Nutritious-system pond farming in Vietnam

Summary

The project aims to implement a novel “nutritious-system” concept in aquaculture, using microbial processes for mineralization of wastes and the production of high quality natural foods. In cooperation with the industry, novel nutritious-system-feeds are developed that are as easy in use as normal feeds, but cheaper, and that target simultaneously natural food production and feed fish and shrimp. Research focuses on generating (1) insight in which factors contribute to the transfer of essential PUFAs through the pond food web into fish or shrimp, (2) ways to balance the algae (autotrophic):bacteria (heterotrophic) ratio for optimal decomposition, maintenance of water quality and nutritive value of fish or fish shrimp, and (3) analyzing and supporting the process of joint design and technology development. Research findings will be communicated and popularized through (peer-reviewed) papers and meetings and will contribute to the development of novel nutritious-system feeds and ingredients.

Midterm summary of progress

The project aims to increase the contribution of natural food produced in ponds to the target production, and to make aquaculture less reliant on fish-oil and fishmeal. Fundamental research on pond ecology and food web dynamics will provide insight on how to replace this contribution. Novel insights are shared and discussed within a multi-stakeholder innovation platform (IP) to design and evaluate iterative trials at farm level to ultimately design new nutritious-pond-feeds for aquaculture.

- Research showed that removing fishmeal and -oil from shrimp feed did not reduce significantly shrimp growth. Also replacing expensive organic nitrogen and carbon inputs by cheap inorganic forms did not affect shrimp growth;
- Participatory analysis of the shrimp system showed that for the uptake of the technology, the nutritious system ponds need to be more resilient to climate change and disease agents than existing systems, and need to counteract inefficiencies in input quality control and disease management at the landscape level.
- An innovation platform composed of farmers, extension service, private sector, researchers and NGOs defined experimental trials and their monitoring. The results of these first trials will be discussed within the IP early 2017 together with results from fundamental research components of the project.