



MONITORING AND EVALUATION PLAN FOR PREVENTION OF RE-ESTABLISHMENT OF MALARIA IN BHUTAN

2026-2030

**Vector-borne Disease Control Programme
Communicable Diseases Division, Department of Public Health
Ministry of Health
Royal Government of Bhutan
July 2026**



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in Bhutan 2026 - 2030

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LIST OF ABBREVIATIONS

ABER	Annual Blood Examination Rate
AHB	Annual Health Bulletin
API	Annual Parasite Incidence
DHIS2	District Health Information System
DHO	District Health Officer
DMS	District Malaria Supervisor
FYP	Five-Year Plan
GPMS	Government Performance Management System
GTS	Global Technical Strategy
HA	Health Assistant
HMIS	Health Management Information System
iDES	Integrated Drug Efficacy Surveillance
IRS	Indoor Residual Spraying
IWP	Individual Work Plan
KAP	Knowledge, Attitude and Practice
KGUMSB	Khesar Gyalpo University of Medical Sciences of Bhutan
ITNS	Long Lasting Insecticidal Nets
M&E	Monitoring and Evaluation
MIS	Malaria Indicator Survey
MT	Malaria Technician
NCDE	National Committee for Disease Elimination
NEQAS	National External Quality Assurance Scheme
NIRMMP	National Insecticide Resistance Monitoring and Management Plan
NKRA	National Key Result Area
NMRL	National Malaria Reference Laboratory
NSP	National Strategic Plan
ORC	Outreach Clinics
PHC	Primary Health Centre
PHCB	Population and Housing Census of Bhutan
PoR	PoR
QA	Quality Assurance
RCDC	Royal Centre for Disease Control
TAGPoR	Technical Advisory Group for PoR
VDCP	Vector Borne Disease Control Programme
WHO	World Health Organization

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The VDCP under the Communicable Diseases Division, Department of Public Health, Ministry of Health, in close collaboration with its partners, has developed a Monitoring and Evaluation (M&E) Plan aligned with the National Strategic Plan for the Prevention of Re-establishment of Malaria 2026–2030. This plan will help track progress, ensure accountability, and support informed decision-making for effective prevention of re-establishment of malaria. It will also help identify gaps and challenges in a timely manner so that corrective actions can be taken to sustain Bhutan's malaria-free status.

The Ministry of Health sincerely thanks WHO, SEARO, and the WHO Country Office for leading the development of this important plan. The Ministry also appreciates all stakeholders and partners for their valuable contributions throughout the process. Special thanks are extended to the members of the Technical Advisory Group for Malaria Elimination (TAGME) (Annexure 5) for their expert guidance and inputs in finalizing the document. The Ministry further acknowledges all the individuals (Annexure 6) who contributed to the development of this M&E plan.

The development of this plan was technically led and guided by Professor Rajitha Wickremasinghe, WHO Consultant, whose expertise and support were crucial to its successful completion.

The Ministry also acknowledges the continued financial and technical support from WHO and the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM), which has been vital in sustaining malaria elimination efforts in Bhutan.

This plan is expected to guide coordinated efforts to prevent the re-establishment of malaria in Bhutan. It will also serve as a basis for developing detailed, costed operational plans that align with national priorities and local needs.

EXECUTIVE SUMMARY

Bhutan has achieved zero indigenous malaria since 2022. In the National Strategy Plan (NSP) for the Prevention of Re-establishment (PoR) of Malaria 2026-2030, Bhutan strives to obtain WHO malaria-free certification in 2026 and maintain malaria-free status in the future as part of the broader vision of the Ministry of Health in being “A nation with the best health”. This comprehensive Monitoring and Evaluation (M&E) Plan is developed to facilitate the realization of the stated national goal by keeping track of successes and progress of the activities of the PoR of malaria elimination programme at all levels.

Bhutan has made giant strides in achieving malaria elimination both in its healthcare infrastructure and technical expertise over many years of dedicated service ably supported by the steadfast political and financial commitment. In this ‘last mile’, the country hopes to be certified as malaria-free by WHO and prevent re-establishment of malaria in the future.

The overall objectives of the PoR for malaria to obtain WHO malaria-free certification in 2026; to prevent re-establishment of indigenous malaria transmission from 2026; to prevent deaths due to malaria.

Towards achieving these objectives, action plans have been identified. The strategies are interconnected, mutually inclusive and complementary to each other comprising:

1. Strengthening parasite surveillance,
2. Strengthening entomological surveillance,
3. Strengthening epidemic preparedness, forecasting and early warning systems,
4. Special events surveillance,
5. Strengthening case management,
6. Targeted, focused interventions including vector control,
7. Quality assurance,
8. Upgrading guidelines and SOPs,
9. Strengthening supply chain management,
10. Cross-border collaboration,
11. Strengthening community engagement,
12. Conducting programme reviews,
13. Developing M&E plan,

14. High level advocacy, political and financial commitment, and
15. Operations research.

As the country strives to achieve malaria-free certification and PoR of malaria, an effective and robust M&E system is critical to guide and keep the programme on the right track. The goal of monitoring and evaluation is to improve the effectiveness, efficiency and equity of programmes.

The main objectives of this M&E framework are to:

- Monitor the overall progress of PoR of malaria activities both at the centre and field levels;
- Identify gaps for further improvements of the PoR programme;
- Generate evidence for planning and decision making.
- Improve the effectiveness, efficiency and equity of the PoR programme; and
- Provide feedback to data providers, relevant authorities and partners to improve decision making and future planning.

For effective coordination and implementation of the M&E Plan, two teams will be established at national programme and district level. M&E activities that will be carried out have been identified.

The most significant and measurable indicators that would eventually lead the country to achieve PoR has been identified. Different sets of indicators (input, process, output, outcome and impact indicators) that would enable the programme managers and donors to monitor the performance and progress of PoR and provide necessary and timely guidance and support are included.

A list of key indicators to be collected under the M&E Plan with targets, data collection methods; data collection frequency and responsible entity are summarized in Annexures 2 and 3. The indicators selected for M&E are aligned with the performance framework of the NSP and the revised surveillance guideline.

Routine data collection forms an integral data source for M&E. Bhutan currently collects information from various sources including digital and manual formats. The important data sources include the district health information system 2 (DHIS2), Annual Malaria Reports, Reports of Annual Malaria Review Meetings, Reports of the National Malaria Reference Laboratory, and Reports of Programme Review, Evaluation and Surveys including the population housing census.

For M&E purposes, different sets of data are collected through standardized data collection tools from all levels: community, health facility, surveys and operational research. Standardized forms and guidelines for malaria are in place based on which health workers implement and enter data into the DHIS2 system according to the reporting schedules provided in the malaria surveillance guideline, 2020.

Data collected in the DHIS2 system are analyzed at all levels: health facility, district and national level; the information generated are used for planning and decision-making. At the PHC level, health workers are responsible for data analysis. CMO / District Public Health Officers (DPHO) and District Malaria Supervisors (DMS) are responsible for data compilation and analysis at the district level; they provide necessary feedback to health centres. At the national level, the programme does overall data analysis for both M&E and decision-making purposes. Data analysis is routinely carried out on a monthly, quarterly and annually basis; when needed, need-based analysis is also conducted.

Data quality assurance is based on the concept of 4Cs: completeness, correctness (accuracy), consistency and current (up to date). One health worker from every health centre has been trained on data entry into the DHIS2 system and provided with a laptop computer. The Information Unit at the central programme monitors the data entered by the health workers into the system with respect to all aspects of data quality periodically and provides timely feedback if gaps are found. In addition, routine supervision and monitoring is done by the programme and the District Health office to ensure the quality of the data processed. The local fund agent ensures the quality and accuracy of the data using the tools and guidelines provided by the Global fund.

Capacity building in M&E is a priority need for the malaria PoR programme in Bhutan due to limited capacity. Capacity building will be undertaken in collaboration with Khesar Gyalpo University of Medical Sciences of Bhutan.

The data collected through both systematic and non-systematic channels are used for making informed decisions and necessary adjustments and more importantly for monitoring and evaluation of the malaria interventions. The analyzed information is then disseminated to the relevant stakeholders/agencies and institutes through review meetings, annual reports and activity progress reports etc.

Towards building a strong M & E system for PoR of malaria in Bhutan, activities are rationalized and prioritized along with the estimated budget, timeline and responsible bodies/officials provided in the Annexures 1-3. The M & E work plan for 5 years is developed and costed as given in Annexure 4.

1. INTRODUCTION

An effective and robust monitoring and evaluation (M&E) system is necessary to measure the success and progress of the National Strategy Plan (NSP) for Prevention of Re-establishment (PoR) of malaria in Bhutan.

“Monitoring” is the routine collection and use of data on programme implementation (weekly, monthly, quarterly or annually); its aim is to ensure that programmes are working optimally. If programmes are not functioning as planned, necessary adjustments can be made using monitoring data. Monitoring is an integral part of the planning process and often includes use of administrative data to track inputs, processes and outputs; programme outcomes and impacts.

“Evaluation” is a more comprehensive assessment of a programme and is normally undertaken at discrete times addressing the longer-term outcomes and impacts of programmes. The goal of monitoring and evaluation is to improve the effectiveness, efficiency and equity of programmes. Therefore, M&E allows the programme managers and partners to monitor the implementation of planned activities in terms of input, output, and the outcome within a coherent framework. It also helps managers to allocate resources, assess performance and demonstrate impact. According to the World Health Organization, M&E comprises the following major functions:

- Regularly assessing whether plans are progressing as expected or whether adjustments are required to the intervention or combination of interventions;
- Allocating resources to the populations most in need in order to achieve the greatest possible public health impact;
- Accounting for the funding received to allow the public, their elected representatives and donors to determine whether they are obtaining value for money;
- Evaluating whether programme objectives have been met and to learn what has worked and what has not, so that more efficient, effective programmes can be designed;
- Advocating for investment in malaria programmes in accordance with the malaria disease burden in a country or subnational area; and
- Tracking progress toward elimination and PoR of malaria.

Bhutan has achieved zero indigenous malaria since 2022. In the NSP for the PoR of malaria 2026-2030, Bhutan strives to obtain WHO malaria-free certification in

2026 and maintain malaria-free status in the future as part of the broader vision of the Ministry of Health in being “A nation with the best health”. This comprehensive M&E Plan is developed to facilitate the realization of the stated national goal by keeping track of successes and progress of the activities of the PoR of malaria elimination programme at all levels.

1.1 Country Profile

Bhutan is a landlocked country of 38,394 square kilometers, nestled in eastern Himalayas bordered by India in the west, south and east, and China in the north, with a projected population of 784,043 in 2025 (National Statistics Bureau, 2019). The entire country is mountainous with flat land limited to the southern borders. The country has an estimated forest cover of over 70 percent with rich biodiversity. Administratively, Bhutan is divided into 20 dzongkhags (districts) and 205 gewogs (blocks) with each gewog further divided into 5-8 chiwogs (sub-blocks).

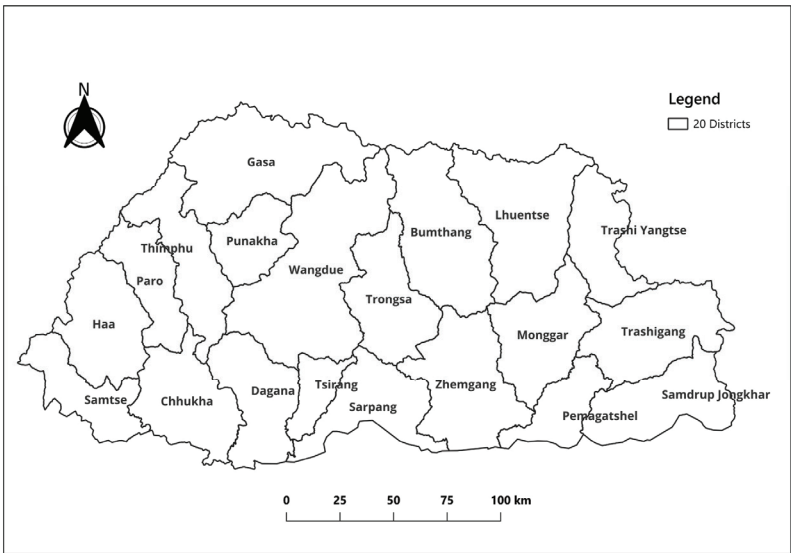


Figure 1: Map of Bhutan showing 20 districts

The form of governance is a Democratic Constitutional Monarchy with the King as the head of the state; the elected Prime Minister is the head of the government. Bhutan transitioned into constitutional democracy in 2008. The country has already witnessed four national parliamentary elections with the most recent one being held in 2023.

1.2 National Health System

Health care services are provided free-of-charge for Bhutanese citizens through a 3-tiered system; 1) primary (block & community level) provided by the Primary Health Care centres (PHCs), Sub-posts and Outreach Clinics (ORCs); 2) Secondary level (District level) provided by district level hospitals; and 3) tertiary level (national and regional level) provided by national and regional referral hospitals.

Modern healthcare in Bhutan formally began in the 1960's with expansion and institutionalization starting with only two hospitals and eleven dispensaries for the whole country in 1961. Under the dynamic and visionary leadership of successive Kings, the modern health system progressed and developed rapidly over the last 5 decades; today there are 193 PHCs, 50 sub-posts and 479 ORCs at primary level, 59 hospitals at secondary level and three referral hospitals at the tertiary level, spread across the country (Annual Health Bulletin 2025). Today approximately 95 percent of the population live within three hours walking distance from the nearest health facility.

Article 9, section 21 of the constitution of Bhutan guarantees, “The provision of free access to general and public health services in both modern and traditional medicines ensuring access, equity and quality health service” for its citizens in the country. The Ministry of Health has adopted a broad vision to become “A Nation with the best health”. Moreover, the Ministry of Health is endeavouring continuously towards strengthening the healthcare system and has put forth the following missions to:

1. Provide quality healthcare services in both traditional and modern medicines;
2. Prevent, control, eliminate and eradicate diseases;
3. Rehabilitate and promote healthy living; and
4. Ensure sustainable, responsive, equitable, accessible, reliable and affordable health services

Bhutan witnessed notable improvements in several key health workforce indicators over the five-year period. The number of doctors increased steadily from 336 in 2020 to 411 in 2024, corresponding to an increase in the doctor population ratio from 4.62 to 5.29 per 10,000 population. General Specialists and Sub-Specialists comprise 177 professionals with a majority being male (111 males and 66 females). There are 173 Medical Officers (MS/CMO/MO/GDMO) comprising 85 males and 88 females (Annual Health Bulletin, Ministry of Health, 2025).

Similarly, the number of Drungtshos (Traditional Medicine physicians) increased from 52 to 74, and Menpas (Traditional Medicine assistants) rose significantly from 137 to 196, reflecting a growing emphasis on integrating traditional medicine into the national health system. The number of pharmacists increased from 42 to 48.

Despite these improvements, trends of some key indicators declined or fluctuated. The number of nurses, while still forming a vital part of the workforce, decreased slightly from 1617 in 2023 to 1572 in 2024, resulting in a decrease in the nurse population ratio from 20.9 to 20.2 per 10,000 population. More significantly, the number of Health Assistants (HAs) declined from 650 in 2020 to 580 in 2023; in 2024 there were 7.4 HAs per 10,000 population, a concerning trend given their critical role in primary healthcare delivery. These reductions may have implications for front-line service capacity, particularly in rural and under-served areas; it is recommended that targeted workforce retention and recruitment strategies for these essential categories be implemented at the earliest (Ministry of Health, 2025).

Overall, the total healthcare workforce comprises 6,891 personnel comprising 3,469 males and 3,422 females, highlighting the diversity and inclusivity in the sector.

1.3 Healthcare Infrastructure

Healthcare infrastructure, comprising hospitals, primary health centres (PHCs), and smaller health outposts, serves as the backbone of an effective healthcare system. It ensures that individuals have access to timely and quality medical services, including emergency care, routine consultations, and preventive health programmes. Well-equipped facilities with adequate beds, diagnostic tools, and surgical units enable seamless healthcare delivery, reducing barriers to access and improving overall public health. Strengthening healthcare infrastructure is crucial for minimizing disparities, enhancing patient outcomes, and building a more resilient and efficient healthcare system.

There is a total of 59 hospitals in the country. There are 193 PHC/Thromde Health Centres (THC) centres (including 5 THC in Thimphu and 1 in Phuentsholing). Additionally, there are 50 sub-posts, which serve as smaller healthcare units extending services to rural communities. Outreach clinics (ORCs) play a crucial role in providing healthcare access in remote areas. They are categorized based on infrastructure, with 479 ORCs having sheds and 76 operating without sheds.

1.4 Vector Borne Disease Control Programme

The national Vector-Borne Disease Control Programme (VDCP) is based at Gelephu under Sarpang Dzongkhag in the southern belt of the country. The programme is one of the oldest programmes under the Department of Public Health, Ministry of Health established in 1964 mandated for prevention and control of vector borne diseases in the country. Currently, the programme is manned by 16 staff at the central level supported by 31 Malaria Technicians (MT) in 7 malaria risk dzongkhags as shown in Figure 2.

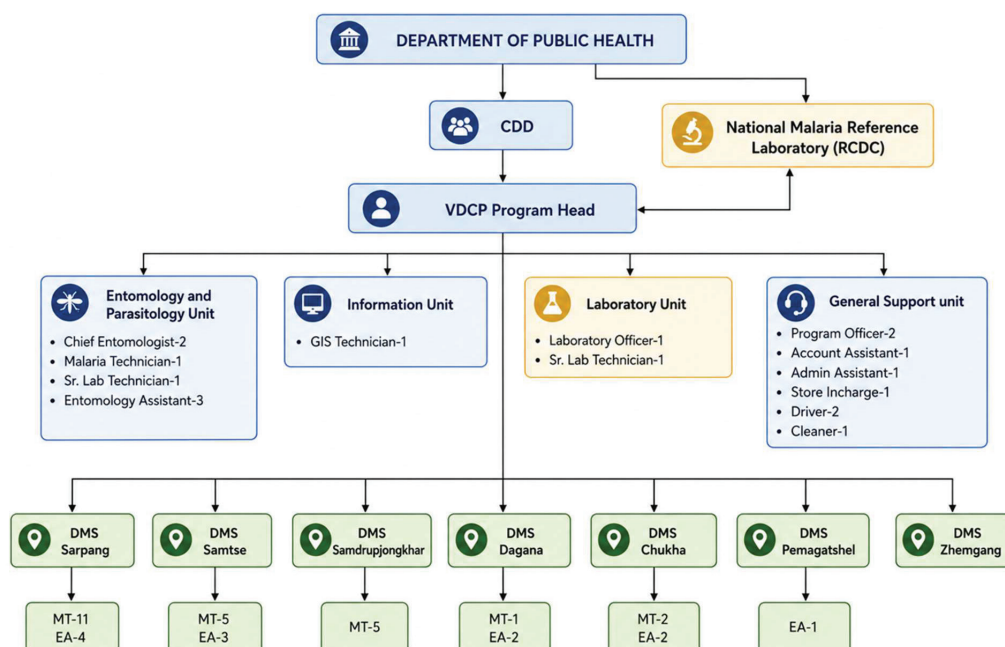


Figure 2: Organogram of Vector Borne Disease Control Programme (VDCP)

2. NATIONAL STRATEGIC PLAN FOR POR OF MALARIA IN BHUTAN

With sustained political and financial commitment, Bhutan has already achieved zero indigenous cases of malaria since 2022. Today, the country is at the threshold of achieving malaria-free certification from the WHO in 2026 and maintaining malaria-free status in the future in keeping with the national vision of “A Nation with the Best Health”.

2.1 Vision

Sustaining a malaria- free Bhutan.

2.2 Mission

To sustain malaria elimination gains through integrated vector-borne disease surveillance, effective case management, targeted vector control interventions, strengthened preparedness and response capacities, and sustained commitments from the government, communities and partner

2.3 Goal

To prevent the re-establishment of malaria transmission and maintain Bhutan's malaria-free status.

2.4 Objectives

1. To obtain WHO malaria-free certification in 2026
2. To prevent re-establishment of indigenous malaria transmission from 2026 onwards.
3. To prevent deaths due to malaria.

Towards achieving these objectives, action plans have been identified which strengthen monitoring and evaluation of the PoR of malaria programme. The strategies are interconnected, mutually inclusive and complementary to each other comprising:

1. Strengthening parasite surveillance;
2. Strengthening entomological surveillance;
3. Strengthening epidemic preparedness, forecasting and early warning systems;
4. Special events surveillance;
5. Strengthening case detection and management;
6. Targeted and focused interventions including vector control;
7. Quality assurance;
8. Upgrading guidelines and SOPs;
9. Strengthening supply chain management;
10. Cross-border collaboration;

11. Strengthening community engagement;
12. Conducting programme reviews;
13. Developing M&E plan;
14. High level advocacy, political and financial commitment; and
15. Operations research.

2.5 Implementation Approach

Similar to the implementation of other health services, malaria services including core vector control interventions like insecticide-treated nets (ITNs) distribution and indoor residual spray (IRS) are decentralized to the health centres in the malaria risk areas spearheaded by the Malaria Technicians. Similarly, District Malaria Supervisors (DMS) in collaboration with the District Health Officers (DHO) and in-charge officers of health centres are responsible for planning, implementing and monitoring all malaria activities at the field/district level. The national VDCP is responsible for providing directions and necessary technical support ranging from logistics and supplies to capacity building of health workers. Furthermore, the central programme is mandated to mobilize adequate and timely resources to the field staff to carry out the control activities to achieve and maintain zero indigenous cases to obtain malaria-free certification and maintain malaria-free status to prevent the future re-establishment of malaria in Bhutan. The role of the programme extends to building linkages with the key institutions and stakeholders to garner necessary support.

3. MONITORING AND EVALUATION (M&E) FRAMEWORK

As the country strives to achieve malaria-free certification and PoR of malaria, an effective and robust M&E system is critical to guide and keep the programme on the right track. The goal of monitoring and evaluation is to improve the effectiveness, efficiency and equity of programmes. They are critical to achieving the goals of national programmes and tracking progress towards regional and global objectives. A sound M&E framework allows programme managers and partners to monitor the implementation of planned activities in terms of input, output, and the outcome within a coherent framework. It also helps the managers to allocate resources, assess performance and demonstrate impact. An effective monitoring and evaluation system can capture data in an organized and cost-effective way and will contribute to more efficient allocation of resources for disease-specific activities.

3.1 Objectives of M&E Framework

The main objectives of this M&E framework are to:

- Monitor the overall progress of PoR of malaria activities both at the centre and field levels;
- Identify gaps for further improvements of the PoR programme;
- Generate evidence for planning and decision making.
- Improve the effectiveness, efficiency and equity of the PoR programme; and
- Provide feedback to data providers, relevant authorities and partners to improve decision making and future planning.

The M&E framework given in Figure 3 will be used.

3.2 Monitoring and Evaluation Structure and Roles

The monitoring and evaluation of PoR activities and indicators will be carried out primarily at three levels- national, programme and district levels to keep check and balance at each level. For effective coordination and implementation of the M&E Plan, two teams will be established at programme and district level. Monitoring and Evaluation activities will be carried out as indicated below.

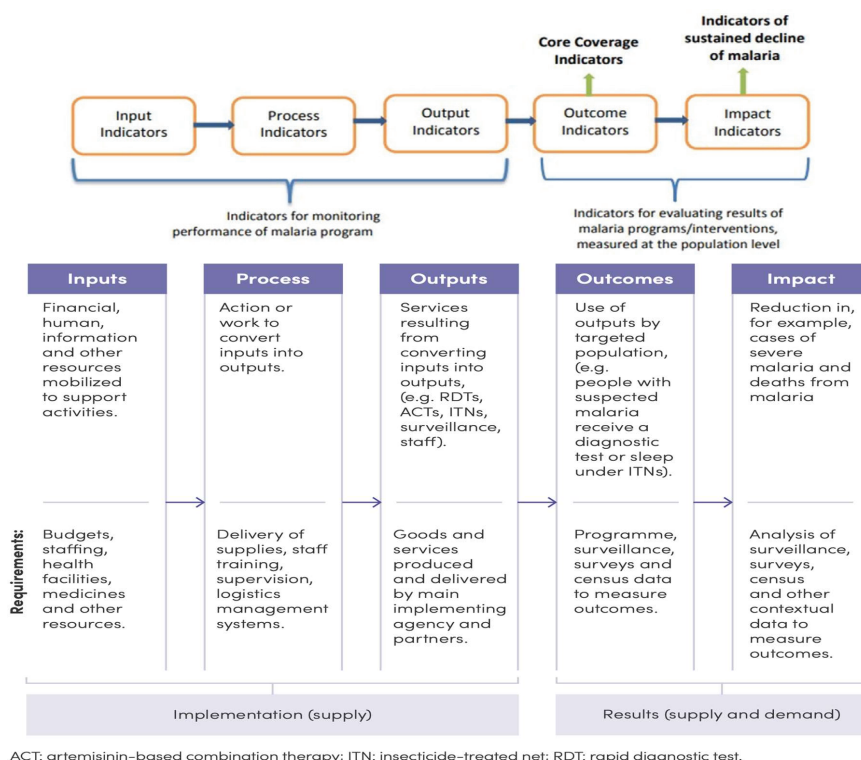


Figure 3: Monitoring and evaluation framework: from input to impact (WHO, 2025)

3.3 Malaria Risk Districts

3.3.1 High Risk Districts

In malaria risk districts, annual monitoring and supervision visits to the fields will be carried out by the district M&E team comprising program officials, DPHO, CMO and DMS using a structured checklist (Annexure 1) and a report will be sent to the programme management. At the programme level, the M&E team will review, analyze and provide necessary feedback and recommendations. In addition, the central programme review team will identify health facilities that are performing poorly and conduct additional annual monitoring for necessary improvement. At least 60 percent of randomly selected health centres will be covered in the respective districts. Similarly, at least two Community Action Groups (CAG) under each health centre will be monitored if CAGs exist.

3.3.2 Potential and No Risk Districts

In potential malaria districts and in no-risk districts, annual monitoring will be conducted by the programme in collaboration with the DPHO and CMO.

Table 1: District, programme and national level M&E framework

M & E level	What will be monitored? (M & E components)	Who will monitor? (Responsible official)	How will it be monitored? (Mechanism)
District level	Planning and implementation of PoR activities at the field level	PO/DPHO/DMS/CMO	Through IWP, activity reports/ records
	Monitoring of CAG activities	PO/DPHO/DMS/CMO	Activity reports/ field visits
	Timeliness of reporting by the field workers	PO/DPHO/DMS/CMO	DHIS2, field verification
	Completeness of documents (case files)	PO/DPHO/DMS/CMO	DHIS2, field verification
	Laboratory QA system	PO/DPHO/DMS/CMO/ LO	Field visits/DHIS2
	Logistics and supplies at the field level	PO/DPHO/DMS/CMO	DHIS2, field verification

M & E level	What will be monitored? (M & E components)	Who will monitor? (Responsible official)	How will it be monitored? (Mechanism)
Programme level	Planning and implementation of malaria activities at district level	M & E team	Activity reports
	Monitoring and supervision by the district		Field visit reports
	Coverage of core malaria interventions		DHIS2/field reports
	Completeness of documents (case files)		DHIS2/field visits
	Logistics and supplies at the district level		DHIS2/field visits
	Data analysis and usage at the district level		Field visits/Annual reports
	Entomological surveillance and reports		DHIS2/field visits
National level	• PoR activities • Performance indicators	TAGPoR	Programme reviews/field verification and validation reports

Technical Advisory Group for PoR of Malaria (TAGPoR) will independently carry out annual evaluation of M&E indicators and provide necessary recommendations to the programme.

3.4 Indicators and Measurement

For effective M&E, the most significant and measurable indicators need to be selected that would eventually lead the country to achieve PoR. This will require different sets of indicators that would enable the programme managers and donors to monitor the performance and progress of PoR and provide necessary and timely guidance and support. Indicators to be considered for M&E generally include input, process, output, outcome and impact indicators (Figure 3).

A list of key indicators to be collected under the PoR M&E plan with targets, data collection methods; data collection frequency and responsible entity are summarized in Annexures 2 and 3. The indicators selected for M&E are aligned with the performance framework of the NSP and the revised surveillance guideline.

3.5 Sources of Data

Routine data collection forms an integral data source for M&E. Bhutan currently collects information from various sources including digital and manual formats. The important data sources are listed below:

3.5.1 District Health Information System 2 (DHIS2)

Bhutan has transitioned from the conventional method of reporting to a web-based reporting system (DHIS2) for malaria which is integrated with the national Health Management and Information System (HMIS). The system was formerly rolled out in all the health centres across the country in 2019 during which more than 300 health workers were trained on Malaria Tracker Capture. The health workers report both suspected and positive cases on a daily basis. The new system was further revised in 2020 to incorporate comments from the health workers and experts and include entomological components; the ability to generate essential reports was also included. Eleven new modules were added to the two already existing modules in the system in 2021; of these, 8 modules comprised entomological components and 3 were for aggregate reporting. More than 200 health workers from across 259 health facilities were trained on the revised system.

To further strengthen the reporting system, the programme procured and distributed laptops to all health facilities (183 PHCs, 51 hospitals, 3 THCs & 3 sub-posts) in 2021. Currently, the revised system can monitor the inventory of essential anti-malarial drugs and test kits at the facility level, and monthly quality assurance of microscopy through testing of malaria panel slides. The DHIS2 system is now the main data source for the VDCP, and almost all indicators can be monitored through the system. The schedule of reporting from health centres is given in Table 2.

Table 2: Reporting components and schedule for malaria

Sl. no	Reporting components	Periodicity	Reporting time frame
1	Confirmed positive cases	Daily	Within 24 hours
2	Monthly Malaria Reporting	Monthly	1st week of the succeeding month
3	Quarterly Supplies Update	Quarterly	1st week of the first month of the succeeding quarter
4	Malaria screening report	As and when conducted	Within one week of completion
5	VC-ITN campaign*	Every 3 years	Within 2 weeks of the succeeding year

Sl. no	Reporting components	Periodicity	Reporting time frame
6	VC-IRS campaign in high malariogenic areas ¹	Bi-annually	Within 2 weeks of the succeeding month
7	VC-IRS residual efficacy monitoring ¹	Quarterly	Within 2 weeks of the succeeding month
8	VC-ITN-Bioefficacy	Quarterly	Within 2 weeks of the succeeding month
9	Adult surveillance	As and when conducted	Within one week of completion
10	Larval surveillance	As and when conducted	Within one week of completion
11	Susceptibility test	Annually	Within 2 weeks of the succeeding year
* Based on epidemiological stratification			

At the national level, the HMIS team at the Ministry and the Information Unit monitors the programme for data quality (completeness, consistency and timeliness of the reports from the health centres) and provides timely feedback. Data are analyzed at the programme level periodically for planning and monitoring purposes.

Electronic Patient Information System(ePIS) is being used across all health facilities. Possibilities on integration of data from DHIS2 and ePIS will be explored.

3.5.2 Annual Malaria Report

Annual reports are one of the prerequisites of the WHO elimination and PoR of malaria. The VDCP publishes and maintains annual malaria reports which provide important information on the elimination and PoR progress ranging from programmatic interventions, changes in the epidemiology of malaria in the country and other activities that impacted on the programme during the year. These reports help to keep track of both past and present activities and make necessary adjustments if required. Annual reports also help programme managers and donor agencies to review and self-assess malaria interventions for timely interventions. The annual reports provide information to compile the country report for malaria-free certification.

The VDCP started releasing annual malaria reports since 2007 with the latest one in 2024.

3.5.3 Reports of Annual Malaria Review Meetings

Annual malaria review meeting of the TAGME is a platform to bring on board all relevant stakeholders to assess programme performance and progress; identify gaps and challenges and discuss the way forward to further improving the performance of the programme. This also provides an opportunity to discuss and solve the implementation bottlenecks together with the relevant stakeholders and authorities. The overarching recommendations that come out of the review meetings are duly followed up and implemented at all levels.

3.5.4 Reports of the National Malaria Reference Laboratory

The National Malaria Reference Laboratory (NMRL) was established in 2019 at the Royal Centers for Disease Control (RCDC) as an independent entity to monitor and provide technical assistance to improve Quality Assurance (QA) on malaria diagnosis. The NMRL is still developing; it initially began with implementation of NEQAS (National External Quality Assessment Scheme) system on malaria microscopy to facilitate and coordinate quality improvement through NEQAS assessment such as MP blinded re-checking, Panel Testing and onsite monitoring and supervision across health centres.

The annual QA report produced by the NMRL provides an overall assessment of the quality of malaria diagnostic services across the country and the capacity of laboratory personnel who usually conduct malaria microscopy and RDT tests. Besides the QA report, NMRL also produces technical reports on malaria panel testing, integrated Drug Efficacy Surveillance (iDES) and monitoring and supervision reports. The information and recommendations of these reports are routinely used in decision making, planning processes, and more importantly, for improvement of malaria related services and interventions.

3.5.5 Reports of Programme Review, Evaluation and Surveys

3.5.5.1 Population and Housing Census

At the National level, a population and housing census is conducted every 10 years by the National Statistical Bureau of Bhutan, the most recent being conducted in 2017. The information from this national survey is used for planning and targeting malaria interventions like ITNs distribution and IRS, for epidemiological stratification of the malaria situation and updating denominators of indicators.

3.5.5.2 Five-Year Plan Review

Guided by Bhutan's national development philosophy of Gross National Happiness, Bhutan follows a Five-Year Plan (FYP) development framework. The current FYP is the 13th in series (2024-2029) and has 17 National Key Result Areas (NKRAs). Therefore, FYP is a guiding document for planning, monitoring and evaluation of the country's overall success and performance of the developmental activities and across the sector. The Prime Minister reviews the overall implementation of the planned activities through reviews.

Bhutan's development framework, guided by Gross National Happiness (GNH), uses Five-Year Plans (FYPs) for strategic economic and social progress, with the current 13th FYP (2024-2029) focusing on transitioning to a high-income economy by 2034 through transforming the agrifood sector, boosting economic growth (7-8% target), digital innovation, green development (like solar energy, sustainable transport), job creation, and public sector reform, all while maintaining environmental sustainability (carbon neutrality with 60% forest cover). This plan integrates a 10-year strategic vision, a four-cluster approach for implementation, and key performance indicators (KPIs) like reducing youth unemployment and trade deficit, supported by partners like the World Bank and UN.

The 13th Five-Year plan from 2024-2029 recognises the following key pillars and focus areas:

- Economic transformation shifting towards a high-income economy, diversifying markets, fostering innovation through private sector growth;
- Focusing on the agrifood sector aiming for growth, value chains and food security;
- Green growth emphasizing on sustainable energy(solar/wind), green tourism, water management, and maintaining carbon neutrality;
- Job creation addressing youth unemployment through new industries, digital economies and fostering entrepreneurship
- Integration with Gross National Happiness (GNH) balancing economic goals with cultural preservation, environmental protection and good governance; and

Bhutan aims to become a high-income by 2034. The targets include an 8% GDP growth, <5.8% youth unemployment and reducing the trade deficit. It is expected that a smoother transition will be established to move from a least developed country supported by UN agencies such as UNDP, WFP and the World Bank group.

3.5.5.3 Programme Review

The external programme review is conducted every 3-5 years, and it is jointly carried out with WHO with the main objective to review the implementation status and further guide the strategic shifts in malaria implementation approaches from elimination to prevention of re-establishment. The last malaria programme review conducted was in mid-2025; the recommendations of the programme review were used to formulate the NSP 2026-2030 and the M&E plan for this NSP cycle, revise the malaria surveillance guideline and forms. It is proposed that a programme review (either external or internal) be conducted in 2028 to fine tune the PoR programme if necessary and to develop the NSP for beyond 2030.

3.5.5.4 Malaria KAP and Indicator Surveys (MIS)

The effectiveness of malaria interventions largely depends on knowledge, attitude and practice of the end users. Malaria KAP and indicator surveys have been routinely used to target and fine tune malaria interventions. These KAP surveys and Malaria Indicator Surveys (MIS) are more suited for control and elimination phases and are generally conducted every three years to determine the reach of the implementation strategies to the key population and to identify the gaps for making programmatic shifts. This is also one of the methods used to measure the impact and outcome indicators. In the PoR phase, the relevance of KAP and malaria indicator surveys are limited but have been retained for special situations in monitoring foci.

3.6 Entomological Surveillance

Sentinel site surveillance is a key aspect of M&E of entomological surveillance and vector control interventions like ITNs and IRS. It is necessary to monitor the effectiveness of vector control interventions in addition to its coverage. VDCP has strategically identified 8 sentinel sites in 5 districts (4 in Sarpang, 1 each in Samtse, Samdrup Jongkhar, Dagana and Zhemgang respectively) under the National Insecticide Resistance Monitoring and Management Plan (NIRMMP) which has been implemented since 2022. The reports of these surveillance activities including ITNs, IRS and vector components are now integrated in the revised web-based reporting system (DHIS2).

3.7 Data Collection and Management

For M&E purposes, different sets of data are collected through standardized data collection tools from all levels: community, health facility, surveys and operational research. Standardized forms and guidelines for malaria are in place based on which health workers implement and enter data into the DHIS2 system according

to the reporting schedules provided in the malaria surveillance guideline, 2020.

Data collected in the DHIS2 system are analyzed at all levels: health facility, district and national level; the information generated are used for planning and decision-making. At the PHC level, health workers are responsible for data analysis. Chief Medical Officers (CMO)/ District Public Health Officers (DPHO) and District Malaria Supervisors (DMS) are responsible for data compilation and analysis at the district level; they provide necessary feedback to health centres. At the national level, the central programme does overall data analysis for both M&E and decision-making purposes. Data analysis is routinely carried out on a monthly, quarterly and annually basis; when needed, need-based analysis is also conducted.

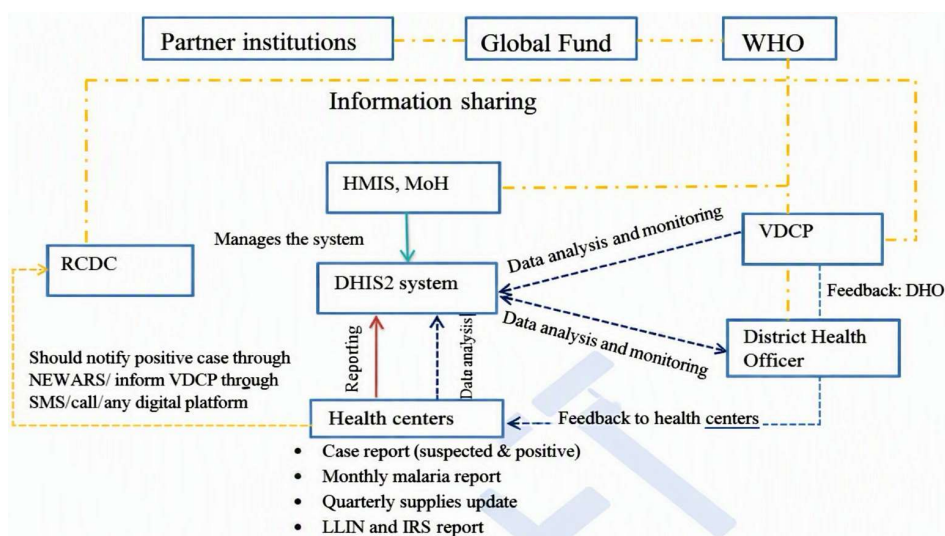


Figure 4: Information and data management flow chart

3.8 Data Quality Assurance Mechanism and Related Supportive Supervision

Data quality assurance is based on the concept of 4Cs: completeness, correctness (accuracy), consistency and current (up to date). One health worker from every health centre has been trained on data entry into the DHIS2 system and provided with a laptop computer. The Information Unit at the central programme monitors the data entered by the health workers into the system with respect to all aspects of data quality periodically and provides timely feedback if gaps are found. In addition, routine supervision and monitoring is done by the programme and the District Health Office to ensure the quality of the data processed. The Local Fund Agent (LFA) ensures the quality and accuracy of the data using the tools and guidelines provided by the Global fund.

4. M&E COORDINATION

VDCP monitors and analyses information through the DHIS2 web-based reporting system. To ensure effective coordination among implementing partners and oversight bodies, the VDCP conducts malaria review meetings at different levels annually/quarterly/bi-annually and on need-basis to review, plan and discuss implementation bottlenecks.

In addition, two oversight bodies were established in 2019, the National Committee for Disease Elimination (NCDE) and the TAGME to provide strategic guidance and technical back up to the VDCP for malaria elimination. The TAGME may now be renamed as the Technical Advisory Group for PoR of Malaria (TAGPoR) to make it more relevant.

5. CAPACITY BUILDING

Capacity building in M&E is a priority need for the malaria PoR programme in Bhutan due to limited capacity. Capacity building will be undertaken in collaboration with national and international institutional partners such as KGUMSB. The VDCP has already initiated collaborations with the University where the programme supports field attachments of final year pre-service trainees of Health Assistants (HA) and Laboratory Technicians. The first batch of medical entomology technicians commenced in 2022 and is expected to be continued in the future.

Besides institutional-based capacity building programmes, the VDCP also provides regular refresher training on malaria microscopy diagnosis, malaria case management, web-based reporting system and malaria surveillance to the health workers across the country.

6. INFORMATION PRODUCTS, DISSEMINATION AND USE

The data collected through both systematic and non-systematic channels are used for making informed decisions and necessary adjustments and more importantly for monitoring and evaluation of the malaria interventions. The analyzed information is then disseminated to the relevant stakeholders/agencies and institutes through review meetings, annual reports and activity progress reports etc. The Ministry of Health publishes an Annual Health Bulletin which contains various sets of information at the national level. Similarly, VDCP also produces annual malaria reports and distributes them to relevant agencies/authorities. The RCDC also publishes a quarterly bulletin and annual scientific report including NEQAS which covers malaria and other vector borne diseases. The program also shares information with the WHO for producing annual malaria reports.

7. MONITORING AND EVALUATION COSTED WORK PLAN AND BUDGET

Towards building a strong M & E system for PoR of malaria in Bhutan activities are rationalized and prioritized along with the estimated budget, timeline and responsible bodies/officials provided in the Annexures 1-3. The M & E work plan for 5 years is developed and costed as given in Annexure 4.

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1. Ministry of Health (2025). Annual Health Bulletin 2021, Ministry of Health, Royal Government of Bhutan.
2. WHO (2018): Malaria Surveillance, Monitoring and Evaluation- A reference manual
3. Strategic Plan for Elimination of Malaria and Prevention of Re-introduction in Bhutan 2020-2025
4. Monitoring and Evaluation Plan 2015-2020, Bhutan
5. National Statistics Bureau. Population Projections of Bhutan 2007 – 2047. Royal Government of Bhutan, Thimphu, 2019
6. WHO (2025): Malaria surveillance, monitoring and evaluation- A reference manual, second edition

ANNEXURE 1: INTEGRATED M&E CHECKLIST FOR MALARIA

Name of visiting officials:			
Sl. no	Name	Designation	Date of visit:
			Dzongkhag:
			Health centre:

Officials contacted during your visit:		
Sl. no	Name	Designation

Sl. no	Checklist Category		Remarks
1. Human resource and Capacity Development			
i	Did any staff from your health facility receive malaria case management training at least once within the last 3 years?	Yes [] No [] NA []	
ii	Did any staff of your health facility receive malaria microscopy training at least once within the last 3 years?	Yes [] No [] NA []	
iii	Did any staff of your health facility receive DHIS2 training at least within the last 3 years?	Yes [] No [] NA []	
iv	Did any staff of your health facility receive malaria surveillance training at least once within the last 3 years?	Yes [] No [] NA []	
v	Did any staff of your health centre receive training on vector surveillance at least once within the last 3 years?	Yes [] No [] NA []	

Sl. no	Checklist Category	Remarks
2. Availability of Required Documents/Manuals/SOPs		
iii	QA manual is available (2021)	Yes ☐ No ☐ NA ☐
iv	Malaria case surveillance forms (revised version 3) are available	Yes ☐ No ☐ NA ☐
v	SOP for malaria microscopy and RDT (2021)	Yes ☐ No ☐ NA ☐
vi	Malaria vector surveillance guideline (2nd Edition)	Yes ☐ No ☐ NA ☐
vii	In-house SOP for malaria microscopy	Yes ☐ No ☐ NA ☐
3. Laboratory System Related to Malaria		
i	BTC log book is maintained daily	Yes ☐ No ☐ NA ☐
ii	Does the health facility have a laboratory facility?	Yes ☐ No ☐ (if No, skip to section 4)
iii	Monthly cross-checking of blood slides submitted	Yes ☐ No ☐ NA ☐
iv	Feedback on monthly cross-checking received	Yes ☐ No ☐ NA ☐
v	Average score of parasite detection for the last 3 months.	
Vi	Average score of parasite species identification for the last 3 months	
vii	Average score of parasite stage for the last 3 months	
viii	Average score of parasite count for the last 3 months	
ix	Average score of blood film for the last 3 months	
x	Average score of staining for the last 3 months	
xi	Any actions for improvement recommended from monthly cross-checking slides	Yes ☐ No ☐
xii	Corrective Actions Form maintained as per the feedback/recommendation from NMRL	Yes ☐ No ☐
xiii	Functional microscope is available	Yes ☐ No ☐

Sl. no	Checklist Category		Remarks
xiv	Microscope maintenance log book is available	Yes [] No []	
xv	Microscope maintenance is documented in the laboratory maintenance log.	Yes [] No []	
xvi	Malaria laboratory reagent		
	a. Giemsa stock stain is available	Yes [] No []	
	b. Methanol AR Grade is available	Yes [] No []	
	c. Blood slides are available	Yes [] No []	
	d. Immersion oil is available	Yes [] No []	
xvii	RDT kits are properly stored in a cool place away from direct sun light	Yes [] No []	
xviii	RDT kits are WHO pre-qualified	Yes [] No []	
xix	Internal audit conducted as per the IQC checklist	Yes [] No []	
xx	Corrective Action Form is maintained based on internal audit	Yes [] No []	
xxi	Received the panel slides from malaria reference laboratory within last 6 months	Yes [] No []	
xxii	Participated in the panel testing	Yes [] No []	
xxiii	Feedback on panel testing received	Yes [] No []	
xxiv	Any actions for improvement recommended from the panel slide testing	Yes [] No []	
xxv	Corrective Actions Form maintained as per the feedback/recommendation from NMRL	Yes [] No []	
xxvi	On-site monitoring and supervision on QA for Malaria by malaria reference laboratory within the last 6 months	Yes [] No []	
xxvii	Feedback received from the QA monitoring	Yes [] No []	
xviii	Any actions for improvement recommended from the QA monitoring	Yes [] No []	
xxix	Corrective Actions Form maintained as per the feedback/recommendation from QA monitoring	Yes [] No []	
4. Logistics and Supplies			
i	Stock register is properly maintained and up to date	Yes [] No []	
	Vector Control Tools		
ii	Does the health facility distribute ITNS?	Yes [] No []	

Sl. no	Checklist Category		Remarks
iii	Number of ITNSs in stock:	Yes [] No []	
iv	ITNSs are properly stored	Yes [] No []	
v	ITNS distribution record is properly maintained and up to date	Yes [] No []	
vi	Does the health centre do Indoor Residual Spraying?	Yes [] No []	
vii	Total chemical in stock:		
viii	IRS record is properly maintained and up to date	Yes [] No []	
ix	Number of functional spray pumps:		
x	Spray pumps are properly maintained	Yes [] No []	
Essential anti-malarial drugs and test kits *“within expiry date” refers to drugs/kits that are not expired.			
I	ACT within expiry date	Yes [] No [] Not in stock []	
ii	Tab Chloroquine within expiry date	Yes [] No [] Not in stock []	
iii	Tab Primaquine within expiry date	Yes [] No [] Not in stock []	
iv	Inj. Artemether/Artesunate within expiry date	Yes [] No [] Not in stock []	
v	Inj. Quinine within expiry date	Yes [] No [] Not in stock []	
vi	Malaria Rapid Diagnostic Test kit within expiry date	Yes [] No [] Not in stock []	
5. Planning and Implementation of Prevention and Control Activities			
i	Does the health facility conduct malaria control activities?	Yes [] No []	If No, skip to section 6
ii	Malaria vector surveillance is reflected in IWP	Yes [] No []	
iii	Vector surveillance is carried out as per IWP	Yes [] No []	
iv	IRS is reflected in IWP	Yes [] No []	
v	IRS conducted as per IWP	Yes [] No []	
vi	ITNS distribution is reflected in IWP	Yes [] No []	
vii	ITNS distribution done as per IWP	Yes [] No []	

Sl. no	Checklist Category		Remarks
viii	Case-based focus investigations is reflected in IWP	Yes [] No []	
ix	Focus investigations conducted (if positive cases are detected)	Yes [] No []	
x	Community-based fever surveillance is included in IWP	Yes [] No []	
xi	Fever surveillance conducted as per IWP	Yes [] No []	
xii	Proactive case detection is included in IWP	Yes [] No []	
xiii	Proactive case detection conducted as per IWP	Yes [] No []	
6. Completeness of malaria case documentation			
i	Did your health centre detect any malaria case in the previous year? Yes [] No [] (If No, skip to sl. no. xiii and 7- iv & v)		
ii	Number of confirmed malaria cases:		
iii	Number of cases with individual case file:		
iv	Number of case files with case summary reports:		
v	Number of case files with duly filled notification form:		
vi	Number of case files with copy of verification of diagnosis by Level I/II microscopist:		
vii	Number of case files with duly filled follow up and treatment form:		
viii	Number of case files with duly filled case investigation form:		
ix	Number of case files with duly filled focus investigation form:		
x	Number of case files with duly filled RACD form:		
xi	Number of case files with a case GIS map:		
xii	Number of case files with a focus follow up:		
xiii	Foci register updated for the previous year	Yes [] No [] NA []	
Issues and Challenges:			

Sl. no	Checklist Category	Remarks
Meeting with Community Action Group (CAG)		
Gewog: Chiwog: Date of visit:		
i	Did CAG conduct any meeting in the last one year?	Yes ☐ No ☐ Not in work plan ☐
ii	If yes, is the record available?	Yes ☐ No ☐
iii	Did CAG conduct fever surveillance in the last one year?	Yes ☐ No ☐ Not in work plan ☐
iv	If yes, is the record available?	Yes ☐ No ☐
v	Did CAG refer any fever cases in the last one year?	Yes ☐ No ☐ Not in work plan ☐
vi	If yes, is the record available?	Yes ☐ No ☐
vii	Did CAG conduct awareness on malaria in the last one year?	Yes ☐ No ☐ Not in work plan ☐
viii	If yes, is the record available?	Yes ☐ No ☐
ix	Did CAG carry out elimination of mosquito breeding sites in the last one?	Yes ☐ No ☐ Not in work plan ☐
x	If yes, is the record available?	Yes ☐ No ☐
xi	Did CAG conduct a cleaning campaign in the last one year?	Yes ☐ No ☐ Not in work plan ☐
xii	If yes, is the record available?	Yes ☐ No ☐
xiii	Did CAG conduct ITNS use inspection in the last one year?	Yes ☐ No ☐ Not in work plan ☐
xiv	If yes, is the record available	Yes ☐ No ☐
xv	Did CAG submit quarterly reports to the concerned health facilities?	Yes ☐ No ☐ Not in work plan ☐
xvi	If yes, is the record available	Yes ☐ No ☐
xvii	Did CAG propose budget to the gewog administration in the last one year?	Yes ☐ No ☐ Not in work plan ☐
xviii	Did CAG receive budget support from the gewog administration in the last one year?	Yes ☐ No ☐
xix	Has there been any change in CAG membership in the last one year?	Yes ☐ No ☐
Any comments from the CAG:		

ANNEXURE 2: M&E INDICATORS AND DEFINITIONS

Impact indicator 1: Annual Parasite Incidence (API) (all cases)	
Definition	Confirmed malaria cases per 1000 population in risk area (7 risk districts)
Interpretation	It gives the overall performance of the programme and guides the progress. This indicator assesses the burden of malaria infection in the population
Formula	$\frac{\text{Total confirmed cases}}{\text{Total population at risk}} \times 1000$
Data source	DHIS2/patient register at HCs
Data collection frequency	Annually
Impact indicator 2: Annual Parasite Incidence (API) (indigenous cases)	
Definition	Confirmed indigenous malaria cases per 1000 population in risk area (7 risk districts)
Interpretation	It gives the overall performance of the programme and guides the progress indigenous transmission. This indicator assesses the burden of indigenous malaria infection in the population
Formula	$\frac{\text{Total confirmed cases}}{\text{Total population at risk}} \times 1000$
Data source	DHIS2/patient register at HCs
Data collection frequency	Annually
Impact indicator 3: Number of malaria deaths	
Definition	Death due to confirmed malaria infection (RDT/Microscopy)
Interpretation	Any malarial death should be thoroughly investigated for necessary interventions.
Formula	Number of inpatient malaria deaths per year confirmed by RDT/Microscopy
Data source	DHIS2/patient register at the HCs
Data collection frequency	Annually
Indicator: Percentage of malaria deaths audited	

Impact Indicator 4: Malaria test positivity rate

Definition	Percentage of slides or rapid diagnostic tests found positive among all slides and rapid diagnostic tests performed. The national programme should separately calculate test positivity rate for microscopy, RDT as well as by parasite species besides the overall test positivity rate. Test results from PDCs should not be included
Interpretation	This indicator measures the prevalence of malaria parasites among the population and thus helps to monitor malaria transmission trends.
Formula	$\frac{\text{Total confirmed cases (RDT/Microscopy)}}{\text{Total number of tests performed (RDT/Microscopy)}} \times 100$
Data source	DHIS2/BTC log book at the HCs
Data collection frequency	Annually

Impact indicator 5: Proportion of introduced cases to imported cases

Definition	Number of introduced cases as a proportion of imported cases
Interpretation	This indicator gives an idea of local transmission of imported cases. It relates to the capacity of the system to interrupt local transmission. Should be less than 1.0
Formula	$\frac{\text{Number of introduced malaria cases reported}}{\text{Total number of imported malaria cases reported}}$
Data source	DHIS2/case files
Data collection frequency	Quarterly/annually

Process Indicator 1: Annual Blood Examination Rate (ABER)

Definition	Percentage of at-risk persons screened for malaria either by RDT or Microscopy
Interpretation	Adequate screening is crucial for timely diagnosis and treatment to avert community transmission. As per the surveillance guideline, all fever cases in the risk areas should be screened for malaria. (Keep > 20% of risk population)
Formula	$\frac{\text{Total malaria tests performed (RDT/Microscopy)}}{\text{Total population at risk}} \times 100$
Data source	DHIS2/BTC log book at HCs .
Data collection frequency	Annually

Outcome Indicator 1: WHO malaria-free certification	
Definition	Recognition of zero indigenous malaria for three consecutive years by the WHO
Interpretation	This certification is necessary to achieve country and regional goals. This will be the baseline for PoR of malaria in Bhutan.
Formula	Zero indigenous case for three consecutive years
Data source	WHO certification
Data collection frequency	In 2026
Outcome Indicator 2: Population at risk that slept under an ITN the previous night	
Definition	Proportion of population at-risk that slept under an ITN the previous night
Interpretation	ITN is one of the core vector control interventions for malaria. Therefore, it is essential to have an adequate usage of ITNS to protect the population in risk areas. Hence, this indicator will give overall usage of ITNS.
Formula	$\frac{\text{Total population at risk that slept under an ITN the previous night}}{\text{Total population at risk}} \times 100$
Data source	MIS/KAP survey/Household survey/National Health Survey
Data collection frequency	Every three years
Outcome Indicator 3: Children under five years who slept under an ITNs the previous night	
Definition	Proportion of children under five years who slept under an ITNs the previous night
Interpretation	According to WHO, children under five are one of the high-risk groups for malaria. Therefore, it is imperative that they are protected from mosquito bites. This indicator will help the programme to assess whether the children under five in the malaria risk areas are adequately protected by ITNS and come up with necessary interventions.
Formula	$\frac{\text{Total number of children under five that slept under an ITN the previous night}}{\text{Total number of children under five resident in the risk area the previous night}} \times 100$
Data source	MIS survey/Household survey
Data collection frequency	Every three years

Outcome Indicator 4: Pregnant women who slept under an ITNs the previous night

Definition	Proportion of pregnant women who slept under an ITNs the previous night
Interpretation	According to WHO, pregnant women are one of the high-risk groups for malaria. Therefore, it is imperative that they are protected from mosquito bites. This indicator will help the programme to assess whether the pregnant women in the malaria risk areas are adequately protected by ITNS and come up with necessary interventions.
Formula	$\frac{\text{Total number of pregnant women at that slept under an ITN the previous night}}{\text{Total number of pregnant women at the time of the survey in the risk area}} \times 100$
Data source	MIS survey/KAP survey
Data collection frequency	Every three years

Outcome Indicator 5: Households with at least one ITN for every two people/ or sprayed by IRS within the last 12 months in areas with high malariogenic potential

Definition	Proportion of households with at least one ITNfor every (target 1.8) two people and/or sprayed by IRS within the last 12 months
Interpretation	ITNSs are a core prevention tool used widely by the people at risk of malaria. In order to achieve universal and equitable ITNS coverage, mass distribution is done every three years in malaria risk areas and in some potential risk areas. According to the WHO standard, there should be 1 net for every 1.8 persons. Therefore, through this indicator, the programme will be able to assess the overall ITNS coverage in the risk areas.
Formula	$\frac{\text{Number of households surveyed in risk areas with at least one ITN for every two people}}{\text{Total number of households surveyed within the risk areas}} \times 100$
Data source	MIS survey/KAP survey
Data collection frequency	Every three years

Outcome Indicator 6: Confirmed non-national malaria cases that are provided with treatment according to the national treatment guidelines	
Definition	Percentage of confirmed non-national malaria cases that are treated according to the national treatment guidelines
Interpretation	Early diagnosis and treatment are crucial to stop further transmission of malaria in the community. In Bhutan, a confirmed malaria case is admitted and treated in the hospital for 3 days. If the case is a non-Bhutanese national who is resident in Bhutan, the cases are admitted and treated. If the case is a non-national who will return to his/her home country, the case is given treatment according to the national treatment guidelines and allowed to return to the home country.
Formula	$\frac{\text{Total confirmed non-national malaria cases treated as per the treatment protocol}}{\text{Total confirmed non-national malaria cases reported in a year}} \times 100$
Data source	DHIS2/patient case file
Data collection frequency	Annually
Outcome Indicator 7: Confirmed Pf malaria cases that are followed up according to the National treatment guideline among nationals	
Definition	Percentage of confirmed Pf malaria cases that completed all follow up days as per the surveillance guideline (Revised 6th edition)
Interpretation	According to treatment guidelines (Revised 6th edition), pf cases are followed up on days 2 and 28 to ensure complete treatment course, parasite clearance or relapse and adverse reaction.
Formula	$\frac{\text{Total Pf confirmed cases that completed all follow up days}}{\text{Total Pf confirmed cases}} \times 100$
Data source	DHIS2/Case files
Data collection frequency	Annually

Outcome Indicator 8: Confirmed Pv malaria cases that are followed up according to the National treatment guideline among nationals

Definition	Percentage of confirmed Pv malaria cases that completed all follow up days as per the surveillance guideline (Revised 6th edition)
Interpretation	According to treatment guidelines (Revised 6th edition), Pv malaria cases are followed up on days 2,7, 28, and at 3 months and 1 year.
Formula	$\frac{\text{Total confirmed Pv cases that completed all follow up days}}{\text{Total confirmed Pv cases}} \times 100$
Data source	DHIS2/Case files
Data collection frequency	Annually

Outcome indicator 9: Percentage of reported cases notified within 24 hours

Definition	Percentage of cases notified within 24 hours of detection via DHIS2 and NEWARS
Interpretation	Surveillance guidelines indicate that all detected cases should be notified within 24 hours of detection
Formula	$\frac{\text{Number of cases notified within 24 hours}}{\text{Total number of cases reported}} \times 100$
Data source	DHIS2/case files/NEWARS
Data collection frequency	Monthly and Annually

Outcome indicator 10: Percentage of reported cases investigated within 3 days

Definition	Percentage of cases investigated within 3 days of detection
Interpretation	Surveillance guidelines indicate that all detected cases should be investigated within 3 days of detection
Formula	$\frac{\text{Number of cases investigated within 3 days}}{\text{Total number of cases reported}} \times 100$
Data source	DHIS2/case files
Data collection frequency	Monthly and Annually

Outcome indicator 11: Percentage of reported cases responded to within 7 days	
Definition	Percentage of cases responded to within 7 days of detection
Interpretation	Surveillance guidelines indicate that all detected cases should be responded to within 7 days of detection
Formula	$\frac{\text{Number of cases responded to within 7 days}}{\text{Total number of cases reported}} \times 100$
Data source	DHIS2/case files
Data collection frequency	Monthly and Annually
Outcome indicator 12: Percentage of active foci investigated and responded to within 7 days	
Definition	Percentage of active foci investigated within 7 days
Interpretation	In Bhutan, an indigenous case of malaria is considered a focus. Based on surveillance guidelines, all active foci should be investigated and responded to within 7 days. This is an indicator of the responsiveness of the health system.
Formula	$\frac{\text{Number of active foci (introduced malaria cases) investigated and responded to within 7 days}}{\text{Total number of indigenous malaria cases reported}} \times 100$
Data source	DHIS2/case files
Data collection frequency	Monthly and Annually
Outcome Indicator 13: Number of Technical Advisory (TAGPoR) meetings held per year	
Definition	Number of Technical Advisory (TAGPoR) meetings held annually
Interpretation	This indicator gives an idea of stakeholder engagement in PoR activities.
Formula	Number of Technical Advisory (TAGPoR) meetings held each year (expected to hold at least 2 meetings per year)
Data source	Reports
Data collection frequency	Annually

Outcome Indicator 14: Programme implementation review meetings held

Definition	Number of programme implementation review meetings held annually
Interpretation	This indicator gives an idea of routine monitoring and evaluation activities carried out. As per the NSP for the PoRoF malaria in Bhutan, at least 1 meeting should be held every month.
Formula	Number of programme implementation review meetings held each year (expected to hold at least 1 meeting every month)
Data source	Program Report
Data collection frequency	Annually

Outcome Indicator 15: Cross-border meetings/visits held per year

Definition	Number of cross-border meetings/visits held per year.
Interpretation	This indicator gives an idea of cross-border collaborative activities along the Bhutan-India border in the southern part of Bhutan. In the NSP, it is suggested that at least 2 meetings/visits per year be conducted between the malaria programmes of India and Bhutan. These meetings may be in formal meetings, virtual or in person, as the situation demands or in-depth inter-country field visits as conducted towards the end of 2025.
Formula	Number of cross-border meetings/visits held each year (expected to hold at least 2 meetings/visits per year)
Data source	Reports
Data collection frequency	Annually

Outcome Indicator 16: Number of awareness programmes conducted in vulnerable areas

Definition	Number of awareness programmes conducted in vulnerable areas per year.
Interpretation	Awareness programs are the important public health interventions that will garner community support against disease prevention and control in the community. This indicator will contribute towards PoR through adoption of malaria prevention public health measures in vulnerable areas. The NSP recommends the conduct of awareness programs at least once during pre and post monsoon.
Formula	Number of awareness program conducted in vulnerable areas in year
Data source	Report
Data collection frequency	Annually

Outcome Indicator 17: Number of pre service Health Assistants trained on case management and surveillance

Definition	Number of Health Assistants trained per year in collaboration with KGUSMB.
Interpretation	This indicator gives an indication of collaborative efforts in capacity building in case management surveillance in collaboration with KGUSMB. Final year students are given placements and trained by VDCP.
Formula	Number of Health Assistants trained at VDCP
Data source	Report
Data collection frequency	Annually

Outcome Indicator 18: Number of preservice Laboratory Technicians trained on malaria microscopy

Definition	Number of Laboratory Technicians trained per year in collaboration with KGUSMB.
Interpretation	This indicator gives an indication of collaborative efforts in capacity building in malaria microscopy in collaboration with KGUSMB. Final year students are given placements and trained by VDCP.
Formula	Number of Laboratory Technicians trained at VDCP
Data source	Report
Data collection frequency	Annually

Outcome Indicator 19: Number of pre-service Medical Parasitology and Entomology Technicians trained

Definition	Number of Entomology Technicians trained per year in collaboration with KGUSMB.
Interpretation	This indicator gives an indication of collaborative efforts in capacity building on medical entomology and parasitology in collaboration with KGUSMB. Final year students are given placements and trained by VDCP.
Formula	Number of Entomology Technicians trained
Data source	Report
Data collection frequency	Annually

Outcome Indicator 20: Number of migrant workers screened at points of entry (land routes) by private diagnostic services at point of entry

Definition	Number of migrant workers screened at points of entry (land routes)
Interpretation	All migrant workers are expected to be screened at points of entry by private diagnostic centres. All relevant data has to be shared with the VDCP. However, the denominator will not be obtained to calculate a percentage. It is difficult to give a target. (can get denominator from legal entries)
Formula	Number of migrant workers screened at points of entry (land routes)
Data source	Report
Data collection frequency	Annually

Outcome Indicator 21: Number of clinicians (health professionals) trained on malaria case management and surveillance system.

Definition	Number of medical officers and Health Assistants trained on malaria case management and surveillance systems.
Interpretation	All new doctors and health professionals including volunteers are trained in malaria case management and the surveillance system once a year.
Formula	Number of health professionals trained on malaria case management and the surveillance system.
Data source	Report
Data collection frequency	Annually

Outcome Indicator 22: Proportion of microscopists certified as level 1 & 2 (every 2 years).

Definition	Proportion of microscopists certified as level 1 and 2 through ECAM.
Interpretation	Microscopists are assessed through ECAM every 2 years selected through in-service refresher training programmes in order to maintain their diagnostic skills. This is essential to provide a quality assured microscopy service.
Formula	$\frac{\text{Number of microscopists certified level 1 and 2 through ECAM}}{\text{Total number of participants selected for ECAM}} \times 100$
Data source	Report
Data collection frequency	Annually

Outcome Indicator 23: Percentage of health facilities participating in panel testing

Definition	Percentage of health facilities whose microscopists participated in panel testing.
Interpretation	Microscopists are regularly assessed on their performance on the panel slides assessment as an indicator of satisfactory skills. This indicator assesses the percentage of health facilities engaging in this activity
Formula	$\frac{\text{Number of health facilities whose microscopists participated in panel testing}}{\text{Number of health facilities with Laboratory facilities}} \times 100$
Data source	Report
Data collection frequency	Annually

Outcome Indicator 24: Number of external malaria programme reviews conducted

Definition	Number of external malaria programme reviews conducted (one every three years)
Interpretation	Programme reviews are essential to ensure optimal programme implementation and to modify strategies as required.
Formula	Number of malaria programme reviews conducted
Data source	Report
Data collection frequency	Once every 3 years

ANNEXURE 3: MONITORING AND EVALUATION INDICATORS AND TARGETS 2026-2030

Indicator	Baseline		Target					Data Source	Responsible officer / Agency	Remarks
	Year	Value	2026	2027	2028	2029	2030			
Impact Indicators										
Annual Parasite Incidence (all cases)	2024	<1/1000	<1/1000	<1/1000	<1/1000	<1/1000	<1/1000	DHIS 2	VDCP	
Annual Parasite Incidence (indigenous cases)	2024	0	0	0	0	0	0	DHIS 2	VDCP	
Number of malaria deaths	2024	0	0	0	0	0	0	DHIS 2	VDCP	
Malaria test positivity rate	2024	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	DHIS2/ BTC log book at the HCs	VDCP	
Proportion of introduced cases to imported cases	2024	<1	<1	<1	<1	<1	<1	DHIS 2	VDCP	
Process Indicators										
Annual Blood Examination Rate (ABER)	2024	>20%	>20%	>20%	>20%	>20%	>20%	DHIS 2	VDCP	
Outcome Indicators										
WHO malaria-free certification			√							
Households with at least one ITN for every two people/ or sprayed by IRS within the last 12 months in areas with high malariogenic potential	2024	>90%	>90%	>90%	>90%	>90%	>90%	MIS survey	VDCP	Only in foci and potentially risk areas
Population at risk that slept under an ITN the previous night	2025	>90%	>90%	>90%	>90%	>90%	>90%	MIS survey	VDCP	Only in foci and potentially risk areas
Children under five years old who slept under an insecticide-treated net* the previous night	2025	>90%	>90%	>90%	>90%	>90%	>90%	MIS survey	VDCP	Only in foci and potentially risk areas
Pregnant women who slept under an insecticide-treated net* the previous night	2025	>90%	>90%	>90%	>90%	>90%	>90%	MIS survey	VDCP	Only in foci and potentially risk areas

Indicator	Baseline		Target					Data Source	Responsible officer / Agency	Remarks
	Year	Value	2026	2027	2028	2029	2030			
Confirmed non-national malaria cases that are provided with treatment according to the national treatment guidelines	2025	100%	100%	100%	100%	100%	100%	DHIS 2	VDCP	
Confirmed Pf malaria cases that are followed up according to the surveillance guideline among nationals	2025	100%	100%	100%	100%	100%	100%	DHIS 2	VDCP	
Confirmed Pv malaria cases that are followed up according to the surveillance guideline among nationals	2025	100%	100%	100%	100%	100%	100%	DHIS 2	VDCP	
Percentage of reported cases notified within 24 hours	2025	100%	100%	100%	100%	100%	100%	DHIS 2	VDCP	
Percentage of reported cases investigated within 3 days	2025	100%	100%	100%	100%	100%	100%	DHIS 2	VDCP	
Percentage of reported cases responded to within 7 days	2025	100%	100%	100%	100%	100%	100%	DHIS 2	VDCP	
Percentage of active foci investigated and responded to within 7 days	2025	100%	100%	100%	100%	100%	100%	DHIS 2	VDCP	
Number of Technical Advisory Group (TAG for PoR) meetings held per year	2025	2	2	2	2	2	2	Reports	VDCP	
Programme implementation review meetings held	2025	12	12	12	12	12	12	Reports	VDCP	
Number of cross-border meetings/visits held per year	2025	2	2	2	2	2	2	Reports	VDCP	
Number of awareness programmes conducted in vulnerable areas (at least 2 in each area (one before transmission season (April-May and August/September/October pre and post monsoon))	2025	20 blocks	20 blocks	20 blocks	20 blocks	20 blocks	20 blocks	Reports	VDCP	Will depend on epidemiological stratification
Number of Health Assistants trained in malariology	2025	120	300	100	100	100	300	Reports	VDCP	
Number of Laboratory Technicians trained	2025	80	100	100	100	100	100	Reports	VDCP	

Indicator	Baseline		Target					Data Source	Responsible officer / Agency	Remarks
	Year	Value	2026	2027	2028	2029	2030			
Number of pre-service Medical Parasitology and Entomology Technicians trained	2025	5	5	5	5	5	5	Reports	VDCP	
Number of migrant workers screened at points of entry (land routes) (target – 100% of workers) by private diagnostic services at point of entry	2025	>100%	>100%	>100%	>100%	>100%	>100%	Reports	VDCP	
Number of medical officers (health professionals) trained on malaria case management and surveillance system.	2025	25	30	30	30	30	30	Reports	VDCP	
Number of microscopists trained (ECAM) (every 2 years)	2025	12	-	12	-	12	-	Reports/ DHIS2	VDCP	
Percentage of health facilities having laboratory participating in panel testing	2025	75%	80%	90%	>90%	>90%	>90%	Reports	VDCP	
Number of external/internal malaria programme reviews conducted	2025	√			√			Reports	VDCP	To be done every 3 years as an external or internal malaria programme review

S. NO (as in NSP)	Strategic Activity	Estimated budget in USD in					Total
		2026	2027	2028	2029	2030	
1. Strengthening Surveillance							
1.3	High risk groups mapping	3 700	3 700	3 700	3 700	3 700	18 500
1.4	Establishing TAGPoR	6 750	6 750	6 750	6 750	6 750	33 750
1.5	Case and foci investigation and classification	9 250	9 250	9 250	9 250	9 250	46 250
1.6	Epidemiological risk stratification	2 025	2 025	2 025	2 025	2 025	10 125
1.7	Risk stratification and mapping						0
	TOTAL	21 725	21 725	21 725	21 725	21 725	108 625
2. Strengthening entomological surveillance							
2.1	Review entomological surveillance	0	6 750	0	6 750	0	13 500
2.2	Integrate with entomological surveillance of other diseases	5 550	5 550	5 550	5 550	5 550	27 750
2.3	Training of health personnel	18 000	18 000	18 000	18 000	18 000	90 000
2.5	Insecticide resistance monitoring	14 208	14 208	14 208	14 208	14 208	71 040
	TOTAL	37 758	44 508	37 758	44 508	37 758	202 290
3. Strengthening epidemic preparedness, forecasting and early warning systems							
3.1	Training and stimulation on disease outbreak response	22 500	22 500	22 500	22 500	22 500	112 500
	TOTAL	22 500	22 500	22 500	22 500	22 500	112 500
4. Special events surveillance (lumpsum yearly)							
4.1	Awareness and exhibitions during the events	5 000	5 000	5 000	5 000	5 000	25 000
4.2	Case finding and fever screening	2 500	2 500	2 500	2 500	2 500	12 500
	TOTAL	7 500	7 500	7 500	7 500	7 500	37 500

S. NO (as in NSP)	Strategic Activity	Estimated budget in USD in				Total
		2026	2027	2028	2029	
5. Strengthening case management						
5.1	Training of health assistants/Medical officers	13 500	13 500	13 500	13 500	67 500
5.2	Reviewing national treatment guidelines	0	6 750	0	0	13 500
5.3	Discuss chemoprophylaxis for travellers	6 750	0	0	6 750	13 500
5.6	Monitoring and follow up of activities	13 320	13 320	13 320	13 320	66 600
	TOTAL	33 570	33 570	26 820	33 570	161 100
6. Targeted, focused interventions including vector control						
6.3	Review guidelines	6 750	0	6 750		20 250
6.4	Training on insecticide resistance monitoring	0	13 500	0	13 500	27 000
	TOTAL	6 750	13 500	6 750	13 500	47 250
7. Quality Assurance						
7.1	Cross checking of blood smears (shipment sumpsum	1 000	1 000	1 000	1 000	5 000
7.2	Assessment of microscopists	3 330	3 330	3 330	3 330	16 650
7.3	Training of microscopists	13 500	13 500	13 500	13 500	67 500
7.4	Conduct ECAMM	3 240	0	3 240	0	9 720
7.6	Upgrading guidelines and SOPs	0	6 750	0	6 750	13 500
	TOTAL	21 070	24 580	21 070	24 580	112 370
8. Supply Chain Management						
8.2	Monitoring of durgs quality and equipment	7 400	7 400	7 400	7 400	37 000
	TOTAL	7 400	7 400	7 400	7 400	37 000

S. NO (as in NSP)	Strategic Activity	Estimated budget in USD in					Total
		2026	2027	2028	2029	2030	
9. Strengthen cross-border collaboration							
9.1	Conduct at least 2 meeting per year	12 000	12 000	12 000	12 000	12 000	60 000
9.3	Collaborate in implementing interventions	3 700	3 700	3 700	3 700	3 700	18 500
	TOTAL	15 700	15 700	15 700	15 700	15 700	78 500
10. Strengthen community engagement							
10.1	Liaise with CAG	10 000	10 000	10 000	10 000	10 000	50 000
10.2	Develop health promotion material (lumpsum)	15 000			15 000		30 000
10.3	Conduct health promotion activities in high risk areas	10 000	10 000	10 000	10 000	10 000	50 000
10.4	Involve CAGs in health promotion activities (tools kits, lumpsum)	0	20 000	0	0	20 000	40 000
	TOTAL	35 000	40 000	20 000	35 000	40 000	170 000
11. Programme reviews							
11.1	Monthly reviews	0	0	0	0	0	0
11.2	Pre-certification review	6 750	6 750	0	0	0	13 500
11.3	Certification review	10 125	10 125	0	0	0	20 250
11.4	External/internal programme review	0	0	10 125	0	0	10 125
11.5	Develop M&E plan	11 250	0	11 250	0	11 250	33 750
11. 6	Six monthly data validation monitoring and QA monitoring	14 800	14 800	14 800	14 800	14 800	74 000
	TOTAL	42 925	31 675	36 175	14 800	26 050	151 625

S. NO (as in NSP)	Strategic Activity	Estimated budget in USD in					Total
		2026	2027	2028	2029	2030	
12. High level advocacy, political and financial commitment							
12.1	Target highest level of government officials and administrators	0	22 500	0	22 500	0	45 000
12.2	Involve all stakeholders	11 250	11 250	11 250	11 250	11 250	56 250
	TOTAL	11 250	33 750	11 250	33 750	11 250	101 250
	GRAND TOTAL	229 578	262 838	207 828	240 963	217 703	1 158 910

ANNEXURE 5: LIST OF TAGME MEMBERS

Sl. No	Name	Designation	Agency
1	Dr. Thinley Dorji (Chair)	Medical Specialist	CRRH
2	Dr. Thinley Yangzom (Vice-Chair)	Tropical Medicine Expert	JDWNRH
3	Dr. Lobzang Dorji	NPO	WHO Country Office
4	Dr. Ripa Chakma	Associate Professor	FNPH
5	Dr. Tshering Yangden	GDMO	RBA Pelrithang
6	Dr. Rebecca Subba	Paediatrician CRRH	CRRH
7	Dr. Jigme Jamtsho	Pathologist	CRRH
8	Dr. Yeshi Dorji	CMO	Sarpang Hospital
9	Mr. Jit Bdr. Dharnal	Sr. Clinical Officer	RCDC
10	Mr. Kesang Wangchuk	DC Laboratory Officer	RCDC
11	Mr. Ugyen Norbu	Sr. CO HPRCD	MoH
12	Mr. Rinzin Namgay	Chief Entomologist	VDCP
13	Mr. Ugyen Dorji	DPHO	Sarpang Dzongkhag
TAGME Secretariat			
1	Mr. Tobgyel	Program Analyst	VDCP
2	Mr. Tenzin Wangdi	Chief Entomologist	VDCP
3	Mr. Loday Zangpo	DCPO	VDCP
4	Mrs. Ugyen Pelmo	SPO	VDCP
5	Mrs. Karma Chedon	GIS Tech	VDCP

ANNEXURE 6: LIST OF CONTRIBUTORS

Sl.No	Name	Designation	Agency
1	Dr. Bhim Nath Subady	CMO	Gidakom Hospital
2	Dr. Dorji Tshering	CMO	Phuntsholing Hospital
3	Dr. Sangay Wangchuk	Medical Specialist	CRRH
4	Mr. Jangchup Peljor	Dy. Chief Pharmacist	JDWNRH

