Feasibility of *Plasmodium falciparum* elimination in the Greater Mekong Subregion: technical, operational and financial challenges

Malaria Policy Advisory Committee Meeting
WHO HQ Geneva, 11 September 2014

Technical Expert Group on Drug Resistance and Containment
This document was developed by a subgroup of the Technical Expert Group on drug resistance and containment (TEG), consultants hired by the Global Malaria Programme, and WHO for the Malaria Policy Advisory Committee outlining the technical, operational and financial feasibility and pre-requisites needed for Plasmodium falciparum malaria elimination in the Greater Mekong subregion.
Methodology

- The mission was conducted through a series of consultations with main stakeholders involved in malaria control and elimination in South-East Asia, mainly by phone and email exchanges.
- In addition, the writing team reviewed and used existing literature, national strategic plans, reports, other relevant documents and scientific publications.
- Because of time constraints, it was not possible to undertake country visits.
Why the GMS, why now?
It’s the right time

- Emergence of multidrug resistance including artemisinin resistance in the region, leading to an unprecedented level of regional and national political will, international interest, external financing, technical assistance, regional coordination and national capacity for malaria control and elimination in the GMS.

- Clear demonstration of results in the short term needed to sustain the current level of support.

- This window of opportunity may be short, as political commitment tends to waver once the disease seems to linger on as a marginal problem.

- Missing this opportunity would mean losing much of the benefit of investments made to date.
There is considerable experience to build on

- Excellent progress has been made in addressing malaria across the GMS in the last decade by scaling up proven interventions.
- Efforts to address artemisinin resistance in the subregion have led to further intensification of malaria control activities, remarkably rapid increase in knowledge especially about resistance, population movement and the testing of innovative approaches.
- Mechanisms have been established for exchange of information, collaboration across borders and among partners.
We have no choice but to try

- There is a consensus that the best overarching strategy for stemming the emergence of further drug resistance in the subregion and its spread beyond is to aim for elimination of *P. falciparum*.

- The consequences of inaction would be the emergence of untreatable falciparum malaria, initially in the border area between Cambodia and Thailand.

- The global impact of multidrug resistance, should artemisinin-based combination therapies lose their effectiveness, has been estimated to include 150,000 additional deaths annually.
We have an imperfect but very good set of tools

- The world has at its disposal a set of proven tools for addressing malaria.
- It is likely that effectiveness of some current tools will diminish and few new tools are on the near horizon, so there is little to be gained by waiting.
- Some new tools will nevertheless be added.
- Much of the needed innovation will be in the application of tools. This will evolve fastest by applying them and learning as countries and partners move ahead.
The bill is manageable

- The estimated cost of eliminating malaria in the GMS will range from an USD 3.2 to 3.9 billion over 15 years.
- This represents an average of US$ 1.8 to 2.2 per capita for the population at risk of malaria in the GMS per year.
- While the total cost is significant, it is not out of reach.
- These costs should be weighed against the epidemiological and economic costs of inaction. According to modelling analysis, the economic impact of multidrug resistance could be in excess of US$4 billion annually, due mostly to productivity losses during illness and following deaths.
The biggest uncertainty for malaria elimination in the GMS is financial

- Technical and operational challenges can be overcome, yet without adequate and sustained financing the malaria elimination effort in the GMS will fail.

- The containment efforts undertaken in the GMS since 2008 have been hampered by a lack of financial continuity and uncertainty.

- Elimination of P. falciparum malaria in the GMS must be seen as a public good that warrants sustained funding from traditional development partners, especially through the Global Fund, as well as from emerging regional development partners.

- Although national governments, except China’s, cannot be expected to shoulder all funding needs within the next decades, it is reasonable to foresee increasing allocations as part of the manifestation of high-level political commitment.
Technical feasibility assessment
The GMS covers 2.6 million km$^2$ and has a combined population of approximately 278 million.
## Malaria incidence and treatment-seeking in the GMS

<table>
<thead>
<tr>
<th>Country</th>
<th>Population at risk (millions)</th>
<th>Estimated malaria cases (upper, lower limits)</th>
<th>Estimated malaria incidence per 1000 population at risk</th>
<th>% patients seeking care in non-public sector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cambodia</td>
<td>7.9</td>
<td>160000 (130 000–200 000)</td>
<td>20.3 (16.5–25.4)</td>
<td>59–80</td>
</tr>
<tr>
<td>Yunnan</td>
<td>9.2</td>
<td>3000 (2000–4000)</td>
<td>0.32 (0.22–0.43)</td>
<td>&lt;5</td>
</tr>
<tr>
<td>Lao PDR</td>
<td>3.9</td>
<td>110 000 (89 000–140 000)</td>
<td>28.0 (22.7–35.7)</td>
<td>37–80</td>
</tr>
<tr>
<td>Myanmar</td>
<td>31.7</td>
<td>1 400 000 (1 200 000–1 800 000)</td>
<td>44.2 (37.9–56.8)</td>
<td>60</td>
</tr>
<tr>
<td>Thailand</td>
<td>33.4</td>
<td>140,000 (77 000–310 000)</td>
<td>4.2 (2.3–9.3)</td>
<td>Not available</td>
</tr>
<tr>
<td>Viet Nam</td>
<td>34</td>
<td>27 000 (24 000–30 000)</td>
<td>0.8 (0.7–0.9)</td>
<td>13–23</td>
</tr>
<tr>
<td>Total</td>
<td>120</td>
<td>1 840 000 (1 522 000–2 484 000)</td>
<td>15.3 (12.7–20.7)</td>
<td></td>
</tr>
</tbody>
</table>
2012 GMS distribution of cases

Malaria cases in the GMS (estimated)
Progress toward elimination in the GMS

<table>
<thead>
<tr>
<th>High transmission</th>
<th>Moderate transmission</th>
<th>Low transmission</th>
<th>Very low transmission</th>
<th>Interruption of local transmission</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parasite prevalence &gt;50%</td>
<td>Parasite prevalence 10 - 50%</td>
<td>Parasite prevalence &lt;10%</td>
<td>Incidence &lt;1 case/1000/year</td>
<td>Zero locally acquired cases</td>
</tr>
</tbody>
</table>

Transform malaria surveillance into a core intervention

Ensure universal access to malaria prevention and treatment

Assess feasibility of elimination and refocus programmes

Accelerate efforts towards elimination and malaria-free status

WHO certification

MALARIA FREE

Myanmar  Lao PDR  Cambodia  Thailand  Viet Nam  China (Yunnan)
Three of the six countries in the GMS have longer-term national strategies with formulated goals for national malaria elimination:

- **China** aims to eliminate malaria in Yunnan province by 2020;
- **Cambodia** aims to eliminate *P. falciparum* malaria by 2020, and all other malaria species by 2025.
- **Viet Nam** aims to eliminate malaria by 2030.
- **Thailand** has adopted a dynamic elimination perspective with a target of achieving interruption of malaria transmission in 60% of districts by 2016 and 80% by 2020.

All countries, with the exception of China, are currently implementing an artemisinin resistance containment plan.
A large arsenal of tools is available for malaria control, though not necessarily for *P. Falciparum* elimination.

A number of new innovative tools are being developed. There is an urgent need to invest in innovative interim solutions.
Technical feasibility issues

- The burden of disease in the GMS has been lowered to levels where most countries are considering, or have already committed to, elimination over the next 10–15 years.
- China is already undertaking elimination activities and from epidemiological as well as system viewpoints Thailand and Viet Nam could enter the elimination phase within the next 2–3 years.
- Cambodia and Lao will need to continue aiming for universal coverage of the population at risk for the next 3–6 years, at which point they could enter the elimination phase.
- Myanmar will have to continue scale up to universal coverage for the next 6–10 years before an elimination strategy can be implemented countrywide.
Operational feasibility assessment
Introduction

- Is it possible to achieve minimum levels of effective coverage of those interventions needed to reduce malaria transmission to a very low level, from which elimination can be attempted?

- Operational feasibility depends on:
  - adequate information, both surveillance and operational, to understand potential and actual malaria transmission and to target and manage effective operations.
  - adequate capacity for service delivery – networks of service providers that can provide services to all people in need.
  - leadership and management – political and managerial commitment to elimination and the capacity to strategize, plan, target, organize, supervise, assure quality, monitor, evaluate and solve problems for operations that require a high level of rigor.
  - innovation – new delivery strategies and new partners to overcome the limitations of existing approaches and to deliver new interventions as they become available.
Information systems

Improvements should be made in:

- Accurate information on the burden and trends of malaria
- Information necessary to assess the operational feasibility of elimination
- Detecting the last cases of malaria in areas of very low transmission
- Timely detection of imported cases
- Information needed to manage elimination operations
Increasing effective coverage of interventions will require optimization of three channels of service delivery:

- public sector;
- private sector; and
- community level.
Opportunities and challenges for the public sector

- A critical role for the public sector in malaria elimination is that it takes the lead on strategy, policy, planning and evaluation of the elimination effort in a multi-sectorial approach. While actual service delivery may be shared with the private sector and community level services, the public health authorities must coordinate and oversee malaria elimination.
Opportunities and challenges for the private sector

Too frequently, the private sector is viewed as a problem. **We must embrace with the private sector:**

- The private sector delivering services to the population
- The private sector: employers of people working in malaria endemic areas
- The private health sector: Producers and importers of malaria control commodities
Innovation

- This means doing things either more effectively or more efficiently – better or cheaper. Innovations on the horizon include:
  - Targeted Mass Treatment (TMT);
  - Introduction of new treatment regimens (e.g. triple therapy) or multiple first-line treatments;
  - Deployment of primaquine;
  - Identification of populations of asymptomatic carriers of parasites;
  - Delivery of strategies to tackle outdoor biting by mosquitoes (e.g. repellents, personal or spatial, locally applied insecticides);
  - Sustaining coverage and use of mosquito control in areas of risk;
  - Use of technology in surveillance, mapping, data sharing, public communication and supervision.
Additional specific challenges to operational feasibility

- Multidrug resistance - *Artemisinin and partner drug resistance*
- Counterfeit and substandard antimalarial drugs
- Integration of malaria control activities into broader health services
External determinants

- Urbanization
- Infrastructure development
- Security and stability
- Environmental factors

Most of these are on our side…
Financial situation
Malaria funding in the GMS by source

**Sources:** WHO world malaria report/ADB (NB: GFATM data until 2013 represents actual disbursements. Global data 2014-2016 represents fund allocation under new funding model including the US$ 100 million Regional Artemisinin Resistance Initiative grant).
It would be crucial for any country aiming for elimination to ensure adequate financial resources are made available during all phases of the elimination strategy.

As observed in countries that have reached pre-elimination phase and failed to eliminate malaria (such as Sri Lanka in the 60’s), when the number of cases is reduced to low levels, focus from decision makers and funding from financiers may become volatile due to other competing health priorities.

With the exception of Myanmar, the GMS countries could see their burden of disease reduced to low or very low levels of transmission soon. Their income classification will also change.

In this context, the funding from external resources and more particularly from the GFATM may scale down. The GFATM’s current funding model allocates funding to countries based on their gross national income per capita and disease burden. As a consequence, the recipient countries will still be eligible for funding but their level of counterpart financing will have to increase.
Global Fund income classification

<table>
<thead>
<tr>
<th>Income Level</th>
<th>G-20 Membership</th>
<th>Disease Burden</th>
<th>Focus of application</th>
<th>Counterpart Financing*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Income Countries</td>
<td>No restriction</td>
<td>No restriction</td>
<td>No restriction</td>
<td>5%</td>
</tr>
<tr>
<td>Lower-LMI Countries</td>
<td>No restriction</td>
<td>No restriction</td>
<td>50% focus on specific populations/interventions</td>
<td>20%</td>
</tr>
<tr>
<td>Upper-LMI Countries</td>
<td>No restriction</td>
<td>No restriction</td>
<td></td>
<td>40%</td>
</tr>
<tr>
<td>Upper-Middle Income Countries</td>
<td>Not member</td>
<td>Extreme, Severe or High**</td>
<td>100% focus on specific populations/interventions</td>
<td>60%</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>Extreme</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

UMICs with low/moderate DB, G-20 UMIIs with less than extreme DB, and High Income Countries are ineligible

* Minimum threshold: this is the minimum government contribution to the national disease program, as a share of the total of the government and Global Fund financing for that disease.

** Small Island Economies are eligible if they have a low or moderate disease burden.
Innovative financing

- **Bonds** designed to front-load future donor commitments, issued in the financial markets, and paid back by donor governments and organizations;
- **Development impact bonds**, where the return on investment is linked to the achievement of programmatic results.
- **Debt-conversion mechanisms** by which a country’s debt is written-off by the creditor, and converted into a fund disbursement;
- **Endowment funds** are capital provided by investors, where the returns on investment (though not the capital) will be used to fund malaria programmes;
- **Earmarked taxes**, to be levied on either the national or international level. Some suggestions for malaria elimination have included a national tourism tax or international airline tax.
- **Regional funds** would allow pooling of funds for financing of the malaria battle as a regional public good;
- **Private sector**: through corporate social responsibility initiatives or profit-sharing mechanisms;
- **Emerging country donors**: leveraging the trend of increasing overseas development aid of developing countries to encourage south-south development cooperation.
- **Voluntary public contributions** from developed countries, for example through lotteries or mobile phone solidarity contributions.
Costing
Costing key assumptions

- The costing is based on assumed fall in the population at risk and the total number of falciparum malaria cases.
- It includes targets for interventions such as: proportion of the population at risk covered by vector control interventions, and coverage of volunteers/community health workers.
The population at risk in 2012 estimated on the basis of subnational data reported for WMR 2013 (2012 data).
Assumed falls in falciparum cases
Costing scenarios
Scenario 1 = $3.9B

- high coverage of LLINs in high and low transmission areas.
- The slower projected fall in cases has been used in this scenario.
Scenario 2 = $3.2B

- high coverage of LLINs in high transmission areas and reduced coverage in low transmission areas with a gradual cost-sharing of CHW along the years as they become multipurpose agents.
- The faster projected fall in cases has been used in this scenario.
Costing TMT

- The cost of screening is estimated to be US$ 500 per village.
- In three countries (Cambodia, Lao PDR and Myanmar) 24,800 villages could potentially be targeted for screening.
- Two scenarios: villages eligible for TMT are 20% or 50% of those screened.
- It is estimated that it will cost US$ 20 per person treated for three rounds of treatment and their management.

Based on these two scenarios, the total cost for TMT in Cambodia, Lao PDR and Myanmar would be between US$ 82 and 186 million.
Costing summary

- Range from an US$ 3.2 to 3.9 billion over 15 years, that is an average of US$ 1.8 to 2.2 per capita for the population at risk of malaria in the GMS per year.

- These costs should be weighed against the epidemiological and economic costs of inaction: According to modelling analysis, the economic impact of multidrug resistance could be in excess of US$ 4 billion annually, due mostly to productivity losses during illness and following deaths.
TEN Recommendations
Leadership

- High level political commitment to inter-country collaboration for health including malaria has been established by ASEAN.
- National leadership of this regional elimination effort is essential and depends on national governments working together. Each country should establish a national malaria elimination commission.
- The essence of leadership is not more governance but more common spirit.
- WHO’s role in the ERAR will be critical for technical guidance, rapid exchange of knowledge and subregional level surveillance.
- A joint inclusive governance platform to monitor and coordinate implementation should be agreed upon by all parties involved (e.g. building on the current RAI-RSC).
Better information

- Current information on the burden of disease and its distribution and on malaria control operations is not sufficiently complete, accurate and detailed.

- Better information and analysis on trends over time are needed: Despite progress in micro-stratification, local situational analysis is often not sufficiently detailed to allow differentiation of strategies and approaches.

- In the elimination phase, surveillance systems must include accurate location information for all cases, and malaria should be made a notifiable disease.

- Surveillance should become a core intervention of the national strategies while countries move to elimination. It should gradually come to include not only case detection, but also case management and response.
New partners to address new challenges

- There is considerable potential to expand the breadth and scope of activities by engaging and empowering new partners to carry out specific roles under the coordination of the government authorities.
- This will only work if adequate funds are allocated to these partners to enable them to play their role.
- Reliance on the public sector alone to deliver malaria elimination is not likely to work; yet there is a significant challenge to the public sector as the leader on strategy, policy, planning and evaluation.
Private sector

- Too frequently the private sector is viewed as a problem that needs to be dealt with; it should rather be embraced as an essential partner in the elimination of malaria.

- This includes the private health sector delivering services to the population, the employers of people working in malaria endemic areas, and the producers of commodities for malaria control.

- The nature and scope of private sector engagement will vary across the GMS.
The role of community-based services

- Well-managed community-based health or malaria services have proven to be highly effective.

- Community malaria worker networks should be rapidly expanded where needed and properly managed by local health authorities or NGOs.

- As malaria incidence becomes very low it will be difficult to maintain workers exclusively dedicated to malaria – they should then become community health workers.

- The introduction of integrated community case management of malaria in some countries should be supported, but in a way that maintains a strong malaria component.
More expert attention needed for migrants, mobile populations, ethnic minorities and militaries

- Smarter and better organized programs to deal with migrants and mobile populations will be needed for elimination
- The best option to reach migrants with services is likely to be through those who already work with them
- Community malaria workers will also be part of the solution
- As malaria reaches very low levels in the region, more attention and support will be needed on the most remote static minority populations; though their numbers may be small, they are likely to be a critical residual source for malaria resurgence
- The military represents another priority population for malaria control because of mobility and deployment to areas where malaria transmission continues
Focus on where the problems are greatest

- Move away from only focusing on artemisinin resistance containment
- Within each country, the elimination strategy should aim for coverage of all areas with *P. falciparum* malaria; prioritisation of intervention areas should be guided by two determinants: multidrug resistance and high burden
- Two areas in the region should be prioritized: the border between Cambodia and Thailand where there is multidrug resistance and the high malaria burden areas in Myanmar
- The ERAR hub will work closely with the GMS countries to formulate their elimination action plans and priorities
Research is needed to validate new tools and interventions, including
- TMT
- Mass treatment with ivermectin
- New vector control tools
- Vaccination

Most existing research funding mechanisms do not allow rapid disbursement of funds to quickly resolve questions as they arise.

It would be useful to have a moderate-sized rolling fund for urgent research managed by a panel of regional experts on malaria. This could address a mutually agreed set of known research issues as well as new questions as they arise.
Targeting asymptomatic carriers

- Strong vector control intervention will lower onward transmission from asymptomatic as well as symptomatic carrier.
- Targeting asymptomatic carriers to decrease the parasite reservoir can be achieved by TMT
- TMT is an option deserving of further active exploration and evaluation with a view to wider application
- Development and continuous refinement of clear standard operating procedures will be critical as well as training of teams that can oversee local health workers to implement TMT
The GMS is not malaria-free until all GMS countries are

- All countries of the GMS are vulnerable to importation of malaria from another GMS country. The only way to ensure elimination in the subregion is to eliminate malaria in all countries – and then be vigilant to importation from elsewhere.

- A subregional approach is needed that takes into account the malaria reality of each country.

- Myanmar is likely to be the last country of the GMS to be free of malaria. It can benefit from lessons learned in the elimination phase in other countries of the GMS.
Conclusion

- The feasibility of malaria elimination raises the further question of “under what assumptions?” Also the inevitable answer “Yes, but only if….”

- The **technical feasibility** of malaria elimination depends on the continued effectiveness of existing tools, for example in the face of the current threat of multidrug resistant malaria, and the development of new tools that can replace or, more likely, complement current tools. The push for elimination will itself help to limit the impact of multidrug resistance so that the speed and the rigor with which elimination efforts are implemented will themselves impact on technical feasibility.

- **Operational feasibility** depends to a large extent on whether health systems continue to develop in a way that improves their capacity to deliver services and their ability to organize and manage interventions with the scale and quality needed for elimination. This will also depend on the public sector’s willingness to engage with the private sector in service delivery and to seek assistance where needed with management tasks. Sustained high-level political commitment to elimination will be needed to maintain motivation and management of operations.

- **Overall feasibility** depend on financing; so much that insufficient or irregular funding becomes the greatest risk to malaria elimination
GMS countries have experienced an overall decline in cases

- In 2012, **Myanmar** accounted for 77% of the estimated cases in GMS and the regional trends in incidence in recent year have been dominated by the significant reductions in Myanmar since 2011.

- In **Cambodia**, reported malaria cases have also been falling.

- In **Lao**, malaria epidemics among migrant and mobile populations have occurred recently in the southern part of the country.

- In **Thailand**, data from partners working along the border with Myanmar have been included only since 2011 leading to an increase in the total reported cases.

- In **Viet Nam**, the number of cases has been falling but appears relatively stable at a low level.

- The number of deaths has also been falling and as with cases, the majority of estimated deaths occur in Myanmar.
Results as per the ESP manual

- The population at risk that would require protection in order to achieve or maintain a prevalence of < 1% in 5–6 years was estimated using the ESP manual in conjunction with the estimates for key parameters in the section above.

- Overall, including those countries with <1% prevalence, the ESP manual estimates that within the region 30–100% of the population at risk need to be effectively protected to achieve < 1% prevalence within 5–6 years.

- This wide range reflects both the variability of transmission in the region, but also the limitations of using the tool for countries with such low prevalence rates.
Estimated proportion of the population needing protection to achieve <1% P. falciparum prevalence

<table>
<thead>
<tr>
<th>Country</th>
<th>Population at risk (millions)</th>
<th>Estimate falciparum malaria prevalence (%)</th>
<th>Fully effective ITN and LLIN coverage (%)</th>
<th>Estimated baseline prevalence prior to any control interventions (%)</th>
<th>Population at risk to be protected to achieve prevalence &lt;1% within 5–6 years (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cambodia</td>
<td>7.9</td>
<td>0.4</td>
<td>30</td>
<td>15</td>
<td>35–40</td>
</tr>
<tr>
<td>Yunnan</td>
<td>9.2</td>
<td>0.4</td>
<td>42</td>
<td>21</td>
<td>35–40</td>
</tr>
<tr>
<td>Lao PDR</td>
<td>3.9</td>
<td>12.5</td>
<td>73</td>
<td>50</td>
<td>70–80</td>
</tr>
<tr>
<td>Myanmar</td>
<td>31.7</td>
<td>4.1</td>
<td>20</td>
<td>10–30</td>
<td>30–70</td>
</tr>
<tr>
<td>Thailand</td>
<td>33.4</td>
<td>1.1&lt;sup&gt;24&lt;/sup&gt;</td>
<td>20</td>
<td>10</td>
<td>30–100</td>
</tr>
<tr>
<td>Viet Nam</td>
<td>34</td>
<td>0.6</td>
<td>20</td>
<td>10</td>
<td>30–100</td>
</tr>
<tr>
<td>Total</td>
<td>120</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Limitations

- There are major limitations to using this tool, given it is parameterised for use in SSA, which differs significantly from the GMS epidemiological context.

- In addition, given that malaria prevalence is low, in some cases <1%, estimates are not likely to reflect the true situation in GMS.

- Finally, because the manual is parameterised for SSA, it does not take into account the likely reduction in effectiveness of LLINs because of the exophilic nature of vectors in the region.

- We have attempted to address this by estimating the potential reduction in effectiveness (~20%), taking the highest reported reduction in effectiveness from studies in Cambodia. However, the reduction could be greater, because the residual malaria problems occur exactly, where the effectiveness of conventional vector control methods is lowest. Given the diversity of vectors in the region and lack of data or evidence as to the true effectiveness of LLINs this should be considered an estimate only.
Potential timeframe for the development of new treatment, transmission blockers and vector control tools.

- **2014**: Treatment
  - Primaquine

- **2015**: Vaccines

- **2016**: Vector control tools
  - Ivermectin

- **2017**: Extended ACT treatments

- **2018**: OZ drugs
  - RTS,S

- **2019**: Triple combination therapies
  - Other vaccines – 2030

- **2020/2030**: Other vector control tools
Leadership & management

Without sustained inspiring leadership malaria elimination will not be possible:

- Prioritizing operations aiming at elimination of falciparum malaria as rapidly as possible
- Contracting out certain malaria control services should also be considered
- Managing malaria elimination activities among mobile and migrant populations may also require the establishment of mobile teams
Leadership and management

- Prevention of re-introduction of malaria to areas where it has been eliminated presents another set of management challenges
- Management of high priority research
- Cross border and inter-country management
Within the GMS, the suggested priorities at regional level are:

- Eliminating (or at least interrupting transmission) in the multidrug resistant area on the border between western Cambodia and eastern Thailand, where resistance is more advanced than anywhere else, and the disease is becoming untreatable;

- Reducing transmission in the high burden areas in Myanmar’s eastern northern and western states and regions.
The priorities suggested at country level are:

- Reducing transmission as much as possible in areas of multidrug resistance;
- Flattening the epidemiological landscape by intensified control measures in areas of high transmission (sometimes referred to as hotspots);
- Local analysis may identify additional priorities such as measures targeting certain mobile populations.
Global context

- There is a global push towards refocusing efforts on elimination in countries where this seems within reach.
- The newly developed Global Technical Strategy and Global Malaria Action Plan 2 (still in draft) provides goals and milestones by 2030 for the global move towards a world free of malaria:

<table>
<thead>
<tr>
<th>Goals</th>
<th>Goals</th>
<th>Milestones</th>
</tr>
</thead>
<tbody>
<tr>
<td>To reduce malaria mortality rates globally compared to 2015</td>
<td>40% 75% 90%</td>
<td>2020 2025 2030</td>
</tr>
<tr>
<td>To reduce malaria clinical case incidence globally compared to 2015</td>
<td>40% 75% 90%</td>
<td></td>
</tr>
<tr>
<td>To eliminate malaria from countries that had transmission in 2015, and ensure prevention of re-establishment in countries that are malaria-free</td>
<td>At least 10 countries At least 20 countries At least 30 countries</td>
<td></td>
</tr>
</tbody>
</table>