

Climate change and animal Infections

Christoph Staubach*, Franz Conraths, Thomas Mettenleiter

Friedrich Loeffler Institut, Insel Riems
*- Email: Christoph.Staubach@fli.bund.de

Abstract

Infectious diseases of food-producing animals continue to impact on agriculture worldwide. Recent years have seen an expansion of infectious diseases into new geographic areas (e.g. African Swine Fever, Peste des Petits Ruminants), in particular vector-borne infections (e.g. West Nile Fever, Bluetongue, Rift Valley Fever). In addition, populations of potential vectors have increased their range appearing in areas which previously were devoid of them (e.g. *Aedes albopictus*, *Aedes japonicus*). Moreover, resident vector populations have shown competence for transmission of infections which were either not present in this region before (e.g. Bluetongue in Central Europe) or even totally unknown (e.g. Schmallenberg Virus). Although expansion of infections and vector populations may coincide and sometimes correlate, the respective underlying reasons remain mostly unclear. Globalization of trade, large scale movement of humans across the globe, the intrusion of human populations into hitherto untouched natural habitats, urbanization as well as climate change have been shown to be drivers of these changes in ecology of infectious diseases. Although the impact of macroclimatic changes on infectious diseases remains largely enigmatic due to the lack of long-time observational studies under comparable conditions, modelling demonstrates that climate change can have both a positive and negative effect on infectious diseases and vector populations. Whether these models have any predictive value remains to be validated.