



APLMA-APMEN CATALYTIC TECHNICAL SUPPORT

Case study on development of Bhutan's
National Insecticide Resistance Monitoring
and Management Plan 2021



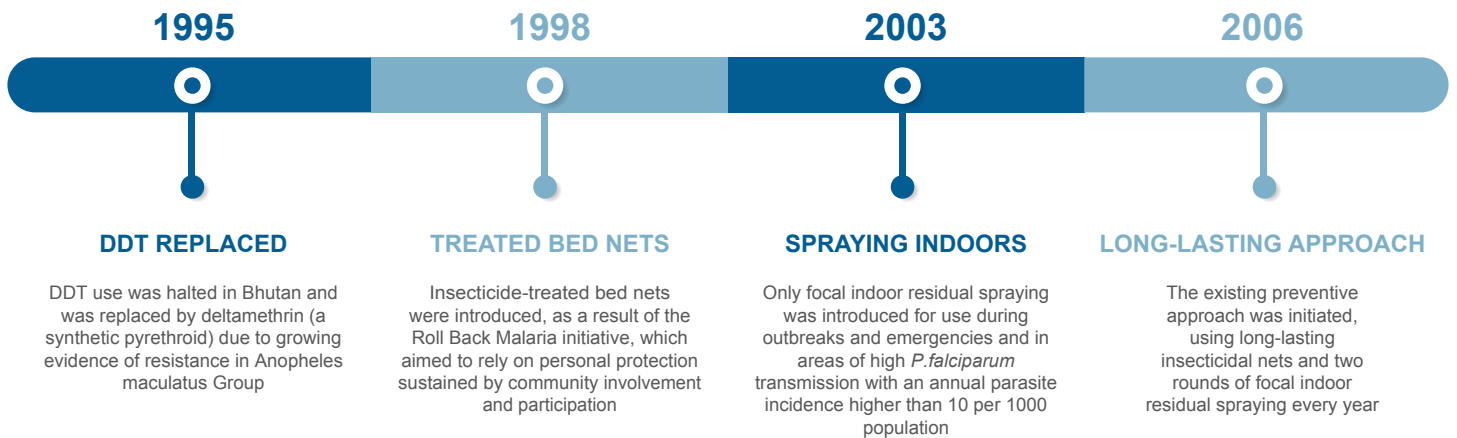
Vector control and insecticide resistance in Bhutan

Bhutan has made remarkable progress in reducing its malaria burden and is very close to elimination. Malaria burden has declined significantly in the last decade with a 90% decrease in confirmed cases since 2010. In 2019, Bhutan reported only two indigenous cases and aims to eliminate malaria by 2025¹. The vast majority of gains made against malaria can be attributed to insecticide-based interventions,

namely insecticide-treated bed nets and indoor residual spraying of insecticides. Currently, in malarious areas, residents receive insecticide-treated bed nets, and their homes are given two rounds of indoor insecticide spraying².

The below graphic shows the evolution of vector control measures in Bhutan.

KEY MILESTONES FOR BHUTAN'S VECTOR CONTROL MEASURES



As per the latest WHO data on vector insecticide resistance, there is no confirmed resistance reported in Bhutan. However, bordering areas of Sarpang district are susceptible to insecticide resistance.



● Gaden village: Possible Resistance (90 to < 98%)

● Thoemba village: Susceptible Resistance (≥ 98%)

Source: WHO Malaria Threat Map

¹ World Malaria Report - 2020
² WHO Bhutan Malaria Profile

There is also a lack of reliable records of resistance status among Anopheline species. This is partly due to issues pertaining to nonavailability of critical material to record resistance such as impregnated papers, test kits and capacity. At the beginning of 2021, the Global Fund supported necessary arrangements to address these gaps, following which insecticide resistance monitoring activities were initiated in four sentinel sites in Sarpang district.

Insecticides are critically important for malaria prevention. However, failure to mitigate insecticide resistance can eventually result in increased malaria burden and have significant cost implications for malaria prevention. It can also have implications on cross-border management of malaria, as often times the national guidelines for tackling insecticide and drug resistance vary widely between neighbouring nations. This can threaten the gains made against malaria in the country. Exchange of information on insecticide and drug resistance, along with routine data, is essential for prevention and management of resistance along the border. Hence, in addition to development of country specific guidelines and plans, there is also a need to align these protocols and strategies with bordering areas to effectively prevent and manage insecticide resistance.



In order to address this issue, the Vector Borne Disease Control Program (VBDCP) of Bhutan decided to develop an 'Insecticide Resistance Monitoring Guideline and Management Plan' for vector borne diseases of public health importance in Bhutan, based on WHO guidelines. The VBDCP also requested APLMA-APMEN to provide the required technical support for the development of this plan.



Catalytic Technical Support through APMEN network

The Asia Pacific Malaria Elimination Network (APMEN) is a regional platform comprising National Malaria Programmes from 22 countries and 52 Partner Institutions, all working towards the goal of regional malaria elimination. The APMEN Secretariat works closely with partners to facilitate regional and multi-sectoral collaboration around evidence-based practices and research to build a robust foundation for generating political and financial commitment towards the elimination goal. APMEN facilitates technical exchange through its three Working Groups on Surveillance & Response, Vector Control and Vivax. Leveraging the technical expertise within

APMEN and engaging direct support from the APMEN Vector Control Working Group (VCWG), APLMA-APMEN was able to respond to the request for technical support from the Bhutan VBDCP.

APLMA-APMEN engaged a technical expert with rich experience in vector control and insecticide resistance management, specifically. The technical consultant was previously the Head of Division of Entomology and Vector Control of the National Vector Borne Disease Control Program (NVBDCP) in India and was responsible for planning and coordination of entomological and vector control activities for the NVBDCP. He has extensive experience in policy formulation and implementation of Integrated Vector management plans, Insecticide Resistance Monitoring and planning, and other vector control and entomological activities, and was available to support the development of the Insecticide resistance monitoring guideline and management plan for Bhutan. The expert worked with the Bhutan VBDCP to develop the IRM plan, taking into consideration the existing WHO guidelines on insecticide resistance management and the operating context and environment of the National Malaria Program of Bhutan. The APMEN VCWG, in addition to providing support in the selection of the expert, also provided relevant feedback/recommendations contributing to the successful development of the IRM plan.

“The IRM plan developed with support from APLMA-APMEN will provide the needed guidance to the Bhutan Malaria Program to effectively manage and prevent insecticide resistance and further support Bhutan in achieving sustained malaria elimination by 2025.”

Mr Rixin Jamstho, Director, Department of Public Health,
Ministry of Health, Royal Government of Bhutan



Measurable outcomes

The IRM plan was developed in close consultation with the Bhutan program, taking into account the epidemiology of malaria in the country, current monitoring and evaluation mechanisms of vector control interventions, ongoing surveillance and insecticide resistance monitoring mechanisms, testing methodologies and most importantly the feasibility of future implementation of the IRM plan by the VBDCP. Following a consultative approach, the expert engaged with the vector control team of the Bhutan program from the beginning. The vector control team provided regular feedback on the draft plan, which allowed the expert to tailor strategies and interventions to Bhutan's unique context and situation. It was important to understand the feasibility of interventions and ability of the

vector control program to implement the interventions, to clearly lay out a plan which reflects the implementation realities on the ground. This will ensure that the strategies identified under the plan are successfully translated. A detailed workplan, including human resources and financial requirements, for implementation of the insecticide resistance monitoring guideline and management plan was also developed. The IRM plan is approved by the Ministry of Health, Royal Government of Bhutan and will serve as a guidance document enabling the vector control program to successfully monitor and manage insecticide resistance among malaria vectors in the country, thereby contributing towards their malaria elimination goals.



Way forward

Insecticide resistance threatens the gains made towards malaria elimination by reducing the efficacy of ongoing control measures and probably increasing disease transmission. Successful prevention, mitigation and management of insecticide resistance is critical to malaria elimination. Many countries with insecticide resistance do not yet have an IRM plan. The WHO recommends development and implementa-

tion of a national plan for insecticide resistance monitoring and management in order to guide the resistance prevention and management. APLMA-APMEN, with its collaborating experts and partners within the region, is ready to support the national malaria programs in developing and adopting tailored guidelines and policies to prepare and fight against insecticide resistance.



APLMA-APMEN's joint approach to country engagement

The Asia Pacific Leaders Malaria Alliance (APLMA) and Asia Pacific Malaria Elimination Network (APMEN) work in an integrated manner to further the elimination goal in the region.

APMEN works through government partnerships to generate local evidence while building capacity; APLMA translates evidence to advocate for policy change at the highest levels of government and fosters regional leadership.

APLMA-APMEN, through its strategic country-level engagements, is focused on providing catalytic and targeted support to the National Malaria Programs of the region to fill the gaps in capacity building and technical support areas, thereby supporting improved and evidence-based technical advocacy.

“Vector Control has been the primary method for reducing malaria for well over a hundred years now. Vector Control is overwhelmingly based on insecticides, and the slow-down in malaria reduction in recent years is linked to the development of insecticide resistance in mosquitoes. If we are going to win the battle against malaria, knowledge about insecticide resistance status is critical in order to take remedial action.”

Dr Leo Braack, Co-Chair of APMEN- Vector Control Working Group



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