

## **AECO: Vector biology of *Aedes albopictus* and eco-bio-social drivers for effective vector prevention & control in cooler ecoregions**

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The Asian tiger mosquito *Aedes albopictus* belongs to the world’s most feared mosquito species with high social and medical importance because it transmits dengue and chikungunya viruses amongst others. In order to establish scientific and technical basis in the field of Medical Entomology and One Health, the eco-bio-social research plan of the junior research group AECO focus on (i) the vector biology of the highly invasive mosquito *A. albopictus* and (ii) eco-bio-social aspects influencing vector prevention & control practices along a climatic gradient in a dengue and chikungunya epidemic country (Nepal).

In the subproject #1 we analyse the potential association of cold hardiness and morphological and epigenetic plasticity in *A. albopictus* eggs in order to better understand the rapid adaptation of this originally tropical to subtropical species to cooler ecoregions (such as Germany). Therefore, *A. albopictus* eggs will be collected in Nepal along a climatic gradient which serves as surrogate for climate change. The physiological data will feed species distribution models with new phenological data and thereby advance the forecast of this invasive species in temperate regions under climate changes.

In parallel in subproject #2, we assess the people’s knowledge and attitude on mosquito-borne diseases and their vector prevention and control practice at different altitudes. A second focus will set on the evaluation of the quality of water service and water storage behaviour at different altitudes versus the actual presence/abundance of mosquito vectors in the surroundings of houses. Based on the analysis of an eco-bio-social dataset, the main drivers for the practice and social acceptance of different preventive and control measures against mosquitoes will be assessed in order to support national one-health strategies to efficiently combat dengue and chikungunya illnesses in Nepal.