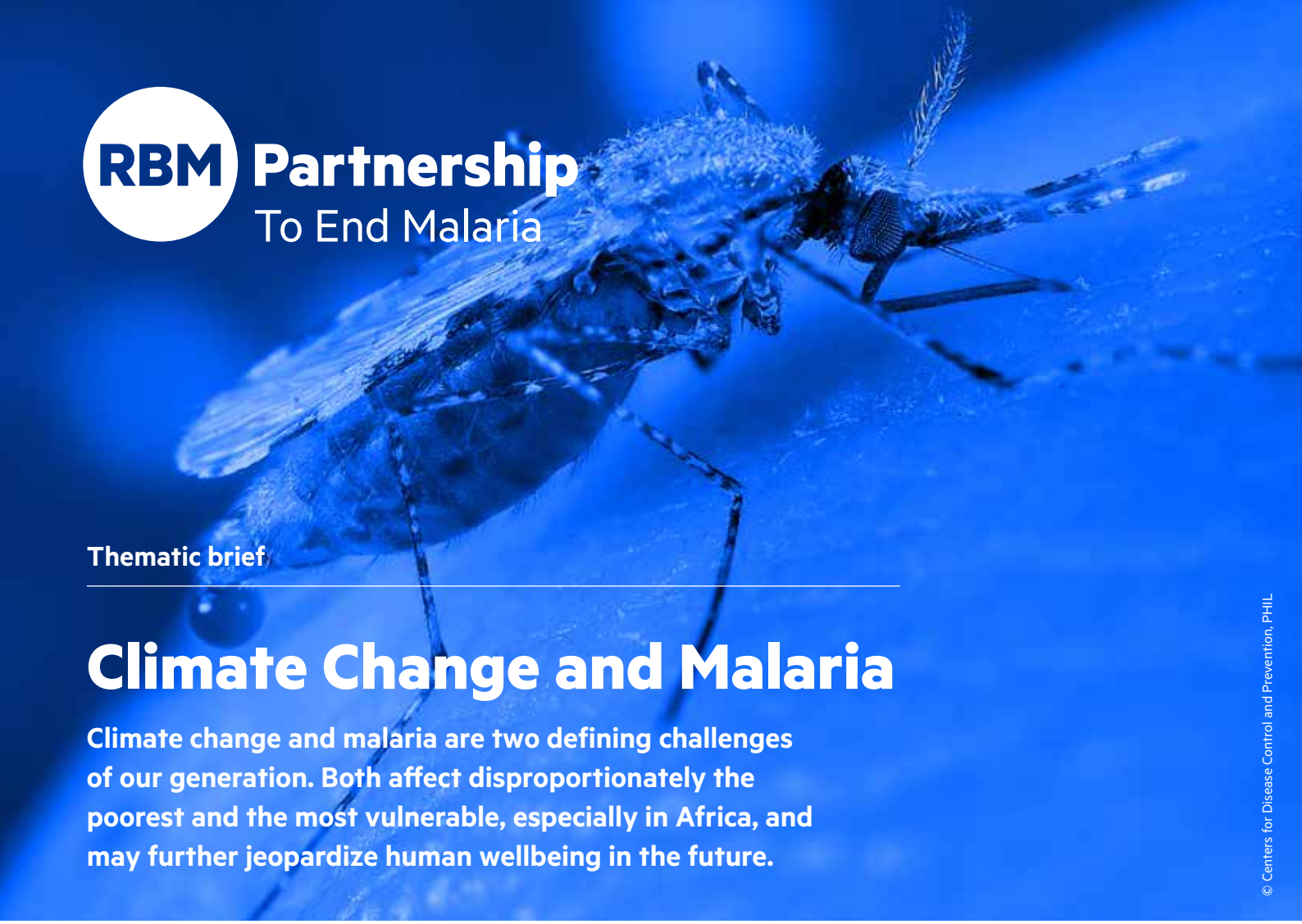


RBM Partnership To End Malaria

Thematic brief

Climate Change and Malaria

Climate change and malaria are two defining challenges of our generation. Both affect disproportionately the poorest and the most vulnerable, especially in Africa, and may further jeopardize human wellbeing in the future.

Key messages

Malaria is a particularly climate-sensitive disease, significantly influenced by changes in temperature, rainfall, as well as the frequency and severity of extreme weather events, such as cyclones.

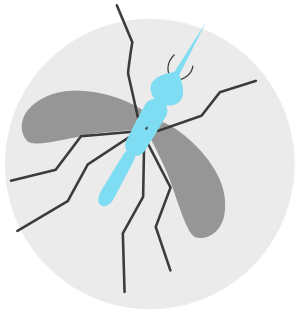
Malaria parasites need less time to develop at lower temperatures than previously thought. This means that even slighter warming may be enough to heighten malaria risk[i].

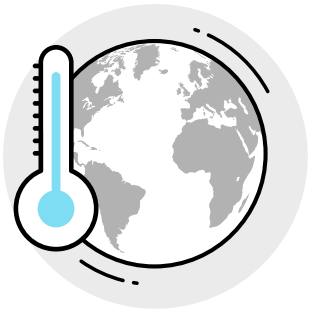
While the exact climate-related health risks and impacts have yet to be fully understood, climate change impacts malaria transmission, mainly due to extreme weather events. Over the long term, rising temperatures and increases in rainfall could spread the disease to previously malaria-free zones.

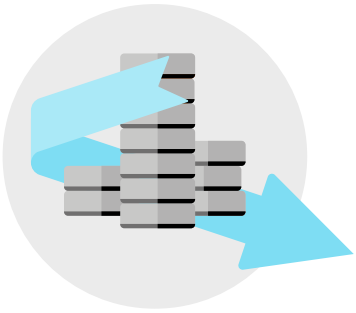
The World Health Organization estimates that climate change will lead to **60,000 additional deaths per year due to malaria between 2030 and 2050**[ii], an increase of nearly 15% in overall annual deaths from this preventable disease.

By 2050, climate change alone might expose some areas in South America, sub-Saharan Africa and China to a 50% higher probability of malaria transmission.

There is a need for a greater dialogue on how to grapple with the interlinked challenges of climate change and malaria elimination, in order to identify strategies and opportunities for mitigating the impact, particularly on the most vulnerable populations.







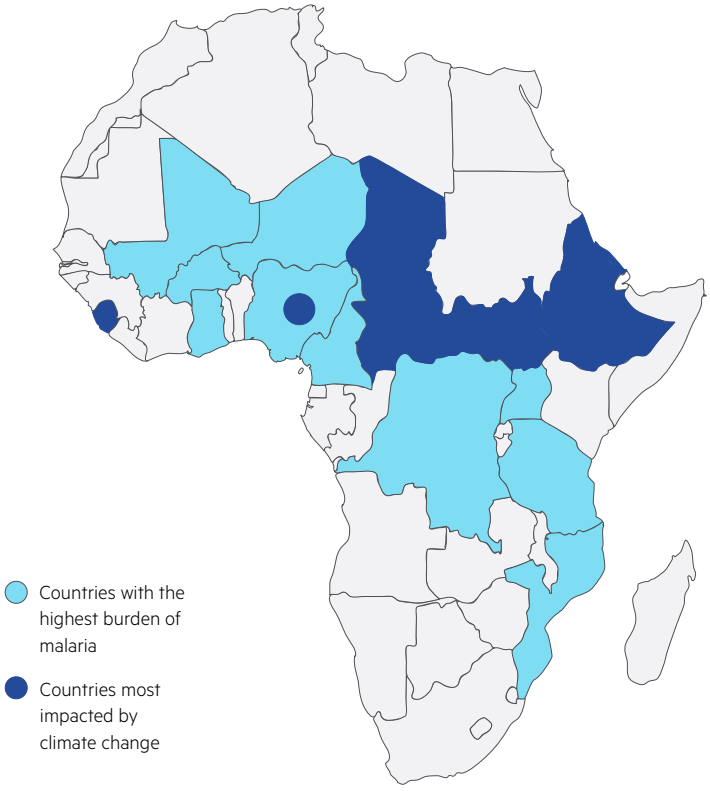
Both malaria and climate change exact a heavy toll on the economies of low-income countries. Malaria is estimated to cause an "economic growth penalty" of up to 1.3% per year in malaria endemic African countries[v]. The negative effects of climate change are already affecting the GDP of Africa by approximately 1.4% and the costs of adaptation are expected to reach 3% of annual GDP by 2030, if global warming reaches 4°C[vi].

Africa: continent most impacted by climate change and malaria

Africa is particularly vulnerable to both climate change and malaria. The continent accounts for over 90% of the global malaria burden and bears the brunt of climate change impacts, with 7 out of 10 countries in the world considered most threatened by climate change and 10 countries with the world's highest malaria burden[iii].

Rising temperature trends impact the geographic distribution of malaria. For instance, greater parts of the East African highlands, especially at altitudes above 1,500 metres, will be able to support malaria transmission, which is particularly concerning when densely-populated areas become warmer. In contrast, due to rising aridity, fewer people on the fringes of the Sahel region may be exposed to endemic malaria[iv], however may be at greater risk of epidemic malaria with associated high mortality rates.

Figure: African countries most affected by climate change and malaria



Focus on extreme weather events:
Impacts of Cyclone Idai

Extreme weather—such as floods, droughts, cyclones and heatwaves—is the most apparent effect of climate change and are becoming more intense and frequent. El Niño-Southern Oscillation Events, also known as the El Niño and La Niña phenomena, have also shown to impact malaria prevalence. While heavy rainfall and storms can wash away breeding sites, floods tend to increase suitable breeding sites for the malaria-carrying mosquitoes. Delays in distribution of critical supplies such as mosquito nets and antimalarial drugs can result in increased cases and deaths in a single season, reversing years of progress. Furthermore, populations displaced due to extreme weather events can bring the parasite to previously malaria-free areas.

When Cyclone Idai unleashed its destructive force in March 2019, it left some 1.85 million people in need of assistance in Mozambique and rang "yet another alarm bell" about climate change, according to the UN Secretary-General[vii]. Stagnant floodwaters left in the cyclone's wake made for perfect mosquito breeding grounds, while many people lost their homes and, with them, protective bed nets.

Mozambique is the third highest malaria-burdened country in the world, and although a large malaria outbreak has been avoided thanks to rapid emergency response, extreme weather events such as Cyclone Idai put an added pressure on already stretched resources of malaria-affected countries.

‘One Health’ approach to malaria and climate change

Effectively tackling climate change and malaria elimination requires a joint approach between public health and environment professionals. Coordinated efforts will help improve environmental, social and economic wellbeing, whereas failure to do so will set us back in the achievement of Sustainable Development Goals.

Climate change preparedness

Countries are starting to integrate climate-related risks in their national malaria control and elimination strategies and programmes:

- **Botswana** has established an early warning system that integrates seasonal rainfall forecast with population and health surveillance information, thus reducing the time needed to respond to malaria epidemics by up to four months[viii].

- **Bhutan** is among the countries that are on track to become malaria-free by 2020, however climate change may hamper the achievement of this historic milestone. Bhutanese health workers have been trained on collecting data on malaria and other climate-sensitive diseases in real time using mobile phones. This helps better predict incidence of such diseases in non-endemic areas[ix].

Nature-based solutions

Mosquitoes often find plenty of favourable habitat in biodiversity-rich natural areas, which are very important for climate change mitigation. Nature-based solutions to mosquito control could help both improve the health of human populations and the diversity of natural ecosystems[x].

- Mosquito larvae are aquatic and often share habitat with other species, including amphibians and fish, which are their natural and efficient predators. However, amphibian populations are declining globally and are particularly vulnerable to climate change. Some countries such as **India** are exploring the potential of using amphibians and larvivorous fish for mosquito control.

- Rice production in sub-Saharan Africa has doubled over the past 10 years and is projected to double again by 2030. Rice paddies are a perfect breeding ground for mosquitoes and have contributed to malaria increase in countries such as **Rwanda**. Without joint vector management strategies, gains in food production may set back the gains made against malaria.

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For more information

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