
Draft Outline of an Operational Manual

Targeted Larval Source Management

3rd Meeting

13.00-15.00h, 7th February 2012
Salon V, IFRC, Geneva



Content

- Introduction
- Definition
- Operational Manual
- Chapter.1-Chapter.2-Chapter.3
- Development process
- Conclusion

Introduction

- Policy what should be done and why
- Guidance is how should it be done and to what standard of coverage and quality
- LSM pilot, project and national program
- LSM is being conducted how can we make it of right coverage and quality and have an impact on malaria transmission.
- LSM can and should be evaluated regards performance

Introduction

- Operational manual
- Tool Kit
- Standard operating procedure
- Etc

Definitions

Definition of Larval Source Management (LSM)

Mosquito larval source management (LSM) is the management of aquatic habitats (water bodies) that are potential mosquito breeding sites, in order to prevent the completion of immature development.

Types of LSM

Habitat modification

A permanent change of land and water, including landscaping, drainage of surface water, land reclamation and filling but also coverage of large water storage containers, wells etc with mosquito-proof lids and permanent slabs or complete coverage of water surface with a material that is impenetrable to mosquitoes like expanded polystyrene beads.

Habitat manipulation

A recurrent activity, such as water-level manipulation including flushing, drain clearance, shading or exposing habitats to the sun depending on the ecology of the vector.

Biological control

The introduction of natural enemies in the aquatic habitats; these are predatory fish or invertebrates, parasites or disease organisms. The most common approach used for malaria control is the introduction of fish in water bodies.

Larviciding

The regular application of **biological or chemical insecticides** to water bodies for control of mosquitoes. Insecticides available have different modes of action including: (1) surface films like mineral oils and alcohol-based surface products that suffocate larvae and pupae, (2) synthetic organic chemicals such as organophosphates (e.g. temephos, pirimiphos-methyl) that interfere with the nervous system of the immature stages, (3) microbials such as *Bacillus thuringiensis israeliensis* (Bti), and *Bacillus sphaericus* (Bs) that kill only larvae since their toxins have to be ingested and lead to starvation, and (4) insect-growth regulators such as pyriproxyfen, methoprene and diflubenzuron that interfere with the metamorphoses of the insect and prevent adult emergence from the pupae stage.



Operational Manual

Purpose of this Larval Source Control/Management manual is to provide the knowledge, standards and step by step operational guidance on the overall management of an LSM programme, together with practical steps on larvicide application and habitat/environmental manipulation and modification to enable national programmes to:-

- develop or refine policies and strategies;
 - develop or update existing guidelines;
 - develop or update training materials;
 - review access and coverage of LSM programmes;
 - review quality and impact of LSM programmes.
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- **How it should be done**
 - **Coverage and Quality**

Chapters of the Manual

Introduction

Chapter.1) LSM goal, objectives, indicators, outcomes and impact (policy, strategy and standards) for national policy makers and programme managers;

Chapter 2) LSM program planning, organization and management, including stewardship and safe use of larvicides, for both national programme managers and district LSM coordinators;

Chapter 3) Habitat manipulation/ modification and Larvicides application guidelines, mainly for district LSM coordinators, supervisors and field team leaders

Introduction

- Malaria control and elimination
- Vector control for malaria control
- Vector control for other vector borne diseases
- Vector control for mosquito control
- Integrated vector management
- Urban malaria control
- Larval source management for malaria control& elimination, other vector borne diseases and mosquito control

Chapter.1-Policy, Strategy & Performance

- Definitions of LSM
- Mosquito life cycle and morphological features of target larvae
- Goals and objectives of LSM
- Performance framework with indicators on input, process, output, outcome.
- Evidence base for integration of LSM
 - Vector ecology
 - Malaria transmission ecology
 - Physical environment
 - Demographics
 - Economics
 - Health system and national program capacity
- Decision making for LSM
 - Why
 - Where LSM
 - When LSM
 - Operational synergies with other interventions such as IRS and LLIN
 - Special focus on large population settlements

Chapter.2-Planning and Management

•Situation analysis and base line surveys

- Building the evidence base (baseline data on vector bionomics , inventory of breeding sites and mapping)
- Larval breeding habitats of malaria **vectors**
- Adult and larval surveys
- Epidemiological survey
- Establishing a data base

•Mapping Risk population density and distribution of house holds and related human activity

•GR-Identify mapping water bodies and larval breeding sites

•Larval Habitats types and characterization

•Larval sampling methods (Location, Access, Size-Hectare , number and productivity)

•Selection of target areas for LSM. (Large scale or limited)

•Selection of larval source management methods (Habitat changes, Larvicides)

•Larval source management application equipment. (Hand application, Compression Pumps, Motorized, Aerial)

•Planning, structures, systems and organization and delivery of LSM programs

•Intersectoral collaboration-Link with local government, Agriculture etc

•IEC and community mobilization (Communities & Schools)

•Recording, reporting and monitoring and evaluation

Chapter.3-Conducting larval source management

Step.1. Finding and recording larval source habitats

Step.2. Reporting on pre-management larval and adult surveys

Step.3 Community information, education and mobilization

Step.4. Prioritizing habitats for modification and manipulation

Step.5. Treating larval source habitats

Step.6. Reporting on habitats modified or manipulated

Step.7. Reporting on habitats treated

Step.8. Reporting on post-management larval and adult surveys

Bibliography

- Systematic review
- Cochrane review
- WHO documents
- Country documents
- Private sector documents
- LSM pilots and case studies

Annexes

Sample of larval survey forms

Sample of larval treatment forms

Sample of LSM supervision check list

Consultation process

Country programs

WHO teams

Research and academic institutions

Private sector

E-mail

Teleconference

Meeting

Development process

- Draft outline
- Early draft
- First draft
- Peer review

- Field testing
- Second draft
- Final draft

- Editing and Layout
- Translation
- Printing

Conclusion

- Broad base consultation
- Volunteers
- Support
- This is only one step in delivery of high coverage and quality of LSM