

# Dams fuel malaria cases in Africa

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While dams are critical to ensuring water and food security throughout Sub-Saharan Africa, small dams in particular pose a greater risk of malaria transmission, a study says.

According researchers, although the negative effects of large dams on

[malaria transmission](#) is known in Sub-Saharan Africa, evidence on the potential impacts of both small and large dams is lacking.

The study published in *Scientific Reports* examined the relative impacts of small and large dams on malaria transmission in four [river basins](#) in Sub-Saharan Africa: the Volta in West Africa, the Limpopo in Southern Africa, the Omo-Turkana in East Africa and the Zambezi in Southern Africa.

Researchers analyzed new malaria cases from the Malaria Atlas Project database for the years 2000, 2005, 2010 and 2015, with a focus on 4,907 small dams and 258 [large dams](#) in the four basins that had nearly 15 million people living close to their reservoirs in 2015.

"Small dams were responsible for the bulk of malaria transmission in each basin," says Matthew McCartney, a coauthor of the study and research group leader on sustainable water infrastructure and ecosystems at the International Water Management Institute (IWMI), Colombo, Sri Lanka. "The overall impact of dams—large and small—on malaria transmission is much greater than previously thought."

McCartney believes these hotspots of malaria transmission should be a critical focus of future malaria control efforts.

According to the study, between 0.9 and 1.7 million malaria cases a year were attributable to dams, with between 77 and 85 percent due to small dams.

"This is likely because populations and population densities are greater in the vicinity of small dams, and because small dam reservoirs tend to provide a more conducive environment for malaria [transmission](#)," it says.

Despite significant progress in the fight against malaria over the past 20 years, the disease remains a major problem for Sub-Saharan Africa. In 2019, 94 percent of malaria cases and deaths occurred in the Africa region, World Health Organization (WHO) figures show.

"Governments of Sub-Saharan Africa, the WHO and organizations fighting malaria across Africa need to care about our study," says McCartney. "In addition, those building and managing dams—large and small—should be aware of the potential for dams to increase malaria burden and have a responsibility to try and mitigate adverse impacts."

Jonathan Lautze, a coauthor and research group leader of integrated management of basins and aquifers at IWMI, Pretoria, South Africa, tells SciDev.Net that the study compared malaria levels in populations less than five kilometers from dams with malaria levels in populations more than five kilometers from dams.

"The balance is to build dams in a way that ensures malaria does not increase. Achieving that aim may require thinking more broadly and ambitiously about malaria control efforts, reservoir management and environmental approaches in addition to more conventional techniques like bed net distribution and rapid detection," Lautze explains.

Donald Apat, program manager for the Global Fund Malaria Project at Amref Health Africa, agrees that dams have negative environmental effects including creating breeding grounds for mosquitoes.

"Human populations will always increase towards water bodies and that increases contact with the malaria parasite vector," explains Apat.

He says that there is little focus on environmental management in [malaria](#) control, adding: "We need a multisectoral approach that brings together health experts, dam designers and engineers to ensure

environmental control measures are put in place in water dam projects."

**More information:** Solomon Kibret et al, The impact of large and small dams on malaria transmission in four basins in Africa, *Scientific Reports* (2021). [DOI: 10.1038/s41598-021-92924-3](https://doi.org/10.1038/s41598-021-92924-3)

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