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# Subnational to National Malaria Elimination



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## About APLMA-APMEN

Asia Pacific Leaders Malaria Alliance (APLMA) is an alliance of heads of government committed to achieving a region free from malaria by 2030. APLMA is a distinctive platform facilitating collective regional leadership for malaria elimination and health security.

Asia Pacific Malaria Elimination Network (APMEN) is a network of 22 countries and 53 partner institutions. APMEN facilitates regional and multi-sectoral collaboration around evidence-based practices and fosters innovation. Jointly, APMEN and APLMA act as an 'evidence-to-policy' vehicle that links directly to leadership levels across the region.

# What is Subnational Malaria Elimination?

**Subnational elimination aims to interrupt malaria transmission within specific geographic areas, such as administrative units. Focusing efforts on these smaller geographic regions makes achieving and sustaining zero transmission more feasible.**

There were an estimated 247 million malaria cases with 619,000 malaria deaths in the world in 2021. 13 million more cases and 63,000 more malaria deaths in a two-year period (2020-2021) were impacted by Covid disruptions.<sup>i</sup> The Asia Pacific region has made incredible progress toward malaria elimination by reducing malaria cases by 64% and malaria deaths by 88% in the past decade. In 2021, 95% of total malaria cases in the Asia Pacific have been reported from six countries, namely Papua New Guinea, Pakistan, Indonesia, India, Solomon Islands, and Afghanistan.<sup>ii</sup>

Countries are generally divided into principal or first-level administrative units such as states, provinces, regions, divisions, counties, prefectures, and others. The exact number of the levels of administrative divisions and their structure largely varies by country. These units usually have administrative authority with the power to take administrative or policy decisions for their specific areas. These areas also have a Department of Health (DoH) or public health division responsible for preventing and controlling non-communicable and infectious diseases, and treating and rehabilitating the patients in their territories.

Stratifying and targeting administrative units' malaria control and elimination strategies is an effective approach to move countries towards subnational elimination. Surveillance of malaria cases and their movement between and within administrative units plays a crucial role in the elimination process.<sup>iii</sup>

Approaches to subnational level elimination vary from country to country according to their health systems and national malaria programme (NMP). The subnational verification of malaria elimination is tremendously useful for the large and populous countries that have interrupted the local malaria transmission in some regions and provinces and the countries that have islands and isolated areas.<sup>iv</sup> It is a country-lead and owned activity that can reinforce the surveillance system for the national certification on malaria elimination and prevent its re-establishment.

The World Health Organization (WHO) Framework for Malaria Elimination mentioned, "processes and criteria for subnational verification should follow the WHO national certification scheme, as this will result in the collection of

essential information and establishment of the systems and structures required for certification of national elimination".<sup>v</sup> However, the subnational malaria elimination status is not verified by WHO, and it is not necessary for malaria-free certification of a country.

Subnational elimination focuses on data-driven decision-making. Surveillance helps detect any remaining cases, monitor progress towards elimination, and facilitate timely interventions to prevent resurgence. The surveillance data at intra and inter-administrative units provide a basis for evidence-based decision-making. This includes resource allocation, intervention prioritisation and evaluating the impact of control measures. By using data to inform decision-making, countries can optimise their malaria control efforts and maximise the chances of subnational elimination.

In addition, the malaria elimination efforts should be led by the various administrative units of a country for a more focused and targeted approach. The resources and activities can be directed to where they are most needed after identifying high-risk areas within these units.

To sum up, targeting malaria control and elimination strategies by administrative units, coupled with robust surveillance of malaria cases, is instrumental in moving countries towards sub-national elimination. It allows for focused interventions, data-driven decision-making, sub-national elimination focus, and stakeholder collaboration. By employing these strategies, countries can significantly reduce the burden of malaria and ultimately achieve sub-national and national elimination goals.



# Why is Subnational Malaria Elimination Important?

**Subnational malaria elimination is recognised as a vital step towards achieving overall malaria elimination, as stated in the WHO Global Technical Strategy for Malaria.**

By targeting specific geographic regions, such as administrative units or subnational areas, countries can concentrate their efforts and resources where transmission persists or where the risk of reintroduction remains. In addition, verifying subnational elimination can facilitate the preparation and certification process at the national level.<sup>vi</sup>

In large countries with heterogeneous malaria transmission, subnational elimination efforts allow for a focused approach in areas with high malaria burden or persistent transmission.<sup>vii</sup> By tailoring strategies to address specific challenges and targeted interventions to specific pockets or regions, countries can better allocate resources and intensify efforts where they are most needed, optimising the impact of malaria control and elimination activities.

Countries with geographically isolated territories, such as islands or mountainous regions, can also benefit from subnational elimination strategies. These areas often have unique transmission dynamics and challenges that require localised approaches. By strengthening surveillance and response systems at the subnational level, countries can effectively target these isolated territories and prevent reintroduction from external sources.

Subnational elimination efforts contribute to strengthening surveillance and response systems at the local level. This includes improving case detection, reporting, and investigation capabilities, as well as establishing robust systems for monitoring and responding to outbreaks or reintroduction events. Strong surveillance and response systems at the subnational level support overall malaria elimination goals by facilitating early detection and timely interventions.

Tracking within-country importation of malaria cases is indeed key to sustaining zero transmission levels in areas that have successfully eliminated the disease. By analysing data at a sub-national level, health authorities can identify areas where transmission persists or resurges, allowing for timely interventions to prevent further spread, which facilitates the evaluation of strategies and their impact on a smaller scale. This requires robust surveillance systems to track and respond to imported malaria cases through infected individuals travelling from malaria-endemic regions. By closely monitoring and promptly responding to

these imported cases, public health authorities can prevent the re-establishment of local transmission.

In decentralised health systems, where planning and implementation are the responsibility of subnational governments, adhering to the WHO criteria for subnational elimination promotes ownership and commitment at the local level. Subnational governments can take ownership of malaria elimination efforts, leading to more effective implementation of strategies and sustained commitment to prevention and surveillance activities to prevent reintroduction.

Malaria control and elimination efforts by administrative units help optimise the allocation of resources. Limited resources can be directed to areas with the highest need, maximising the impact and cost-effectiveness of interventions. It also allows for better coordination and collaboration between national and sub-national levels, assuring the efficient utilisation of resources.

Subnational elimination efforts can create friendly competition between subnational regions or provinces. This competition can drive political will and motivate local leaders to maintain progress and achieve elimination targets. It also provides an opportunity to capture and share best practices and learnings between regions, accelerating the achievement of malaria elimination at the national level. This sharing of experiences and knowledge strengthens the national elimination plan and generates enthusiasm and motivation for the overall goal.

Hence, following the WHO's criteria and procedures for subnational elimination not only eases the preparation for certification at the national level but also promotes ownership, strengthens surveillance and response systems, tracks within-country importation, addresses heterogeneity and isolated territories, fosters healthy competition, and facilitates the sharing of best practices. These factors collectively contribute to accelerating progress towards national malaria elimination goals.

# What are the Processes to Attain Subnational Elimination?

The steps in subnational verification mentioned in the WHO manual are\*:

1. The national authority designs a method for subnational verification, using the WHO national certification process as a reference.
2. The health department of the state, region or province submits a request to the national authority for subnational verification on behalf of the local government authority.
3. The subnational health department submits a subnational elimination report and compiles the supporting documents and records required.
4. The national authority organises a subnational verification mission upon receiving the request. An evaluation team formed by malariologists and experts in other areas, such as public health and entomology, reviews the subnational elimination report and other documents and records and conducts field visits to verify the information. Countries might invite international malaria experts to participate in subnational verification.
5. The evaluation team reports their findings and recommendation about whether the area should be declared malaria-free.
6. The national authority makes a final decision to grant malaria-free status to the state, region or province.

WHO published a manual on “Preparing for certification of malaria elimination” in 2020 that provides NMPs and Ministries of Health (MoH) with relevant information on processes for verification and certification. The processes for verification and certification may vary among countries, depending on the context and health system of the specific country and the resources of national and local NMP.<sup>viii</sup>

Subnational government authorities should engage and work collaboratively with the local NMP teams to contribute to malaria elimination activities and verify the subnational verification process.

The WHO manual on preparing for certification of malaria elimination outlines the steps involved in verifying subnational malaria elimination. National authorities supervise the process, beginning with a request from the subnational malaria team to the national committee, accompanied by the necessary documents.

A verification mission is then conducted by a subnational verification mission or evaluation team, consisting of malariologists and other experts who review data and information from reports, documents, observations, journal articles and records and evaluate the activities to prevent the re-establishment of malaria.<sup>ix</sup> The team is recommended to include some experts who are not members of the national certification committee to ensure impartiality by WHO. In addition, local officials should not be involved in the assessment of their own administrative units. Then, the national authority makes the final decision on subnational verification.

It is essential to follow these steps and engage the necessary experts and authorities to ensure the accuracy and validity of the verification process and maintain the quality of surveillance and response activities. WHO also recommends the development of a central database to upload evaluation reports and other documents. The subnational elimination report should be in the same format as the national elimination report, and the subnational reports can integrate into the final national report for WHO’s country elimination certification.

Maintaining high-quality surveillance and response activities in the areas concerned is crucial until national certification of malaria elimination is achieved. Sustaining high-quality surveillance and response requires a long-term commitment from national and local authorities, as well as continued investment in malaria control and elimination activities.

Once the MoH decides to announce the public health achievement of subnational malaria-free status, it can motivate other regions or provinces to pursue elimination as well.

# How are Countries Strategising and Implementing Subnational Elimination?



Sri Lanka and China are amongst the APMEN member states that have successfully achieved malaria-free certification from WHO, while the E2025 initiative countries (Bhutan, DPR Korea, Malaysia, Nepal, Republic of Korea, Thailand, Timor-Leste, and Vanuatu) are on the verge of eliminating malaria from their respective territories. In addition, several other countries in the APMEN network, including Bangladesh, Cambodia, India, Indonesia, Myanmar, the Philippines, and Papua New Guinea, are implementing a subnational approach to accelerate their progress towards malaria elimination.

Subnational malaria elimination can be an effective approach for large countries like China, India, Indonesia and countries with geographically isolated parts or islands such as the Philippines, Indonesia, and Papua New Guinea. Additionally, subnational malaria elimination is a strategy for countries near-elimination that still have areas with ongoing transmission, as is the case for Myanmar and Thailand.<sup>xi</sup>

Overall, subnational malaria elimination can be a valuable tool for countries working towards malaria elimination and can help to accelerate progress towards this important public health goal.





## China

China was awarded malaria-free certification from WHO in June 2021. The successful elimination of malaria is a great achievement and a result of decades-long efforts by the country's health authorities and communities. China has explored new and innovative malaria strategies and interventions, including 1-3-7 surveillance and response strategy to accelerate the progress of malaria control and elimination.<sup>xii</sup>

The subnational approach, emphasising local implementation, verification, and collaboration, has played a significant role in China's malaria control and elimination. The country had classified four geographical categories based on malaria epidemic reports.

- Type 1: Presence of confirmed local case(s) in the last 3 years, with all 3 years having an incidence rate  $\geq 1/10,000$ ;
- Type 2: Other counties presence of confirmed local case(s) in the last 3 years;
- Type 3: No locally transmitted malaria cases in the last 3 years in the prevalent counties, only imported cases.
- Type 4: No history of any locally transmitted case

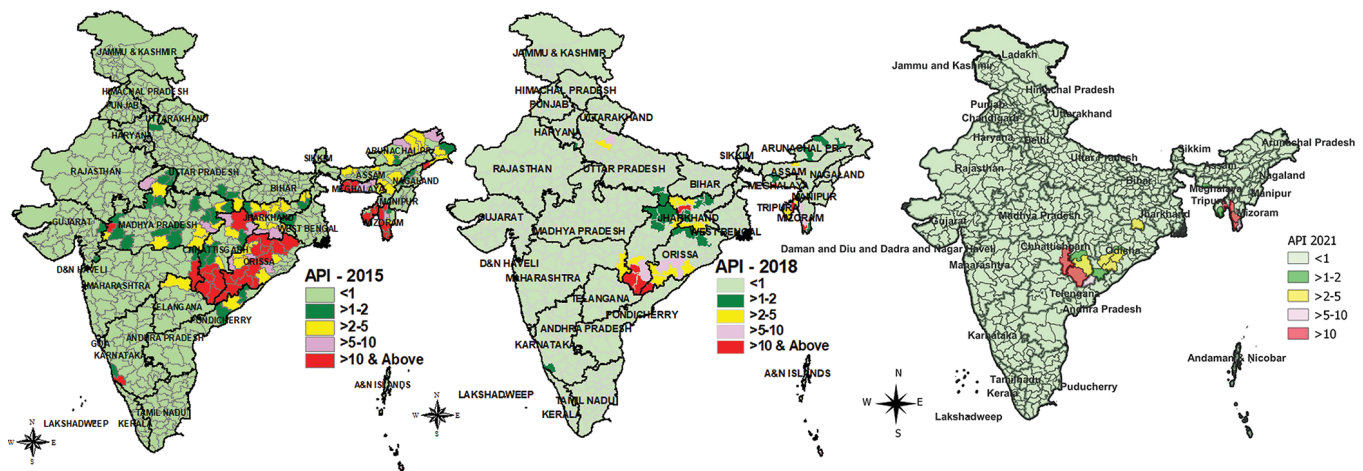
According to the China Malaria Elimination Action Plan, the objectives set up to nationally eliminate malaria by 2020 were<sup>xiii</sup>:

1. To eliminate malaria in all Type 3 counties by 2015.
2. No locally transmitted malaria cases in all counties of Type 2 and Type 1 (except for some border regions of Yunnan province); to achieve the elimination of malaria by 2018.
3. The incidence rate dropped to 1/10,000 in Type 1 counties of Yunnan border regions by 2015; no locally transmitted malaria cases by 2017; to nationally eliminate malaria by 2020.

By 2020, all 24 provinces and autonomous regions that were previously malaria endemic had received national recognition of malaria elimination. Based on this successful subnational malaria verification, China applied for the official WHO certification of national malaria elimination. After reviewing and verification of the malaria-free status of the country and the programme to prevent re-establishment of malaria by independent Malaria Elimination Certification Panel (MECP) and Malaria Policy Advisory Committee (MPAC), the certification for China was granted by the WHO Director-General on 30<sup>th</sup> June 2021.

China's experience provides a valuable model for other countries to learn from and implement in their own malaria control and elimination efforts. WHO has recommended a set of procedures for verifying subnational malaria elimination based on China's successful experience in eliminating malaria. These procedures included several steps, such as zero indigenous cases for 36 consecutive months, an official request to the MoH to provide a detailed report on the elimination efforts, including self-assessment, an evaluation mission and providing the opinion of the advisory committee, and a final decision and approval from MoH.<sup>xiv</sup>

Maintaining strong surveillance and response systems, as well as cross-border cooperation, will be essential for China to sustain its malaria-free status and prevent the reintroduction of the disease.



## India

Malaria cases in India have significantly declined over the last decade, with an 88% reduction reported between 2011 and 2021. However, India remains amongst the top five countries in terms of malaria morbidity within the APMEN member states, with 161,753 cases and 90 deaths reported in 2021.<sup>xv</sup> The malaria burden is concentrated in certain states of India, particularly in Tripura, Mizoram, and Odisha.

To address this, India has adopted a subnational approach to malaria elimination which involves identifying and targeting specific districts or states with a high burden of malaria.<sup>xvi</sup> The National Center for Vector Borne Disease Control (NCVBDC) has developed technical guidelines and policies to support this approach. Various health facilities, including Health and Wellness Centers, Primary Health Centers, and Community Health Centers, have been involved in the implementation of malaria case management services. In addition, Accredited Social Health Activists (ASHAs) continue to play a vital role in malaria elimination efforts. ASHAs are community health workers involved in various activities such as early detection of malaria cases, distribution of mosquito nets, and health education on the prevention and treatment of malaria.<sup>xvii</sup>

India's subnational approach to malaria elimination has shown promising results, and the country will continue to make progress towards achieving the goal of malaria elimination. The country is divided into four categories of states/ Union Territories based on malaria Annual Parasite Incidence (API):

- Category 0: Prevention of re-establishment with districts having zero cases
- Category 1: Elimination phase with districts having API <1 per 1000 population

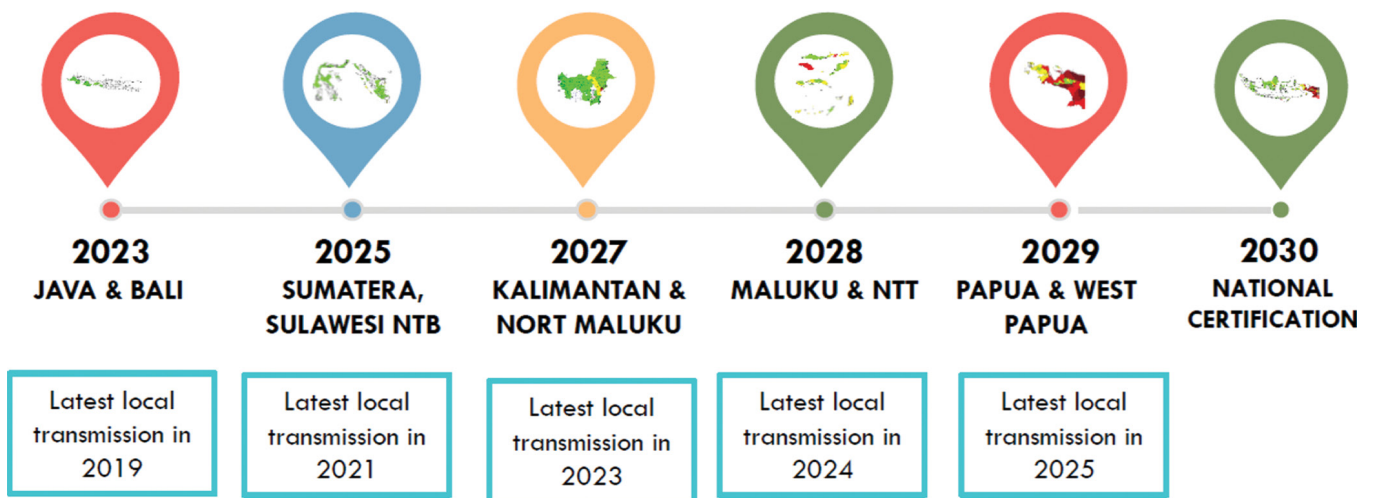
- Category 2: Pre-elimination phase with districts having API 1-2 per 1000 population
- Category 3: Intensified control phase with districts having API >2 per 1000 population

India has strengthened its plan for subnational certification and verification of malaria elimination and is incentivising well-performing districts/states to achieve and maintain zero indigenous cases. This approach has shown promising results, as indicated by the reduction of districts under Category 3 from 110 to 19 and Category 2 from 45 to 6 between 2015-2021.

India has set state- and district-wide targets to achieve zero indigenous malaria cases (Category 0) by 2027, which is also a positive step towards achieving malaria elimination in the country. This demonstrates the government's commitment to tackling the malaria burden and reducing the transmission of the disease at the local level.

In addition to the efforts of the NCVBDC, strong political commitment and adequate financial resources are also crucial for achieving malaria elimination. India's continued efforts in this direction will lead to sustained progress towards the goal of malaria elimination in the country.





## Indonesia

Indonesia is the largest archipelagic state, with more than 6,000 inhabited islands and the fourth largest population in the world. Malaria case incidence has steadily declined in Indonesia from 422,000 in 2011 to 217,000 in 2017, then fluctuated and increased up to 305,000 in 2021. Due to the unique geography of Indonesia, the country has adopted an island-based elimination approach. The malaria epidemiology, endemicity, health system, and infrastructure vary across the different islands. Therefore, a targeted approach is necessary to address the specific challenges faced by each island. This island-based approach also allows for more efficient use of resources and more effective implementation of malaria control and elimination measures.

Indonesia has shown a strong political commitment towards malaria elimination, which has been reflected in various initiatives and programmes to accelerate progress towards this goal. One of these initiatives is the subnational level malaria elimination assessments, which were launched in 2012 to encourage districts to step up their efforts towards malaria elimination. In addition, a Technical Elimination Assessment Guide was developed in 2015 to provide guidance on the assessment of subnational elimination progress. The Malaria Eradication Movement National Forum was also established to assess the malaria situation and to determine the areas that qualify as malaria-free. These initiatives have helped to create a more coordinated and focused approach towards malaria elimination in Indonesia.<sup>xviii</sup>

The MoH certified malaria-free districts in line with the National Medium-Term Development Plan (NMTDP).<sup>xix</sup> This district-level certification for malaria elimination in Indonesia is a rigorous and thorough process. It involves assessments from the provincial level assisted by the national team to ensure that districts have met specific

criteria and are ready to prevent the re-establishment of malaria transmission. The use of specific criteria, such as a positivity rate of less than 5%, an API of <1 per 1000 population, and no indigenous cases for the last three consecutive years, helps to ensure that districts have achieved a high level of success in their malaria elimination efforts before being certified.<sup>xx</sup>

At the province level, all districts within the province must have been certified as malaria-free by the MoH without any introduced case or outbreak for the last two years before the province can be considered for certification of malaria elimination. This is to ensure that the elimination efforts at the district level are sustained and that there is no risk of reintroducing the disease from neighbouring districts or provinces.

Indonesia has made impressive progress towards malaria elimination, with 68% (n=347) of districts already certified malaria-free by 2021. This achievement was attributed to strong political commitment, effective leadership by the NMP, multisectoral collaboration, community engagement, non-government organisation (NGO) cooperation, and increased domestic funding supplemented by external sources.

However, it is important to note that Papua Province still contributes to almost 80% of national malaria cases, and none of its districts have achieved elimination status as of 2021. Achieving malaria elimination in this region will be a significant challenge, but the government aims to make Papua and West Papua malaria-free by 2029.

Indonesia has set a target to achieve a malaria-free certification from the WHO by 2030. This shows the country's commitment to eliminating malaria as a public health threat and improving the health of its population.



## Philippines

The Philippines is an archipelagic country in Southeast Asia with more than 7,000 islands. Malaria has been a longstanding public health challenge in the Philippines, and the country has implemented several initiatives to control and eliminate the disease over the years.

The Philippines first organised a malaria control programme in 1902. In 1997, the Philippines launched a malaria elimination initiative, which aimed to eliminate malaria from the country by the year 2020. The initiative involved several strategies, such as active case detection, prompt treatment of malaria cases, and the use of insecticide-treated nets and indoor residual spraying.

By 2007, the Philippines had made significant progress in reducing the burden of malaria, and support for the declaration of malaria-free provinces had grown. The NMP defined malaria-free provinces as those with an absence of cases for five years. Procedures for the formal declaration of malaria-free provinces were then established in 2011.

The criteria for evaluation of provinces as malaria-free were formalised, which included:

- No indigenous cases confirmed in the last five years
- A functional malaria surveillance system is in place
- Epidemiological investigations continue being conducted, and epidemic preparedness is in place
- Availability of anti-malarial drugs and vector control commodities in case of outbreak
- Continued performance of health education and advocacy<sup>xxi</sup>

The Philippines has made significant progress in reducing the burden of malaria since the re-orientation of its strategy towards malaria elimination in 2008. The new strategy included the use of Artemisinin Combination Therapy (ACT)

as the first-line treatment for *Plasmodium falciparum*, refining the national malaria stratification with specific vector control activities assigned to each category of endemicity and a subnational, progressive elimination approach.

The Provincial Elimination Hubs were established to oversee and sustain the provinces' malaria-free status. The hub has a team of staff responsible for malaria case management, health promotion and malaria surveillance and response.<sup>xxii</sup>

By 2013, 27 provinces in the Philippines were considered free of malaria, and the country has continued to make progress in controlling the malaria burden, with the number of malaria cases decreasing from 9,600 in 2011 to 4,300 in 2021.

As of the World Malaria Report 2022, the number of provinces declared malaria-free in the Philippines had reached 62. In February 2023, the country announced that 80 out of 81 provinces were malaria-free. This is a significant achievement for the Philippines in its efforts towards malaria elimination.<sup>xxiii</sup>





Photo by John Rae

## Thailand

Thailand has made significant progress in the fight against malaria and the efforts to eliminate malaria by 2024. The process of recognising and certifying provinces free from malaria is essential in ensuring that the country stays on track towards malaria elimination. It is also vital to remain vigilant in areas that have been declared malaria-free to prevent the reintroduction of the disease. The subnational verification guidelines were developed in 2019 in accordance with the WHO framework.

As one of the E2025 countries, Thailand's progress in achieving malaria elimination is remarkable, with 35 provinces (out of 76 in total) already validated and declared malaria-free in 2018.<sup>xiv</sup> The verification of two more provinces in 2021 is a positive sign of progress towards the malaria elimination goal.

The use of subnational verification guidelines developed with the WHO framework is an important step towards achieving malaria elimination in Thailand. The certification of provinces free from malaria is a critical milestone in the elimination process, as it provides tangible evidence of progress and boosts the morale of healthcare workers and communities involved in the fight against malaria. It also highlights the country's commitment to eliminating malaria and can help to mobilise resources and support from international partners. Thailand is also encouraging subnational units to prioritise malaria in their local budgets and engage in malaria programming.

The process described here outlines the steps involved in determining the eligibility and certification of a province as a "malaria-free province" in Thailand.

- The Provincial Health Office (PHO) conducts a self-assessment of the province's malaria situation and submits a report to the Provisional Division of Vector-Borne Diseases (DVBD) and the Regional Office for Disease Control and Prevention.

- The DVBD verifies the report by reviewing the provided documentation and online data for surveillance and activities and examining zero indigenous malaria cases for three consecutive years.
- The National Verification Committee, which consists of experts from various stakeholders, conducts a desk review of epidemiological and related data and performs field surveys in areas where malaria transmission has previously occurred. The committee seeks input and expertise from various stakeholders, including the DVBD, senior advisers of the Department of Disease Control (DDC), the Medical Office, Permanent Secretary Office of the Ministry of Defence, Ministry of Defence, senior experts from a university (such as the Faculty of Tropical Medicine, Mahidol University), and the Local Health Division of the Department of Local Government, Ministry of Interior.
- Based on the evidence and expertise gathered, the National Verification Committee prepares a report with its recommendations.
- The Department of Disease Control, Ministry of Public Health, is responsible for making the final decision on certifying a province as a "malaria-free province." They review the committee's recommendations and make the declaration of certification if the province meets the criteria.

The challenge to malaria elimination in Thailand is cross-border malaria. Malaria is increasingly concentrated in the international border areas, especially the Thailand-Myanmar border, where residents on both sides of the border frequently pass to sell and buy basic needs, work, displace from conflict, and visit relatives.<sup>xxv</sup> Overall, Thailand's progress towards malaria elimination is impressive, and it is crucial to maintain the momentum and continue efforts towards achieving this goal.<sup>xxvi</sup>



# What are the Guiding Principles for Subnational Malaria Elimination?



**Subnational verification and national certification:** While WHO does not directly verify the subnational malaria-free status, countries are leveraging the subnational verification process to strengthen their programmes and prepare for national certification. The process and its results can assist with the final certification, as demonstrated by China's nationwide subnational verification before being certified as malaria-free.

**Heterogeneity of the malaria burden:** The progress made in reducing malaria cases and deaths has led to increased heterogeneity in the malaria burden. Many countries have geographic areas at different stages of elimination. Recognising this heterogeneity and adopting customised, data-driven strategies at the subnational level is important to effectively address local circumstances and drive progress towards elimination.

**Importance of subnational action and commitment:** National action and commitment must be matched and complemented at the subnational level. Blanket strategies that do not consider local contexts and evidence may not be as effective. Strengthening capacity at the subnational level, delivering tailored interventions, and promoting community-appropriate solutions are critical in eliminating malaria.

**Criteria for subnational verification:** Key criteria for verifying subnational elimination include the absence of indigenous cases for at least three years, robust surveillance and response systems, and minimum requirements for staff performance. These criteria ensure that malaria transmission has been fully interrupted and that adequate systems are in place to prevent the re-establishment of transmission.

**WHO guidance and certification process:** WHO has published guidelines for countries to prepare for national certification, and these guidelines can also be applied to the verification of subnational elimination, especially in large countries. Preparations for certification improve surveillance and response performance, strengthen the prevention of re-establishment, and offer other benefits to the malaria control programme.

**Political commitment:** Strong political commitment to subnational malaria elimination is important for achieving significant progress in the fight against malaria. It requires sustained leadership, supportive policies, adequate resources, collaboration, advocacy, and accountability to create an enabling environment for effective malaria elimination at the subnational and national levels.

Overall, the subnational verification process, led by countries themselves, is an important component in the journey towards malaria elimination. It helps strengthen surveillance and response systems, prevent re-establishment, and prepare for national certification. Customised strategies, local context, and strong political commitment are crucial in eliminating malaria.

## Abbreviations

API	Annual Parasite Incidence
APLMA	Asia Pacific Leaders Malaria Alliance
APMEN	Asia Pacific Malaria Elimination Network
ASHA	Accredited Social Health Activists
DoH	Department of Health
DPR Korea	Democratic People's Republic of Korea
DVBD	Division of Vector-Borne Diseases
NCVBDC	National Center for Vector Borne Disease Control
MoH	Ministry of Health
NMP	National Malaria Programmes
WHO	World Health Organization

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