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Rationale and objectives

Rationale: WHO member states indicated their need to have a clear overview of the current vector control situation and opportunities for improvement.

Objectives

• provide comprehensive overview of current evidence-base on malaria vector control in each of the five countries
• formulate clear actions to ensure more strategic deployment of existing vector control interventions
• outline current knowledge gaps in the area of entomology and vector control and ways to close these
• formulate clear actions on where and how improvements to the collection, management and use of data for decision-making could be made.
Review methodology

• Desk review - data records and other published and unpublished resource documents.

• Semi structured interviews:
  – Site visits - offices and laboratories of NMCPs, research institutes, technical partners, implementing partners, key programme beneficiary groups (formal sector forest goers) etc.
  – e-mail and Skype consultations with key informants.

• Vector Control Needs Assessment tool.
Goal
• Eliminate malaria by 2030
• Eliminate *P. falciparum* malaria by 2025.

Objectives
• Interrupt transmission of *P. falciparum* in areas of multidrug resistance by no later than 2020
• Reduce malaria in all high-transmission areas to less than 1 case per 1000 population at risk and initiate elimination activities by 2020.
• Prevent the reintroduction of malaria in areas where it has been interrupted.
Regional map of malaria incidence by province (April–June 2018)*

Incidence per 1000 population
- 0
- 0 - 0.1
- 0.1 - 1
- 1 - 5
- 5 - 10
- 10 - 20
- 20 - 50
- > 50

The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

*Incidence is calculated as the number of reported cases from April to June 2018 per 1000 population.
General challenges to malaria elimination in the GMS

Malaria elimination efforts in the GMS still face a daunting array of challenges:

• technical and programmatic issues
• political and economic constraints
• security problems
• environmental changes
• evolving partner landscape
• progressive disinterest amongst policy makers responsible for allocating funds for malaria elimination
• lack of engagement by communities in elimination efforts
• multidrug-resistant *P. falciparum*
Figure 1. Numbers of ACTs failing in the GMS in 2017.
Specific challenges to malaria elimination in the GMS

*Complex and diverse transmission dynamics*

- Numerous *Anopheles* species and species complexes
  -> extreme entomological complexity
- Most vector bionomics linked to species complexes as single entities
  => multiple ambiguities
Specific challenges to malaria elimination in the GMS

*Poor public health entomology capacity*

- Technical capacity low especially within national programmes
- Centres of excellence could do more to build capacity
Specific challenges to malaria elimination in the GMS

**Uneven coverage and poor quality of vector control interventions**

- ~80% of those in settled communities either already have access or will have access to LLINs by end 2018.
  
  However
  
  – very high ownership and use of untreated conventional nets
  
  – very low coverage of forest goers

- Poor quality or inappropriate VCPP* tools have likely undermined programmatic impact.

- Targeting of VCPP* interventions sometimes weak, undermining impact and cost-effectiveness.

*vector control and personal protection.*
Specific challenges to malaria elimination in the GMS

**Weak surveillance and M&E**

- Emphasis of surveillance is outdated
- Focus investigations fail to investigate likely transmission sites (concentrating efforts instead on patients’ home villages).

  [e.g. Chanthaburi, Thailand: 9,591 people screened in suspected foci during 2017-18, 0 secondary cases!].
Specific challenges to malaria elimination in the GMS

Weaknesses undermining programme management and implementation

• Guidance provided to countries sometimes weak

• Current approach to incentives undermining programmatic impact.

• Inadequate reimbursement of costs associated with field work.

⇒ poor staff morale and low staff productivity.
Specific challenges to malaria elimination in the GMS

Funding challenges

• Substantial inconsistencies in the level of funding for malaria elimination across the GMS.
Specific challenges to malaria elimination in the GMS

*Extensive knowledge gaps*

- Some progress towards developing evidence-base for some potential new tools but critical knowledge gaps relating to residual malaria transmission (RMT) remain.
Specific challenges to malaria elimination in the GMS

**Few supplementary vector control options**

Progress in research and development has stopped short of large-scale implementation studies that might effect policy change and the widespread adoption of new tools to address residual malaria transmission (RMT).
Promising supplementary malaria vector control tools

- Insecticide treated blankets
- Insecticide treated clothing
- Topical repellents
- Larval source management
- Ivermectin
- Restricting forest access
- Treating livestock with insecticide/endectocide
- Spatial repellents
- ‘Push-pull systems’
- Attractive toxic sugar baits
- Barrier systems
- Improved housing

Those in bold may have some application in forest settings the others are likely more suited to community based settings and so of less relevance to addressing RMT in the GMS.
Opportunities for strengthening vector control in the region

*Increase public health entomology capacity*

- Urgently develop a stronger network of technical assistance (TA) for entomology and vector control across the region (regional level, country level and in some cases provincial or district level TA).
- Roll-out regional training on entomology and vector control.
- Entomology should focus on ‘epidemiology-led problem solving’.
  - ‘focus investigations’ and ‘spot checks’ rather than routine sentinel site surveillance.
  - entomologists need to help identify why persistent transmission foci are persistent and develop locally appropriate solutions.
Opportunities for strengthening vector control in the region

*Improve quality and coverage of vector control*

- Procure only good quality, locally appropriate VCPP* tools to maximize utilization and impact.
- More realistic quantification of VCPP* tools needed (esp. LLHNs for informal forest-goers).
- Drop cross-border projects focusing on narrow strips of land along borders in favour of coordinated approach to eliminating malaria in each of the large forested ‘transmission islands’.
- Far greater sense of urgency and far more action required to address malaria amongst forest-goers.

*vector control and personal protection.*
Opportunities for strengthening vector control in the region

Improve quality and coverage of vector control

• Immediate action required to boost coverage of VCPP* tools amongst formal sector forest-goers.
• Make much more use of military and other formal sector forest-goers to support VCPP* efforts targeting informal forest-goers.
• Return to treating existing conventional nets with long-lasting insecticides.

*vector control and personal protection.
Opportunities for strengthening vector control in the region

**Strengthen surveillance and M&E**

- Focus investigations must investigate likely transmission sites (rather than home villages), find patient’s co-forest-goers and provide appropriate services.
- Programmes must set formal targets for utilization of LLHN and other VCPP* tools in the forest.
- Strengthen evaluation of current investments in the GMS (all implementers annually).

*vector control and personal protection.*
Opportunities for strengthening vector control in the region

Strengthen programme management and implementation

• Country level programme guidance should be more explicit, more practical and locally appropriate, taking human and financial resource constraints into consideration.

• Incentivize malaria elimination efforts to improve implementation quality.

• Ensure adequate reimbursement of costs associated with fieldwork.
Opportunities for strengthening vector control in the region

*Work towards funding equity across countries*

• Review funding levels
• Lobby governments and funding partners
Opportunities for strengthening vector control in the region

*Close the knowledge gaps relating to residual malaria transmission (RMT)*

- Micro-epidemiology of malaria in persistent transmission foci
  - Likely site of transmission
  - Vectors responsible
  - Vector bionomics
  - Human behaviour
Opportunities for strengthening vector control in the region

*Develop and implement new VCPPP interventions for forest goers*

• Initiate large-scale multi-country ‘trials’ with one or more of the most promising new tools as soon as possible.

• Research funding should focus on residual malaria transmission (RMT) as an absolute priority.
Thank-you!