SUSTAINING EFFORTS FOR A POST-ELIMINATION FUTURE IN ASIA PACIFIC

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The Asia Pacific region has made tremendous progress towards malaria elimination over the past two decades, with an 88% decline in reported deaths and 64% decline in confirmed cases since 2010 (1). Yet, while still celebrating these successes in the fight against malaria, an understanding of the current rate of progress prompts the need to think critically about how to ensure the long-term success of malaria responses, especially in the context of reduced funding from external donors.

As of 2023, about 67% of total expenditure on malaria control and elimination globally was funded by international donors including the Global Fund to Fight AIDS, TB, and Malaria (the Global Fund). In several lower-and middle-income countries (LMICs) in Asia Pacific, this contribution was as high as 90%. As seen in Figure 1 below, the Global Fund allocations for malaria in the Asia Pacific saw a ~100 million in United States dollars (USD) (~20%) reduction for 2023-2025, despite a modest funding increase globally. As a result of this and other reductions in global health funding in the context of COVID-19 and macroeconomic forces such as inflation and currency depreciation, many countries have struggled to sustain malaria financing. In 2022, reported funding per person at risk dropped to one-third of its 2010 level in the World Health Organization (WHO) South-East Asia and Western Pacific regions, from about 0.30 USD to 0.10 USD per person at risk (2).

An effective and efficient malaria programme embedded within strong national health systems will be key to ensuring long-term, sustained success against malaria. Without adequate planning, the lack of sustainable financing threatens essential programme activities and risks the resurgence of malaria. It may further reverse the painstaking gains made over the past two decades and undermine progress toward elimination.
The Global Fund defines sustainability as “the ability of a health programme or country to both maintain and scale up service coverage to a level – in line with epidemiological context – that will provide for continuing control of a public health problem and will support efforts for elimination...even after funding from the Global Fund or other major external donors comes to an end” (4). In the context of malaria, sustainability challenges may arise from many fronts, including:

1) Reduced political will and need for adaptive governance systems,
2) Maintenance of key human resource capacities,
3) Reductions in external financing and constraints to effective domestic resource mobilisation,
4) Developing and maintaining strong epidemiological surveillance and information systems,
5) Effective programme implementation and service delivery activities, and
6) Strengthening supply chain management (4).

To aid country preparations for a sustainable transition from donor support, the University of California, San Francisco’s (UCSF) Malaria Elimination Initiative (MEI), in partnership with the Global Fund, developed the SUSTAIN tool, a malaria-specific assessment and planning tool for guiding national malaria programmes (5). To help national malaria programmes and their stakeholders plan for transition, the SUSTAIN tool can detail five key domains of sustainability that should be included in sustainability and transition assessments of national malaria programmes, as described in Figure 2.

**Sustainability Domains**

- **Leadership and Management**
  - Political support for the malaria programme
  - Multi-sectoral partnerships
  - Processes to develop programme strategy in line with sustainability goals

- **Integration**
  - Integration of malaria services within the health system
  - Governance and implementation mechanisms
  - Integration of donor-supported systems in national structures

- **Health Workforce for Malaria**
  - Current and future staffing needs
  - Staff training and retention
  - Integration and supervision of non-state sector
  - Malaria workforce policies
  - Financing of workforce

- **Health Product Management**
  - Procurement and distribution processes
  - Financing of key commodities
  - Supply chain management
  - Policy and regulatory environment

- **Financing**
  - Financing sources of malaria-related activities
  - Projected financial impacts of transition
  - Financial risks and strengths
  - Potential future funding sources

*Figure 2. The five domains of sustainability, as used in the SUSTAIN tool (6).*
Many countries in Asia Pacific are in different phases of ensuring malaria programme transition and sustainability planning. China and Sri Lanka, for instance, have eliminated malaria and provide successful examples of transitioning and integrating national malaria programmes. As countries nearing elimination, Cambodia, Thailand, the Philippines and Vietnam have also conducted sustainability and transition assessments as an initial step towards long-term sustainability planning. This thematic feature covers five Asia Pacific countries in different phases of sustainability planning for their national malaria programmes. Their experiences demonstrate that successful transitions require efforts on multiple fronts. By planning for sustainability early, countries can ensure that their end goal of a self-sustaining national malaria programme — one that is domestically funded and managed within the country and can consistently carry out essential activities based on local needs — is on the horizon. Doing so can further safeguard a lasting, malaria-free future for all.

Learning from Post-Elimination Countries

Sri Lanka

Sri Lanka successfully eliminated local malaria transmission in November 2012, and was certified malaria-free by WHO in 2016 (7). In 2017, the Sri Lanka Anti-Malaria Campaign (AMC), the Malaria Elimination Initiative at the University of California San Francisco, and the Global Fund collaborated to conduct an assessment of the Sri Lanka national malaria programme’s readiness for the end of the Global Fund’s support. That same year a sustainability plan was developed to explore key areas of the malaria programme’s financing and management to identify programme strengths and potential risk areas that require attention as the country prepared for this transition.

To further ensure a smooth financial transition as the country progressively mobilized domestic resources for its malaria programme, Sri Lanka applied and received a transition grant of 2.5 million USD from the Global Fund beginning in 2019 and ending in 2021 (8).

Sri Lanka continued to maintain the malaria knowledge and skills of their health workforce after eliminating malaria. The AMC, a programme under the Ministry of Health, conducted clinician awareness programmes in 25 districts across the country over the past five years. AMC personnel also have regularly visited medical facilities to deliver informative presentations on malaria. At the same time, dedicated time for malaria education was incorporated into all medical undergraduate programmes nationwide. Besides medical staff, the AMC also organized regular training for its field staff at all levels throughout the country. Through these multifaceted approaches, Sri Lanka has demonstrated their commitment to sustaining the necessary medical knowledge, skills, and awareness towards effective malaria management.

To ensure financial sustainability, the Sri Lankan government has funded the AMC through the Ministry of Health, while the respective Ministries of Provincial Councils have funded the Regional Malaria Office staff. As of 2019, the government has contributed 139.95 million Sri Lankan rupees (approximately 432,000 USD) annually towards supporting the AMC (9). Such continued financial commitment supports the ongoing prevention of re-establishment (POR) endeavours and reduces the risk of malaria resurgence.

Importantly, strong leadership has continued to guide the anti-malaria efforts in Sri Lanka. For example, to support their POR programme, the Director General of Health Services chairs the Technical Support Group (TSG), which consists of 17 members possessing diverse expertise related to malaria control including parasitology, epidemiology, pharmacology, sociology, and vector control (10). The TSG convenes bi-monthly to offer evidence-based strategic advice and recommendations to the AMC, while a sub-committee further conducts independent assessments of reported malaria cases monthly (11). Additionally, the AMC has continued to update their guidelines and standard practices, such as the case in the ‘Guidelines for the Management and Treatment of Malaria Patients’ published in 2023 (12). These comprehensive guidelines provide a roadmap for sustained success by ensuring that strategies are implemented consistently over time, and shows the sustained resolve of the AMC to keep Sri Lanka malaria-free.

Strong supply chain management has ensured that malaria medicines and diagnostics are stocked at designated service delivery points; in the event that a malaria commodity is out of stock, it would be delivered within a few hours. For intravenous artesunate, it must be made available within two hours in any part of the country upon request (12, 13).

Sri Lanka’s experience showcases the importance of continuing with a whole-of-government approach by sharing information between government departments and partners. In addition, it is also important to have an active and committed taskforce and a cadre of leaders who are committed to the cause and will drive the entire process, including building an investment case for continued malaria funding to support POR activities (14).

The conversion rate of 1 Sri Lankan Rs = 0.0031 USD has been used throughout this article.
The Chinese government has continued to show strong and sustained political commitment towards ensuring the continuity of their malaria programme, even after eliminating malaria in 2017 and being certified malaria-free by WHO in 2021 (15). Understanding that malaria can rebound at any time if funding and interventions are interrupted, the Chinese government has continued to mandate making malaria-related funds a routine budget line. This has been the case for both provincial and central levels and is a longstanding policy that has been in place for more than a decade (16). In 2021 alone, the Ministry of Finance and the National Health Commission allocated 67.65 million Chinese Yuan (approximately 9.25 million USD) in the essential public health services specifically purposed for malaria (17). This strong financial support ensures programme sustainability and to keep China malaria-free. Malaria is also enshrined in high-level government plans and law, such as the Law of the People’s Republic of China on the Prevention and Control of Infectious Diseases, China’s Malaria Elimination Action Plan (2010-2020), Healthy China 2030 Planning Outline and Healthy China Action Plan (18).

This demonstrates and ensures sustained political focus and efforts towards POR.

In addition, China has undertaken a whole-of-government approach to malaria elimination and POR. Since 2010, malaria elimination and POR has been a joint effort by 13 ministries in China—from the Ministry of Health to General Administration of Customs (19). Even after elimination, the same ministries continued to collaborate and jointly issued an Administrative Measures for the Prevention of Malaria Re-establishment document in 2020 to reinforce efforts to prevent re-establishment (18). Table 1 below summarises the POR portfolio under each ministry and illustrates how ministries closely coordinate and collaborate with one another to carry out necessary POR activities. Such a whole-of-government approach supports large-scale, sustained, and concerted efforts to ensure China’s malaria-free status. Furthermore, learnings from China’s elimination and POR strategies have not only informed, but also served as important guidance to other countries in Asia Pacific.

*The conversion rate of 1 RMB = 0.14 USD has been used throughout this article.*
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<th>Ministry in China</th>
<th>Role in malaria POR</th>
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| National Health Commission               | • To establish technical taskforce to undertake clinical reviews, identify sources of infection, instruct case detections and foci investigations, manage outbreaks, conduct technical training and evaluations.  
  • To convene expert committee for treatment of severe malaria.  
  • To regularly update provincial vector control authorities of the latest national malaria epidemiology and coordinate necessary work.                                                                                                                                 |
| Ministry of Education                    | • To educate foreign students, as well as teachers and students travelling to malaria-endemic regions about malaria prevention.  
  • To screen foreign students from endemic regions for malaria.                                                                                                                                                                                                                                                                           |
| Ministry of Industry and Information Technology | • Upon request, to support provincial health authorities by using big data methods to conduct epidemiological investigations.                                                                                                                                                                                                                                   |
| Ministry of Public Security              | • To assist provincial health authorities with case detections and foci investigations, as well as management of outbreaks.                                                                                                                                                                                                                                               |
| Ministry of Justice                      | • To assist provincial health authorities with case detections and foci investigations, as well as management of outbreaks.                                                                                                                                                                                                                                               |
| Ministry of Finance                      | • To include malaria surveillance in central government’s budget.  
  • To reimburse malaria diagnosis and treatment as per basic medical insurance package coverage.                                                                                                                                                                                                                                                   |
| Ministry of Commerce                     | • To educate expats posted in endemic regions on malaria prevention, and to provide them with necessary protective measures.                                                                                                                                                                                                                                                                               |
| Ministry of Culture and Tourism          | • To educate tour guides on malaria prevention.  
  • To educate travellers to endemic regions on malaria prevention.                                                                                                                                                                                                                                                                                |
| General Administration of Customs        | • To educate travellers to endemic regions on malaria prevention.  
  • To screen symptomatic travelers from endemic regions.  
  • To coordinate with vector control authorities on investigations and management of POR cases.                                                                                                                                                                                                                  |
| National Healthcare Security Administration | • To ensure adequate supply of antimalarials and prevent stockouts.                                                                                                                                                                                                                                                                                                                                |
| National Immigration Administration       | • To collaborate with local vector control authorities of endemic regions on malaria prevention campaigns.  
  • To enforce border control measures when deemed necessary.  
  • To coordinate and assist provincial health authorities and customs on investigations of POR cases when necessary.                                                                                                                                                                                                 |
| National Medical Products Administration  | • To coordinate with provincial health authorities and Ministry of Finance to centrally procure, stock and supply antimalarials.                                                                                                                                                                                                                                         |
| Logistic Support Department of the Central Military Commission | • To report to National Health Commission annually on malaria cases. Any local transmission or outbreaks are to be reported immediately.                                                                                                                                                                                                                                          |

Data Source: Administrative Measures for the Prevention of Malaria Re-establishment document (18)
Besides the substantial progress in tackling their malaria burden — reporting just 1,384 malaria cases in 2023 (20) — the Cambodian government has taken proactive steps in planning for the long-term sustainability of their malaria programme. In 2021, the government partnered with UCSF MEI to conduct a sustainability and transition assessment (21). Following this assessment, Cambodia further identified areas of improvement and committed to the development of a sustainability plan in 2024. APLMA is also working with Cambodia to support further sustainability planning efforts.

For example, in the domain of malaria-related human resources, Cambodia recognized their overreliance on civil society organization (CSO) partners and will need to plan for the capacity-building of subnational staff to assume malaria activities in areas where CSOs are currently the main implementers.

In addition, Cambodia has developed a comprehensive roadmap for the integration of 3,760 Village Malaria Workers (VMWs) by the year 2025, beginning with low-risk provinces and rolling out to additional provinces as the country moves towards elimination. The integration of VMWs is part of the Cambodian government’s strategy to transition from a vertically funded programmatic approach to a sustainable whole-of-health system approach. At the same time, the Cambodian government is reviewing the role of VMWs and exploring the potential to expand the services they provide in the 2021–2023 period. To date, the Cambodian National Centre for Parasitology, Entomology and Malaria Control (CNM) has issued guidance allowing VMWs to provide mebendazole for soil-transmitted helminths and is considering including activities for dengue. By integrating VMWs, they can provide an extended array of services including health education, referral systems, surveillance, and preventive as well as curative interventions for other vector-borne diseases. This presents an opportunity to collaborate with various Ministry of Health departments, establishing a sustainable cross-disciplinary approach. This could extend to community surveillance and promotion of tasks in regions of minimal or no malaria threat, creating a durable framework for a versatile cadre bolstering the overall health system.

On financial sustainability of the Cambodian malaria programme, the assessment also found that currently, external donors still finance over 90% of the programme and a reduction in external funding would result in gaps that could adversely affect programmatic activities. To mitigate these risks, Cambodia has planned to conduct a funding landscape exercise to quantify current and future funding requirements and identify other sources of funding including government support.

Cambodia is also currently implementing long-term, cross-cutting public sector administration reforms to improve public financial management and decentralize governance structures, both of which are key to sustaining malaria financing and management at the subnational level. Subnational authorities, including provincial health departments, operational districts, and health centre teams will take on increasing responsibility for the malaria response under the Decentralisation and Deconcentration (D&D) reforms. Such reforms are in line with the goal of shifting from a vertical to a more integrated and decentralized programme, which will demand enhanced strategic planning and local capacity building.
In 2018, using the MEI Malaria Elimination Toolkit, Thailand’s Division of Vector Borne Diseases (DVBD) conducted a Transition Readiness Assessment, enabling Thailand to identify four essential components of its sustainability strategy (6). These include (a) developing plans that integrate and maintain human resources; (b) maintaining a continuous pool of technical expertise in malaria at the national and subnational levels; (c) securing adequate funding for human resources, commodities, and activities; and (d) establishing effective governance and monitoring systems for malaria elimination (22).

Of these, **integrating and maintaining expert human resources** is crucial especially as an anticipated 48% of the remaining vertical malaria programme staff are projected to retire by 2024 (22). To achieve elimination and maintain POR, Thailand recognised the need to provide technical training to empower general health services (GHS) personnel to take over the responsibility of delivering malaria services. Such integration has also begun at a subnational level, and significant malaria service package has been transferred from the vertical programme to GHS in eight eastern provinces. To maintain a high level of technical expertise, DVBD and provincial health offices (PHOs) organized comprehensive training for GHS personnel and health workers, enhancing their capacity in malaria case management and surveillance, thus elevating their involvement. Supplementary training on malaria elimination demonstrated improved knowledge and heightened malaria case diagnosis and treatment in all hospitals, including Health Promotion Hospitals (HPHs) (22).

Separately, to **secure domestic funding for malaria-related activities**, DVBD also collaborated with UCSF MEI to engage with Local Administrative Organizations (LAOs), which are the subnational governmental units of Thailand (23). By conducting training workshops for over 2,600 LAO staff, LAO personnel were able to learn about the current malaria situation in their local areas as well as sub-foci transmission data and corresponding risk levels that enable LAOs to tailor malaria interventions to local situations (24). This in turn helped to secure financial backing from LAO budgets for malaria-related activities; between 2018 and 2020, annual LAO funding support for malaria effectively doubled (25). Additionally, LAOs have also learned technical knowledge and skills from public health officials, empowering them to actively take on vector control responsibilities.

Besides engaging LAO activities to ensure government budget allocations for malaria, DVBD further conducted a cost-benefit analysis in 2019 to build an investment case arguing for malaria elimination in the country – finding that every 1 USD generated 2 to 15 USD of return on investment (26). At the same time, the Thai government has steadily increased the percentage of budget support from the National Health Security Office (NHSO) – which has grown to 53.4% by 2022 (25). This demonstrates the strong political and financial commitment towards malaria elimination in different levels of the Thai government.
The Philippines reported a total of 3,207 malaria cases last year, with 82 provinces currently falling under three main categories: 66 malaria-free areas, 15 elimination areas (zero indigenous cases) and one control area (malaria-active province of Palawan) (22). With the goal of driving malaria cases down to zero in Palawan by 2026 and sustaining the malaria-free status of all other provinces, the Philippines recently published its Malaria Transition, Elimination and Sustainability Plan (MTESP) 2023 – 2028 (27). Encouragingly, the Plan provides a detailed overview of the country’s strategies and considerations in attaining their goals.

The progress towards Universal Health Coverage (UHC) plays a vital role in bolstering the sustainability of the malaria programme in the Philippines in two major ways. First, the UHC framework unlocks new domestic funding sources that can be purposed for malaria elimination; second, it has also led to better integrated health systems with improved efficiency.

In 2018, the Philippines took a significant step forward by enacting the UHC Act (Republic Act 11223), which mandates the automatic inclusion of every Filipino in the PhilHealth insurance programme (28). This legislation aims to reorganize healthcare providers into province-wide and city-wide health systems, who are then tasked to consolidate and manage diverse sources of funding for health, including a Special Health Fund (SHF) (29). This dedicated fund serves a multifaceted purpose: supporting both population-based and individual-based health services, covering health system operational costs, capital investments, and the remuneration of additional healthcare workers. Importantly, Local Government Units (LGUs) receive training on how to incorporate the SHF into their Investment Plan for Health and Annual Operational Plan, hence building their capacity to bridge the funding gap for local malaria activities. At the same time, this clinical, financial, and management integration of health providers ensures that health services are not only readily available but also coordinated and efficient. This ultimately contributes to the sustainability of the malaria programme by improving access to malaria-related care.

Separately, the national malaria programme also benefits from earmarked funds for malaria elimination within national health budgets. The combined funding sources for the programme include contributions from the Department of Health (DOH), Community Health Development (CHD), and LGUs — with DOH taking a significant share of 63%, LGUs contributing 28%, and CHD providing 9% (27). To further narrow the funding gap, it too can access special additional funding through initiatives like the Sin Tax Reform Law, passed in 2012, which imposed an increased excise on tobacco and alcohol products that is then invested in public health programmes and subsidies of social health insurance for the poor (30). Such an innovative approach has enabled the Philippines to mobilize domestic resources towards public health causes like malaria, which boosts the sustainability of their national programme.
With only a few hundred cases of malaria reported in 2023, Vietnam is approaching the 'last mile' of malaria elimination and has also undertaken the MEI transition and sustainability assessment in preparation of the long-term sustainability of their malaria programme (31). From the assessment, an initial transition pathway has been outlined for Vietnam’s transition from external funding.

At a subnational level, there are efforts to integrate malaria programme activities with those of other diseases. Led by the National Institute of Malariology, Parasitology and Entomology (NIMPE) and supported by the Asia Pacific Leaders Malaria Alliance (APLMA) and Clinton Health Access Initiative (CHAI), a recent field assessment in Bac Kan Province found that at a district level, malaria-related activities have already begun to be integrated with initiatives targeting dengue and other communicable diseases. Similarly, at the commune level, malaria-related activities have been integrated with health campaigns of dengue and hypertension prevention. These integrations demonstrated districts’ and communes’ resourcefulness and proactive approach to drive public health initiatives with limited resources, which can in turn enhance the sustainability of subnational malaria-related activities by ensuring they are efficiently run.

Multi-sectoral efforts are also ongoing to drive last-mile elimination. As the remaining cases are concentrated within remote ethnic minority communities, this presents unique challenges due to both geographic and social barriers. These hard-to-reach populations have become a focal point of attention, prompting collaborative efforts between the Mekong Malaria Elimination Team, the National Malaria Programme, and the WHO Western Pacific Regional Office (WPRO). Together, they devised a concept note on the Malaria Intensification Plan in 2022, aimed at mobilizing additional resources and implementing innovative strategies tailored to address the specific needs of these communities.

Importantly, there is sustained political commitment and investment among some provinces that are recognized as malaria-free, although such commitment is geographically uneven.

In August 2023, a field assessment led by NIMPE and supported by APLMA and CHAI found that in Nghệ An province, an area that has recently achieved malaria-free status, financial investments in the local malaria programme has remained unchanged at 1 billion Vietnamese Dong (approximately 40,000 USD) for malaria in 2023. In contrast, in Bac Kan province, another malaria-free area, it was found that while provincial authorities committed to allocating an annual amount of 90 to 180 million Vietnamese Dong (approximately 3,700 to 7,400 USD) to malaria in 2023, less than 30% of the committed sum was eventually granted, leading to difficulties in mobilizing domestic resources at the subnational level and risking disruption to POR activities.
To sustain malaria gains even especially in the context of reduced external funding, it is recommended that countries:

1) **Conduct a sustainability and transition assessment early**
   A sustainability and transition assessment facilitates a multi-stakeholder consultative process to evaluate programme strengths and weaknesses in terms of sustainability, helps to identify strategies and actions needed during the transition phase, and encourages discussions on sustainability and transition planning. To reap maximum benefit from such an assessment, it is crucial to plan well ahead of getting a transition grant. While other sustainability assessment tools exist, the SUSTAIN tool has the advantage of having been designed specifically for the context of malaria. As mentioned above, a few GMS countries have already conducted transition and sustainability assessments using the SUSTAIN tool. APLMA can offer support to malaria-eliminating countries in the region to conduct such assessments.

2) **Develop a sustainability roadmap and transition plan**
   The SUSTAIN assessment serves as the first step in preparing a country for the transition out of external funding and support. Following the assessment, further planning on sustainability and transition is necessary. This planning process will lead to the creation of a detailed plan, complete with cost estimates, outlining the strategies that a national malaria programme and their collaborators need to implement to ensure the sustained success of their malaria control efforts in the absence of donor support.

3) **Set up a multisectoral working group**
   As Sri Lanka’s Technical Support Group and China’s whole-of-government experience demonstrate, to effectively combat malaria and its resurgence, it is crucial for stakeholders from different sectors and expertise to unite, share information and resources, and develop comprehensive strategies which address the multifaceted challenges posed by malaria. The formation of a multisectoral working group not only facilitates communication but also serves as a crucial step in cultivating dialogues necessary for crafting an all-encompassing sustainability strategy that accurately reflects the needs and perspectives of each sector involved from the ministry to community-level representation.

4) **Build an investment case**
   Creating a compelling argument for ongoing financial support for malaria involves constructing an investment case to assist the national malaria programme in articulating the significance of its efforts, justifying the need for additional investment. An investment case typically provides a review of the current malaria funding landscape and resource needs, as well as highlighting current funding gaps. It would also estimate the relevant costs and benefits of a malaria programme. APLMA can work with governments in the Asia Pacific in building an investment case malaria elimination and prevention of re-establishment.

5) **Build domestic health financing strategies**
   Thailand’s engagement with LAOs and development of an investment case, as well as the Philippines’ progress towards UHC and innovative use of diverse funding sources, demonstrate the myriad ways countries can strategically mobilize domestic resources for malaria. Their experiences also illustrate the importance and benefits of developing health financing strategies as part of comprehensive health system strengthening efforts. Such strategies are key to sustain, as well as enhance, funding for national malaria responses. APLMA can also offer support on the development and implementation of such strategies.

**Conclusion**

The process of transitioning from donor-supported programmes to self-sustaining ones involves significant multisectoral planning, decision-making and change for countries. Programmes will need to think about obtaining required funding support from domestic sources; adapting and integrating previously donor-funded activities, systems, and personnel into country health systems; as well as developing new governance and partnership models. These are no doubt mammoth yet important tasks. With careful advance planning, the transition can provide a crucial opportunity for the gains made in malaria to be expanded to the broader health system through the effective integration of vertical malaria programme and improved domestic management of health products, health workforce and finances. By proactively planning for transition and sustainability early, countries can ensure the long-term success of their malaria response, as well as a strengthened health system.