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Climate Sensitive Diseases in the Mekong Region: Can We Predict Pests by Climate Factors?

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Abstract

A warmer, wetter world is likely to be sicker. The Mekong is a hotspot for human, animal and plant diseases, and some of the most important are highly sensitive to climate and climate changes. These diseases can impose enormous burdens on human health and the agricultural sector and hinder broader development. Better response to climate sensitive disease requires better information and tools. The objective of the project we are presenting here is to develop tools to forecast climate-sensitive animal and plant diseases in Vietnam and Laos. Key work packages will include (among others) developing and disseminating maps of hotspots for selected climate-sensitive animal and zoonotic diseases, piloting a real-time prediction system, and exploring the potential for weather-based forecasting for aflatoxin mitigation (only Vietnam). As climatic-sensitive animal diseases and zoonoses leptospirosis and Japanese encephalitis have been identified in stakeholder consultations for Vietnam. Leptospirosis is caused by bacteria hosted by mammals, although the rodent-borne serovars are most often associated with serious human diseases which get infected through contact with contaminated water. Japanese encephalitis is a vector-borne viral disease transmitted by culicine mosquitoes from the amplifying hosts (e.g. pigs) to humans, where disease can be fatal. Aflatoxins, produced by *Aspergillus* spp in cereals, can cause acute or chronic aflatoxicosis in humans. The association of these diseases and meteorological conditions is evaluated and models will be built to predict future occurrence. If the models are successful in predicting disease, the aim is to provide policymakers and stakeholders with tools to aid in mitigating future disease and to make susceptible societies more resilient to future climate change. The ultimate outcome targets farming communities that are able to take practical action to reduce disease risk and/or benefit from risk-mitigating action provided by health providers. A framework which will guide through the various work packages will be presented and discussed. The project is funded by the CGIAR programme on Climate Change, Agriculture and Food Security (CCAFS).

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