

# Management of Natural Resources at the Community Level: Exploring the Role of Social Capital and Leadership in a Rural Fishing Community

ÖRJAN BODIN and BEATRICE I. CRONA\*  
*Stockholm University, Stockholm, Sweden*

**Summary.** — Social capital and leadership characteristics are important in resource management. We present a case study of a fishing community showing high levels of social capital quantified through social network analysis, but low willingness to report rule breaking. Furthermore, identified key individuals possess few links to financial institutions and important markets. These findings may, individually or in combination, explain the lack of common initiatives to deal with the over-exploitation of fisheries. Alternative hypotheses are also discussed and include homogeneity among key individuals leading to poor recognition of the problem of changing ecological conditions, and the structural characteristics of their relational network, which reveal one person in a very influential position.

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*Key words* — social capital, social networks, natural resource management, coastal marine fisheries, agency, Africa

## 1. INTRODUCTION

Social capital is often suggested as having a beneficial effect on the capacity of individuals to organize themselves effectively (Coleman, 1990; Fukuyama, 1995), and together with leadership, is often seen as crucial for the initiation and maintenance of environmental conservation and management at the community level (Olsson, Folke, & Berkes, 2004; Ostrom, 2005; Pretty, 2003; Pretty & Smith, 2004). This study explores the aspects of social capital and leadership in a rural fishing community to seek explanations for why collective action for sustainable management has not occurred, despite strong indications of declining fisheries and in-shore habitat degradation, as well as increasing awareness of these problems among many fishermen and women (Crona, 2006; Crona & Bodin, 2006; McClanahan, Glaesel, Rubens, & Kiambo, 1997; Ochiewo, 2004). The focus of this study is on natural resource management (NRM) at the community level. Thus, this study touches upon concepts such as co-man-

agement (see overview in Carlsson & Berkes, 2005) and adaptive co-management (Gadgil, Rao, Utkarsh, Pramod, & Chhatre, 2000; Olsson, 2003), often put forth as instrumental in enabling sustainable NRM. Furthermore, in the context of fisheries social capital has been suggested as an important factor affecting regulation and governance (Grafton, 2005; Sekhar, 2007).

As shown above, the concept of social capital has been extensively cited as important for

\* The authors would like to thank all respondents for participating in this study, as well as Abdul Rashid for his tireless work and organization in the field. The study was conducted with financial support from Swedish International Development and Aid (SIDA). Gratitude is extended to the Kenya Marine and Fisheries Research Institute, with which one of the authors (B. Crona) is affiliated. Finally, we also thank Steve Lansing, Jon Norberg, Annica Sandström, and Maria Tengö for their valuable comments during the development of this paper. Final revision accepted: December 12, 2007.

conservation and resource management. However, its defining characteristics are multi-faceted (for review see, e.g., Krishna, 2002; Lin, 1999; Woolcock & Narayan, 2000). First, the unit of analysis can vary from the individual to the group (Borgatti, Jones, & Everett, 1998; Portes, 1998). For example, Burt (2004) argued that links to different groups may enhance an individual's social capital, whereas Putnam (1993) discussed social capital at the scale of whole countries. Second, there is a lack of agreement as to what actually constitutes social capital. For example, Putnam (1993) defines social capital as "features of social organization such as networks, norms, and social trust that facilitate coordination and cooperation for mutual benefit." Others suggest that social capital can be defined as "resources embedded in a social structure which are accessed and/or mobilized in purposive actions" (Lin, 1999), thus leaving out collective assets such as trust and norms (although acknowledging that factors such as trust may promote social relations and *vice versa*).

Finally, social capital has been criticized for its lack of explanatory power, and several theses exist that differ primarily in their view of social capital as either an exogenous or an endogenous variable. It is seen by critics as a result of institutional performance rather than its cause, where independence cannot be verified. Adherents of this approach, represented by several disciplines (North, 1990; Schneider, Teske, Marschall, Mintrom, & Roch, 1997; Wade, 1994), argue for reversed causality such that the existence of institutions explains social capital. An intermediate position is taken by Krishna (2002), Berman (1997), and Dale and Onyx (2005), among others, who argue that social capital has some explanatory potential but that other factors also contribute to institutional performance and collective action. One such factor is agency, which is realized through the existence of agents, that is, leaders or influential actors, who activate a potentially latent stock of social capital and use it to produce a flow of benefits. In his extensive study in rural India, Krishna (2002) found that the existence of such leaders to mediate agency was necessary to activate the stock of social capital and make it productive in terms of economic development, community harmony, and democratic participation. Similarly, others have shown the importance of leaders and sense-makers for successful NRM, and the effect of good leadership in this context is an expanding field

of research (e.g., Olsson, 2003; Westley & Vredenburg, 1997).

Inspired by these findings, this study examines the issue of social capital, agency, and collective action by applying an approach similar to the approach of Krishna (2002), although modified to fit an East African NRM context. The study area is a rural fishing village along the southern coast of Kenya. The use of resources in the village is centered around a low technology artisanal marine fishery, and to some degree the use of mangroves for poles and firewood. A majority of households depend primarily on fishing for their income, while farming and small scale businesses represent alternative livelihoods for some. Fishermen are not a homogeneous group, however, but are grouped primarily based on gear type (Crona & Bodin, 2006) (Table 1). In spite of high levels of resource dependence and the realization of resource decline among many users, villagers have not been successful in regulating the in-shore local fishery. This lack of resource regulation is, unfortunately, not unique for this particular village but is rather common around the world (Ostrom, 1990).

We substituted development (as defined by Krishna, 2002) with the ability of the community to initiate action for sustainable management of natural resources in light of overfishing and resource depletion. Agency was approached from a social network perspective by using structural network measures to identify influential actors, based on the assumption that such measures offer a robust way of identifying these influential individuals in a community (for review see, e.g., Wasserman & Faust, 1994). Social capital was also approached from a social network perspective.

Table 1. *Fishermen and fishing technique*<sup>a</sup>

Type of fishery (at the household level)	Number of individuals
Gill net	10
Speargun	3
Handline	1
Deep sea	43
Kigumi	16
Total	73

<sup>a</sup> The distribution of fishermen according to types of fishing gear. In an earlier study (Crona & Bodin, 2006) it was shown that the type of fishing gear strongly correlated with social ties, i.e., fishermen using the same types of gear where also more socially connected to each other.

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