

GIS-based models and risk assessment to establish effect of climate change on *Salmonella* in Aquaculture in South-east Asia

Occurrence of *Salmonella* in tropical aquaculture environments causes problems to food safety, export of cultured produce and human health. This includes countries like Bangladesh, China, Thailand and Vietnam which are main producers of aquacultured foods. Contamination with *Salmonella* may occur at any step along the production chain from aquaculture ponds to processed products. The occurrence of *Salmonella* is associated with faecal pollution originating from animals and humans, e.g. through contaminated surface run-off water and direct faecal pollution of the aquaculture environments. Some studies indicate that *Salmonella* may even multiply in tropical aquaculture environments.

The contamination, transmission and survival of *Salmonella* and other pathogens in tropical aquaculture depends on location of production sites and a number of environmental factors that varies both geographically and temporally, e.g. due to changes in climatic conditions. In particular, temperature changes and increased surface run-off water due to flooding caused by extreme rain events will lead to increased faecal contamination of aquaculture environments. This PhD project aims to establish risk based models on contamination, transmission and survival of *Salmonella* in tropical aquaculture under climate change conditions. Models will be established for selected aquaculture sites in Bangladesh, China, Thailand and Vietnam within the framework of an ongoing EU-funded FP7 project. Data from literature on *Salmonella*, environmental data, experimental data from the EU project and other sources will be entered into GIS systems and analyzed by Quantitative Microbial Risk Assessment (QMRA) modeling to assess the effect of climate change on *Salmonella* in tropical aquaculture. The PhD fellow will be working within the framework of ongoing research projects in South-east Asia and will be expected to spend substantial time in the region.

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