



# DRONE SURVEILLANCE OF MALARIA: A JAPANESE STARTUP'S GLOBAL HEALTH EFFORTS

*Malaria is killing people and hampering economic growth in Africa. To eradicate this infectious disease, a Japanese startup has been utilizing drone technology.*

Malaria ranks with acquired immunodeficiency syndrome (AIDS) and tuberculosis as one of the world's three major infectious diseases. *Plasmodium falciparum*, a parasite carried by mosquitoes, breeds in red blood cells, causing a high fever and other symptoms that often lead to death if not treated promptly and appropriately. According to

a report by the World Health Organization (WHO), an estimated 247 million people worldwide were infected with malaria in 2021, of whom 619,000 died. Ninety percent of malaria cases are concentrated in Africa, posing a serious threat to the health of Africans and stunting social development through higher medical costs,

absenteeism among children, and a decline in the labor force.

SORA Technology, a Japanese startup, has joined the fight against malaria. The company has developed SORA Malaria Control (*sora* meaning "sky" in Japanese), a service that combines aerial drone images with multiple AI technologies to efficiently detect and manage puddles with a considerable risk of harboring mosquito larvae. Since 2022, SORA Technology has been running a pilot project to implement this service in Sierra Leone, a country on the coast of Western Africa. While the WHO has recognized larval source management (LSM) as a highly effective method, it is not yet in widespread use due to the

Drone demonstrations and training in Sierra Leone, in collaboration with the Directorate of Science, Technology and Innovation and Njala University. Fixed-wing drones are often used because of their long flight range and easy maintenance. The company's founder and CEO, KANEKO Yosuke, is in the front row, far left.

labor costs involved in finding puddles and spraying insecticides, not to mention the large amount of insecticides required for such a task. But SORA Malaria Control can reduce those costs significantly, which bodes well for the implementation of LSM. SORA Technology plans to complete its pilot project in 2024, obtain funding from local government agencies and international donors, then begin full-scale project implementation. As mosquitoes and water transmit many other infectious diseases in addition to malaria, such as cholera and dengue fever, research is underway to apply SORA Malaria Control to the building of surveillance systems for those transmissible diseases as well.

Mary Yeboah Asantewaa, from Ghana, works as a Health Tech/Africa Business Specialist at SORA Technology. She said, "I joined SORA Technology because I wanted to engage in Africa-related work for a tech company that's committed to global health." As the only African employee, she is working hard to build a network for the effective use of drone technology on the

Japan has a long history of medical cooperation in Africa, having established the Noguchi Memorial Institute for Medical Research in Ghana in 1979 to study infectious diseases. Japanese Prime Minister Kishida visited the institute this May.



Left: Drone flight tests in Sierra Leone. Since multicopter drones have an advantage over fixed-wing drones in terms of imaging accuracy, both may be used depending on the situation.

Right: SORA Malaria Control utilizes several image analysis technologies to determine the parameters of puddles, including depth, temperature, and the surrounding vegetation, in order to assess the risk of mosquito larvae breeding.

continent. SORA Technology signed a memorandum of understanding (MOU) with Senegal's Institut Pasteur de Dakar in January 2023. The MOU states that both parties will initiate discussions and explore innovative collaboration on the use of drones as a tool to prevent future infectious disease outbreaks and improve public health in rural Africa. Earlier, SORA Technology had concluded an MOU on the "Establishment of Medical Drone Infrastructure in Sierra Leone" with Sierra Leone's Directorate of Science, Technology and Innovation and Njala University, to build drone infrastructure with the primary purpose of delivering medical supplies. The company plans to continue researching the operation of SORA Malaria Control in collaboration with academia, and to work with the Noguchi Memorial Institute for Medical Research in Ghana on measures to combat a new species of mosquito, *Anopheles stephensi*, that has appeared in Ghana.

SORA Technology's efforts were accepted because of the trust that Japan has built up over many years of international

cooperation. Asantewaa said, "We Africans need the cooperation of the Japanese government and Japan's superior technology, such as that provided through the Japan International Cooperation Agency (JICA)." Japan will continue to focus on cooperation at both the national-government and private-sector levels to eradicate malaria and other infectious diseases. ●

Mary Yeboah Asantewaa became interested in healthcare after volunteering at a hospital while a student at the University of Ghana. She studied in Japan through the Japan Africa Dream Scholarship program, a project launched in 2017 by the African Development Bank and the Government of Japan, where she earned a master's degree in public health. Based on such a background, she focuses on leveraging drone technology and data analytics to bridge healthcare gaps and empower communities through SORA Technology.

