Ministry of Health
United Republic of Tanzania

National Malaria Control Program
Implementation of Community-based Larval Source Management for Enhancing Malaria Control in mainland Tanzania. A process narration.

NMCP / Swiss TPH – TEMT Project

4th May 2022
Contents

1. Background
2. Strategy of LSM Implementation
3. Status of LSM Implementation
4. Next steps
Background
Background

• In mainland Tanzania, implementation of ITNs and IRS has helped in reducing malaria prevalence from 18.1% (DHS/MIS-2008) to 7.5% (MIS-2017)

• In enhancing malaria control, the country is planning to deploy Larval Source Management

• National Malaria Control Program (NMCP) with support from Towards Elimination of Malaria in Tanzania (TEMT Project) has planned to support LSM in 15 councils, however, the intervention has started in 3 councils in Tanga region:
  - Handeni DC, Lushoto DC and Tanga CC

• Support from TEMT Project includes financial resources and technical assistance
Selection criteria for the 15 councils

i. To consider representation of all malaria risk strata  
   - “very low”, “low” “moderate”, “high” and “urban”

ii. To consider councils with Malaria Vector Entomological Surveillance (MVES) Sentinel Sites

iii. To consider councils implementing other interventions, like;  
    - LLINs, IRS, MDA, CBS, MEEDs, CmCM and IPTi

iv. To consider councils with high heterogeneity (within its wards)

v. To consider councils with bimodal and unimodal rainfall patterns

vi. To consider logistics in-terms of biolarvicide distribution & supervision
## TEMT Project – LSM Implementation Councils

<table>
<thead>
<tr>
<th>S / No.</th>
<th>Region</th>
<th>Council</th>
<th>Malaria Endemicity / Risk</th>
<th>Malaria Risk Strata</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Tanga</td>
<td>Handeni DC</td>
<td>High</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Tanga</td>
<td>Lushoto DC</td>
<td>Low (High heterogeneity)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Tanga</td>
<td>Tanga CC</td>
<td>Moderate (Urban)</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Kilimanjaro</td>
<td>Rombo DC</td>
<td>Very low</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Kilimanjaro</td>
<td>Same DC</td>
<td>Low (High heterogeneity)</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Kilimanjaro</td>
<td>Moshi DC</td>
<td>Very low</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Dodoma</td>
<td>Chamwino DC</td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Dodoma</td>
<td>Kondoa DC</td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Dodoma</td>
<td>Mpwapwa DC</td>
<td>Low (High heterogeneity)</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Kigoma</td>
<td>Uvinza DC</td>
<td>High</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Kigoma</td>
<td>Kibondo DC</td>
<td>High</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Kigoma</td>
<td>Kigoma MC</td>
<td>High (Urban)</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Ruvuma</td>
<td>Tunduru DC</td>
<td>High</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Ruvuma</td>
<td>Nyasa DC</td>
<td>High</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Ruvuma</td>
<td>Songea MC</td>
<td>Moderate (Urban)</td>
<td></td>
</tr>
</tbody>
</table>

*Strata: Very low, Low, Moderate, High, Urban*
Strategy of LSM Implementation
Structure of Implementation and Biolarvicides used

- LSM is conducted through a community-based approach
  - Volunteers at the community level (CORPs) implement LSM
  - Supervision follows existing local government structures from the village / street, ward and council levels
- The project uses two biolarvicide products that are manufactured locally at Tanzania Biotech Products Limited, a factory in Kibaha DC, Pwani Region
  - BACTIVEC - *Bacillus thuringiensis var. israelensis* (Bti)
  - GRISELESF - *Bacillus sphaericus* (Bs)
- These products are highly selective - target only larvae stages of mosquitoes
- Biolarvicides are safe to humans, animals and the environment
### Biolarvicide application - Frequency

#### Spraying cycle

<table>
<thead>
<tr>
<th>According to Rainfall Pattern</th>
<th>3 spray cycles</th>
<th>Each spray cycle will last for 2 months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bimodal</td>
<td>2 spray cycles</td>
<td>Each spray cycle will last for 2 months</td>
</tr>
</tbody>
</table>

#### Frequency of spraying per spraying cycle

<table>
<thead>
<tr>
<th>Month</th>
<th>Week</th>
<th>Spray</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>6</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**Total application per spray cycle:** 6
Biolarvicide application – Based on rainfall pattern

**Bimodal rainfall – Application pattern**

**Unimodal rainfall – Application pattern**

**Key**
- Spraying cycle
- Rainfall pattern
- Malaria cases

Before Masika

In between

After Vuli

Before rainfall

After rainfall
Status of LSM Implementation
Status of LSM Implementation

1. Development of LSM SOPs
   - July 2021

2. Advocacy Meetings
   - August 2021

3. Training – Sub council (ward, village and community)
   - October – December 2021

4. Baseline Data Collection (with National level supervision)
   - January – February 2022

5. ToT – National, Regional and Council levels
   - August - September 2021

6. Distribution of equipment’s, supplies and M&E tools
   - October 2021

7. Biolarvicide application (After Masika rains)
   - May – June 2022

8. Supervision, Monitoring and Evaluation
   - May – June 2022
Status of LSM Implementation

- Baseline larval habitat data as collected during dry season (before “Masika” season)

### Total number of breeding habitats per council

<table>
<thead>
<tr>
<th>Council</th>
<th>Risk Strata</th>
<th>Population</th>
<th>Average no. of anopheline larvae per habitat</th>
<th>Average no. of culicine larvae per habitat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Handeni DC</td>
<td>High</td>
<td>354'358</td>
<td>39</td>
<td>32</td>
</tr>
<tr>
<td>Lushoto DC</td>
<td>Low</td>
<td>371'504</td>
<td>62</td>
<td>83</td>
</tr>
<tr>
<td>Tanga CC</td>
<td>Moderate/Urban</td>
<td>297'135</td>
<td>20</td>
<td>21</td>
</tr>
</tbody>
</table>

### Total estimated surface area (m²) of breeding habitats per council

- **Handeni DC**: 53'717 m²
- **Lushoto DC**: 122 m²
- **Tanga CC**: 50'000 m²
Identified Challenges

- Limited experience in conducting community-based LSM application
  - Difficulties in reaching all areas within the villages
  - Difficulties in identifying all breeding habitats especially in rural settings
Next Steps
Up-coming activities

• To conduct round one of application of biolarvicide (after “Masika” season) in May – June 2022
• To conduct subsequent rounds as per identified schedule
• Close monitoring and evaluation of LSM implementation
  - Process evaluation
  - Entomological evaluation (larvae and adult mosquito monitoring)
  - Epidemiological monitoring (facility based data)
  - Cost analysis (prospective analysis)
  - Impact analysis
Thank You