

Investing in Malaria Elimination in Bangladesh

A malaria-free Bangladesh by 2027 requires increased domestic financing—investments that will result in more than USD 300 million in economic benefits.

Overview

- Having committed to a malaria-free Asia Pacific by 2030, Bangladesh has declared a national elimination goal of 2027. The country has made impressive progress towards this goal, reducing cases by 50% since 2010.
- Donor assistance for malaria declined by almost 60% between 2013–2015, and current domestic financing contributions (22%) are not large enough to meet the need expressed in the national strategic plan, threatening Bangladesh's momentum towards elimination.
- The total current annual cost of the malaria program was estimated at USD 20.4 million or just USD 1.54 per population at risk in fiscal year 2015.
- National malaria elimination can generate economic benefits of approximately USD 343.5 million from 2016–2030 by increasing productivity and reducing malaria deaths, cases, and household and healthcare spending.

Eliminating and preventing the reintroduction of malaria in Bangladesh can lead to:

- **Over 1,577 lives saved**
- **829,605 cases averted**
- **7:1 return on investment**



To achieve national elimination in 2027, Bangladesh aims to eliminate malaria in low-endemic areas over the next five years and accelerate control in high-transmission areas. Significant progress has been made in reducing the burden of malaria in Bangladesh (50% decrease in cases and 54% decrease in deaths since 2010), but challenges remain.

Ninety-three percent of all malaria cases in Bangladesh in 2016 were found in the Chittagong Hill Tracts (CHT), a southeastern region of Bangladesh comprised of three highly endemic districts (Figure 1). In 2014, the CHT saw a 109% increase in malaria infections from the previous

year due to challenges with geographical inaccessibility, increasing drug and insecticide resistance in neighboring countries and border malaria, particularly as this region shares porous borders with India and Myanmar.

Faced with declining donor assistance, the Government of Bangladesh (GoB) will need to allocate more resources to the National Malaria Elimination Program (NMEP) to strengthen surveillance, increase capacity of staff, and garner private sector engagement to achieve elimination.

Bangladesh At a Glance*

27,737	Total cases of malaria^a (33% <i>Plasmodium falciparum</i>)
17	Deaths from malaria^a
17.25 million	Population at risk^b (11% of population)
221.45 billion	Gross domestic product^b (current USD)
Lower-middle -income	Country income classification^b
31.5	Population living in poverty^b (%)
31	Total health expenditure per capita, 2014^b (current USD)

^aNational Malaria Elimination Program, Bangladesh

^bThe World Bank

*Data are from 2016 unless specified otherwise

Building on the Momentum

With substantial financial support from the Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund) since 2007—nearly USD 78 million to date—Bangladesh has been able to increase access to malaria diagnostics and treatment, provide long-lasting insecticidal nets (LLINs) to 100% of households in three highly endemic districts, and create strong partnerships for elimination. Global Fund financing, however, is declining, placing pressure on the malaria program to mobilize domestic resources. The annual Global Fund disbursement for malaria in 2016 was 61% of that in 2013. Evidence has demonstrated that, in many settings, funding gaps have weakened malaria programs and resulted in resurgence. In Bangladesh, where malaria competes

with non-communicable diseases, which have been cited as accounting for 80% of the total health budget, financial and political commitment to malaria elimination is needed now more than ever.

Developing an Investment Case

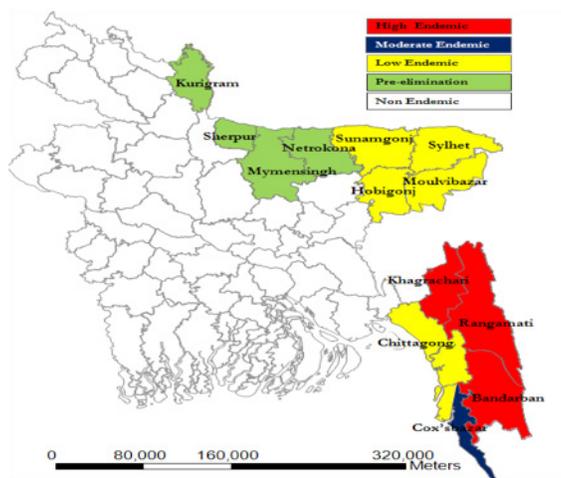
To support malaria elimination in Bangladesh, the Malaria Elimination Initiative at the University of California, San Francisco Global Health Group, in collaboration with International Centre for Diarrhoeal Disease Research, Bangladesh (icddr,^b) and the NMEP, developed an investment case for malaria elimination. This study has a number of limitations. The transmission model was designed with a single homogeneous patch for the whole of each country. Thus, spatial heterogeneity within each country was not modeled including malaria transmission and intervention. The methodology is available in the full-length investment case report, accessible through shrinkingthemalariamap.org.

The purpose of this study was to understand the current and future costs of the malaria program and estimate the benefits of sustained investments in malaria to inform program budgeting, strategic planning, and advocacy for domestic and international resource mobilization in Bangladesh.

Costing Current Malaria Efforts

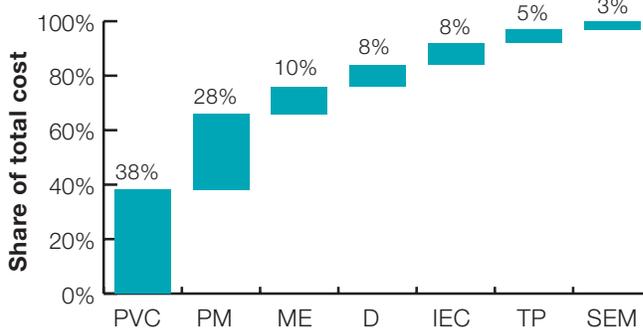
The total annual cost of the malaria program was estimated at USD 20.4 million or USD 1.54 per population at risk in fiscal year 2015. The Global Fund is the main financier for the program (73%), followed by the GoB (22%). The major cost driver was prevention and vector control (38%), which are measures that prevent human contact to mosquitoes or limit the ability of mosquitoes to transmit the disease, followed by program management (28%), and monitoring and evaluation

Figure 1. Malaria incidence map, Bangladesh 2014*



*Source: National Malaria Elimination Program, 2016

Figure 2. Distribution of malaria elimination costs by activities



PVC – prevention and vector control; PM – program management; ME – monitoring and evaluation; D – diagnosis; IEC – information, education, and communication; TP – treatment and prophylaxis; SEM – surveillance and epidemic management

(10%) (Figure 2). Among inputs, consumables represent the largest share of costs at 35% (office and supplies, medicines, insecticides, and other expendable laboratory products), followed by personnel at 33%, and services at 28%.

When private healthcare expenditures, lost wages, and lost productivity due to illness and death are accounted for, the total economic burden of malaria in Bangladesh in 2015 is about USD 35.3 million.

Estimating the Cost of Malaria Elimination Through 2030

The costs and benefits of elimination were estimated using a transmission model that projected rates of decline to elimination by 2030. The model projected a scenario that allowed the attainment of the elimination threshold using a minimum package of interventions, defined in Bangladesh as the collective impact of: (1) high coverage of LLINs; (2) 80% health system treatment rates by 2025; and (3) increased surveillance. Increased surveillance will be critical for Bangladesh to achieve elimination, given that the NMEP spent just 3% of the program's total cost in 2015 (Figure 2).

The model predicts that the elimination scenario, as outlined above, will cost approximately USD 76.9 million to achieve elimination by 2025 and USD 14.64 million for prevention of reintroduction (POR) until 2030

(Figure 3). As malaria will not be eradicated in 2030, POR activities will need to continue in Bangladesh until eradication. The transmission model does not account for the cost of the additional POR activities beyond 2030, but it is critical to note the importance of this.

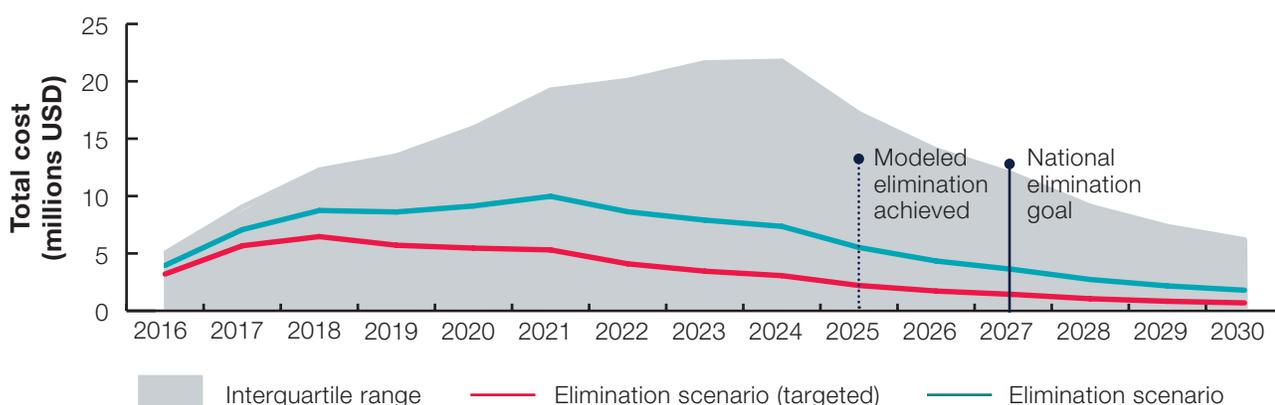
Eliminating Malaria: What Are the Benefits?

For each dollar invested in malaria elimination, Bangladesh can expect to see nearly a seven-fold return in benefits. Compared to the business as usual scenario, malaria elimination can prevent 829,605 cases, save 1,577 lives, and avert USD 343.50 million in health expenditures between 2016–2030.

Estimating Current and Future Financial Gaps

The current cost of the program at USD 20.4 million does not include measures to improve efficiencies. In addition, the program costs were calculated before Bangladesh reconfigured its national malaria control program to a national malaria elimination program within which activities and interventions will need to be aligned with those consistent of an elimination program. Targeted interventions such as vector control to high-risk areas and populations will likely provide considerable cost-efficiencies.

Figure 3. Projected costs of malaria elimination in Bangladesh, 2016–2030



The modeled cost of elimination in Bangladesh is estimated at USD 91.54 million until 2030. This equates to a minimum of about USD 9 million annually for the first five years, assuming that the aggressive interventions predicted by the model are implemented in the most efficient way. Bangladesh is currently highly dependent on financing from the Global Fund. Current levels of domestic financing are about USD 3 million per year. As cases decline in Bangladesh, it is unlikely that the Global Fund will maintain its current levels of funding and the resulting financial gap will need to be met by increased domestic financing if the country is to stay on track towards elimination.

Securing Adequate Resources

Given the existing downward trend in donor financing to Bangladesh for malaria interventions, an increase in domestic financing is required to achieve malaria elimination in Bangladesh by 2027.

Bangladesh is categorized as an emerging economy. However, despite its stable economic growth in recent years, Bangladesh allocates just 0.12% of its total domestic health spending to malaria. With an average annual financial gap of USD 9.8 million, the country will need to allocate a larger proportion of health financing towards the malaria program in the coming years. Increased allocations will also need to be fully utilized, as Bangladesh has notoriously underspent its health funds mainly due to lack of institutional capacity, bureaucratic issues, lack of good governance, and cost escalation as a result of poor budgetary discipline.

Public-private partnerships offer an opportunity to pool resources for optimal impact through fiscal incentives and technical assistance funds. The Bangladesh Climate Change Resilience Fund is a model of pooled resources, consisting of funds from various development partners. As climate change impacts the transmission of malaria, a percentage of this fund could be earmarked for it.

Ensuring political commitment at all levels of government will be key in reaching elimination. Facing financial uncertainty and an impending transition from Global Fund financing, the NMEP will need to place malaria higher up on the health agenda. Efforts are underway to politically promote malaria. The NMEP plans to establish a Malaria Elimination Oversight Committee, backed by the Prime Minister, and a National Malaria Elimination Taskforce, chaired by the Minister of Health.

The **Malaria Elimination Initiative (MEI)** at the University of California San Francisco (UCSF) Global Health Group believes a malaria-free world is possible within a generation. As a forward-thinking partner to malaria-eliminating countries and regions, the MEI generates evidence, develops new tools and approaches, documents and disseminates elimination experiences, and builds consensus to shrink the malaria map. With support from the MEI's highly-skilled team, countries around the world are actively working to eliminate malaria – a goal that nearly 30 countries will achieve by 2020.

shrinkingthemalariamap.org

