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Extended Abstract

Gender and Emotions in the Appraisal and Management of Climate-Related Risks in Inland Aquaculture

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Abstract

Fish farmers in Northern Thailand who rear Tilapias (*Oreochromis niloticus* (Linnaeus 1758)) and (*Oreochromis mossambicus* (Peters 1852)) x (*Oreochromis niloticus* (Linnaeus 1758)) in floating cages in rivers face significant climate-related risks, in particular from droughts and floods. Women play significant roles in taking care of the fish, raising the question of whether their experience of risks and how they manage risks differ from that of men. This paper is a review of the gender-related findings from a series of studies in Northern Thailand. Gender differences found in perception and management of risks could not be explained by gender differences in attitudes to risk as measured on risk aversion scales. Investigation of feelings around risk-taking suggest that appraisal of risks involves both analysis and emotions, and is not identical for women and men. Overall, the studies found that modest gender differences and emotions both influenced risk-taking and decision-making, and thus are significant factors in how climate-related risks are managed.

Introduction

Although it is common to assume women are more vulnerable than men to climate change and cast them as victims (Cornwall et al. 2007), empirical evidence in many livelihood and geographical areas is lacking (Jost et al. 2016). Moreover, there are concerns that intervention programs may multiply burdens for women, leading to calls for more critical research on how gender actually influences the experience and management of climate-related risks (Lebel et al.

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2017). This short paper reviews the findings related to gender of a set of recently published studies by the authors. It is a summary of the paper presented at the 6th Global Symposium on Gender in Aquaculture and Fisheries.

In Northern Thailand, Tilapia and a few other species are reared in earthen ponds as well as floating cages in rivers and reservoirs. Extreme weather events and climate have significant impacts on farm profits, in particular, floods and droughts. Climate risk management and investment decisions are important to farm profitability (Lebel et al. 2016a). Women often play a major role in taking care of fish and in rearing decisions (Lebel et al. 2009), although this varies with gender relations within households (Kusakabe 2003). Studies of risk aversion of salmon farmers in Norway (Bergfjord 2009) and reservoir culture in Northern Vietnam (Petersen and Schilizzi 2010) suggest fish farmers are risk averse; whereas a study of channel catfish culture in the USA found levels of risk aversion varied widely among individuals and was associated with practices such as stocking densities (Dasgupta and Engle 2007). Little is known however, about how gender and emotions influence risk appraisal and management decisions.

Materials and Methods

These studies used mixed methods: in-depth interviews, direct observations, a role-playing game (Lebel et al. 2016b), and quantitative surveys (Lebel et al. 2015b) to assess how gender and emotions influence the management of climate-related risks (Lebel and Lebel 2016c). The main studies were done with river cage fish farmers in four regions in Northern Thailand with different climates and river flows; with some additional observations and comparisons with cage culture in reservoirs (Lebel et al. 2016a), culture in ponds and crop agriculture (Lebel et al. 2017).

Results

Women consistently expressed slightly greater concern than men for most climate-related risks (Lebel et al. 2015d). Women were also more likely than men to perceive that droughts had become more severe and to be ‘very concerned’ with future climate change (Lebel et al. 2015c).

In line with these differences in risk perception at the farm level, women placed greater importance than men on monitoring, reducing costs, preparing equipment, and diversifying income sources as climate risk management strategies (Lebel et al. 2015b). At the river level, women placed greater importance than men on the operation of water infrastructure and watershed management, but did not attach more importance to participation in water governance where they felt they had little influence. Differences in climate-related risk management practices could not be explained by attitudes towards risk: women and men showed similar levels of risk aversion on two standard scales (Lebel and Lebel 2016c).

Some additional insights, however, were gained from considering emotional responses to risk and decisions (Lebel and Lebel 2016c). Women and men expressed similar emotions when discussing fish farming risks, except for pride and frustration, which men expressed significantly more frequently. Feeling worried, concerned, anxious or stressed, were the most common negative emotions referred to in interviews. Fear was a reason for not-taking risks. Anxiety in the period prior to harvest helps motivate risk management practices, such as close monitoring and aeration. Men who expressed pride performed better in the role-playing simulation game than those who had not, but for women there was no difference. Men who expressed feeling excited or thrilled chose riskier options than women.

Discussion and Conclusions

Gender differences and emotions both influence risk-taking and decision-making, and thus are significant factors in how climate-related risks are managed. This study adds an example, from a novel aquaculture context, to the body of knowledge that shows risk decisions are not just analytical considerations, but also influenced by emotions (Breakwell 2010; Loewenstein et al. 2001).

Although significant, the gender differences in behavior at the farm level found in this study were not very large. One reason is that commercial cage culture is already a relatively standardized set of practices, as a consequence of a history of contract farming arrangements and extension support. Gender differences are greater for cage culture in reservoirs, as this activity takes place

further away from home (Lebel et al. 2016a) than river cage culture which is often undertaken close to home (Lebel et al. 2014). Overall, most farm-level risk management options were equally accessible to both men and women, and in many households, decisions and actions were taken jointly.

At the collective level, participation in risk management, or governance, by women is much less than that of men. In this region men dominate water user groups, and play a much more prominent role in conflicts over water shortages and decisions on water allocation (Lebel et al. 2015a). Research on the roles of women in community-level water management, and gendered social norms in Northern Thailand (Lebel et al. 2017) suggest that it will be difficult for women to reduce risks to their farms at the larger, collective scales than it is for men. Further work is needed on how gender relations influence the management of water uses by aquaculture, as this is another area critical to the management of climate-related risks.

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