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Ph.D. Defence



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Title of the Thesis Colloquium:

**Analyzing deliberation and collective
action problems in environmental governance:
a case study of aquaculture policy program**

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Analyzing deliberation and collective action problems in environmental governance: a case study of aquaculture policy program

Addressing environmental governance challenges necessitates collaboration among diverse societal actors to collectively develop and modify rules, norms, and social structures. A significant obstacle in environmental governance lies in the problems of institutional fit, where the existing governance arrangements may be mismatched with the specific social-ecological conditions at the local level. This misalignment poses a hurdle to effective and sustainable environmental management. Collective action's theoretical lens is used in this study to navigate the varied interests, goals, and perspectives involved, aiming to comprehend the different factors influencing collaboration in the management of shared resources. Recognizing that collective action is inherently difficult, this dissertation focuses on the importance of deliberation to facilitate discussions on the risks, benefits, values, and capacities of different actors. The empirical studies in this dissertation are specifically centered on marine and coastal governance, with a particular focus on coastal aquaculture. Based on this, the dissertation aims to assess the potential of the deliberation process in enhancing policy programs and addressing collective action problems in aquaculture governance.

Chapter 2, titled "A systematic review of deliberation research in marine and coastal case studies", investigated research trends in deliberation in the context of marine and coastal systems. The findings indicated that there is an uneven spatial distribution of studies between the Global North and Global South. Most researchers have been actively participating in solving real-world problems by designing an effective deliberation process. The majority of case studies recommended deliberation to enhance participatory governance and science-policy integration. Chapter 3, titled "Can Indonesian collective action norm of Gotong-Royong be strengthened with economic incentives? Comparing the implementation of an aquaculture irrigation policy program", analyzed the implementation of an aquaculture policy program, the PITAP program, to solve collective action problems of maintaining shared irrigation canals with monetary incentives, monitoring, and sanctioning mechanisms. The results indicated that the PITAP program influences intrinsic motivation for collective action under certain social and ecological conditions. Due to the diversity of social and ecological conditions, there is a need for a local adaptation mechanism in policy design and implementation to improve outcomes. Chapter 4, titled "Improving the depth and complexity of stakeholder deliberation using images: experimental evidence from Indonesia", presents an experimental study to test whether a deliberation tool based on the Social and Ecological Systems Framework (SESF) can improve the depth and complexity of discussions. The quantitative findings indicated that the experimental study did not yield clear evidence to support these assumptions. However, there was a potential for the image-based SESF deliberation tool to facilitate resource users to discuss more about "Actors."

The quantitative findings were reflected on the political culture in Indonesia to provide contextual understanding of local deliberation processes.

The overarching conclusion of this dissertation underscores that environmental policies designed to enable capacities for deliberation processes can enhance context-adapted means and ends to address collective action problems. Integrating a deliberative approach into environmental governance involving communities and adhering to local norms not only addresses the challenge of fit but also avoids the pitfalls of adopting panacea policy programs, providing a nuanced and contextually relevant approach to sustainable environmental governance. This dissertation not only advances collective action theory but also offers practical guidance for decision-makers and practitioners involved in implementing aquaculture development in Lombok and Indonesia.