



A multilevel analytical framework for more-effective governance in human-natural systems: A case study of marine protected areas in Vietnam



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ABSTRACT

Marine protected areas (MPAs) can be viewed as coupled human-natural systems where a significant number of local people depend on ecosystem goods and services. There are times when these uses contribute to ecosystem degradation that may eventually lead to a systems' collapse. In addition to studies of technical means for predicting and controlling the systems, the understanding of human dimensions, institutional and social-interaction issues has been considered important for improving effective governance of these systems. This paper presents a multilevel analytical framework and discusses application of this framework to the context of three MPAs in Vietnam. It discusses the development of the framework based on a new perspective that views institutions as a structure and governance as a process for operating a governing system. As a result, inter-relations and mutual influences of institutions and governance occurred within the MPAs are illustrated as a cause–effect relationship diagram. These are grouped into three components (i) formal institutions; (ii) political behaviour and organizational structure; and (iii) local communities' engagement, social capital and socio-economic conditions. These components interact with each other and influence the interplays of actors, both state and non-state, for MPA governance. Findings from this study suggest that institutions should be adaptive and regularly amended based on their performance in real-world governance processes. This ensures the match between the approved institutions and their practical effects in complex contextual conditions. Meanwhile, there should be accountable and transparent dialogues and mechanisms for all the stakeholders and actors to be actively involved in the development of institutions, and evaluating and monitoring governance processes. Bridging actors or organizations also need to be available as active facilitators of these dialogues and mechanisms. When the institutional and social-interaction issues are solved, governance of coupled human-natural systems, such as MPAs, will be enhanced.

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1. Introduction

Marine protected areas (MPAs) have been recognized as important tools for fisheries management (Bohnsack, 1998) and *in situ* conservation (Chape et al., 2005). Increases in the spawning biomass and mean size of caught stocks (Roberts and Hawkins,

2000; Gell and Roberts, 2003), population abundance (Côte et al., 2001), population density, biomass, fish size, and diversity (Roberts and Hawkins, 2000; Halpern, 2003; Palumbi, 2004) have been observed and recorded within their boundaries. These may also increase the exploited biomass in the adjacent areas due to 'spill-over' effects (Kramer and Chapman, 1999; Tupper and Juanes, 1999; Roberts et al., 2001; Gell and Roberts, 2003). MPAs are also considered to help maintain the genetic diversity of wild populations by protecting breeding stocks and thereby improving the genetic heterozygosity (Bergh and Getz, 1989). These benefits are not only within a certain area, country, but also trans-boundary because MPAs can occur between nations or in a broader geographic region (IUCN-WCPA, 2008). However, effective

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management of MPAs has been raised as a major concern for their establishment and implementation. Some MPAs exist as “paper parks” where resource uses and other activities that may negatively affect the MPAs are not restricted or effectively managed, so that the objectives of these sites are not achieved (Kelleher and Kenchington, 1992; Roberts and Hawkins, 2000). While institutional and governance problems are stated as substantive challenges for effective management (Hanna, 2006; Christie et al., 2007), institutional and governance indicators have also been used to demonstrate management effectiveness of MPAs (Pomeroy et al., 2004).

While institutions consist of established norms and behaviours, political structures, and legal arrangements (Ostrom, 1990a; Berkes, 2004), governance is “the interactions among structures, processes and traditions that determine how power and responsibilities are exercised, how decisions are taken, and how citizens or other stakeholders have their say” (Graham et al., 2003). In other words, a governing system can be viewed as consisting of two major components – institutions and governance. While institutions are ‘hard structures’ containing legal tools, governance is a ‘process’ that describes how the actors and players utilize legal tools to govern embedded actors and their activities towards common purposes. If any of these components are weak, then that would influence the overall outputs and outcomes of the governance process.

There are a number of generic studies about institutions (North, 1990; Ostrom, 1990b; Knight, 1992b; Crawford and Ostrom, 1995) and institutional analysis for natural resource management (Oakerson, 1990; Ostrom, 1992; Imperial, 1999a, 1999b; Gibson et al., 2000; Noble, 2000; Olsson and Folke, 2001; Hagedorn et al., 2002; Dolsak and Ostrom, 2003a) as well as governance processes (Swallow and Bromley, 1995; Costanza et al., 1998; Borrini-Feyerabend, 2003; Graham et al., 2003; Christie and White, 2007; Garmerstani and Benson, 2013). Some of these studies have addressed principles, criteria, or indicators, and formed frameworks that have been applied as guidelines for evaluating the performance or outcomes of natural resource management programmes, in general (Oakerson, 1990; Thomson, 1992; Pido et al., 1997; Hagedorn et al., 2002; Dolsak and Ostrom, 2003a), and in the particular field of marine resources (Pomeroy, 1995; Pido et al., 1997; Juda and Hennessy, 2001; Tompkins et al., 2002; Rudd et al., 2003; Hidayat, 2005; Hilborn et al., 2005; Hanna, 2006; Kim, 2012). Mutual influences between institutions, governance and the context on the outputs and outcomes of state development, in general, have been studied and discussed by researchers (Fritz and Menocal, 2007; Grindle, 2007). However, there have been few studies that integrate or connect principal components of institutions and governance in the same comprehensive analytical framework or closely combine institutional and governance perspectives into the same framework for studying the conservation and uses of natural resources in coupled human–natural systems, especially for MPAs.

This paper aims to (i) introduce a multilevel analytical framework developed for such research. We propose the integration of institutions and governance as obligatory components for operations of human–natural systems, while social interactions and contextual factors can influence the outcomes of the operations. It also (ii) briefly discusses findings when applying this framework to examine the governance of MPAs in Vietnam where the roles of NGOs and other social organizations are blurred and overlooked for these operations. The remainder of the paper is structured as follows. Section 2 describes the functions of the systems that can operate through an inherent linkage between institutional arrangements and governance. The introduction of how to develop a multilevel analytical framework and principles reviewed for the application of this framework is the main content of Section 3. The

Section 4 presents major results when applying the framework to practical investigation of three MPAs in Vietnam. The final section concludes with some implications of the framework to improve effective governance of MPAs in Vietnam and other areas with similar contextual conditions.

2. Institutions and governance – the obligatory elements for operations of human–natural systems

2.1. Institutions

Institutions have been variously defined by researchers (Schmid, 1972; Schotter, 1981; Bromley, 1989; North, 1990; Ostrom, 1990a; Knight, 1992a). These are the sets of working rules (Ostrom, 1990a) or any form of constraints devised by human beings to shape human interactions (North, 1990). Institutions consist of established norms and behaviour, political structures and legal arrangements (Ostrom, 1992; Scott, 1992). Established norms and behaviour are called informal rules or constraints, and are unwritten (North, 1990), for example, customary regulations, social norms, customs, habits or taboos. Legal arrangements, however, include documented rules, namely formal rules or constraints (North, 1990), for example, political rules, contracts, agreements. Both formal and informal constraints operate through three levels: operational, collective-choice and constitutional (Kiser and Ostrom, 1982, cited by Firmin-Seller, 1995). Institutions include determining persons to be responsible, actions to be allowed, information to be disseminated and incentive sharing mechanisms. These can be viewed as standards of behaviour (Schotter, 1981).

Institutions and organisations have some shared attributes. Organisations can be viewed as institutions if they are defined by rules, norms and shared strategies (Ostrom et al., 1993; Imperial, 1999b). The existence and evolution of organisations are fundamentally affected by institutional frameworks (North, 1990). The transformation of organisations may also require institutional changes to support achievement of strategic objectives. Both institutions and organisations provide a structure to human interactions (North, 1990). They may ‘co-evolve’ in certain circumstances with bi-directional ‘feed-backs’ leading to the refining of shared objectives. Indeed, organizational change should be taken into account when studying institutions, as should governance.

2.2. Governance

Governance is an awkward concept. It has different meanings to different people (Stoker, 1998; Kooiman and Bavinck, 2005). Governance can be viewed as a social coordination mechanism (Lee, 2003) or the generation of conditions for ordered rules and collective actions (Stoker, 1998). It can be considered as a process for people or institutions to make decisions and share power (Pierre and Peters, 2000) in order to achieve desired objectives (Graham et al., 2003). This process has been defined relating to roles, responsibility, power, relationships and accountability (Borrini-Feyerabend, 2003; Graham et al., 2003). According to Jones et al. (2011), governance is related to incentives of not only civil society and state, but also the market, in order to achieve strategic objectives. For this paper, governance is perceived as interactions among state and non-state actors to exercise power and responsibility, make decisions for solving societal problems, and create societal opportunities (Graham et al., 2003; Kooiman and Bavinck, 2005).

Governance can share some components with institutions. It consists of actors and the structures in which these actors are embedded. While the actors can be individuals, groups of

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