What assures successful outcomes of tropical forest rehabilitation

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Tropical forest rehabilitation, efforts to restore forest cover where once tropical forests stood, has been a serious business in some tropical countries for decades, while other countries only started very recently with efforts to rehabilitate deforested lands. A general picture exists that tropical forest rehabilitation projects have had limited success. With international environmental crises looming and poverty alleviation of rural dwellers, including millions who depend critically on forests for their livelihoods continuing to be an imminently urgent goal, successfully rehabilitation of tropical forests is ever more to become a vital objective for tropical forest countries and the world community at large.

While tropical forest rehabilitation has been high on forestry and conservation agendas for some time now, surprisingly little efforts have focused on documenting the histories of forest rehabilitation, what have been outcomes of past efforts, and what understanding and knowledge can be derived from past experiences. A question arises, whether past experiences can become the basis for models and approaches of tropical forest rehabilitation such that future efforts are more likely to lead to urgently needed successes.

The paper reviews forest rehabilitation experiences in six countries: Brazil, China, Indonesia, Philippines, Peru and Vietnam. The paper is based on a research effort: Review of Forest Rehabilitation - Lessons from the Past. ² The paper provides brief summaries of the forest rehabilitation histories of the six countries and assesses the outcomes of these efforts. The rehabilitation histories of each country are analyzed using as much as possible the same variables and parameters. Together they provide a comprehensive picture of the timing and scope of the forest rehabilitation in the six countries, what has been achieved, and what have been the major factors that have contributed to the success or failure of forest rehabilitation.

Both China and the Philippines already undertook forest rehabilitation since the early 20th century. Vietnam seriously began addressing forest rehabilitation in the 1950s and Indonesia about two decades later. Brazil and Peru on the other hand are relative late comers in forest rehabilitation efforts. The approaches used in the six countries vary also

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2 The six reports from this study are found at www.cifor.cgiar.org/rehab:
Chokkalingam, U.; Zhou Zaichi; Wang Chunfeng; Toma, T. 2006. Learning lessons from China’s forest rehabilitation efforts : national level review and special focus on Guangdong Province.
Nawir, A. Murniati, Rumboso, L. Forest rehabilitation in Indonesia: Where to after more than three decades.
considerably. China has since long pursued large rehabilitation initiatives, carried out on a grand scale. Vietnam promoted rehabilitation through national initiatives, but the execution responsibilities lay mostly with state companies, provincial governments, or it was taking up through localized scattered tree planning, largely a communal affair. In Indonesia and Philippines, but also in Peru the approaches followed to restore tropical forest cover are more diverse and include state initiatives, state sponsored initiatives, but also rehabilitation efforts lead by development agencies, NGOs and the private sector.

In addition to environmental and economic factors, social and political factors explain the outcomes of forest rehabilitation outcomes. While China and Vietnam had strong support for rehabilitation efforts at the highest political level, this was less the case in the other four countries. Factors like corruption, in-security, and lack of popular acceptance are some of the key factors that appear to explain success or failure. The same holds true for economic conditions, like markets for wood or other products coming from rehabilitated forest and technical factors, like site conditions, selection of genetic materials, planting techniques and post-planting treatment.

The results from the six country studies are synthesized in a matrix with 27 factors, categorized in eight groups, and listed in table 1 below, that influence the success of forest rehabilitation outcomes. Each of the six case - countries is qualitatively scored in this matrix. The results explain on the one hand the outcome of individual cases, but they also can be used to guide future rehabilitation efforts.
Table 1. Factors that influence forest rehabilitation outcomes

A. Policies and legislation
1. Drivers behind policies
2. Credit facilities, payments for planting, payment for environmental services
3. Incentives and disincentives for degradation and rehabilitation
4. Sustainability of policies and political support
5. Tenure and interest in the outcomes of rehabilitation
6. Effectiveness and limitation of land zoning

B. Players, actors and arrangements
7. Organization, capacity, competition aspects
8. Social cohesion and conflicts
9. Adoption of forest rehabilitation by relevant players
10. Institutional arrangements and how they are influenced by conditions and objectives
11. Sustainability of arrangements
12. Intra-project communication; documentation of projects; communication of results

C. Funding
13. Amounts of funds invested
14. Main sources of funding. Effects of different types of funding on nature, outcomes, and cost effectiveness
15. Link between funding, funding types and continuity of forest rehabilitation

D. Objectives of rehabilitation
16. Link between objectives and causes of degradation
17. Process of determining objectives
18. Compatibility and competition between objectives
19. Communication to relevant players
20. Flexibility or inflexibility of objectives

E. Economics, markets, demands
21. Dynamics of markets, evolving wood industries
22. Use of marketing strategies in forest rehabilitation efforts

F. Technology
23. Availability and dissemination of available technologies
24. Appropriateness of technologies for the causes of degradation, objectives, site conditions, local arrangements, local needs and markets
25. Factors that define choice of technologies
26. Conditions that influence adoption

G. Extension, technical assistance and training
27. The contribution of extension and training on forest rehabilitation outcomes