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Participatory modelling to improve partnership schemes for future Community-Based Forest Management in Sumbawa District, Indonesia

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ABSTRACT

As part of its Community-Based Forest Management (CBFM) Programme, the local government of Sumbawa District in West Nusa Tenggara Province of Eastern Indonesia initiated a partnership programme between the Forestry District Agency and tree grower cooperatives in 2002. The partnership scheme aims to reduce illegal logging and forest encroachment on abandoned state plantations initially developed in 1986. However, the cooperatives have no secure full rights to harvest the mature teak trees (*Tectona grandis*) inside the plantations, as important incentives to maintain their commitment. This paper aims to explore the potential benefits of different scenarios, as the basis for convincing the Ministry of Forestry (MoF) to give full secure rights to the local communities. In this study, we used a participatory modelling approach, to identify problems and to define future scenarios of partnership arrangements with the local key stakeholders. This research used the concept of system dynamics modelling, which included the two concepts of systems thinking and resilience. As a management tool, the visualisation of the management alternatives and their associated impacts had stimulated the community's awareness of the importance of protecting the teak plantations from illegal logging and forest encroachment. The simulation results have also shown how granting local communities a full secure access to manage the state forest does not necessarily reduce the revenue for the government at all levels.

1. Introduction

Co-management in its many and various forms, including Community-Based Forest Management (CBFM), has become an important part of community forestry development since the 1970s in Asia. The concept of co-management was developed in response to the pressures, under the central government's decentralisation policy, for greater transfer of legal power from central to local government and tenure rights to communities involved in forest management (Agrawal and Ostrom, 2001; Arnold, 2001; Evans et al., 2008; Sunderlin et al., 2008). Therefore, co-management in the CBFM context is often loosely defined as a power sharing arrangement between the state and a community, in which each party is given specific rights and responsibilities relating to the management, including decision-making processes, of well defined forest resources (Berkes et al., 1991; Carlsson and Berkes, 2005; OECD, 2001). However, there has been a lack of willingness from the state to fully transfer power and control over forest management to local communities (Sundar, 2000; Sunderlin et al., 2004).

In Indonesia, since the beginning of the reformation era and decentralisation policy in 1998, forest management has shifted gradually from state-based forest management to Community-Based Forest Management (Barr et al., 2001; Obidzinski and Barr, 2003). In line with this development, and due to its commitment to involve local people in managing the forests, the local government of Sumbawa District, in West Nusa Tenggara Province of eastern Indonesia (Fig. 1), initiated a partnership programme between the Forestry District Agency (*Dinas Kehutanan*) and community cooperatives in 2002. The government of Sumbawa has been very quick and efficient in producing regulations at the local level to support greater roles for the community in the management of state forests. The most important of these is the local government regulation on

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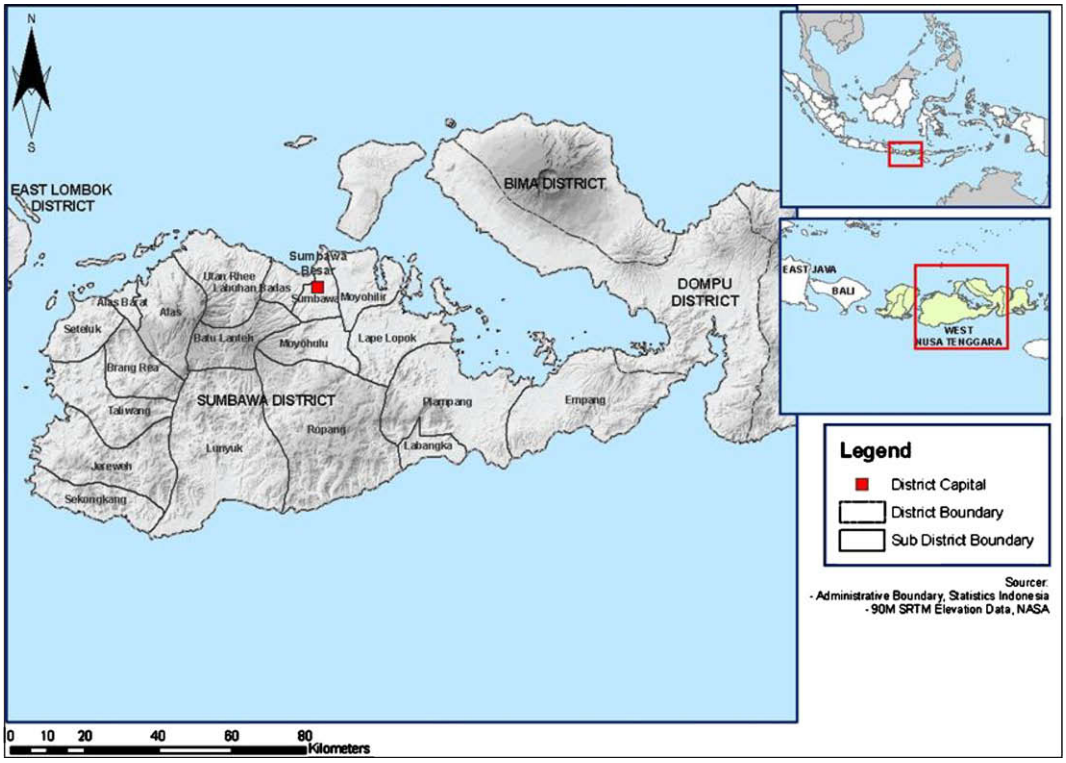

Fig. 1. Geographical location of Sumbawa District, West Nusa Tenggara Province of eastern Indonesia.

CBFM, which serves as the overarching policy framework for implementing the partnership programme.

The partnership programme's specific aim is to reduce illegal logging and forest encroachment on 18,160 ha abandoned state plantations, developed by the state-owned company Perhutani in 1986 with teak (*Tectona grandis*) as the main timber species planted. Perhutani finished its activities in 1999/2000 and left the plantation areas with no clear arrangements under which the authorised agency responsible could continue to manage the plantations. The newly initiated partnership programme is a practical solution to the status quo. Under this partnership, the local communities have become involved in the maintenance and supervision of the plantations. This has resulted in a gradual decrease in illegal logging and encroachment cases.

As part of the efforts to improve the partnership design for 'on the ground' implementation, researchers from CIFOR (Center for International Forestry Research) and WWF (World Wildlife Fund) Indonesia assisted the Forestry District Agency and the community cooperatives to identify the current gaps and to seek suitable solutions. The most important gap, among the many identified, is the lack of clear rights granted to cooperatives to harvest mature teak trees inside the plantations. Such an arrangement is important, and would provide the local communities with strong incentives to maintain their long-term commitment to the partnership. Incentives are also important for the district government, to maintain its interest in generating revenue for local development. However, the right to harvest can only be granted by the Ministry of Forestry (MoF) representing the central government.

During the period 2004–2006 the team conducted inter-related socioeconomic and policy studies using participatory approaches with embedded capacity building exercises for the local partners. One of the studies, as discussed in this paper, focused on analysing the impact scenarios of policy intervention. This paper aims to explore the potential benefits of implementing different scenarios, as the basis for convincing the MoF to give full secure rights to local communities in meeting the CBFM objectives in Sumbawa District. Using empirical data, a computer-based dynamic model was developed to analyse the impacts of simulation scenarios in participation with the Forestry District Agency staff, tree grower cooperatives, and other local key stakeholders.

The organisation of this paper is as follows. Section 2 discusses the role of the participatory modelling approach as part of the decision-making processes in the context of CBFM. Section 3 describes the methodology used in this study, and Section 4 presents the results and discusses them based on the models developed, including defined scenarios and assumptions. The last section presents the conclusions for this paper.

2. Participatory modelling approach as part of decision-making processes in the context of community-based forest management

Where the government holds all rights over most natural resources, including forests, it is difficult for local communities to participate in policy decision-making processes. Forest devolution, under the environmental decentralisation policy, which emerged in the 1990s, has not been very effective nor has it provided local communities with greater decision-making power (Agrawal and Ostrom, 2001; Arnold, 2001; Evans et al., 2008; Sunderlin et al., 2008).

At the implementation level, various participatory decision-making approaches, such as public consultations, have been used widely, but still there is a lack of tested methods that incorporate stakeholder interests, particularly in decision-making processes (Buchy and Hoverman, 2000; Gregory, 2002). As an alternative approach, participatory modelling has become increasingly important in the facilitation of the wider stakeholders' involvement in decision-making processes concerning natural resources, and providing opportunities for local communities to contribute more effectively (Vanclay et al., 2006; Yearly et al., 2003). The modellers have increasingly accepted that a key requirement for a good model