adult mosquitoes” in fact, we call them Vilinda maji (water guard) (FGD participant)
  - I boil my water whenever I see “larvae” in water because if you drink without boiling it, you get typhoid and Cholera
Examples of mosquito breeding areas (urban)

Swimming pool

Open wells

Discarded tyres/ containers

Car tracks
Examples of mosquito breeding areas (Peri-urban & Rural)

- Dug ponds
- The River Sabaki
- Un-used / abandoned fish ponds
- Shallow wells dug near large water bodies
Information sharing and decision making

• Data generated was analysed weekly
• Mosquito scouts together with the research team synthesised the data
• Areas that required attention were agreed upon
• Consequently mosquito scouts met with PUMMA / community groups to share the findings
  • The group designed the strategies for tackling the problems
  • They identified the resources to accomplish the task;
  • They made plans of action: how, when, where and by whom
Mapping of Larval habitats
Expanded area

Larval Habitats for Dry and Wet Season

Distribution of Larval Habitats

32 sq. KM 3 strata: Rural, U & PU

16 Sq. KM in Urban & Peri-Urban
An. gambiae – April 2010 – Hot spot
An. gambiae – May 2010 – Hot spot
An. gambiae – June 2010 – Hot spot
An. gambiae – July 2010 – Hot spot

An.gambiae hot-spot
An.funestus hot-spot
Health facility
Hotel
An. funestus – October 2010 – Hot spot

[Map showing distribution of An. funestus hot spots, with grid and markers for health facilities and hotels.]

- An.gambiae hot-spot
- An.funestus hot-spot
- Health facility
- Hotel
An. gambiae – November 2010 – Hot spot

An. gambiae hot-spot
An. funestus hot-spot

Health facility
Hotel
Development of interactive educational materials

Contents

- Mosquito lifecycle
- Diseases transmitted by mosquitoes
- Different ways of controlling Mosquitoes- adult & larvae
Other trainings / capacity building sessions

- Public health Officers: #30
- Community Health Extension Workers: #20
- Malaria Control Action Group: #200
- Mosquito School Clubs: #20
- Care takers (hotels & cottages): #32
- Stakeholders workshop # every four months

The aim of these trainings was to advocate for IVM and participation by every sector.
Community based structures and involvement

- **Malindi Mosquito Control Association** - an affiliation of 11 mosquito control groups

- Objective - to reduce mosquitoes in Malindi (Punguza Mbu Malindi, PUMMA)

- Co-ordinate the activities of community groups and liaise with stakeholders for support.

- Resource persons – mosquito scouts
MOH & other stakeholders

- Participate in resource mobilization activities
  - World malaria days
  - Annual mosquito field events
- Capacity building sessions
- Support supervision
  - IVM co-ordinator
Annual Mosquito Field Day

**Day 1:** shine of the village’
- clean up exercises
- with messages about mosquito control.

**Day 2:** Stakeholders meeting
- to deliberate and feedback on mosquito and malaria control program in Malindi.

**Day 3:** The D-Day
- marked with procession, exhibitions from mosquito groups, partners, schools, on various mosquito products, control tools, posters, thereby creating awareness.
Mosquito School Clubs

- 11 schools with mosquito clubs
- Motto: *malaria free schools*
- School Health/Mosquito clubs activities
  - Health talks
  - Mosquito walks
  - School Mosquito day competitions
    - Poems
    - Models
    - Songs
    - Skits/Drama
Community Based Habitat Management

- **Ensure proper use of LLITNs**
- **Caterogise habitats into type & Use**

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**Community Based IVM Model for use by mosquito scouts in Urban Environments**

- **Wells:** Apply Bti, Cover (Permanent solution), Add Fish
- **Swamps:** Apply Bti, Community to empty side ponds for water after every 3 days, unused side ponds covered
- **Swimming pools (Unused/Abandoned):** Apply Bti, Add fish,
- **Habitat:** Weigh option against usage of water and act appropriately
- **Application of Bti:** Liaise with house owners for EM (Drainage, filling or complete covering)
- **Engineered drains:**

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**Advocacy and Social Mobilization**

- **Neighborhood Campaign (Community Education, Sensitization and Mobilization for Action)**

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**Habitat types:** House drains, Septic tanks, tyres, road puddles,

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**Notes:**
- Apply Bti whenever 3rd & 4th Larval instars are present
- Remember EM provides more permanent solution/Habitat Removal
- Involve the community members and house owners for action on habitats (EM)
- LLINs (Bed net) is key tool for protection of mosquito bites and should be used by ALL PEOPLE within cell. Ensure to give promotional Information in all meetings
### Environmental Management

<table>
<thead>
<tr>
<th>Habitat type</th>
<th>#</th>
<th>Action taken</th>
</tr>
</thead>
<tbody>
<tr>
<td>Containers</td>
<td>4</td>
<td>Water drained and destroyed</td>
</tr>
<tr>
<td>Ditch</td>
<td>2</td>
<td>Covered with soil and stones</td>
</tr>
<tr>
<td>Fish pond</td>
<td>1</td>
<td>Destroyed/Removed, Covered with concrete slab, filled with stones</td>
</tr>
<tr>
<td>House drainage</td>
<td>35</td>
<td>Covered with concrete slab</td>
</tr>
<tr>
<td>Chambers</td>
<td>9</td>
<td>Covered with concrete slab</td>
</tr>
<tr>
<td>Pond</td>
<td>5</td>
<td>Filled with stones and sand</td>
</tr>
<tr>
<td>Septic tank</td>
<td>43</td>
<td>Covered with concrete slab</td>
</tr>
<tr>
<td>Swimming pool</td>
<td>24</td>
<td>Water drained, Added larvivorous fish, Chlorinated</td>
</tr>
<tr>
<td>Tyre</td>
<td>4</td>
<td>Removed/destroyed</td>
</tr>
<tr>
<td>Water point</td>
<td>1</td>
<td>Repaired with a concrete slab, Covered with iron sheets, concrete slabs, perforated</td>
</tr>
<tr>
<td>Water tank</td>
<td>29</td>
<td>Covered with concrete slab, added</td>
</tr>
<tr>
<td>Well</td>
<td>20</td>
<td>larvivorous fish</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>177</strong></td>
<td></td>
</tr>
</tbody>
</table>
Community identifies malaria risk areas (positive larval habitats, presence of mosquitoes, children fevers), make decisions, and finances malaria control.

- Women provide ~ 60% of labour in the identification of ground pools of water.

- Women involved in management (51%)
Common challenges

- Community / individual expectations (employment opportunities, provision of services and commodities)

- Livelihood concerns

- Sustainability of interventions
Acknowledgements

- Biovision Foundation – Switzerland for funding the work
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- MOH – Malindi sub-county and other Stakeholders