Regional Action Plan 2017–2030

Towards

Malaria-Free South-East Asia Region

World Health Organization
REGIONAL OFFICE FOR South-East Asia

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Acknowledgments

The development of this Action Plan was based on the WHO *Global technical strategy for malaria 2016–2030*. It was initiated by the SEARO Malaria Unit. It was refined through consultations that involved national malaria programmes of Member States of the South-East Asia Region and their partners, WHO's Global Malaria Programme, WHO country offices in the South-East Asia Region and WHO's Mekong Malaria Elimination Programme. Further inputs were provided by global and regional experts.

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Foreword

The 11 countries of the South-East Asia Region have long struggled with the scourge of malaria, a disease that has a disproportionately large and negative impact on national and regional development. Yet today we stand on the threshold of a brave new world – one in which malaria can be conquered for good if we sustain political will and utilize effectively the tools at our disposal.

In earlier times, ending malaria as a public health threat in the South-East Asian Region would have been unthinkable. But Region-wide efforts over the past decade have made it a real possibility. Between 2010 and 2016, for example, reported malaria cases in the Region fell by 48%, while malaria deaths declined by 60%. In addition, two countries –Maldives and Sri Lanka – have been certified by WHO as malaria-free. Two other countries – Bhutan and Timor-Leste – had fewer than 100 reported malaria cases in 2016 and zero malaria deaths.

Though we have reason to be more optimistic than ever, success will not be easy. Despite recent progress, our Region still has the world's second highest malaria burden. An estimated 1.35 billion people Region-wide are meanwhile at risk of acquiring the disease. Moreover, we now confront new challenges, including a worrying increase in multidrug-resistant malaria and insecticide-resistant mosquitoes, alongside a decline in funding for malaria control activities.

This Action Plan 2017–2030 towards 0. Malaria-free South-East Asia Region offers a roadmap to build on our achievements and face these and other challenges head-on. It lays out a milestone-driven plan that applies the many malaria control and elimination lessons we have learned, and does so in a way that promotes synergistic action. It also leverages our most powerful tools, calling for universal access to malaria diagnosis and treatment, optimization of vector control, and the transformation of surveillance systems into a core malaria elimination tool.

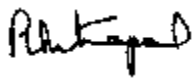
Taking account of the Region's diverse national contexts, the Action Plan recognizes that one size will not fit all; the circumstances and needs of every country and community are different. As such, the Plan calls for intensified action to drive down malaria-related morbidity and mortality in high-burden settings such as in India and Indonesia, which together accounted for 85% of reported malaria cases and 88% of malaria deaths in our Region in 2016.

In countries where the malaria burden is low and declining, the Action Plan identifies key steps for transitioning towards full elimination. Through strengthened surveillance and ongoing vigilance, the Plan aims to ensure that malaria-free areas will remain that way. With multidrug resistance increasing – including resistance to artemisinin-based combination therapies – especially in the Greater Mekong Subregion, the Plan recognizes that nothing less than full elimination will protect our Region and the rest of the world from these parasites' spread.

It is common for readers of action plans and strategies to assume that they speak solely to government actors. When it comes to eliminating malaria, however, we know that the South-East Asia Region will succeed only if diverse partners join together in this common, historic undertaking. This Action Plan addresses this directly. Importantly, it also highlights the need for continued investment and support from international partners, especially when it comes to developing more powerful prevention and treatment approaches.

This Action Plan emerges at a time when political leadership on malaria across the Region is at an all-time high – an especially opportune moment. Indeed, the Asia Pacific Leaders Malaria Alliance (APLMA) has worked to ensure that malaria is a priority on the regional political agenda – work that is reflected in leaders at the 2014 East Asia Summit endorsing action to achieve a malaria-free Asia Pacific.

It is my sincere hope and expectation that key leaders, partners and stakeholders across the Region will use this Action Plan to move malaria elimination efforts to the "end game". The vision of a malaria-free Region, which not long ago would have been considered fanciful, is now within our grasp. Let us not forgo this historic opportunity. Let us instead lay the foundation for a healthier, more equitable and more prosperous Region by eliminating malaria once and for all.



Dr Poonam Khetrapal Singh
Regional Director

Photo Credit: WHO/Atul Loke/Odisha, India

Acronyms and abbreviations

ACD	active case detection
ACT	artemisinin-based combination therapy
API	annual parasite incidence
DDT	dichlorodiphenyltrichloroethane
EQA	external quality assessment
G6PD	glucose-6-phosphate dehydrogenase
GMS	Greater Mekong Subregion
GTS	WHO Global technical strategy for malaria 2016–2030
IRS	indoor residual spraying
LLIN	long-lasting insecticidal net
MDA	mass drug administration
PPM	public–private mix
PPP	public–private partnership
RAI	Regional Artemisinin Resistance Initiative
SME	surveillance, monitoring and evaluation
TES	therapeutic efficacy study (of antimalarial medicine)
UHC	Universal Health Coverage
WHO	World Health Organization

Strategy at a glance

Photo Credit: WHO/Atul Loke/Odisha, India

"There is no royal road to malaria control and success is only to be achieved by means of a co-operative effort in which the Government and the People both have an important part to play. It rests with the Medical Science to supply the knowledge, with Government and the medical department to provide the machinery and with the People to contribute to motive power".

-Colonel C A Gill*

* 'Report on the Malaria Epidemic in Ceylon in 1934-35; Together with a scheme for the Control of Malaria in the Island'

STRATEGY AT A GLANCE

VISION

South-East Asia Region free of indigenous malaria and the continual threat posed by antimalarial drug resistance.

GOAL

To eliminate malaria in the South-East Asia Region by 2030, thereby contributing to the Sustainable Development Goals, and maintain a malaria-free status thereafter.

OBJECTIVES

1. Reduce annual parasite incidence (API) in high-burden subnational areas (2015 API more than 1 per 1000 population at risk) to less than 1 per 1000 population at risk by 2025.

2. Eliminate malaria in all low-burden subnational areas (2015 API less than or equal to 1 per 1000 population at risk) by 2025.

3. Eliminate *Plasmodium falciparum* in countries of the South-East Asia Region belonging to the Greater Mekong Subregion (Myanmar and Thailand) by 2025 at the latest.

4. Eliminate malaria in at least two of the nine malaria endemic countries in the South-East Asia Region by 2020, at least five of the nine by 2025, and all nine by 2030.

5. Prevent re-establishment of malaria in countries where it has been eliminated.

STRATEGIC APPROACHES

Prioritization

At regional level

- Eliminating *P. falciparum* in areas of the South-East Asia Region belonging to the Greater Mekong Subregion affected by multidrug resistance, including artemisinin and partner drug resistance causing artemisinin-based combination therapy (ACT) failure;
- Reducing malaria transmission in high-burden areas of the South-East Asia Region;
- Addressing the high burden of *Plasmodium vivax* malaria in the South-East Asia Region;
- Establishing or strengthening mechanisms for collaboration across international borders in the context of malaria elimination;
- Sustaining technical and financial support for malaria elimination and for prevention of re-establishment of local transmission in malaria-free areas.

At country level

- Ensuring that policy-makers throughout the South-East Asia Region recognize the need to accelerate malaria elimination as a priority, in order to contribute to the goal of a malaria-free South-East Asia Region by 2030 and to support achievement of the Sustainable Development Goals;
- Eliminating *P. falciparum* malaria in areas with multidrug resistance, including artemisinin and partner drug resistance causing ACT failure (Thailand and Myanmar only);

- Reducing transmission rapidly in highly endemic areas, particularly where *P. falciparum* predominates, using a combination of proven and innovative methods;
- Ensuring universal access to quality-assured malaria diagnosis, treatment and prevention for all those at risk, irrespective of their origin or status, supported by an uninterrupted supply of quality-assured commodities;
- Ensuring the ability of national health and surveillance systems to detect and respond to any malaria case in areas free from malaria;
- Ensuring rational use of insecticides for vector control and effectively managing insecticide resistance;
- Strengthening or establishing malaria elimination surveillance and information systems that focus on case-based and entomological surveillance. These include adequate epidemiological services capable of planning, monitoring and evaluating elimination interventions, and robust management of every focus as the major intervention in elimination programmes.

Key strategic interventions

1. Ensuring universal access to malaria diagnosis and treatment by enhancing and optimizing case management – "testing, treating and tracking".
2. Ensuring universal access to malaria prevention by enhancing and optimizing vector control.
3. Transforming malaria surveillance into a core elimination intervention by increasing the sensitivity and specificity of surveillance systems to detect, characterize and monitor all cases and manage foci.
4. Accelerating efforts towards elimination and attainment and maintenance of a malaria-free status.

Supporting elements

1. Strengthening the enabling environment by building the capacity of the underlying health system, mobilizing political commitment, mobilizing communities and scaling-up partnership action for malaria elimination.
2. Harnessing innovation and expanding research for improved delivery of services.

MILESTONES AND TARGETS

By 2017

- All countries have committed to malaria elimination in their national health policies and plans.
- All countries have updated national malaria strategic plans and costed annual action plans aligned with the *Global technical strategy for malaria 2016–2030.*
- The political commitment of all countries to malaria elimination has been expressed in a joint ministerial declaration on malaria.

By 2018

- Each country has an empowered national malaria elimination task force (or similar body).

By 2020

- Each country has an established surveillance system to implement case-based surveillance in areas eligible for elimination.
- Local transmission has been interrupted in all districts targeted for malaria elimination in India and Indonesia as per their national malaria strategic plans.
- Local transmission has been interrupted in at least two of the nine malaria endemic countries (Bhutan and Timor-Leste[1]).
- Re-establishment of transmission has been prevented in Maldives and Sri Lanka.

By 2025

- Local transmission has been interrupted in an additional three countries (the Democratic People's Republic of Korea, Nepal and Thailand).
- Local transmission of *P. falciparum* malaria has been interrupted in Myanmar.[2]
- In the four remaining endemic countries (Bangladesh, India, Indonesia and Myanmar), local transmission has been interrupted in all subnational-level administrative units that had an API <1 in 2015, and API reduced to <1 in all remaining endemic subnational level administrative units.
- Re-establishment of transmission has been prevented in Bhutan, Maldives, Sri Lanka, and Timor-Leste.

By 2030

- Local transmission has been interrupted in Bangladesh, India, Indonesia and Myanmar.
- Re-establishment of transmission has been prevented in all the other countries.
- The South-East Asia Region is malaria-free.

Beyond 2030

- The malaria-free status is maintained across the entire South-East Asia Region.

[1] The national deadline for elimination in Timor-Leste is currently 2021, but recent progress indicates that it should be possible to bring this target date forward to 2020.

[2] All GMS countries have a 2025 target for elimination of *P. falciparum*. Thailand targets malaria elimination (all species) by 2024, hence is not mentioned here.

EXECUTIVE SUMMARY

Since 2000 the greatly improved malaria situation in the WHO South-East Asia Region is reflected in the steady decline in annual malaria incidence and mortality. However, South-East Asia Region Member States still face daunting challenges as the epidemiology of malaria in this Region exhibits enormous complexity and the disease is concentrated mainly in remote areas often near international borders.

Plasmodium falciparum accounted for 63% of malaria cases and most malaria deaths in the Region in 2016. Resistance of *P. falciparum* to several antimalarial medicines, including artemisinin and partner drugs, has reached alarming levels in Thailand and to a lesser extent in Myanmar. In the area straddling the Cambodia-Thailand border, *P. falciparum* malaria could become untreatable with currently available drugs within a few years. It is imperative to base elimination efforts on evidence, and coordinate and monitor them.

The development of the Action Plan 2017–2030 Towards 0. Malaria-free South-East Asia Region was based on the WHO *Global technical strategy for malaria 2016–2030*. It was refined and tailored to the regional context through WHO-led consultations involving national malaria control programmes and their partners.

The Action Plan emphasizes the progression from transmission reduction, which needs to be pursued in high-burden areas, to elimination, with its rigorous norms for surveillance and management of cases and foci. In addition, it prioritizes the rapid interruption of transmission in areas affected by multidrug resistance (including resistance to artemisinin and partner drugs). In every country and in every particular setting, the design of operations would be based on a careful assessment of technical and operational factors.

The Action Plan highlights the need for a conducive policy environment both in Member States and in the Region as a whole. All Member States need to: seek support from the highest level of State to ensure effective multisectoral engagement; address human resource requirements for malaria centrally and at all levels; ensure effective national leadership and governance, including stakeholder coordination; expand health services to provide full access for people in remote and inaccessible areas; determine appropriate approaches to sustain community-level services beyond malaria specific services; and support meaningful intercountry coordination and cooperation for malaria elimination. Malaria programmes must possess a broad range of capabilities and be supported by an enabling environment.

To succeed, the Action Plan has to be backed by effective national policies in which a high-level intersectoral national malaria elimination task force (or similar body) is established and functional and political commitments are translated into adequate and sustained financing of efforts to eliminate malaria.

01.
Background

Photo Credit: WHO

1. BACKGROUND

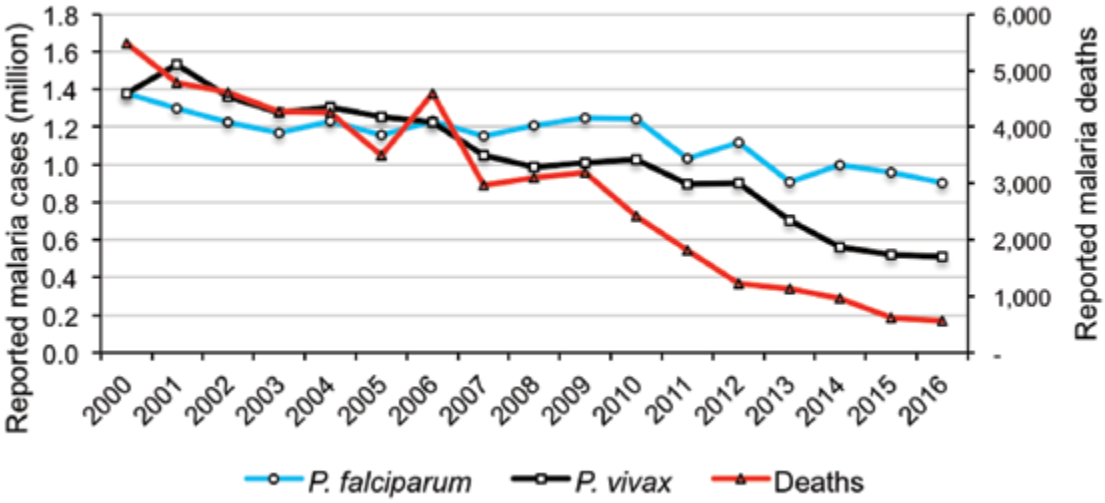
1.1 Epidemiology of malaria in the WHO South-East Asia Region

The WHO South-East Asia Region includes 11 countries (Bangladesh, Bhutan, the Democratic People's Republic of Korea, India, Indonesia, Maldives, Myanmar, Nepal, Sri Lanka, Thailand and Timor-Leste) and is home to a quarter of the world's population. About 1.35 billion people were at some risk of malaria in the nine malaria-endemic countries in the Region in 2016 (accounting for 49% of the global population at risk). The Region accounted for 58% of *Plasmodium vivax* cases globally. The proportion of cases due to *P. falciparum* varies greatly within the Region, ranging from 91% in Bangladesh to 0% in the Democratic People's Republic of Korea where cases are exclusively due to *P. vivax*.

Over the past 16 years, the malaria situation in the Region has greatly improved with a steady decline in annual malaria incidence and deaths (Fig. 1). Based on country reports submitted to the *World malaria report,* the Region recorded a 48% reduction in reported malaria cases between 2010 and 2016. Maldives has been malaria-free since 1984 and was certified by WHO as malaria-free in December 2015. Sri Lanka interrupted indigenous malaria transmission in October 2012 and was certified in September 2016.

Fig. 1

Reported confirmed malaria cases and deaths in the South-East Asia Region, 2000–2016



Source: World malaria report

In 2016, three countries accounted for 97% of reported cases in 2016: India (71%), Indonesia (14%) and Myanmar (12%).

Reported malaria-related deaths in the Region decreased by 60% between 2010 and 2016. Fifty nine percent of these reported deaths occurred in India and 29% in Indonesia.

Bhutan reported 15 indigenous and 59 imported cases in 2016 and aims to eliminate malaria by 2018. Timor-Leste had 94 indigenous cases in 2016. Nepal and the Democratic People's Republic of Korea are both reorienting their programmes towards elimination. The remaining countries are moving towards subnational elimination targets.

Photo Credit: WHO/Atul Loke/Odisha, India

Photo Credit: WHO/Atul Loke/Odisha, India

1.2 Key challenges

Malaria epidemiology across the Region, and often even within countries, exhibits significant geographical and risk-group related heterogeneity. Although recent overall gains have been impressive, several countries still face serious challenges.

The most pressing technical challenge is multidrug resistance. In 2006, artemisinin resistant *P. falciparum* malaria was first reported in eastern Cambodia and by 2013, confirmed or suspected artemisinin resistance had been identified in another four countries of the Greater Mekong Subregion (GMS). This prompted the development by WHO of the *Emergency response to artemisinin resistance in the Greater Mekong subregion: regional framework for action 2013–2015*. Over the following two years a consensus was reached that to tackle artemisinin resistance and resistance to partner drugs, the whole GMS should move towards elimination of *P. falciparum* malaria as rapidly as possible. By 2015 resistance of *P. falciparum* to several antimalarial medicines reached worrying levels in Thailand and there were concerns that in the area straddling the Cambodia–Thailand border *P. falciparum* malaria might become untreatable within a few years. In response to the worsening situation, WHO led the development of the *Strategy for malaria elimination in the Greater Mekong Subregion (2015–2030)*, which now provides the strategic context for the Global Fund[3] supported Regional Artemisinin-resistance Initiative (RAI). The RAI provides funding support to five national malaria control programmes in the GMS (including Myanmar and Thailand). Efforts to fight malaria in the GMS are now yielding impressive results in most countries.

The lack of a diagnostic tool for *P. vivax* hypnozoites and the lack of a fully effective test for diagnosing glucose-6-phosphate dehydrogenase (G6PD) deficiency (which undermines the use of 8-aminoquinolones needed to effect a radical cure of *P. vivax* infections) are both huge challenges, which disproportionately affect operations in the South-East Asia Region, given that the Region accounts for more than half of the global burden of vivax malaria.

Insecticide resistance is also a concern as it could reduce the effectiveness of insecticide-treated bed nets and indoor residual spraying (IRS) operations. There is widespread dichlorodiphenyltrichloroethane (DDT) and pyrethroid resistance as well as carbamate and organophosphate (malathion) resistance in some areas of India. Sri Lanka has reported resistance to all four insecticide classes. Since 2010, Bangladesh, Indonesia and Myanmar have reported resistance to pyrethroids, with additional reports of DDT resistance in Myanmar and carbamate resistance in Indonesia. Pyrethroid resistance has been reported in Thailand. Increased use of pyrethroids in agriculture is likely to exert further selective pressure for resistance and may well prove to be an important risk factor.

[3] The Global Fund to Fight AIDS, Tuberculosis and Malaria

Limitations in financing following the global economic downturn threaten to slow elimination efforts in some countries. Funding for malaria control in the Region increased from US$ 125 million in 2005 to US$ 240 million in 2010, but then fell to US$ 189 million in 2016. *Per capita* funding is lowest in countries with the largest populations at risk, including India and Indonesia. Most countries will need to identify additional sources of domestic funding and increase efficiencies within their health-care systems if elimination efforts are to succeed.

Access is another key issue affecting malaria control and elimination efforts as well as progress towards Universal Health Coverage (UHC). Mobile populations, migrants (both within and between countries), and tribal and other populations in remote areas or areas affected by political instability are often underserved by routine malaria prevention and case management services. Humanitarian and environmental crises may also compromise access to health care.

Probably the biggest programmatic gap in the Region at present is the limited level of engagement with the private sector. Private sector health-care providers are often unregulated, resulting in irrational use of antimalarials as well as the use of counterfeit, falsified or substandard drugs. Strong, appropriate (and appropriately enforced) pharmaceutical legislation will be necessary to ensure the quality of medicines available through accredited case management facilities. Standards also urgently need to be raised for case detection and case data from the private sector. These need to feed into national surveillance systems in support of case-based surveillance for elimination.

Limited human resources, incomplete integration of malaria services into primary and preventive care as well as multiple weaknesses in technical capacity, commodity procurement systems, supply chain management, external quality assessment (EQA) of laboratory diagnosis for malaria, surveillance, and monitoring and evaluation are key health systems issues that undermine progress in some countries. Governmental regulations and procedures also sometimes adversely affect the capacity of programmes to absorb grant funding. Addressing weaknesses in surveillance is a particular priority, given its pivotal role in malaria elimination.

Intersectoral collaboration and community empowerment to help defeat malaria in the South-East Asia Region are generally weak. More effort is needed to advance holistic inter-organizational and interagency efforts that support the participation of affected communities, and promote action across international boundaries, and at all levels in multiple sectors.

1.3 Rationale for malaria elimination in the South-East Asia Region

The rationale for undertaking malaria elimination in the Region is based on the following observations.

- Scaled-up interventions for malaria have had a marked impact, particularly on *P. falciparum*, bringing malaria incidence down to such low levels that interruption of transmission appears to be a realistic goal in the Region.
- Further delay in addressing the problem of multidrug resistance could lead to the emergence of untreatable falciparum malaria.
- Malaria elimination represents a complementary approach to strengthening health systems and promoting health security in the Region, with the potential to leverage donor financing as disease-specific funding declines.
- The Region accounts for a large percentage of the global burden of *P. vivax* malaria.
- Affected countries and partners have reaffirmed their political and financial commitment to achieving a greater impact and eliminating malaria.
- There is a need to establish an effective mechanism to enhance coordination and ensure meaningful intercountry collaboration on elimination and prevention, particularly in areas and situations where the risk of spread of malaria across international boundaries is high.
- Malaria elimination in the South-East Asia Region will contribute significantly to the achievement of the Sustainable Development Goals.

The international attention and political commitments given to malaria elimination in recent years are now being translated into real action, and should be leveraged for the planning and implementation of elimination interventions across the South-East Asia Region. As well as serving to guide national planning, this document will provide countries with an opportunity to apply for funding, both domestic and external, based on a WHO-recommended Region-specific Action Plan.

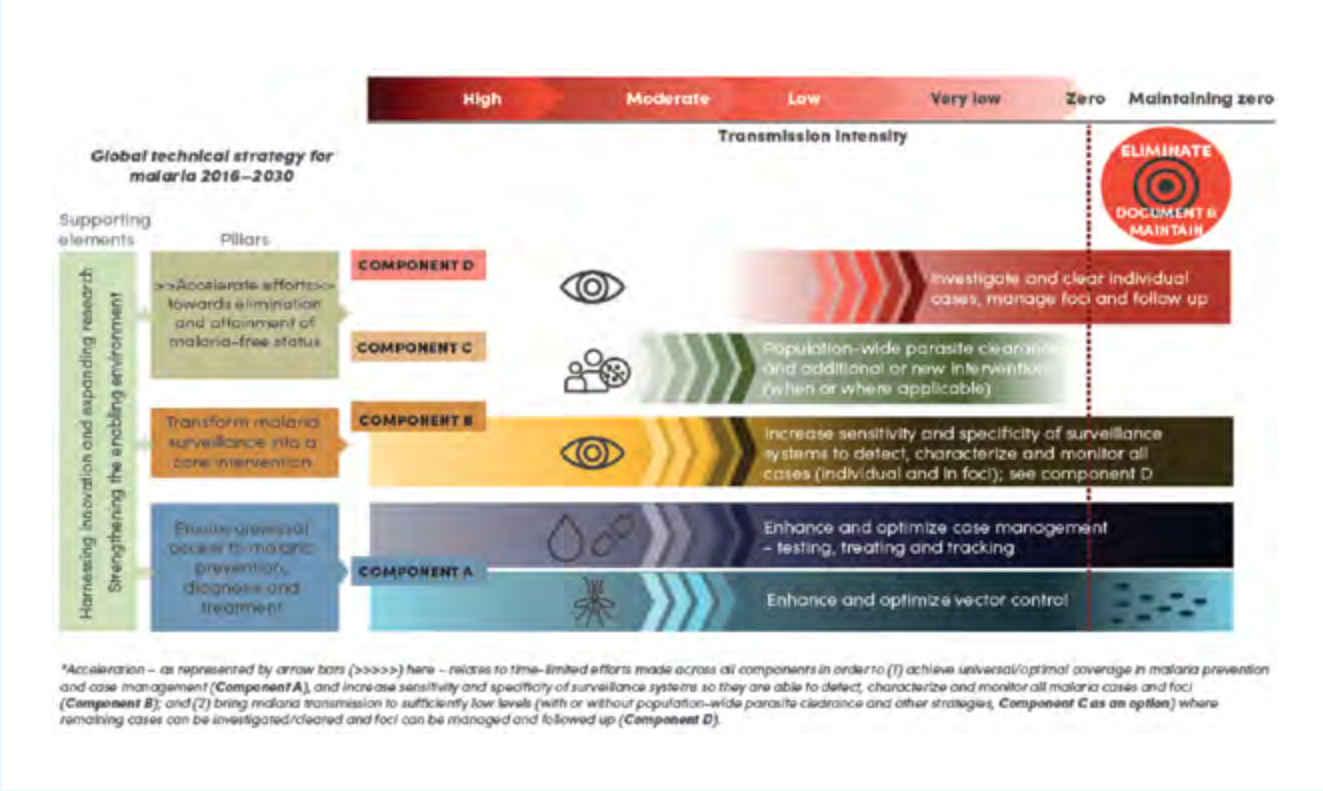
This Action Plan was developed in alignment with the *Global technical strategy for malaria 2016–2030* (GTS) and A framework for malaria elimination.

Photo Credit: Dr Risintha Premaratne, Haryana/India

1.4 The elimination continuum

The GTS conceptualizes progress towards elimination as a continuum starting from high transmission intensity and moving to medium, then low transmission intensity and finally elimination, defined as zero cases due to local transmission. This continuum is presented graphically in Fig. 2. The interventions at each stage of the continuum are related to the three pillars and supporting elements of the GTS (shown on the left side of the graphic).

Fig. 2
Illustrative intervention package for elimination of malaria



Source: WHO: A framework for malaria elimination

02.

Action Plan 2017–2030 Towards 0. Malaria-Free South-East Asia Region

Photo Credit: Dr Risintha Premaratne, Sri Lanka

Photo Credit: WHO

2. ACTION PLAN 2017–2030 TOWARDS 0. MALARIA-FREE SOUTH-EAST ASIA REGION

2.1 Vision, goal and objectives

VISION

A South-East Asia Region free of indigenous malaria and the continual threat posed by antimalarial drug resistance.

GOAL

To eliminate malaria in the South-East Asia Region by 2030, thereby contributing towards the Sustainable Development Goals, and maintain a malaria-free status thereafter.

OBJECTIVES

The following five objectives will be achieved through the implementation of the activities summarized in Table 1.

Objective 1. Reduce annual parasite incidence (API) in high-burden subnational areas (2015 API >1 per 1000 population at risk) **to <1 per 1000 population at risk by 2025.** In high-burden areas, massive and rapid scale-up of existing disease prevention and management interventions, aimed at achieving a significant reduction in malaria burden, should form a transitional stage on the path to elimination, reducing the risk of spread of malaria to areas approaching elimination.

Objective 2. Eliminate malaria in all low-burden subnational areas (2015 API ≤1 per 1000 population at risk) **by 2025.** As malaria incidence falls to very low levels, programme reorientation is required to support malaria elimination. Surveillance becomes a key intervention in its own right and every case is effectively treated as an outbreak.

Objective 3. Eliminate *P. falciparum* in countries of the Region belonging to the GMS (Myanmar and Thailand) by 2025 at the latest. Deterioration in the efficacy of artemisinin-based combination therapies (ACTs) in specific areas and the risk of malaria becoming untreatable in the affected countries calls for urgent and aggressive measures.

Objective 4. Eliminate malaria in at least two of the nine malaria endemic countries in the Region by 2020, at least five of the nine by 2025, and all nine by 2030. By 2030 the entire South-East Asia Region will be malaria-free.

Objective 5. Prevent re-establishment of malaria in countries where it has been eliminated[4]**.** As areas and countries achieve interruption of transmission, programmatic focus needs to shift to prevention of re-establishment. The probability of malaria becoming re-established in a malaria-free area varies according to the area's receptivity and vulnerability. When importation of malaria coincides with high receptivity re-establishment of malaria transmission can occur. Once a country reaches zero[5] cases it must maintain this status for three years before being able to apply for certification.

[4] Maldives and Sri Lanka initially, with other countries to be included once they have reached zero cases.

[5] *Plasmodium knowlesi* is a zoonosis and, based on current knowledge, its continued presence in a country does not affect that country's malaria elimination status.

Table 1. An analysis of key activities by objective

	OBJECTIVE 1 Reduce annual parasite incidence (API) in high-burden subnational areas (2015 API greater than 1 per 1000 population at risk) to less than 1 per 1000 population at risk by 2025.	**OBJECTIVE 2** Eliminate malaria in all low-burden subnational areas (2015 API less than or equal to 1 per 1000 population at risk) by 2025.	**OBJECTIVE 3** Eliminate *Plasmodium falciparum* in countries of the South-East Asia Region belonging to the Greater Mekong Subregion (Myanmar and Thailand) by 2025 at the latest.	**OBJECTIVE 4** Eliminate malaria in at least two of the nine malaria endemic countries in the South-East Asia Region by 2020, at least five of the nine by 2025, and all nine by 2030.	**OBJECTIVE 5** Prevent re-establishment of malaria in countries where it has been eliminated.
Endemicity:	**High/Moderate**	**Low/Very Low**	**Variable**	**Low/Very Low**	**Maintaining zero**
KEY INTERVENTIONS (KI):					
KI4: Accelerate efforts towards elimination and attainment of malaria-free status - Investigate and clear individual cases, manage foci and follow-up.					
Make malaria a notifiable disease prior to roll-out of elimination efforts.	✓	✕	✕	✕	✕
Enforce the notification of all malaria cases.	✕	✓	✓	✓	✓
Adopt and maintain CIFIFR according to a standard schedule (e.g. 1-3-7).	✕	✓	✓	✓	✓
Introduce more sensitive point of care diagnostic tests to support CIFIFR as they become available.	✓	✓	✓	✓	✓
Establish mechanisms to identify and screen new arrivals from endemic areas.	✕	✕	✕	✕	✓
KI4: Accelerate efforts towards elimination and attainment of malaria-free status - Population wide parasite clearance and additional or new interventions.					
Consider mass drug administration for parasite clearance in specific circumstances.	✕	✓	✓	✓	✓
Deploy newly recommended transmission reduction tools as they become available.	✓	✓	✓	✓	✓
KI3: Transforming malaria surveillance into a core elimination intervention - Increase sensitivity and specificity of surveillance systems to detect, characterize and monitor all cases.					
Maintain outbreak detection and response capability in more endemic areas.	✓	✕	✕	✕	✕
Strengthen the malaria case-based surveillance system as a core intervention.	✓	✓	✓	✓	✕
Strengthen malaria case surveillance through introduction of DHIS2.	✓	✕	✓	✕	✕
Maintain DHIS2 based malaria case surveillance and introduce tracking.	✕	✓	✓	✓	✕
Maintan DHIS2 based malaria case surveillance and introduce screening (with identification of potential sources of introduction such as military redeployments and repatriation of overseas workers and travellers).	✕	✕	✕	✕	✓

Introduce use of information technology (Geographical Information System, mobile phone, etc); real time reporting	✓	✕	✕	✕	✕
Optimize use of information technology (GIS, mobile phone, etc); real time reporting	✕	✓	✓	✓	✓
Conduct routine insecticide resistance monitoring to support timely change of insecticide policy as appropriate.	✓	✓	✓	✓	✕
Strengthen entomological surveillance in-line with elimination requirements.	✓	✕	✕	✕	✕
Conduct entomological surveillance as part of CIFIFR (case investigation, focus investigation, focus response) .	✕	✓	✓	✓	✓
Conduct entomological surveillance for receptivity monitoring.	✕	✓	✕	✓	✓
Maintain malaria vigilance (public and private sector).	✕	✕	✕	✕	✓
Take measures to prevent the export of multi-drug resistant parasites (e.g. screening of troops prior to deployment in endemic areas overseas).	✕	✕	✓	✕	✕
Conduct periodic malaria indicator surveys (adapted to elimination setting where appropriate).	✓	✓	✓	✓	✕
Conduct regular therapeutic efficacy studies of first- and second-line antimalarials.	✓	✕	✕	✕	✕
Introduce routine patient follow-up to monitor drug resistance in areas where caseload is too low to support TES.	✕	✓	✓	✓	✕
Map molecular markers for drug resistance.	✓	✓	✓	✓	✕
KI1: Ensuring universal access to malaria diagnosis and treatment - Enhance and optimize case management - testing, treating and tracking.					
Ensure universal access to quality assured diagnosis using either microscopy or RDTs in health facilities, at community level and in the private sector.	✓	✓	✓	✓	✓
Ensure effective EQA system for microscopy overseen by fully functional National Malaria Reference Laboratory.	✕	✓	✓	✓	✓
Provide appropriate effective treatment for all parasitologically confirmed cases in health facilities at community level and for confirmed cases referred from the private sector.	✓	✓	✓	✓	✓
Provide appropriate treatment for all parasitologically confirmed cases in health facilities and at community level.	✓	✓	✓	✓	✓
Provide special services to improve access to case management for hard to reach high priority groups (e.g. migrants and mobile populations, marginalized/tribal/ ethnic minority populations, conflict areas).	✓	✓	✓	✓	✓

Table 1. An analysis of key activities by objective

	OBJECTIVE 1 Reduce annual parasite incidence (API) in high-burden subnational areas (2015 API greater than 1 per 1000 population at risk) to less than 1 per 1000 population at risk by 2025.	**OBJECTIVE 2** Eliminate malaria in all low-burden subnational areas (2015 API less than or equal to 1 per 1000 population at risk) by 2025.	**OBJECTIVE 3** Eliminate *Plasmodium falciparum* in countries of the South-East Asia Region belonging to the Greater Mekong Subregion (Myanmar and Thailand) by 2025 at the latest.	**OBJECTIVE 4** Eliminate malaria in at least two of the nine malaria endemic countries in the South-East Asia Region by 2020, at least five of the nine by 2025, and all nine by 2030.	**OBJECTIVE 5** Prevent re-establishment of malaria in countries where it has been eliminated.
Endemicity:	**High/Moderate**	**Low/Very Low**	**Variable**	**Low/Very Low**	**Maintaining zero**
Ensure full radical treatment for all *P. vivax* cases based on G6PD test results.	✓	✓	✓	✓	✓
Supervise drug administration where possible to help to ensure adherence.	✕	✓	✓	✓	✓
Consider standby treatment in special situations.	✓	✓	✓	✓	✕
Provide periodic malaria screening and treatment as appropriate for pregnant women living in highly endemic communities.	✓	✕	✕	✕	✕
Provide prophylaxis for travellers where appropriate.	✓	✓	✓	✓	✓
Provide QA for diagnosis and treatment.	✓	✓	✓	✓	✓
KI2: Ensuring universal access to malaria prevention - Enhance and optimize vector control.					
Maintain full coverage of at-risk populations with LLINs or IRS (not both) and supplementary measures where appropriate.	✓	✓	✓	✓	✓
Maintain vector control capacity to respond rapidly in case of importation.	✕	✕	✕	✕	✓
Provide special services to improve access to malaria prevention measures for hard to reach high priority groups (e.g. migrants and mobile populations, marginalized/ tribal/ ethnic minority populations, conflict areas).	✓	✓	✓	✓	✕
Supporting elements (SE)					
SE2: Harnessing innovation and expanding research					
Conduct needs based operational research using a 'learning by doing' approach to accelerate programmatic progress.	✓	✓	✓	✓	✕
Ensure that results are effectively disseminated in order to influence policy and practice.	✓	✓	✓	✓	✕

SE1: Strengthening the enabling environment					
Ensure effective programme management					
Strengthen malaria programme management, to ensure that it is operating optimally at all levels of the health system.	✓	✓	✓	✓	✕
Maintain advocacy for sustained political support and financing.	✓	✓	✓	✓	✓
Adopt and maintain strong multisectoral collaboration.	✓	✓	✓	✓	✓
Ensure efficient procurement and supply chain management.	✓	✓	✓	✓	✓
Create and implement mechanisms for cross-border collaboration including sharing of data, joint training and implementation of interventions in border areas.	✓	✓	✓	✓	✓
Introduce cross-border case notification back to source.	✕	✓	✕	✓	✓
Map risk populations and conduct annual re-stratification.	✓	✓	✓	✓	✕
Map the prevalence of G6PD deficiency.	✓	✓	✓	✓	✕
Ensure that oral artemisinin monotherapies and other inappropriate antimalarials are not available.	✓	✓	✓	✓	✓
Maintain malaria programme capacity to deal with imported cases and prevent re-establishment until receptivity reaches zero or malaria eradicated.	✕	✕	✕	✕	✓
Rapidly roll-out newly recommended tools and interventions, where locally appropriate, to accelerate progress towards elimination.	✓	✓	✓	✓	✕
Finalize programme reorientation for malaria elimination including the development of new elimination-based indicators.	✓	✕	✕	✕	✕
Provide routine training and regular refresher training.	✓	✓	✓	✓	✕
Provide elimination related reorientation training.	✓	✕	✕	✕	✕
Provide malaria training integrated in to routine health worker training.	✕	✕	✕	✕	✓
Implement preparations for WHO certification of elimination.	✕	✓	✕	✓	✓
Empowering communities and maximizing utilization of services					
Empower at-risk populations by ensuring they understand the disease through culturally appropriate and gender sensitive communication.	✓	✓	✓	✓	✕
Involve communities in the planning and assessment of elimination activities.	✕	✓	✕	✓	✕
Maintain integrated (multisectoral) community sensitization and engagement to ensure the participation of at-risk communities and population groups in identification of imported cases.	✕	✕	✕	✕	✓
Improve preventive practices among travellers through the provision of pre-travel health advice.	✕	✕	✕	✕	✓

2.2 Strategic approaches

2.2.1 Principles

In line with the GTS, this Action Plan adopts the following principles:

- All countries will accelerate efforts towards elimination through combinations of interventions adapted to the countries' conditions and by responding to local needs.
- Country ownership and leadership, with the participation of communities, are essential for accelerating progress through a multisectoral approach that includes the active involvement of the private sector.
- Partners will maximize the use of national health systems for planning, procurement, service delivery and reporting and will aim to strengthen those national systems rather than developing parallel mechanisms.
- Improved information and reporting systems must be put in place to establish surveillance systems able to rapidly detect, investigate and respond to individual malaria cases and malaria foci, and to implement entomological surveillance systems in order to accelerate progress towards elimination.
- Equity in access to services is essential, especially for the most vulnerable and hard-to-reach populations.
- Malaria prevention and case management services will be included in all packages of essential health services as UHC is adopted and rolled-out across the Region.
- Innovation in tools and implementation approaches based on research evidence will enable countries to maximize progress towards malaria elimination.

2.2.2 Prioritization

This Action Plan aims for accelerated scale-up of appropriate interventions in all endemic areas, tailored to the local epidemiology. Nevertheless, there is a need to prioritize at both the regional and country levels based on the past and current intensity of transmission in an area, the degree of resistance to different antimalarial drugs, and the size and mobility of affected populations. If a high-burden area is located near a low-burden area, then early reduction of transmission in the high-burden area will likely make it easier to achieve elimination in both.

Based on these considerations, priorities at the regional level are:

- eliminating *P. falciparum* in areas of the South-East Asia Region belonging to the GMS affected by multidrug resistance, including artemisinin and partner drug resistance causing ACT failure;
- reducing malaria transmission in high-burden areas in the Region;
- addressing the high burden of *P. vivax* malaria in the Region;
- establishing or strengthening mechanisms to collaborate across international borders in the context of malaria elimination; and
- sustaining technical and financial support for malaria elimination and for prevention of re-establishment of local transmission in malaria-free areas.

Priorities at the country level are:

- ensuring that policy-makers throughout the Region recognize the need to accelerate malaria elimination as a priority, in order to contribute to the goal of a malaria-free South-East Asia Region by 2030 and to support the achievement of the Sustainable Development Goals;
- eliminating *Plasmodium falciparum* malaria in areas with multidrug resistance, including artemisinin and partner drug resistance causing ACT failure (Thailand and Myanmar only);
- reducing transmission rapidly in highly endemic areas, particularly where *P. falciparum* predominates, using a combination of proven and innovative methods;
- ensuring universal access to quality-assured malaria diagnosis, treatment and prevention for all those at risk, irrespective of their origin or status, supported by an uninterrupted supply of quality-assured commodities;
- ensuring the ability of national health and surveillance systems to detect and respond to any malaria case in areas free from malaria;
- ensuring rational use of insecticides for vector control and effectively managing insecticide resistance; and
- strengthening or establishing malaria elimination surveillance and information systems that focus on case-based and entomological surveillance. These include adequate epidemiological services capable of planning, monitoring and evaluating elimination interventions and robust management of every focus as the major intervention in elimination programmes.

This prioritization does not mean that efforts to eliminate malaria in low-transmission areas should be put on hold, only that such efforts must not take precedence over addressing severe drug resistance and burden reduction.

Photo Credit: WHO/Atul Loke/Odisha, India

2.3 Key strategic interventions and supporting elements

Key intervention 1

Ensuring universal access to malaria diagnosis and treatment by enhancing and optimizing case management – "testing, treating and tracking".

Universal coverage with early diagnosis and effective treatment reduces morbidity, mortality and transmission. Case detection can be done through passive case detection or active case detection (ACD), either reactive (related to case or focus investigation) or proactive (screening for malaria in high-risk groups).

In the initial part of the elimination continuum when transmission is intense, case management is primarily oriented towards decreasing morbidity and mortality. At the other end of the continuum, when cases are approaching zero, case detection and management activities aim to find and radically treat all infections according to national treatment policies and ensure that every case and treatment outcome is reported to the national surveillance system. Case management and surveillance are intimately linked. Case management becomes part of surveillance, which has the goal of preventing secondary transmission from any case.

Maintaining the skills of microscopists to ensure quality diagnosis becomes increasingly challenging as they encounter fewer and fewer positive blood slides, and implementing effective EQA, overseen by a fully functional national reference laboratory, becomes an increasing priority.

Achieving universal coverage with case management generally requires three channels of service delivery: public, private and community-based. The optimal mix of these will vary between and within countries. While malaria incidence remains high, maximizing coverage through all three channels is likely to be the best approach, provided efforts are made to improve quality in the private sector and minimize out-of-pocket expenditure for patients. When cases are rapidly decreasing, the roles of each channel should be reconsidered, and possibly revised, to ensure optimal case management, surveillance and reporting in all areas.

In areas well served by health facilities, all health institutions in the sector serve as free diagnosis and treatment centres for malaria. Restricting certain services to public health facilities can help to ensure that they are delivered according to standard guidelines. However, the public health sector in some countries remains under-resourced and challenged by human resources and supply chain issues. The coverage of the health service network is often inadequate, especially in sparsely populated or remote areas.

[6] Including single low dose primaquine as a gametocidal treatment for all *P. falciparum* infections and a full regimen of primaquine to clear hypnozoites for *P. vivax* patients unless contraindicated by glucose-6-phosphate dehydrogenase deficiency.

The private sector can be a major source of irrational treatment including substandard medicines. Many national programmes have addressed this by engaging with the private sector, often working through nongovernmental organizations for the delivery of malaria case management services. Each country needs to determine the most appropriate role for the various types of private providers and develop a strategy accordingly. As countries move towards elimination, informal providers should normally refer all cases to the public sector to ensure quality-assured diagnosis and treatment.

Most countries already have well established free community-based case management services for malaria. These community-based services are usually the best solution for communities in remote areas. Community-level volunteers can provide valuable support for follow up of cases and community organizations for focal investigation or the management of outbreaks.

Providing services for mobile and migrant populations is essential. Elimination will not be achieved unless these diverse population groups have access to malaria protection measures, early diagnosis and treatment. Mobile and migrant populations are often difficult to reach for a number of reasons, including the undocumented status of some. Improving their access to health services can be a complex multisectoral task. Each country must assess the extent to which mobile populations contribute to their malaria challenge, and undertake appropriate analysis and test various strategies to reach them. Intersectoral cooperation and proactive and systematic collection of information on migrants is key. Provincial level malaria units should include mobile teams for managing malaria in mobile and migrant populations, and ideally, these teams should be authorized to work across borders when necessary.

Key intervention 2.

Ensuring universal access to malaria prevention by enhancing and optimizing vector control

The selection of appropriate vector-control interventions should be guided by eco-epidemiological stratification informed by malaria case and entomological surveillance data. Use of insecticidal interventions should be guided by technical recommendations provided in the WHO Global plan for insecticide resistance management in malaria vectors and Global vector control response 2017–2030 document.

Long-lasting insecticidal nets (LLINs) are a core malaria prevention measure, widely used to reduce transmission and provide personal protection. Permethrin-impregnated bednets have been shown to reduce *P. falciparum* incidence in Karen school children on the Thai-Myanmar border by 38%, despite local malaria vectors being somewhat exophilic (outdoor resting) and exophagic (outdoor biting). For most target populations distribution of LLINs should be done through mass campaigns, coupled with locally appropriate and gender sensitive information and education, communication and behaviour change communication to ensure high and correct usage. To maintain high levels of coverage and usage between mass campaigns, there should also be a continuous bed net replacement system. This should be adequately resourced and flexible enough to provide nets for new or returning community members and immigrants. Appropriate continuous distribution systems should be identified for each specific setting. There is a need for more dynamic monitoring of LLIN coverage by local health workers and volunteers to allow programmes to react in a timely manner to low coverage levels caused by losses or the arrival of mobile population groups in a particular risk area.

Indoor residual spraying (IRS) is carried out either as a mass preventive measure or as an outbreak/focus response intervention to help rapidly reduce/interrupt transmission. The effectiveness of IRS may be constrained by early outdoor biting vectors and by the open nature of the construction of some dwellings. IRS operations across the Region are conducted in different ways and are generally in need of better quality assurance to ensure appropriate targeting, quality and high levels of coverage. There is also a need to address stockpiling and related issues through improved planning.

The combined use of both insecticide-treated bed nets and IRS is not recommended by WHO except where there is evidence of insecticide resistance that has reduced the impact of one of the methods. In those cases, two different classes of insecticides must be used.

Key intervention 3.

Transforming malaria surveillance into a core elimination intervention by increasing the sensitivity and specificity of surveillance systems to detect, characterize and monitor all cases and manage foci

The design of a malaria surveillance system depends on the level of malaria transmission and the resources available to conduct surveillance. In the transmission-reduction phase, there are still many cases of malaria, therefore, it is not possible to examine and react to each confirmed case individually. Instead, any response is based on aggregate numbers, and action is taken at a population level. As transmission is progressively reduced, it becomes increasingly possible (and necessary) to track, investigate and respond to individual cases.

In areas that are still at the burden-reduction end of the elimination continuum, it is essential to ensure that mechanisms are in place to predict outbreaks where possible, detect them early and respond rapidly with a comprehensive package of services to halt transmission at the earliest opportunity. ACD and focal-responsive IRS, combined with early detection and prompt treatment of malaria cases through existing health services, have proven to be effective in containing transmission and preventing the further spread of outbreaks in affected areas. Programmes should develop national contingency plans clearly pinpointing stockpiles of supplies and equipment and identifying the channels to be used to transfer emergency funding. The effectiveness of preventive action is heavily dependent on the speed with which national health services mobilize the necessary resources.

The efficacy of antimalarial drugs should monitored in each country, based on the most recent WHO guidelines. First-line treatment efficacy should be monitored through therapeutic efficacy studies (TES) every two years. Blood samples should be collected at the same time and analysed for molecular markers of resistance. Once the number of patients falls to low levels, it becomes impossible to perform TES and so the focus needs to shift to integrated drug efficacy surveillance (iDES) with a follow-up of all patients.

Entomological surveillance systems should be established to actively monitor for changes in key parameters, such as species composition and sensitivity to insecticides in relation to interventions and malaria epidemiology. The resulting entomological data can be used to inform programmatic decisions, such as the choice of insecticide for IRS or priority areas for combining LLINs and IRS for managing resistance. Entomological intelligence is also useful to evaluate the risk of re-establishment where a malaria-free status has been achieved. Countries need to ensure that they maintain a core group of highly-trained entomologists to manage entomological surveillance and make evidence-based recommendations about any necessary change in interventions or delivery strategies.

The transition from malaria elimination to prevention of re-establishment is possible only when adequate and effective malaria surveillance has proven that local transmission has been interrupted, and that there are no indigenous cases of malaria anywhere in the country (meaning all reported cases of malaria are imported or introduced). Countries with areas approaching zero cases need to develop detailed plans for the prevention of re-establishment based on in-depth assessment of vulnerability and receptivity (which depend on numerous ecological, climatic, sociodemographic, epidemiological, entomological and other factors). Surveillance activities in this phase must be kept fully functional, even though indigenous cases are absent and the risk of malaria becoming re-established may be low. During this phase, special effort should be made to conduct proactive vigilance and surveillance with emphasis on tracking and proper management of malaria importation as well as risk reduction to prevent onward transmission from imported cases.

Introduced cases (as a result of secondary transmission from imported cases) are not an impediment to certification of malaria.

Photo Credit: WHO/Atul Loke/Odisha, India

Key intervention 4.

Accelerating efforts towards elimination and attainment and maintenance of a malaria-free status

Investigate and clear individual cases, manage foci and follow-up. When the API falls to <1 per 1000 population at risk, case-based surveillance is applied according to specific and rigorous standards. The transition from transmission-reduction to elimination requires revision of guidelines, recruitment of staff, training and supervision.

Malaria case surveillance for elimination aims:

- to detect and notify all malaria infections, and ensure that they are given early treatment to prevent secondary cases and, wherever possible, receive appropriate clinical and parasitological follow up; and
- to investigate each malaria case to determine whether it was locally acquired or imported.

The investigation and management of foci requires a team that includes staff trained in epidemiology, entomology and operations management. Such teams normally need to be mobile and based at province/district level. Once a local case of malaria has been detected and notified, a focus investigation is carried out to assess the risk of transmission in the locality where the malaria case occurred and classify the focus accordingly.

In the low transmission phase of the elimination continuum, the roles of all health-care providers (public, private and community-based) should be clearly defined to ensure that quality malaria data are provided to the programme on a timely basis. Mobile phone and Internet-based communication systems should be used to support rapid case reporting from the periphery, and for feedback relating to follow up.

Timeliness of response is key, and China provides a good example with its "1–3–7 initiative". This requires malaria cases to be reported within one day, full case investigation to be conducted within three days, and response actions to be taken within seven days. Such a scheme makes it clear to health workers what is required and also allows the monitoring of performance against a benchmark.

Population-wide parasite clearance and additional or new interventions (when and where applicable). Programmes and their funding partners should be ready to introduce any novel interventions and improved delivery mechanisms that seem likely to accelerate the attainment of elimination targets.

Mass drug administration (MDA), for example, may be considered as a way of interrupting transmission of falciparum malaria in settings approaching elimination, where there is minimal risk of re-introduction of infection, good access to treatment supervision, and sound implementation of vector control and surveillance. However, MDA requires extensive community engagement to achieve a high level of community acceptance and participation and its impact can be short-lived if used in the wrong setting. Its potential contribution to the development of drug resistance also needs further research.

During the later stages of elimination and during prevention of re-establishment, chemoprophylaxis should be considered for travellers going to high-risk areas in and outside the Region.

In terms of innovative vector control and personal protection measures, larval source management (all measures to reduce mosquito breeding, including environmental modification and targeting aquatic habitats with larvicides) is applicable where breeding sites are few, fixed and findable. Long-lasting insecticide-treated hammock nets can provide some protection for forest goers, but have not yet been adopted on a large scale in the South-East Asia Region. Spatial and personal repellents and insecticide-treated clothing, curtains, wall hangings, blankets and tents may all have the potential for reducing human-vector contact and controlling residual malaria transmission in specific situations. National programmes need to generate sufficient local evidence to inform their use.

Countries or areas that have eliminated malaria should have a plan for preventing re-establishment of transmission when indigenous malaria cases are no longer observed but imported and introduced cases may continue to be reported. This is also important for countries and areas that are aiming for or have achieved WHO certification or subnational verification of malaria elimination.

When the country has zero incidence of indigenous cases of malaria for at least three consecutive years, it can request WHO to certify its malaria-free status. The occurrence of introduced cases (rigorously validated) is not an impediment to certification. Subnational verification of malaria elimination is an option for large countries that have achieved interruption of local transmission in certain parts of their territory. The documentation of evidence that malaria is eliminated at the subnational level should be as rigorous as that at the national level, and the process and criteria for subnational verification should follow the WHO national certification scheme.

Supporting element 1.

Strengthening the enabling environment by building the capacity of the underlying health system, mobilizing political commitment, mobilizing communities and scaling up partnership action for malaria elimination

To succeed, this Action Plan must be backed by effective national policies, in which:

- the current unprecedentedly high level of political commitment is translated into adequate and sustained financing for malaria elimination;
- the health system is strengthened and can deliver basic health services, including interventions for malaria elimination;
- malaria is made a notifiable disease, subject to mandatory reporting (within 24 hours in countries and areas in the elimination phase); and
- appropriate legislation is in place to ensure the regulation and quality of antimalarial drug supplies.

Greater flexibility in programme implementation will be needed as the epidemiology of malaria changes. As an elimination programme progresses, its costs shift towards human resources. Then, as the country approaches a malaria-free status, its costs shift again towards integrated primary and preventive health services coupled with integrated surveillance and real-time reporting of communicable diseases. Investments in personnel, infrastructure and surveillance systems for malaria elimination must be designed so that they enable health systems to better tackle other public health issues and contribute towards the goal of UHC. Changes such as these will support more efficient use of government funding.

Although many countries in the Region have strong economic growth and their health systems are improving, further strengthening is required everywhere. Adoption of a malaria elimination strategy increases the need for leadership and management in malaria programmes. Operations need to be managed with rigor and flexibility, supported by robust monitoring and quality control. Programmes need to be responsive to the evolving requirements of the elimination effort, and risks will sometimes need to be taken in the interests of innovation to accelerate programmatic impact. Technical capacity within national programmes has declined in several Member States of the South-East Asia Region in recent years. Urgent steps will need to be taken in affected countries to strengthen capacity in line with the demanding requirements associated with elimination.

Intersectoral collaboration and community involvement. The social and environmental determinants of malaria are not the sole responsibility of the health sector. Countries need to adopt a holistic multisectoral approach to malaria elimination, with greater coordination between the health and non-health sectors, as well as within the health sector. Trade and industry should be involved in developing corporate social responsibility programmes for improved health, which should include malaria prevention and treatment.

A few countries in the Region have documented public–private partnership/public–private mix (PPP/PPM) initiatives for diagnosis and treatment as well as prevention. Country malaria elimination programmes across the Region should develop a PPP/PPM legislative framework to clarify how the private sector should work with government/public sector entities, and in consultation with stakeholders and in-country partners. National programmes should also include in their elimination plans participatory research or other methods to determine the incentives for other sectors to contribute to malaria control. Countries should also explore how financing opportunities in non-health sectors can be leveraged for malaria.

To be effective, intersectoral action needs to be supported by high-level political leaders. Ministries of health alone are not usually powerful enough to motivate other ministries or the corporate sector for effective collaboration. Adoption of malaria elimination as a national development goal offers an opportunity for enactment of policies mandating intersectoral collaboration by the Cabinet or prime minister's offices. Such commitment at the highest level should ensure that health staff have sufficient collaboration with other sectors, whether public or private, to implement the necessary measures.

Advocacy can leverage political commitment, create new funding opportunities and support partnerships. Economic modelling is urgently required to develop robust cost–benefit evidence in support of advocacy for elimination.

Efforts are required to ensure that military, police and security forces have access to appropriate malaria prevention and case management services. Where possible, the military should support the implementation of malaria elimination activities, especially in remote areas where access to routine health-care services is limited.

Malaria prevention must go hand in hand with community participation. Unless individuals in communities see the merits of preventing the disease, even the best-designed prevention strategies might not be used. The supportive involvement of local people can be fostered through a variety of means, including community awareness sessions to explain malaria interventions and their benefits.

Regional functions. Although national leadership is the strategic centrepiece of

this Action Plan, there is a clear need for a supportive and coordinating platform at the regional level. The key areas of focus at the regional level are as follows.

- **Governance and coordination of malaria activities across the South-East Asia Region.** A regional expert reference group comprising WHO malaria advisers and vector-control experts, national programme managers and selected technical experts should convene annually to review progress under the Action Plan, and identify and endorse any strategic adaptations that may become necessary.
- **Technical assistance and capacity-building.** Technical assistance and capacity-building will be required to support the needs associated with malaria elimination. A regional assessment of needs should be conducted, and a capacity-building plan (linked to national training plans) developed.
- **Cross-border and regional collaboration.** Cross-border migration (which is often uncontrolled) between malaria-endemic and -receptive areas is a key issue in the Region, both for malaria elimination and for the prevention of spread of multi-drug resistant *P. falciparum* parasites. Meaningful intercountry coordination and cooperation should therefore be promoted as a priority. A variety of measures might be appropriate including: regular exchange of all malaria-related information of mutual interest (information exchange could be facilitated through an innovative information technology platform, which links countries and allows them restricted access to key information from around the Region); prompt notification of any unusual malaria situations related to cross-border movements; regular border meetings both at district and national levels; joint mapping of malaria-relevant cross-border migration patterns; joint development of special evidence-based interventions for high-risk cross-border migrant populations and border-related situations; and associated interregional training. WHO is uniquely placed to facilitate this cross-border and regional collaboration.
- **Systems strengthening.** Countries should engage closely with WHO and other technical partners to bolster the performance of all components of the health system at the national and subnational level to ensure that investments in human resources, infrastructure, surveillance and supply chain systems for malaria elimination also contribute to broader public health programmes and UHC goals.
- **Monitoring progress.** A coordinated, multicountry elimination effort requires careful monitoring of progress and periodic evaluation. The adviser for malaria at the WHO Regional Office will be responsible for regular monitoring of implementation of the Action Plan, and will ensure timely submission of data for the World Malaria Report. The global Malaria Elimination Oversight Committee will monitor and guide malaria elimination.

- **Priority research.** Regional oversight of research activities through a regional observatory which is being planned through the Advisory Committee for Health Research, WHO Regional Office for South-East Asia, is needed to minimize unnecessary duplication and take full advantage of any opportunities for collaborative research and synergy.
- **Information sharing.** Real-time monitoring and rapid sharing of information, particularly between neighbouring countries, will help to ensure a coordinated regional approach to any malaria-related issues that have cross-border implications.

Photo Credit: WHO/Odisha, India

Supporting element 2.

Harnessing innovation and expanding research for improved delivery of services

Potential novel interventions and improved delivery of services include: MDA; triple combination therapies; improved molecular diagnostic techniques; test kits for diagnosing G6PD deficiency at the community level; endectocides to reduce the survival or fecundity (or both) of blood-fed mosquitoes; vector control, including more cost-effective deployment of LLINs, alternative interventions for personal protection and spatial repellents; and vaccines. These areas will require a concerted research effort to move promising interventions quickly towards operational adoption. Operational research that addresses implementation bottlenecks or finds innovative ways to more effectively deliver services to hard-to-reach populations will be equally important.

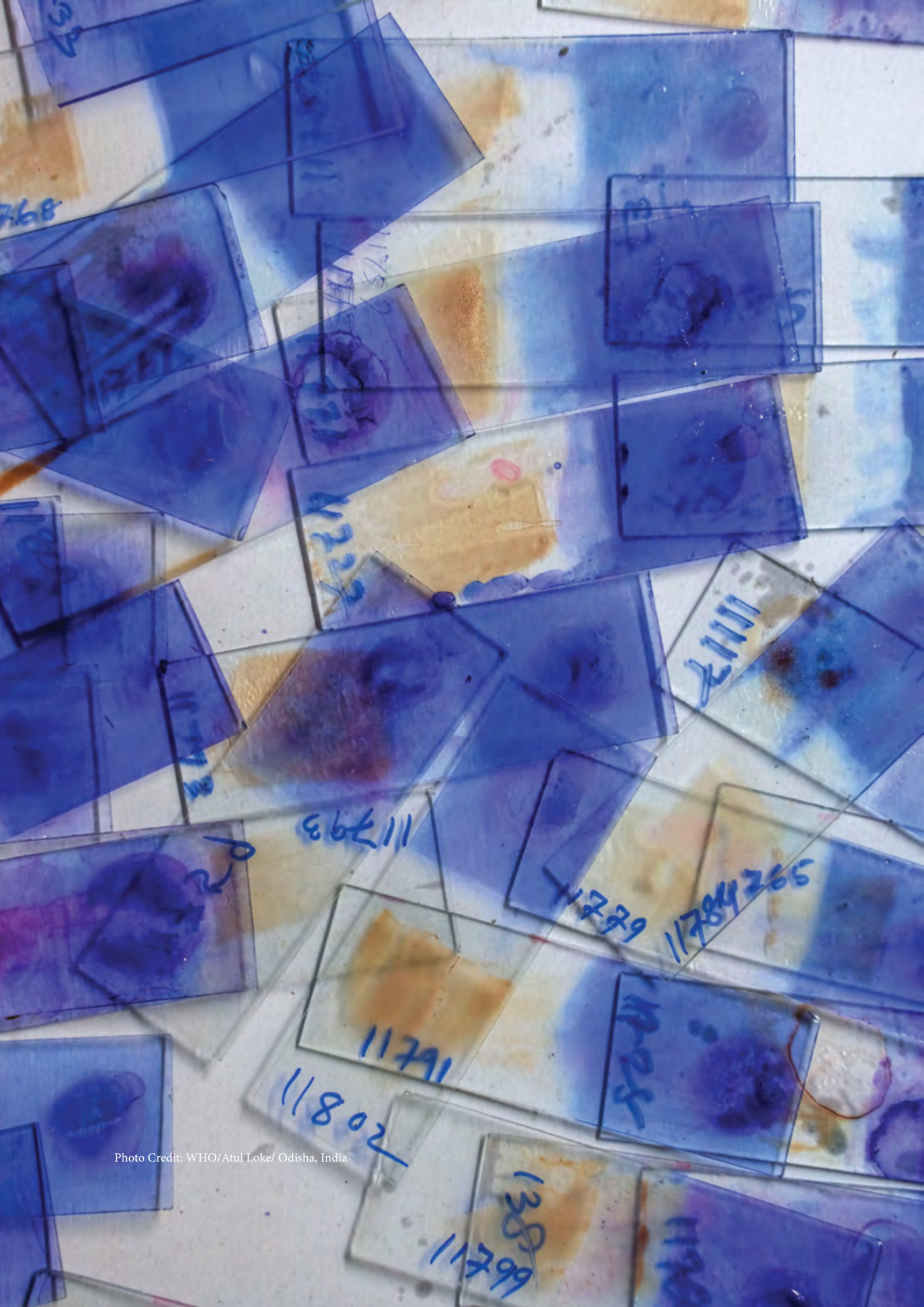


Photo Credit: WHO/Atul Loke/ Odisha, India

2.4 Milestones and targets

By 2017

- All countries have committed to malaria elimination in their national health policies and plans.
- All countries have updated their national malaria strategic plans and costed annual action plans aligned with the *Global technical strategy for malaria 2016–2030*.
- The political commitment of all countries to malaria elimination has been expressed in a joint ministerial declaration on malaria.

By 2018

- Each country has an empowered national malaria elimination task force (or similar body).

By 2020

- Each country has an established surveillance system to implement case-based surveillance in areas eligible for elimination.
- Local transmission has been interrupted in all districts targeted for malaria elimination in India and Indonesia, as per their national malaria strategic plans.
- Local transmission has been interrupted in at least two of the nine malaria endemic countries (Bhutan and Timor-Leste[6]).
- Re-establishment of transmission has been prevented in Maldives and Sri Lanka.

By 2025

- Local transmission has been interrupted in an additional three countries (the Democratic People's Republic of Korea, Nepal and Thailand).
- Local transmission of *P. falciparum* malaria has been interrupted in Myanmar.
- In the four remaining endemic countries (Bangladesh, India, Indonesia and Myanmar), local transmission has been interrupted in all subnational-level administrative units that had an API <1 in 2015, and API reduced to <1 in all remaining endemic subnational-level administrative units.
- Re-establishment of transmission has been prevented in the Bhutan, Maldives, Sri Lanka, and Timor-Leste.

By 2030

- Local transmission has been interrupted in Bangladesh, India, Indonesia and Myanmar.
- Re-establishment of transmission has been prevented in all the other countries.
- The South-East Asia Region is malaria-free.

Beyond 2030

- A malaria-free status is maintained across the entire South-East Asia Region.

[6] The National deadline for elimination in Timor-Leste is currently 2021, but recent progress indicates that it should be possible to bring this target date forward to 2020.

2.5 Measuring progress and impact

National malaria elimination programmes should be evaluated at regular intervals for compliance with the targets and objectives to be achieved. Parameters should be established to monitor and evaluate all programme areas. Progress on the path to malaria elimination in the Region will be measured using multiple data sources, including routine information systems, household and health facility surveys, and longitudinal studies. Progress should be monitored through a minimal set of outcome and impact indicators drawn from a larger set of indicators recommended by WHO and routinely tracked by malaria programmes.

Essential steps in strengthening monitoring and reporting. A number of essential activities will need to be implemented to develop and strengthen the surveillance, monitoring and reporting systems required for the effective implementation of the malaria elimination Action Plan, as follows.

At the national level, strengthening of surveillance, monitoring and evaluation (SME) will need to include: establishing SME technical working groups; updating SME plans; building capacity for SME; establishing a national malaria elimination database; regular external or joint malaria programme reviews; and annual national malaria reporting.

At the regional level, strengthening SME will need to include: establishing intercountry SME technical working groups; developing a regional SME framework; harmonizing and standardizing SME tools; conducting monthly reporting against a regional scorecard; establishing a web-based data-sharing platform; and joint external monitoring and evaluation.

03.
Governance And Coordination

Photo Credit: WHO/Atul Loke/ Odisha, India

Photo Credit: WHO/Atul Loke/ Odisha, India

3. GOVERNANCE AND COORDINATION

There is a consensus that governance and coordination of malaria activities across the Region is essential, and must be strengthened at both the regional and country levels.

All countries need an empowered national malaria elimination task force (or similar body) that provides technical guidance, monitors performance of the malaria programme and evaluates progress towards achieving key milestones. The task force, which should be chaired by a senior central agency official, should ensure policy harmonization across government and effective coordination between the public, nongovernmental and private sectors. As countries near elimination, they need to establish a high-level multisectoral independent national malaria elimination advisory committee to provide guidance and conduct an external view of progress.

The regional expert reference group will review progress and provide technical guidance. The Malaria Elimination Oversight Committee will monitor and guide malaria elimination at the global level.

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