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Analysis

# A framework for evaluating collective action and informal institutional dynamics under a resource management policy of decentralization

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ABSTRACT

The decentralization of resource property rights has become an increasingly popular policy in many natural resource-dependent communities of the developing world. However, the success of this policy approach depends on both collective action and institutionalization. It is therefore important to evaluate collective action and institutionalization where the process of property rights decentralization is in progress. This paper presents a modified version of the Institutional Analysis and Development (IAD) Framework designed to analyze the decentralization of property rights and the collective action of community members to obtain these rights. It describes a three-phased framework for analyzing: i) the government property right decentralization policy, ii) the stock of capital assets in the community required to achieve property rights by initiating collective action, and iii) the development of an informal institution for effective property right distribution in the community. Finally, to demonstrate its utility to collective action research, we present a case study application of our modified framework to the fisheries property right decentralization policy of the Bangladesh government and the subsequent collective action of a wetland-dependent community.



## 1. Introduction

Since the publication of the Brundtland Report in 1987, community participation in natural resource management has been given more attention by researchers and policy makers (Atkinson et al., 2007, p-2). Moreover, the intellectual movement towards community ownership of resources rather than government or private ownership has driven greater community participation in resource management (Ostrom, 1997). At the same time, deep-rooted relationships between decentralization, collective action and property rights have caused many governments to recognize the important role of communities in natural resource management for achieving sustainable development and conservationrelated goals (Agrawal, 2001; Ostrom et al., 1992). In the context of decentralization, two regulatory regimes can be found to affect natural resource management: informal institutions and formal institutions. During the process of decentralization, formal institutions play the role of patron, regulating the decentralization of property rights to resource-dependent communities. On the other hand, informal institutions define the local regulatory regime, including the roles and responsibilities of resource users. Blaikie (2006) and Ribot (2004, pp. 12–13) observed that decentralization is successful only when accountability, transparency, participation and equity are established in both formal and informal institutions. Further, Kahkanon (1998) noted that the establishment of accountability, transparency, participation and equity in informal institutions enhances the collective action of a community. Ostrom (2000a, 2000b) summarized that collective action drives the community to formulate the rules in use or *de facto* rules to sustain the resource use under a decentralized property rights regime.

It is therefore important to evaluate collective action where the process of property rights decentralization is in progress. The assessment of collective action is particularly challenging in complex socio-political systems due to the involvement of, and intricate relationships between, numerous actors. A robust and systematic framework is therefore necessary for assessing collective action and the development of institutions. Initially, Ostrom et al. (1994) developed the Institutional Analysis and Development (IAD) framework as a generalized framework to assess institutionalization and collective action (Ostrom, 2010). This framework has since been modified and adapted in a number of ways to explain different situations and craft institutions for different resource uses. For example, Fischer et al. (2007) have developed a modified version of the IAD framework to analyze the governance of natural resources, while Rudd (2004) developed a modified version to design and monitor ecosystem-based fisheries management. These modifications have been undertaken to facilitate the analysis of different resource bases (e.g. fisheries, forest, agriculture, etc.) and incorporate different variables to better explain institutional processes. In this paper, we offer another modification of the IAD framework to evaluate collective action in managing wetlands

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under a government-owned property regime. The decentralization of resource management is being increasingly observed in developing countries. However, there remains a high degree of uncertainty in many communities because resource ownership regimes are often being decentralized, but not devolved (for a detailed discussion of decentralization and devolution see Larson and Soto, 2008). In this complex situation, it is necessary to better comprehend the interaction among community individuals, their status of cooperation and their ability to invest for achieving decentralized property rights. Importantly, the objective of property right decentralization is not achieved only by transferring rights to the community. Rather, participation of all community members designated with devolved power is necessary for successful decentralization to ensure collective action and informal institutionalization.

To anticipate resource use behaviors, both ecological and institutional economists have classified resource and resource-use behavior in various capitals. Resource stock is accounted as natural capital while resource-use behavior is accounted as either social capital, human capital, manufactured capital and/or financial capital (Brondizio et al., 2009; Clayton and Radcliffe, 1997 p. 76). The status of these capital assets will have a cumulative effect on the collective action of a community (Dietz et al., 2003). Government policy concerning resource use decentralization is another important consideration when trying to understand collective action and informal institutionalization (Agrawal, 2001), since collective action is applied to secure ownership and resource extraction rights from government, while institutionalization works to shape human behavior in resource extraction (Quinn et al., 2007). Recognizing this, we offer the following adaptation to the IAD framework to assist with better evaluation of collective action and informal institutionalization dynamics under a resource management policy of decentralization. We then present a case study application of our modified IAD framework to the Chilua Tindubi Haor (wetland) of Baroal village in Sylhet district, Bangladesh.

## 2. Institutional analysis and development (IAD) framework: a critique

### 2.1. A general overview of the IAD framework

The IAD framework is a multidisciplinary research framework applied for institutional analysis (Ostrom et al., 1994). The framework also evaluates the impact of codified rules (de facto or de jure rules) on individuals' incentives for resource use (Rudd, 2004). Here, the study of individuals' incentives is necessary to understand the ability of individuals to form groups and the group's level of agency for resource use (Ballet et al., 2007). Taking a soft systems approach, the IAD framework works by identifying a conceptual unit, namely the 'action situation,' which is the social space where individuals interact and generate outcomes (Ostrom, 2011). These outcomes can be cooperative (e.g. trust, reciprocity, altruistic behavior, etc.) and non-cooperative (e.g. free-riding, common property resource degradation, asymmetric power, etc.) (Gibson et al., 2005a, 2005b) and are generated through the exchange of goods and services (Ostrom et al., 1994). In a resource management system, actors are diversified and may come from different spatial locations like resource owner (e.g. government), development workers (e.g. NGOs), resource users (e.g. local communities), local political representatives (e.g. political leaders, village leaders etc.) and so forth (Fischer et al., 2007). Based on an actor's utility, they will interact in an action situation (Fig. 1) (for details see Ostrom, 2005 pp. 15–33).

Ostrom et al. (1999) identified that physical attributes have a significant influence on the formulation of a governance regime. The size and carrying capacity of the resource base, the regeneration capability of exploitable resources, etc. will have a considerable impact upon the definition of the regulatory regime (Acheson, 2006; Becker and Ostrom, 1995; Yasmi et al., 2007). Community attributes like group size and heterogeneity, common understanding about action situation, socially accepted norms, etc. will affect the interactive behavior of actors

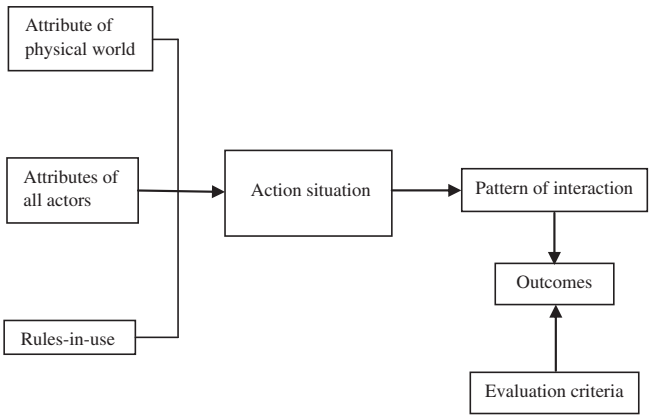


**Fig. 1.** IAD framework for institutional analysis (source: adapted from Ostrom et al., 1994; Ostrom, 2011).

(Acheson, 2006; Ostrom, 1995, 2002; Schneiberg and Clemens, 2006). Based on these attributes, Ostrom (1990) determined the 'design principles' for a robust institution (Ostrom, 1990, pp.89-90). For the coercive mechanism of an institution, rules are formulated based on the physical and community attributes (Ostrom, 1999). Rules refer to *"Prescriptions commonly known and used by a set of participants to order repetitive, interdependent relationships. Prescriptions refer to which actions (or states of the world) are required, prohibited, or permitted"* (Ostrom, 1986). These rules come from formal or informal ruling regimes and make significant impacts upon the action situation (Ostrom, 2009; Imperial, 1999). Rules are the regulatory mechanism used to curb individuals' intention of appropriating resources by subtracting other potential users (Ingram and Clay, 2000; Paavola, 2007). Therefore, in a social-ecological system, rules are the mutually agreed-upon coercions which encode individuals' behavior for resource use, and impose graduated sanction for violating the regulation (Aligica, 2006; Ostrom, 1990). These rules are often nested within other rules in operation that also define how the set of rules can be changed (Ostrom et al., 1994). The overlaying rules are classified as (i) operational rules, (ii) collective-choice rules, and (iii) constitutional-choice rules. Here, the operational rules are used in day to day decisions. Collective-choice rules are created to influence the operational activities and outcomes. Constitutional-choice rules determine how the participants are selected and the relationships among these participants are developed (e.g. voting rules) (Ostrom et al., 1994).

### 2.2. Towards a new dimension of the IAD framework

According to the theoretical paradigm of the IAD framework, the durability of an institution and its efficiency largely depend on group size, resource boundary, and resource distribution rules. It is argued that homogenous and small groups will develop operationally successful rules (see Ostrom et al., 1999). However, Agrawal (2001) observed that a durable institution also relies on other considerations, such as population increment, migration rate, market pressure, etc. In this paper, we argue that, in association with the previously mentioned factors, government policy performs a pivotal role in the development and performance of informal institutions (Visseren-Hamakers and Glasbergen, 2007). For example, to decentralize the management of a resource base to resource-dependent communities for informal governance, government may develop policies that involve a resource leasing process (e.g. leasing of wetland resources to fisher communities in Bangladesh) (Ahmed et al., 2008; Barik and Katiha, 2003, pp.141-144). In this situation, the financial capacity of the community members will play a critical role in the development of informal institutions because the collective action to achieve decentralized property rights will involve financial contributions from community members. These financial contributions can become the basis of resource distribution rules. Another example is