Climate and health sector collaboration

Dengue in Bangalore

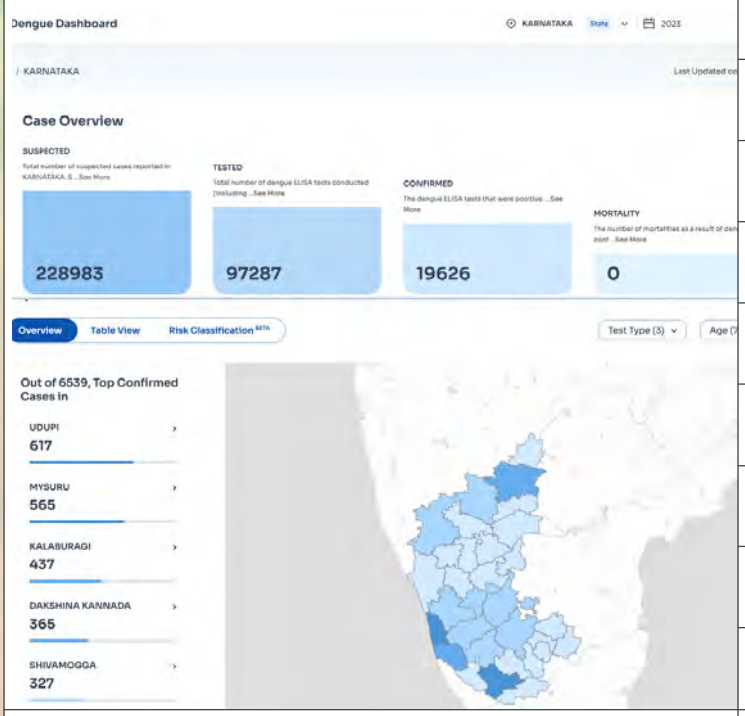
Problem

The incidence of dengue is heightened in Bangalore over the summer monsoon season when pools of stagnant water emerge, relative humidity rises, and temperatures increase, forming the ideal breeding ground for *Aedes aegypti* mosquitoes. Climate change has only worsened seasonal outbreaks, as longer rainy seasons and more frequent flooding have allowed mosquitos to thrive. In 2023, Karnataka State recorded its highest number of dengue cases in a decade, with health officials looking for ways to better anticipate, monitor, and manage these cases.

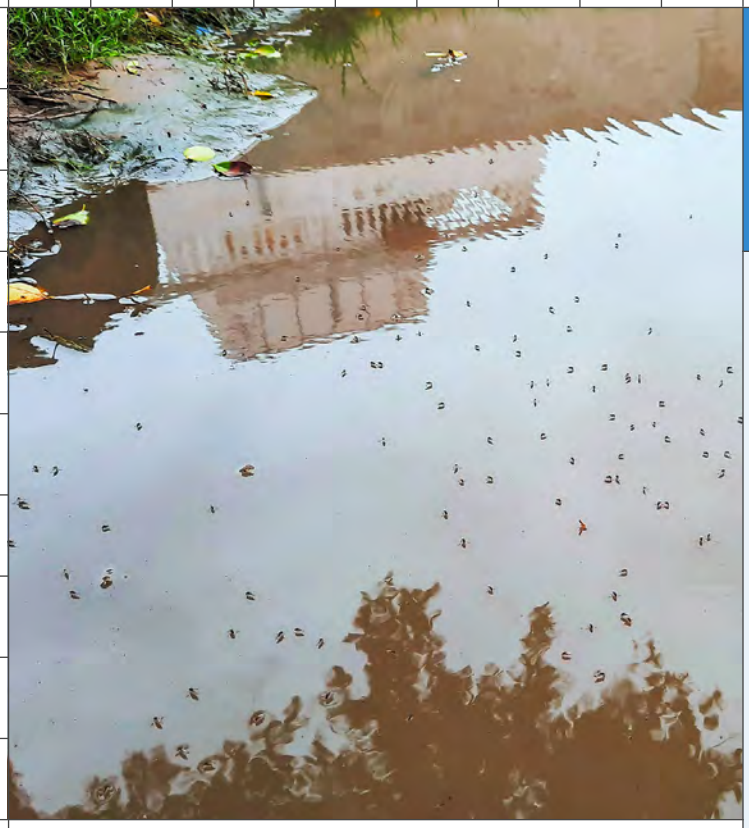
Analytics in action

The Artificial Intelligence and Robotics Technology Park (ARTPARK) built a system for tracking dengue data across Bangalore. By integrating this data with meteorological forecasts, vector surveillance, socioeconomic data, and urban land use data, ARTPARK built a platform for health practitioners across the city to better forecast, track, and respond to outbreaks.

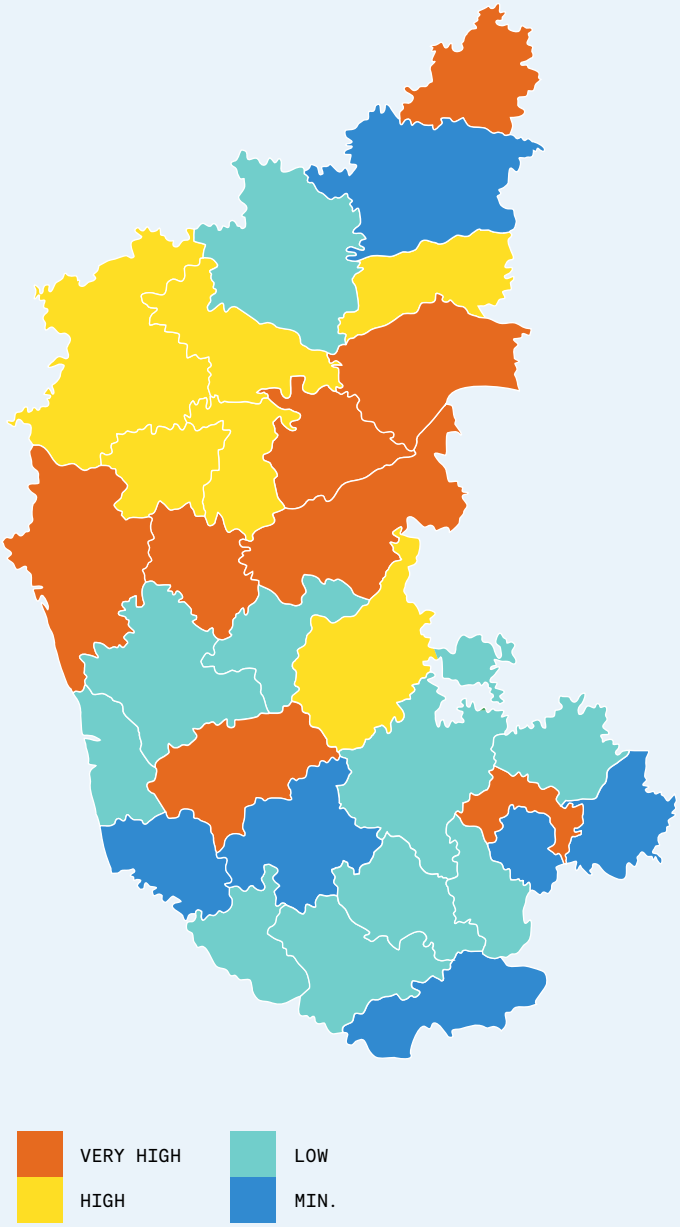
The data is then made available through the Dengue Platform, which provides risk classification forecasts for dengue outbreaks across districts and sub-districts up to 4 weeks in advance, allowing city administrators to strategically coordinate prevention and mitigation activities.



Numbers are not reflective of real case numbers, and are for demonstrative purposes only



Karnataka map showing 4-week predictive risk forecasts at a district level (image for representational purposes only)



Impact

The Platform has streamlined dengue management for a population of over 7 million. The app is now being used by 1,000+ frontline community health workers and registering approximately 10,000 site surveys daily during the peak season. Frontline workers have identified over 80,000 breeding sites so far by taking a photo of a vector site and answering a short survey.

The Dengue Platform's nowcasting service has been taken up by approximately 50% of practitioners at the state level, facilitating pre-emptive disease control and resource allocation by local governments. The platform has proven so effective that it is proposed to be incorporated into the BBMP's Integrated Command and Control Center and India's Integrated Health Information Platform, a nationwide system which monitors and detects diseases early to inform interventions.