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Co-evolution between Ecological and Social Systems in Tropical Forest Management. Elements of an Action-oriented Theoretical Approach

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Abstract

Introduction

Tropical forest ecosystems are subject to a continuous dynamic force, which is due to natural influences or — with a rapidly increasing speed — is directly affected or induced by human activities. Existing monitoring instruments facilitate gaining rough data on changing land cover and land use patterns on a macro-level (FAO 2002). More profound insight in the effects of these changes is based on basic-sciences oriented case studies which cover a local or a regional area on a micro level.

The description and theoretical explanation of human interference underlies a similar differentiation: The macro level is related to global perspectives and national development policies. Emphasis is put on the contribution of forest ecosystems to national and global development. Large scale forest destruction and degradation fits in this category. Meanwhile the micro approach focuses on the analysis of the very specific local situation. Stakeholders' attitudes, behaviour and power relations have an influence on forest ecosystem management. All approaches are valuable and necessary, but there is a lack of linkages between the different concepts and strategies.

Methodological approaches

Recent methodological developments permit the elaboration of a theoretical framework for the integration of the above mentioned levels. Components are Cultural ecology (BENNET 1976, BARGATZKY 1986), Political ecology (ESCOBAR 1996, BRYANT 1992), Hermeneutic methods (SEELAND 1997), Constructivism (BERGER & LUCKMANN 1967), the Critical theory (HABERMAS 1965, 1988), Institutional economics (OSTROM 1990) and the Advocacy coalition approach (SABATIER & SMITH 1993).

The macro level

Management concepts for forestry and the respective policies were to a high degree subordinated to general socio-economic development. This can be demonstrated in a diagnosis of changes over time, which is categorised in six stages (PRETZSCH 1995). Due to the failure of technocrat large-scale colonisation and forest projects, a revival of local strategies and local stakeholder involvement occurred in recent times. Noticeable is the strong feed back to forest management related local knowledge, which in many tropical countries reaches back to pre-colonial times, sometimes even more than 2000 years. The actual development stage may be characterized by decentralisation of bureaucracies and devolution of forest management rights to the local population. There is also a tendency towards privatisation and rational choice-based-thinking in forest management. This is reflected by changes in institutional rules and organisation structures. Strong dependency of

forest management on external influences has to be understood, which makes a continuous monitoring of determining political influences necessary.

The micro level

In the current development stage much preference is given to grassroot experiences and local development. The research community responds to this with an increase in case study-based investigations. Many of the results of these studies are fragmented, not much linked to theory and to the above described macro level. Their relevance for the implementation of a better forest management often is limited.

Intermediate approaches, based on case studies

Action-oriented approaches, which combine to some extent ecological and social sciences and which are linked to a macro level, permit the construction of an intermediate theoretical framework, which opens consistent new perspectives and strategies. Based on five case studies, some elements of an intermediate framework are presented. The case studies are based on PhD and MSc dissertations, which were elaborated in recent times or are being finished in the Institute of International Forestry and Forest Products in Tharandt. They deal with the economics and marketing of Gum Arabic tapping and the behaviour of involved stakeholders in Sudan (TAHA 1999), the shift of administrative power in the forestry sector of Tripura/India (SHRIVASTAVA 1999), the Khor Jor Kor movement as counter strategic forestry in Thailand (PYE 2002), Ejido community forestry in Quintana Roo/Mexico (HESS 1996) and forest enterprise analysis and development in the Amazonia (PRETZSCH et al. 2001). Each case study is linked to meta-theoretical constructs. In all cases ecological and social systems changed over time and were strongly interrelated.

The results show, that the combination between the above mentioned levels is necessary for a better understanding of the co-evolution between ecological and social systems in forest management. Further case study research should be less descriptive and more oriented towards overall theory development and action orientation. This is the platform for learning, strategy development and intervention. The case studies underline the hypotheses, that the attitude of many foresters is internally focused, passive and hierarchy linked, that there is a dominance of conventional forestry systems and a lack of inter-sector and multi-stakeholder integration.

Outlook

By the implementation of more integrated and action-oriented research projects the elaboration of pro-active visions, concepts and strategies in forest management may be supported. The above mentioned theory framework, which is still fragmented, can contribute in this direction.