Effect of social and economic drivers on choosing aquaculture as a coastal livelihood

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Abstract

Aquaculture is proposed as a means to income generation and food security in developing nations. Understanding drivers of attitudes and perceptions towards choosing aquaculture as a livelihood is essential to aid policy makers in promoting its development. This paper takes a new approach to establishing a baseline of these social and economic drivers. We used simple metrics familiar to policy makers collected in face-to-face semi-structured interviews – e.g. education level, time availability to work and income level – to predict willingness of individuals to adopt aquaculture as a livelihood. We compared modelling approaches ability to provide insights into effects of social and economic factors on willingness of 422 household decision-makers in coastal villages in Tanzania to participate in sea cucumber aquaculture as an alternative livelihood. Linear regression identified the factors; time available for a supplementary livelihood, gender, social network strength and material style of life as significantly predicting individuals' willingness to adopt aquaculture. A Bayesian Belief Network (BBN) model of community data created using logistic regression results, open response analysis and critical literature appraisal allowed intuitive manipulation of factors to predict the influence of aquaculture uptake drivers and constraints. The BBN model provided quantified predictions of the effect of specific policy interventions to promote aquaculture uptake within the modelled community. The analysis from the BBN model supports its broader use as an assessment tool for informing policy formulation by highlighting key areas of intervention to increase willingness to uptake aquaculture among target groups, such as low income households and women. BBNs provide a modelling approach that allows policy makers to visualise the influence of socio-economic factors on the success of introducing aquaculture in different local contexts.