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Intra-village and inter-village resource use conflict in Indonesia: The case of the Kei Islands

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ABSTRACT

Resolving local resource conflicts in rural coastal communities is important for the implementation of effective resource management systems and development policies. This article examines the characteristics of small-scale fishing households that are prone to be involved in resource use conflict with other local marine resource users based on the data collected by a household survey in Indonesia. Intra-village and inter-village conflicts are examined separately. We find that social relationships and individual perceptions of changes in fishery conditions are strongly associated with both intra- and inter-village conflicts but in a different way for each type of conflict. Our results show that unintended consequences may arise from improving a social relationship between fishery users and their village leader. The improved social relationship discourages intra-village conflict but at the same time increases inter-village conflicts, thus creating a potential dilemma in conflict resolution. Our results also suggest that a perception of declining fishery conditions is correlated with an increase in inter-village conflicts when there is a perceived link between resource depletion and an increase in the benefits obtained by outsiders. Conversely, a decrease in the amount of resources available for exploitation may decrease intra-village conflict when in-group cooperation is needed to combat the declining environment.

1. Introduction

Indonesia is the world's largest archipelago nation with over 13,000 islands and has the sixth largest exclusive economic zone. By the early 2010s, Indonesia had become the second largest marine capture fisheries producer after China (FAO, 2014). However, unlike other large developed fishing nations, small-scale fisheries account for a large share of the production. For example, only 25% of the fishing vessels operating in Indonesia in 2012 were equipped with inboard motors, and more than 70% of these vessels were less than 5GT (DGCF, 2013). Although the contribution of fish production to Indonesia's total GDP is relatively small (< 3% in 2012), it creates significant employment opportunities in the vast coastal areas and provides the government with an important source of foreign exchange. Fish also accounts for more than 50% of animal protein intake, and rural coastal communities, such as those in eastern Indonesia, particularly rely heavily on

marine resources for their livelihood (World Fish Center, 2011). The sustainable use of local marine resources therefore plays a crucial role in improving food security and alleviating poverty among rural coastal communities (Béné et al., 2007).

Despite the small scale of individual fishing operations, there is growing concern about the ecosystem impacts of fishing and the health of marine resources in Indonesian waters.¹ The economic well-being of small-scale fishing households in Indonesia is sensitive to changes in the near coastal environment, as they operate in inshore waters given their limited capacity to travel long distances (Adhuri and Visser, 2007; Adhuri, 2013; Pomeroy et al., 2007). The degradation of local fishing grounds not only affects the livelihood of coastal communities but also increases competition and creates conflict among local resource users over the few resources available (Bennett et al., 2001; Homer-Dixon, 1994; Pomeroy et al., 2016). Such conflict is not unique to Indonesia but has long been recognized and documented worldwide as a problem

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¹ The major causes for concern, among other things, include the increasing number of both legal and illegal domestic fishers, as well as fleets from foreign countries, and the increasing access to more modern fishing equipment (Resosudarmo et al., 2009; Williams, 2007). Other causes include population growth, poverty and increased demand for fish, pollution from both land- and sea-based activities, and lack of public awareness and scientific knowledge (Heazle and Butcher, 2007; Novacek et al., 2001).

affecting the well-being of coastal communities (Bailey et al., 1986; Bennett et al., 2001; Hendrix and Glaser, 2011; Masalu, 2000; McClanahan et al., 2015; Pomeroy et al., 2016; Salayo et al., 2006; Scholtens et al., 2013; Stepanova, 2015; Yamamoto, 1995). Therefore, resolving local resource conflicts in developing coastal states is important to improve the productivity of small-scale fisheries and to build a suitable environment for the government to formulate effective development and resource management plans.

The different root causes of resource conflict have been identified in the literature. Pomeroy et al. (2016) argued that there are evident linkages between resource conflict and resource scarcity that accompanies the increased level of competition among different user groups. Drawing on case studies in North America, Charles (1992) argued that fisheries that are relatively “conflict-free” are those that have formulated balanced policies to meet multiple objectives, which include ecological, socioeconomic, and community-level perspectives. Bennett et al. (2001) examined fisheries conflicts in Ghana, Bangladesh, and the Caribbean and concluded that institutional failure is the key factor in fisheries conflicts. Pomeroy et al. (2007) found that co-management arrangements could lead to reduced resource conflict levels based on results from selected communities in Indonesia, the Philippines, Thailand, and Vietnam. Muawanah et al. (2012) reported similar findings from several Indonesian communities. Crawford et al. (2004) showed how community-based enforcement efforts help to handle conflicts associated with violation of resource management rules within and outside the community.

Although these existing studies provide insight into better institutional designs and community-level factors that facilitate successful fisheries management, thus resulting in better conflict management, research is relatively underdeveloped with regard to individual-level factors and perception of small-scale fishers, who are susceptible to conflict with other local marine resource users. In particular, only a limited number of studies have used a sample of household-level data to explore the underlying factors that are systematically associated with fishers' involvement in local resource use conflicts (Muawanah et al., 2012; Pomeroy et al., 2007). Examining the characteristics of individual resource users, along with community-level characteristics, as a potential driver of resource use conflicts is important. That is, how individuals become involved in a conflict may depend on the specific way in which they operate in a fishery and how they perceive the changes in the coastal environment and form social relations with other community members.

Available evidence suggests that the way individuals operate in a fishery can trigger conflict through different channels, including competition for limited resources, access to fishing grounds, and the use of destructive fishing techniques (Pomeroy et al., 2016; Thorburn, 2000). The perceptions of the local coastal environment and management systems are known to differ among individuals depending on a multitude of social, economic, and cultural factors, and these differences affect resource use practices (Cinner and Pollnac, 2004; Hatcher et al., 2000; Kramer et al., 2002; Muawanah et al., 2012). Moreover, previous studies suggested that the fishers' behavior in small-scale fisheries varies significantly, depending on factors outside the domain of the fishery, including their level of social interaction, community engagement, and perceptions of external threats, such as population growth and the degradation of inshore habitats (Andrew et al., 2007; Béné et al., 2010; Cinner et al., 2012; Turner et al., 2014). However, the potential linkages between these individual factors and resource use conflicts remain under-explored.

This study aims to enrich the empirical literature on individual factors that can influence exposure to conflicts over the use of marine resources. Our main contribution is to examine the profile of individuals who claim to be involved in a conflict with other marine resource users in the local community and their perception of the changes in their fisheries and external environment. We use data collected from a household survey in the Kei Islands, which are remotely situated in

the southeastern part of Maluku province in Indonesia. The Kei Islands provide an instructive case study of local resource use conflicts in Indonesia, with possible relevance for other developing coastal states. The socioeconomic status of rural coastal communities in Indonesia, including those in the Kei Islands, is closely related to the health of the surrounding coastal ecosystems (Adhuri and Visser, 2007; Adhuri, 2013; Hoshino et al., 2016; Pomeroy et al., 2007). Previous field studies also identified that the small-scale fishing households in the region are prone to resource-related local conflicts (Adhuri, 2013; Girsang, 2011; Thorburn, 2001, 2000).

Many different types of conflict over the use and management of marine resources have been documented worldwide (Pomeroy et al., 2016; Stepanova, 2015; Stepanova and Bruckmeier, 2013). Salayo et al. (2006) reviewed fishery-related conflicts in South and Southeast Asia and found that each conflict over the use of fishery resources could involve different resource user groups in the local community. To categorize different types of fishery conflicts, Charles (1992) and Bennett et al. (2001) proposed a typology of conflicts according to jurisdictional boundaries and players who are involved in the conflict. According to this typology, the type of conflicts considered in this paper is a conjunction of Type III (i.e., relations between fishery users) and Type IV (i.e., relations between fishers and other users of the aquatic environment) conflicts. Our contribution in examining these types of conflict is that we further distinguish different types of resource use conflict with respect to whether a conflict occurs within the same village (*intra-village conflicts*) or involves individuals from different villages (*inter-village conflicts*). The distinction between intra- and inter-village conflicts is important for our study because small-scale fishers in rural coastal communities in Indonesia generally have a close working relationship with other fishers in the same village. Further, a village serves as a basis for collective decision making for social activities as well as resource management, and the way in which individuals interact with other individuals in the same village is different from how they interact with outsiders. That is, the factors and the extent to which each factor is associated with the inter- and intra-village conflicts can be structurally different, and thus each type of local conflict needs to be examined separately. In addition, the distinction between intra- and inter-village conflicts, along with household-level data, enables us to analyze the differences between in-group and out-group interactions in small-scale fishing communities.

2. Methods

2.1. Research site and data collection

Data were collected from the Kei Islands, which are remotely situated in the southeastern part of Maluku province, Indonesia (Fig. 1). The Kei Islands form an archipelago of four main islands plus hundreds of small, mostly uninhabited, islands. According to the Office of Population and Civil Registration, the total population of the Kei Islands, which comprise Tual City and the Southeast Maluku regency, was approximately 189,000 in 2012 (BPS, 2014a, 2014b) and has slowly but consistently increased, at least since the end of the 19th century (Adhuri, 2013). The people of the Kei Islands come from diverse ethnic and religious backgrounds and live in a multicultural environment. The main sources of livelihood for the small island communities are agriculture, marine capture fishing, and other marine-based small-scale industries, such as seaweed and pearl cultivation. The Kei Islands are also the center of cultural and marine tourism in the Maluku province, as cultural traditions are maintained and tropical coral reefs are found around the islands.

Fish is an important animal protein in the diet, and fishing is a major source of income for local households in the islands. Fishing activities undertaken by local households are mostly artisanal; that is, the majority of boats do not have inboard motors, and fishing equipment is usually made by fishing households using local materials, such

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