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The dwindling community-based management strategies in the brush park fishery of a tropical estuary: Need for co-management

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ABSTRACT

Importance of participatory approaches in the management of small-scale fisheries is being increasingly highlighted today throughout the world. Brush park fishery in Negombo estuary, Sri Lanka is a small-scale fishery where traditional ecological knowledge (TEK) accumulated over generations is utilized to optimize the harvests. In the present study, the institutional robustness of the community-based management system of this fishery, which is based on TEK was assessed using Ostrom's modified design principles. Results showed that the degree of community-based management is not effective in successful management of this fishery due to common pool nature. Nevertheless, there is potential for integrating some institutional design principles through intervention of centralized management authorities. As such, co-management regimes that empower local communities are needed for the sustainability this fishery.

1. Introduction

Many small-scale fisheries in the world are in crisis today due to over-exploitation and non-implementation of management strategies. In this context, importance of participatory approaches in fishery resource management, especially in labour-intensive small-scale fisheries has been highlighted (Berkes et al., 2000; Johannes et al., 2000; Berkes, 2018; Lobe and Berkes, 2004; Richmond and Levine, 2012). Fishers have a wealth of knowledge and long experience, which can be used for resource management, especially in small scale fisheries (Fisher et al., 2015). In Sri Lanka, there are several traditional coastal fisheries, which are managed through customary fishing rights (Ruddle, 1994; Amarasinghe et al., 1997). However, with the increase in human population and economic diversification, many fishing communities are faced with the challenge of preserving their traditional fishing rights.

Diverse mechanisms used in the management of common pool resources have been highlighted in recent literature (Cox et al., 2010; Fischer et al., 2015; Deepananda et al., 2016a, 2016b; Berkes, 2018). Traditional community based management of coastal fisheries is recorded in many regions of the world including Asia-Pacific (Ruddle, 1994), Southeast Asia (Pomeroy, 1995; Dang et al., 2015), India (Ramachandran and Sathiadhas, 2006), Bangladesh (Hossain et al., 2004), Pacific Islands (Richmond and Levine, 2012; Friedlander et al., 2013) and Latin America (Fischer et al., 2015). Amarasinghe and Bavinck (2011) have shown that both the state and non-state institutions play a significant role in the management of coastal fisheries in southern Sri Lanka. Ability of coastal fishing communities to successfully manage their own common pool resources through institutional architecture and customary fishing rights has been reported in many small scale fisheries in Sri Lanka including the stake net fishery in Negombo estuary (Amarasinghe et al., 1997), kraal (Ja-kotu) fisheries in the Madu Ganga estuary (Atapattu, 1987), coastal marine fisheries (Wickramasinghe and Bavinck, 2015) and stilt fishery in southern province (Deepananda et al., 2016a) and beach seine fisheries in the north-western and southern provinces (Kulatunga and Edirisinghe, 1995; Deepananda et al., 2015; Gunawardena and Amarasinghe, 2016). Institutional robustness (Deepananda et al., 2016b) in the beach seine fisheries of the southern province and in shrimp aquaculture practices in the north-western province of Sri Lanka (Galappaththi and Berkes, 2014) are also reported. However, indigenous knowledge is largely underutilized and not considered by the management authorities in decision making. Such knowledge is often considered as “anecdotal” and “unscientific” (Berkes, 2018).

In 1960s, the small scale-fisheries were considered as opportunities for increasing fish production. However, in 1970s, over-exploitation of these resources was resulted in due to lack of property rights, mismanagement, use of destructive fishing gear, habitat degradation, population growth, poverty, urbanization and globalization. In the recent

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