Food & Business Knowledge Platform

NWO

Factsheet final findings Global Challenges Programme Call 2

ALEGAMS: Assessing Learning Effects of Serious Games on Attitude of Stakeholders on Sustainable Shrimp Farming in the Mekong Delta, Vietnam

Summary

Integrated mangrove-shrimp systems (IMS) combine mangrove forests with extensive shrimp farming. IMS are compulsory farming systems in the buffer zone along the coast of the Mekong Delta of Vietnam. ALEGAMS aimed to change the attitude of farmers and policymakers towards IMS, and thereto assessed whether:
1. Realistic board games (RBG) can change farmers knowledge, attitude on IMS.
2. Combining RBG and participatory agent based models (ABM) can modify policymakers' knowledge and opinion on IMS and sustainability of intensive shrimp farming.
The team developed a board gaming called "Good Shrimp Farming". Playing this game made farmers aware of the risks of intensive shrimp monoculture. Back home, the farmers consulted each other more often than before and asked less advice from biased salesmen of veterinary products.
An ABM simulating farmers decisions through time showed that, under present shrimp policies and technology, monoculture will expand but has almost reached its maximum total yield and income, while bankruptcies will increase. Those tendencies were stronger in a climate-change scenario while IMS hardly expanded in an organic scenario.

Final research findings

Overall, playing the game gave farmers an improved understanding of the (long-term) impact of their decisions related to the risks and opportunities of various farming systems. The research team improved its understanding on when and how serious games can be used best as interventions, and on the effect of local conditions and barriers to learning.
Simulation runs of the ABM indicated that, under present shrimp policies and technology, intensive farming will expand and, in particular in Ben Tre, threatens the mangrove cover. Moreover it showed, that the present intensive shrimp monoculture almost reached its maximum total yield and income. The focus on monoculture decreases the financial stability of the farms and increases the number of bankruptcies. The latter tendency increased when including climate change in the simulations. In simulations of an organic farming scenario, Integrated Mangrove Shrimp (IMS) hardly expanded as the intensification' trend persists.
A Q-assessment showed that policy-makers shifted opinion after the 'policy' workshop. After hearing the outcomes, and experiencing the game and the ABM, the overlap and ambiguity of three original opinions disappeared and three distinguishable opinion types emerged. At the end, the vast majority of these participants, favoured active intervention to maintain mangrove and make shrimp farming more sustainable.

Achieved outcomes

The assessment of the Good Shrimp Farming board game showed that:

- The more often farmers played, the better they succeeded to avoid financial losses, but this resulted also in less players with exceptionally high gains.
- After playing, back home, the farmers consulted each other more often than before and asked less advice from the salesmen of veterinary products.
- Combining the RBG with ABM, changed decision-makers' understanding of local dynamics, and farmer's attitudes, goals and decisions.

Two stories demonstrated the change signalled above:

- Playing the game confirmed a farmer's thoughts about the different risk levels. He finds "that intensive monoculture is only suitable for those having a lot of money." He aims to practice a “sustainable” hybrid model to improve his income and save the environment.
- A farming extension agent found the game realistic and useable to compare the system's stability and to recognize the importance of IMS. The game can be used to advocate technologies. He intends to apply a hybrid system of IMS with small intensive ponds.

Messages to

Civil society:
Playing the game will increase impact of trainings and extension services.

Private sector:
The focus on intensive shrimp culture makes financial results of the farms less robust and increases the number of bankruptcies, thus restricting the total yield of the sector.

Policymakers:
To mitigate and adapt to climate change, by expanding both mangrove cover and IMS, respectively, requires a drastic shift in policies, otherwise intensification continues at the expense of the area of Mangrove.

Knowledge products

- Policy Brief "Coastal Zones Need Both Mangrove and Shrimp", by ALEGAMS project research team (December 2018)
- Board game, guidelines and video (November 2018)
- Monograph "Aquaculture and Forestry Activities in Binh Dai district, Ben Tre Province, Vietnam", by Anh Kim, Bosma H. Roel, Tran T.P. Ha, Ligtenberg Arend, Van P.D. Tri, Bregt Arnold (April 2016)
- Monograph "Aquaculture and Forestry Activities in Duyen Hai district, Tra Vinh Province, Vietnam", by Tong Q. Hiep, Bosma H. Roel, Tran T.P. Ha, Ligtenberg Arend, Van P.D. Tri, Bregt Arnold (April 2016)

Knowledge networks

Games4Sustainability

Co-creation

The regular contacts, feedback and joint collaboration on the reporting of results creates a good platform for a fruitful process of co-creation of knowledge and strategies within the project group.

Consortium Partners

- Laboratory of Geo-information Science and Remote Sensing, Wageningen UR, the Netherlands
- Aquaculture and Fisheries Group, Wageningen UR, the Netherlands
- Can Tho University, Vietnam
- IUCN, Vietnam

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Project website

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