

Evidence-based Conservation

Lessons from the Lower Mekong

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17 Organizational strategies for reconciling forest conservation and livelihood goals in interventions

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Globally, conservation organizations are under pressure to fulfil multiple objectives to achieve biodiversity conservation. Influencing the choice of implementation strategy is the continuing debate between strict conservation approaches and integrated conservation and development (ICD) approaches, with ICD including poverty alleviation as a primary goal (Wilshusen *et al.*, 2002; McShane and Wells, 2004; Roe, 2008; Sunderland *et al.*, 2008). Strict protection is often criticized for its failure to achieve conservation (Barrett and Arcese, 1995) and its negative social impact on livelihoods and development (West and Brockington, 2006; Buscher and Whande, 2007) whereas integrated approaches are often regarded as falling short in achieving long-term integrated conservation and development (Hughes and Flintan, 2001; McShane and Wells, 2004; West and Brockington, 2006; Buscher and Whande, 2007; Hill, 2007). The current discussion related to trade-offs between conservation and development suggest an alternative, where interventions address issues at the landscape scale and negotiate with the multiple interest groups for desired outcomes (Fisher *et al.*, 2005; McShane and O'Connor, 2007; Haller and Galvin, 2008; Sunderland *et al.*, 2008). There remains much uncertainty about what strategies are most effective to conserve biodiversity in forest conservation areas, which has led to calls for systematic comparisons of conservation interventions (Robinson and Redford, 2004; Agrawal and Redford, 2006; Ferraro and Pattanayak, 2006; Sunderland *et al.*, 2008). Systematic comparisons around the world might reveal best practices in promoting conservation and development objectives; however, the context of each intervention site might be so different as to make a universalized approach next to impossible. This chapter explores what strategies are employed by a diverse set of interventions to achieve both forest conservation and local livelihood improvement in conservation areas of the Lower Mekong, and how their strategies, including their activities, development of partnerships and site-level negotiations, affect their performance.

Numerous approaches are taken by conservation organizations to achieve biodiversity conservation goals. These include strict enforcement, environmental education, local livelihood improvement activities and institutional development. Specific activities include implementing conservation awareness programmes (Alpert, 1996), legal and policy development (Salafsky *et al.*, 2002; Koziell and Inoue, 2006), providing alternative sources of income to the populations adjacent to protected areas (Fisher *et al.*, 2005), such as intensifying agriculture, development of ecotourism (Brooks *et al.*, 2006), and payments for environmental services (Wunder, 2007). While diversifying their strategies to include a wide range of stakeholders, most conservation initiatives continue to invest a significant proportion of funds in traditional wildlife and habitat protection approaches, e.g. establishing and enforcing restrictive regulations, and undertaking land-use planning (Robinson and Redford, 2004).

The debates about strategy have also been swayed by political ecology, which emphasizes that conservation is not an isolated field, but is part of a wider geographical and social context including economic, social and political processes that have direct relevance to the options for action (Adams and Hutton, 2007). The processes involve complicated and dynamic interactions between different actors in conservation areas (Berkes, 2004), thus improving conservation practice requires a better understanding of the multiple interests and politics among stakeholders, and negotiating among them. The key actors in national conservation sectors include government and non-government agencies (Wells, 1998; Adams, 2004), but conservation also involves local agencies and local people who depend on the forest resources within conservation areas for their livelihoods (West and Brockington, 2006; Springer, 2009). The political power and interests of government agencies (Chhatre and Saberwal, 2005) and international conservation organizations (Adams and Hutton, 2007), however, can sometimes discount the interests of local level actors who have less power to influence decisions (Swiderska *et al.*, 2008).

Extensive negotiations are required to strike a balance between conservation and other stakeholder interests. Implementing organizations often try to communicate and negotiate with a wide range of stakeholders (including local forest users, government, non-government organizations and industry) through collaboration, such as partnerships (Barrett *et al.*, 2001), participatory planning methods (Hannah *et al.*, 1998; Polet and Ling, 2004), and direct consultation (Herrold-Menzies, 2006). Conservation initiatives increasingly adopt co-management approaches and solicit the active involvement of local communities in developing and framing management plans in an attempt to strengthen local organizations and improve buy-in (Hughes and Flintan, 2001; Polet and Ling, 2004; Robinson and Redford, 2004; Parr, 2008). Recent studies have suggested, however, that many implementation problems continue to be caused by minimal or poor negotiation; local people are rarely participating in the design or implementation of conservation initiatives, and non-governmental organizations (NGOs) are, to a large extent, not partnering with government and

other organizations for mutual benefits (Berkes, 2004; Schmidt-Soltau, 2004; Hill, 2007; Bourdier, 2008; Swiderska *et al.*, 2008).

The Lower Mekong countries (Laos, Cambodia and Vietnam) are situated within a “biodiversity hotspot” (Myers *et al.*, 2000) and thus important for biodiversity conservation. In the three countries 35 per cent of the forests are conserved (ICEM, 2003). Nevertheless, faunal populations have continued to decrease, driven by a prolific trade in wildlife and animal products (Traffic, 2008; Nijman, 2010), extensive areas of natural habitat have been lost (Global Witness, 2007; Meyfroidt and Lambin, 2008), institutions and organizational capacity are weak and thus statutory regulations are not well enforced (ICEM, 2003; Pescott and Durst, 2010).

Interest and investment in biodiversity conservation from government, international donors and NGOs has increased over the past two decades (Zingerli, 2005; Singh, 2009). Given that poverty rates are high in each country (Carew-Reid, 2003) and many local people in the vicinity of protected areas rely on forest products (ICEM, 2003), local, national and international organizations have implemented conservation interventions with the dual aim of local livelihood improvement (Robichaud *et al.*, 2001; Sage and Nguyen, 2001; ICEM, 2003; Roe, 2008). These interventions are supported by the governments in the Lower Mekong, which have a history of authority over conservation stemming back to the French colonial period in the first half of the twentieth century (Cleary, 2005). The priorities of government are, however, more for economic development than conservation (Malhotra, 1999; Billon, 2000), making it a challenge for conservation interventions to balance the two. However, national socio-economic development plans are taking a step forward by including sustainable natural resource management as goals for poverty alleviation (ADB, 2006; GoC, 2006; GoL, 2006; Pescott and Durst, 2010).

Recent studies looking at progress in integrating conservation and development in the Lower Mekong provide recommendations and lessons learnt for intervention implementation (Sage and Nguyen, 2001; ICEM, 2003; Lacerda *et al.*, 2004; Hill, 2007), but there is little or no systematic comparison across the three countries. There is also little understanding of how organizations choose between strategies focused on conservation and/or development and/or institutional support and how organizations relate to each other. This project was undertaken in order to fill this gap by systematically analysing the strategies and relationships between conservation and development interventions. We look beyond donor-funded projects to the perspective of the multiple organizations that conduct interventions at different levels within conservation areas. As interventions are influenced by multiple stakeholders, including local people, private sector, NGOs and governments (Buscher and Whande, 2007), we hypothesize that relationships between organizations are an important factor in deciding strategies. An understanding of the influences on the strategies of interventions would help to clarify the issues that organizations have to deal with regularly and aid in developing appropriate approaches.

This chapter also goes one step further and explores the factors influencing the relative success of these interventions. A challenge with this is that there is much debate over what constitutes “success” of interventions; the definitions and perceptions of “success” are diverse (Axford *et al.*, 2008), measuring success is challenging (Agrawal and Redford, 2006) and the effectiveness of outcomes are rarely measured (Brooks *et al.*, 2006; Ferraro and Pattanayak, 2006). We intend to contribute to this debate through the analysis of achievement towards the stated objectives of conservation organizations and discussing the issues in measuring performance. Through the use of a “progress” measure, we explore whether the development of partnerships, site-level negotiations and multi-tasking between different activities has an effect on achieving their desired outcomes. While there are different cultural understandings of conservation that might determine the success of interventions, we concentrate on a region, albeit with different cultural and historical differences within it, which helps to mitigate the potential variation factor. We focus on local participation and partnerships between organizations because of the widespread belief that participatory approaches are important factors relating to progress and success (Stoll-Kleemann and O’Riordan, 2002; Berkes, 2004; Robinson and Redford, 2004; Sayer and Wells, 2004; Haller and Galvin, 2008). If this can clarify whether partnerships and site-level negotiations aid in achieving objectives, then these results can ultimately influence organizations’ actions in attaining the desired outcomes.

Case selection

The research presented in this chapter is based on an assessment of fifteen conservation landscapes in Laos, Cambodia and Vietnam. The criteria for site selection were:

- 1 The forest conservation area was larger than 10 000 hectares.
- 2 There was/are one or more conservation and development interventions to manage the forest conservation area and associated buffer zone.
- 3 There had been intervention activities within the previous five years (2003–2007).

The cases were selected on the basis of access and feasibility of conducting fieldwork, willingness of the implementing organizations to collaborate in the data collection process and the availability of data. Note that the focus of this chapter is on “conservation areas”, which are predominantly protected areas and other officially designated areas, not community forests, community protected areas or other community-based initiatives.

In this study we analyse the interventions of three types of implementing organization, which we refer to as “management bodies”, “non-partner organizations” and “partner organizations”. “Management bodies” are the conservation

management authorities at each of the fifteen sites, and all have the dual aim of achieving biodiversity conservation as well as local economic development and, ultimately, livelihood improvement. These often take the form of a direct partnership between national government and an international conservation NGO. “Other organizations” (often NGOs) manage conservation and/or development interventions that are focused on at least part of the buffer or core zone. Some of these organizations operate at a greater scale outside the conservation areas; five of the interventions operate across more than one of the selected sites. We classified the other organizations as “partner” or “non-partner”, based on whether they did or did not have an arrangement with the management body to conduct specific activities at the same site. The primary focus of the data collection was on the interventions of the fifteen management bodies, with a further twenty-eight interventions of partner and non-partner organizations being included in the analysis.

Methods

A set of variables was developed through expert consultation and a review of literature. The variables were separated into four categories: the environmental setting, socio-economic conditions, institutional framework and management body characteristics. The initial list of 123 variables was presented and revised at two workshops in Cambodia and Vietnam. The variables were applied to all fifteen sites and were further revised, with additional variables included during data collection to ensure relevance to the study focus and ease of measurement. Subsequent revisions occurred during data cleaning and the initial stages of the analysis to produce a final matrix of 164 variables. A shortened version of twenty variables from the management body characteristics section was developed to collect information from the partner and non-partner interventions.

Results

Description of contexts and interventions

Environmental conditions at each of the fifteen sites are diverse, with a wide variety of forest types, ranging from dry Dipterocarp forest to semi-evergreen and evergreen forest. Some sites are centred on hilly and mountainous terrain (such as Tam Dao National Park, Van Ban Nature Reserve and Nam Et-Phou Louey National Protected Area) and others on flat terrain (such as Mondulkiri Protected Forest and the corridor between Dong Hoa Sao and Xe Pian National Protected Areas). A proportion of these conservation areas are surrounded by very high population densities (such as Tam Dao and Cat Tien National Parks), and others have very low population densities (such as Virachey National Park, Nakai Nam Theun National Protected Area and Van Ban Nature Reserve), and thus the threats and management strategies to mitigate them are very different. In some sites, there is a high diversity of ethnic groups (such as in Nakai Nam

Table 17.1 Variables used in the analysis to describe intervention activities, strategies and progress

<i>Variable name</i>	<i>Measurement (2003 to 2007)</i>
Research	% effort: combination of financial and human resource cost <i>Could include:</i> <ul style="list-style-type: none"> – socio-economic studies; – biological studies; – research activities.
Environmental education and conservation awareness raising	% effort: combination of financial and human resource cost <i>Could include:</i> <ul style="list-style-type: none"> – activities to improve education and awareness of local people; – training courses to improve understanding of the environment by staff members or government officials.
Training and non-environmental education	% effort: combination of financial and human resource cost <i>Could include:</i> <ul style="list-style-type: none"> – training to improve agriculture techniques or management of community associations; – education to improve literacy or health.
Local economic initiatives	% effort: combination of financial and human resource cost <i>Could include:</i> <ul style="list-style-type: none"> – activities to improve the incomes of local people; – implementation of local associations.
Support and infrastructure development	% effort: combination of financial and human resource cost <i>Could include:</i> <ul style="list-style-type: none"> – activities to improve sanitation, health care and services; – building of roads, bridges and water facilities.
Tourism	% effort: combination of financial and human resource cost <i>Could include:</i> <ul style="list-style-type: none"> – tourism operation; – interpretation centres; – tourism development; – improvements to infrastructure for tourism.
Land-use planning	% effort: combination of financial and human resource cost <i>Could include:</i> <ul style="list-style-type: none"> – participatory land use planning (PLUP); – planning of and delineation of community protected areas, forestries or fisheries.
Institutional development	% effort: combination of financial and human resource cost <i>Could include:</i> <ul style="list-style-type: none"> – efforts to change the market system; – efforts to change the legal system.

Theun National Protected Area) and others are more ethnically homogenous. Related to ethnicity, the dependence of local people on forest resources also varies from relatively low (categorized as less than 40 per cent of subsistence and cash income from forests) in five sites to very high (over 90 per cent of income from forests) in two sites. Due to the diversity of contexts, the threats to the forest areas are site-specific, driven by a variety of processes. Illegal hunting and logging, however, are universal threats. Other major threats include agricultural encroachment, dam building, other infrastructure development and mining.

Organization strategies are as varied as are the contexts in which they function. Many of the organizations operate on large budgets (greater than USD 100,000 per year) in large areas (such as the Watershed Management and Protection Authority in the 430,000-hectare Nakai Nam Theun National Protected Area), and these tend to conduct a variety of different activities for multiple projects. Some organizations, however, are implementing very small interventions (such as projects with budgets of less than USD 10,000 per year) that focus on only very specific activities in small areas or single villages. The intervention length also varies from less than one year (such as Free the Bears in Bokeo Nature Reserve) to seventeen years (such as Youth with a Mission in Cambodia and Cat Tien National Park Management Board). Although the organizations are varied, they all have as a primary goal to conduct conservation and/or development within the conservation areas and in the surrounding landscape.

We focus here on the activities and relationships of organizations operating in the fifteen sites. The fifteen management bodies are all under the jurisdiction of a government unit, such as a management board, forestry administration or department of forestry. There are, however, differences between them because three are directly government-run and the remainder are partnerships between the government institutions and other organizations. Fourteen of the fifteen management bodies collaborate with other NGOs, the exception being Van Ban Nature Reserve where there are no other non-government organizations in the area. Seima Biodiversity Conservation Area, Cambodia, illustrates an example where multiple organizations are operating in a single conservation area. The Forestry Administration of the Ministry of Agriculture, Forestry and Fisheries is responsible for forest conservation, but is supported by the Wildlife Conservation Society, an international NGO, for technical advice and financial support. Livelihood improvement activities in key villages are mainly conducted by a partner organization, the Cambodian Rural Development Team (CRDT). Non-partner organizations are also active in Seima, such as the Red Cross, which gives health-related support to several villages in two communes, including water, sanitation and nutrition.

Analysis of activities

The activities of the forty-three different interventions in each of the fifteen sites are diverse. Law enforcement is conducted for the control of forest resource exploitation, and tourism development is often employed as a mechanism to

achieve localized sustainable financing. Livelihood improvement activities are often targeted at reducing pressures on forests; examples are fodder production to remove cattle from forests, non-timber forest product development for ensuring sustainable use, agricultural extension to reduce people's reliance on forest products, and family planning to reduce population pressure on already scarce land resources. Institutional reform, represented in the variables "land-use planning" and "institutional development", is aimed at developing national and local regulations for controlling the trade of wildlife and wood, acquiring tenure rights for local people and building the technical capacity of government officials. Environmental education and conservation awareness-raising are conducted to improve understanding and knowledge of conservation and the environment by local people, protected area management staff and government officials. Training and non-environmental education aims to improve agriculture techniques, health care and the literacy of villagers. Wildlife research, social research and other conservation activities (including boundary demarcation and wildlife monitoring) are also a part of many interventions.

The management bodies conduct all eleven primary activities, but the primary focus is law enforcement. Tourism is conducted by only eight of the management bodies, and their effort is highly varied, with one intervention, the Gibbon Experience in Bokeo Nature Reserve, spending the majority of its resources on the development of ecotourism. All the management bodies surveyed conduct livelihood improvement activities with the intent of reducing the pressure on wild resources by encouraging alternative livelihood activities. Institutional development and land-use planning are also a significant component of the management bodies' portfolio.

Other organizations work in the sites to support conservation, livelihood improvement or integrated activities, which often consist of single interventions or multiple donor-funded projects. Some of the organizations are solely conservation focused, conducting activities such as law enforcement training (e.g. the Wildlife Conservation Society in Nakai Nam Theun National Protected Area), environmental education (Save Cambodia's Wildlife and Association of Buddhists for the Environment in the Central Cardamom Protected Forest) and species-focused conservation and monitoring (Fauna & Flora International's crocodile conservation project in the Central Cardamom Protected Forest, and Free the Bears in Bokeo Nature Reserve). Others work specifically on livelihood improvement, such as the Red Cross in Seima Biodiversity Conservation Area. Yet others are combining conservation and development goals, such as Deutscher Entwicklungs Dienst (DED) and WWF in Bach Ma National Park, Vietnam.

There is a clear difference among the activities of management bodies, partner organizations and non-partner organizations. The partner and non-partner organizations rarely conduct law enforcement or tourism, and are primarily development oriented, with the majority of resources spent on local livelihood and community development. Interventions conducted by partner organizations do more research, environmental education and income generation activities

than those of non-partner organizations. Environmental education is particularly specific to some of the partner organizations, such as the Association of Buddhists for the Environment in Central Cardamom Protected Forest. Species monitoring is also a large part of some partner organizations, such as crocodile monitoring by Fauna & Flora International in Central Cardamom Protected Forest and elephant surveys by the Wildlife Conservation Society in Nakai Nam Theun National Protected Area. Non-partner organizations are focused more often on support for local livelihood development, including public health support (such as Healthnet in Cambodia), infrastructure development, non-environmental education and training (such as Helvetas in Vietnam, which provides training to improve agricultural productivity and sustainable use of natural resources), and some conduct environmental education and provide economic support (for example, microcredit, market development and development of non-farm incomes) to local people. All types of organizations conduct institutional development and land-use planning, but management bodies dominate these activities.

Direct or indirect conservation payments seem to be a rarely employed conservation tool. For management bodies, partner and non-partner organizations, payments made to local people for conservation average less than 2 per cent of the total resources for the interventions. These payments are primarily for assistance with law enforcement and for information about illegal activities, where informants are directly rewarded for reporting evidence of non-compliance with local regulations. One example of a reward mechanism system is that of the Nam Theun 2 hydropower plant on the edge of the Nakai Nam Theun National Protected Area, which is providing USD 1 million per year to the Watershed Management and Protection Authority to conserve the watershed (Robichaud *et al.*, 2009).

We present a principal component analysis (PCA) plot of the activities of the three groups of interventions to show the diversity of strategies employed (Figure 17.2). The x-axis of the PCA plot is explained largely by the variables of “health support and infrastructure development” and “training and education” at one end, opposed to “law enforcement” and “conservation payments”. This suggests a polarization from development-related activities (training, public health provision and, to a lesser extent, local livelihood activities) to conservation-related activities (notably law enforcement, conservation payments, research and other conservation activities). Interventions of management bodies tend to focus more towards conservation activities, and the interventions are relatively homogenous in comparison to those of partner and non-partner organizations. Non-partner organizations are much more focused towards livelihood improvement, namely health support, infrastructure development, training, education and income generation; and are largely absent from the right side (conservation activities) of the graph. Partner organizations tend to specialize in certain activities, and so are scattered on the PCA plot, though they tend to be absent from the extreme left of the graph (i.e. pure development activities such as health, infrastructure and training support).

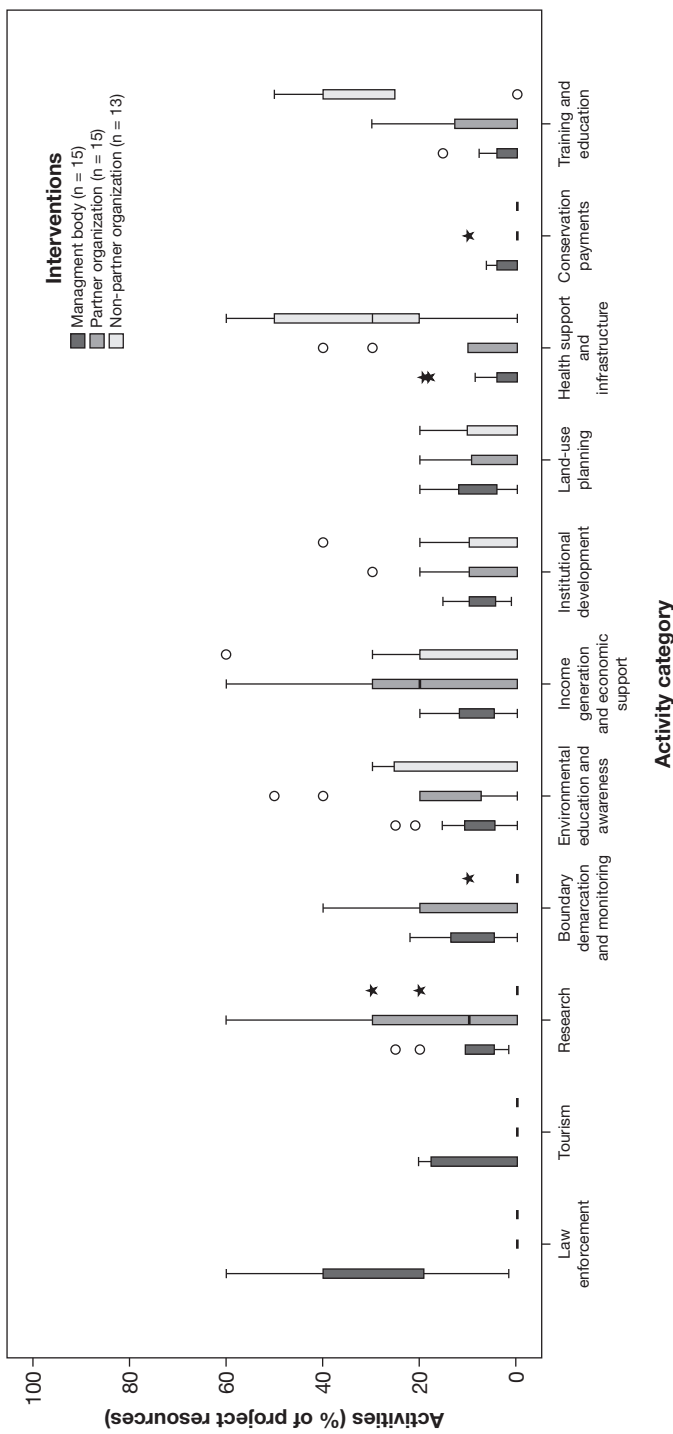


Figure 17.1 Boxplots of the resource allocation to eleven activities by three categories of interventions: those of management bodies, non-partner organizations and partner organizations
 Notes: The outliers represent individual interventions. The total of all activities adds to 100%.

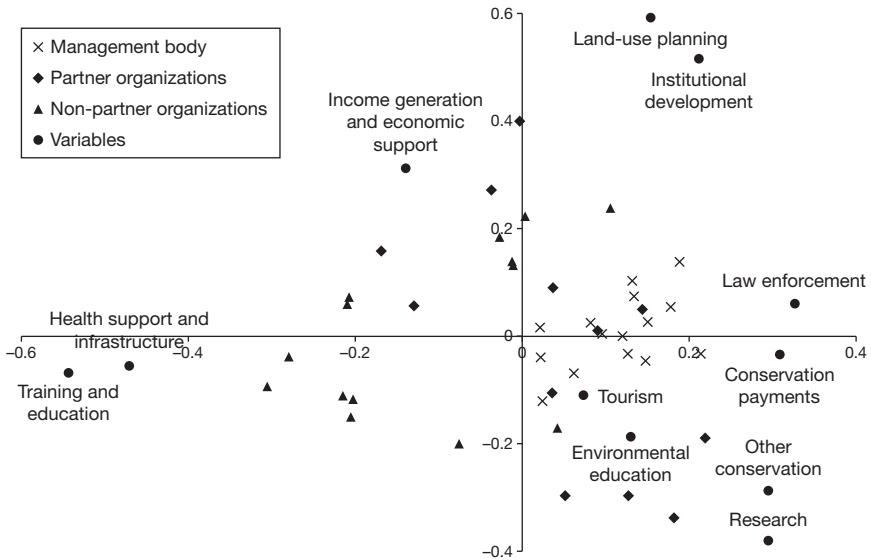


Figure 17.2 Principal component analysis of eleven implementation activities of all forty-three interventions

Notes: Variance explained: x-axis = 24%; y axis = 14%. “Other conservation” includes rehabilitation, boundary demarcation and monitoring.

Analysis of progress

There were clear distinctions between management bodies, partner and non-partner organizations, so they were split and analysed independently. Management bodies have the primary objectives of biodiversity conservation, livelihood improvement and institutional development, but this is not the same for the twenty-eight partner and non-partner organizations. Using crosstab analysis, thirteen of the fifteen partner organizations have targets for biodiversity conservation and five of these are on target to meet objectives, while the non-partner organizations do not often include biodiversity conservation objectives (Crosstab analysis: Chi-square = 14.763; d.f. = 2; p-value = 0.001). Twenty four non-partner and partner organization have targets for livelihood improvement, and eight of these are on target to achieve their objectives, but there is little difference between the groups (Crosstab analysis: Chi-square = 4.379; d.f. = 2; p-value = 0.112). Twelve partner and non-partner organizations have objectives for institutional development, but only four of these are on target to achieve objectives, and there is little difference between the two groups (Crosstab analysis: Chi-square = 3.877; d.f. = 2; p-value = 0.114).

The activities undertaken by partner and non-partner organizations significantly influence the progress towards biodiversity conservation and livelihood improvement objectives, but do not appear to influence progress towards institutional development. Biodiversity conservation achievement is improved

Table 17.2 Ordinal regression of activities against perceived progress towards biodiversity conservation, livelihood improvement and institutional development for “other organizations”

Variable	Biodiversity on target*			Livelihood on target**			Institutional on target***		
	Estimate	d.f.	Sig.	Estimate	d.f.	Sig.	Estimate	d.f.	Sig.
Progress = 1	3.96	1	0.271	4.689	1	0.275	0.193	1	0.965
Progress = 2	9.183	1	0.035	8.869	1	0.061	2.487	1	0.572
div_index	3.112	1	0.201	0.152	1	0.929	0.529	1	0.772
act_research	0.079	1	0.091	0.078	1	0.211	-0.01	1	0.865
act_support	-0.026	1	0.561	0.102	1	0.038	-0.006	1	0.899
act_lup	0.075	1	0.409	0.106	1	0.19	0.068	1	0.396
act_inst	-0.055	1	0.374	0.061	1	0.315	0.036	1	0.538
act_other	0.175	1	0.024	-	-	-	-	-	-
edu_train	-0.053	1	0.322	0.068	1	0.156	-0.078	1	0.131
edu_env	0.032	1	0.333	0.031	1	0.445	-0.003	1	0.938
act_econ	-	-	-	0.107	1	0.04	-0.007	1	0.891

Analysis conducted in an iterative process (n-1 variables) to get the best model, so the variable of economic activities was removed from analysis of biodiversity progress, and the variable of “other conservation activities” was removed from analysis of livelihood and institutional development progress. The variables of tourism, enforcement and conservation payments were not part of the interventions of other organizations, and so were removed.

*Goodness of fit: Chi-square = 22.095, p-value = 0.995; Cox and Snell R² = 0.693. **Goodness of fit: Chi-square = 103.537, p-value = 0.000; Cox and Snell R² = 0.366. ***Goodness of fit: Chi-square = 51.990, p-value = 0.139; Cox and Snell R² = 0.453.

by the implementation of research and “other conservation activities”, such as monitoring of wildlife and rehabilitation of forest. Achieving improvements to livelihoods is supported by the implementation of health support, infrastructure development and local economic activities to improve income generation (such as agricultural extension). The diversity of activities did not have an effect on progress. Furthermore, the choice of activities did not influence any progress indicators of the site management bodies.

Tests on correlations between stakeholder negotiations and progress of partner and non-partner organizations did not show any strong results, but this is possibly because twenty-three of the twenty-eight organizations had a stakeholder negotiation score of 5 (strong negotiations). Tests on correlations between stakeholder negotiations and progress of management bodies show that to achieve targets of livelihoods, strong negotiations are required (Spearman’s $Rho = 0.554$; p -value = 0.032), and this may also be the case for biodiversity conservation targets (Spearman’s $Rho = 0.464$; p -value = 0.082). Nevertheless, stakeholder negotiations do not seem to be a factor in deciding progress for institutional development objectives (Spearman’s $Rho = 0.169$; p -value = 0.547).

Discussion

Neither classic approaches of protectionist conservation nor integrated conservation and development is dominant at the sites we studied in the Lower Mekong. Rather, it appears that there is a mosaic of approaches and activities conducted in and around forest conservation areas. The high level of law enforcement activities of the management bodies suggests that protection of valuable biodiversity is the greatest priority at the forest conservation areas. Livelihood improvement is, however, conducted as an indirect measure to reduce threats to conservation areas by providing alternative livelihood strategies. Many of the management bodies in the Mekong sites conduct activities that link forests with local livelihoods, such as NTFP development, ecotourism and involving local people in conservation activities. Furthermore, it appears that institutional development for regulations, laws and tenure rights is an important approach that aids the implementation of conservation, and is conducted at both the local and national scales. And finally, while payments for environmental services (PES) are not a commonly implemented strategy to support conservation and development, PES is an emerging mechanism for conservation in the three countries (Pham *et al.*, 2008; Tallis *et al.*, 2009), and improvements to the mechanisms could provide financing and social integration of conservation interventions in the three countries.

Partnerships for conservation, less for development

Why are certain activities conducted through partnerships and others not? There may be multiple reasons for this. International conservation organizations

working in these countries have a mandate to support the governments' efforts in protecting forest resources, as indicated by the structure of the management bodies of the conservation areas. The other organizations working in these protected forest areas have different attributes in their management, particularly in their mandate, motivation, capacity and power (Castillo *et al.*, 2006). Partnerships may be formed with organizations with different management attributes, yet have similar mandates towards conservation. For example, while the management bodies conducted local livelihood improvement activities that were focused on forest resources, partner and non-partner organizations more frequently conducted activities that shift local people's focus away from forests through other livelihood improvement activities, such as agricultural intensification, health-related interventions to reduce population pressures on already scarce land resources, non-farm income generation and infrastructure support. Partner organizations – generally non-government organizations – mostly target their activities at achieving biodiversity conservation, and hence appear as supporting the efforts of the management bodies. This may suggest that non-government organizations are providing a service that the government institutions responsible for forest management are unable to provide because of limited capacity. On the other hand, organizations not partnering in a particular site are focused less on conservation and more on livelihood improvement, including health support, training and sustainable use of natural resources. This suggests that non-partner organizations have mandates that are separate from the management bodies, and hence it would be inefficient to form partnerships.

The progress of interventions is determined by the scope of the interventions. When focusing on conservation and development at the site level, such as that of the management bodies, the intervention is required to diversify its strategy by focusing on all three objectives of conservation, livelihood improvement and institutional development. This makes sense because conservation agencies are dealing with complex issues over large landscapes, and recommendations suggest they need to expand their focus in order to deal with and negotiate trade-offs (Sunderland *et al.*, 2008) and they need to diversify activities in order to achieve and balance multiple objectives (Hughes and Flintan, 2001). Nevertheless, when we look at the "other organizations", many of the organizations are focused on livelihood improvement or conservation – not both. Progress towards these objectives appears to be better achieved when organizations focus on fewer activities that strictly target conservation or development.

Pragmatic solutions to complex conservation problems

Organizations in Cambodia, Laos and Vietnam are attempting to seek pragmatic solutions by adapting to the local context. There are multiple stakeholders in each of the conservation landscapes, with a specific set of social, environmental and political factors characterizing each site. Pragmatic strategies are then an option for dealing with issues on a day-to-day basis, depending on the problem at hand. A strategy might be to increase law enforcement in a remote area

because of frequent reports of illegal logging, or in another area, a development strategy might be implemented to assist a community in improving rice production to reduce encroachment into the forest areas.

Part of this pragmatic approach is to improve understanding of the local context and to work with multiple stakeholders through participatory approaches. Although previous studies have noted the lack of appropriate stakeholder negotiations (Hill, 2007; Bourdier, 2008), we found that the majority of organizations were employing practices of participation and consultation with other stakeholders. Furthermore, for the management bodies of the fifteen sites, perceptions of progress are better when the organizations are employing practices of improving negotiations with other stakeholders, through participation, collaboration and consultation. Participation by local interest groups helps to improve understanding of their different perspectives, thus improving the effectiveness of conservation interventions (Stoll-Kleemann and O'Riordan, 2002). While there are institutional, political, financial and social challenges to be able to collaborate with organizations and local interest groups (Barrett *et al.*, 2001; Stoll-Kleemann and O'Riordan, 2002; Schmidt-Soltau, 2004; Tongson and Cola, 2007), they are important elements in improving the efficacy of interventions. Pretty and Smith (2004) recommend that the kind of participation necessary to improve outcomes for conservation should be at least functional (where participation is seen as a means to meet predetermined objectives) or interactive (where participation is for joint analysis, action planning or strengthening of local groups and institutions). Where participatory practices are not satisfactory at the local level, organizations need to seek a more functional kind of participation that can more effectively achieve set goals. This also means accepting the differences in interests, power and agendas of different stakeholders, by implementing practices of negotiation that are in consonance with the political and cultural contexts of each country.

Monitoring and evaluation required for better indicators of success

The success of these interventions is difficult to measure and compare, as the definitions and perceptions of success are diverse (Axford *et al.*, 2008), especially when comparing interventions of different scopes. This issue is reiterated because, as Ferraro and Pattanayak (2006) discuss, for a wide variety of reasons, evaluations are rarely conducted, and it is therefore not unusual that we found few evaluations. Our measure of progress is a useful indicator to explore some assumptions and discuss the strategies of organizations. Nevertheless, the progress variable was, in most situations, weak. Through the course of this research, we gained only a surface understanding of the interventions; more detailed knowledge of the history of the sites and interventions would improve this measure of performance. Despite the paucity of data and the fact that there are likely to be biases from the response of the interviewees, the results provide some important findings related to progress, negotiations and conservation-development focus.

A key problem remains: that the effectiveness of outcomes in conservation and development interventions are rarely measured (Brooks *et al.*, 2006). This may be due to multiple logistical issues, such as staff being overworked, insufficient funding and a lack of a strategic vision of the conservation areas, but we have not typified these reasons in the analysis. Nevertheless, we reiterate others' recommendations and suggest that tangible outcome targets need to be set and measured and that progress towards them should be measured (Sayer and Campbell, 2004; Sayer *et al.*, 2007; Kapos *et al.*, 2009). One of the key reasons for implementing monitoring and evaluation procedures is that a focus on outcomes by setting a counterfactual (that is, asking "What if the intervention had not happened?") can demonstrate the impact towards protecting biodiversity (Ferraro and Pattanayak, 2006). In the current climate of thinly stretched budgets, monitoring and evaluation is a part of good management, by providing early warning signs of slow progress, improving accountability and ensuring the funds are well spent (Stem *et al.*, 2005; Ferraro and Pattanayak, 2006).

There is a wide diversity of strategies employed by conservation and development interventions at the fifteen sites. Each site has its own unique combination of characteristics and interest groups, which influences the choice of activities employed by the interventions. The results, however, provide an illustration of the types of strategies employed, regardless of context. While we found some important results for the management of interventions, we recommend that if conducting research based on case comparisons, extended periods of field research are necessary to understand better each site and context. We found issues in comparing the cases of interventions and sites, because each is distinct and their scope is greatly varied. Recent papers have suggested that detailed case studies remain an important method for understanding complicated issues (Gerring, 2004; Flyvbjerg, 2006). While comparisons across cases can provide useful patterns, case studies are critical to gain a clear understanding of the different contexts and actors in each situation in order to be useful for other conservation practitioners and researchers of conservation and development issues. By combining both qualitative and quantitative analysis, mixed methods are easily applicable to this type of research, and have been used in international development for decades (Tashakkori and Creswell, 2008). Mixed methods have the advantage of flexibility and are well suited for understanding both culture and context, which allows for implementing culturally sensitive interventions and evidence-based practices (Nastasi *et al.*, 2007).

Conclusions

Similar to the findings of Polet and Ling's (2004) study of Cat Tien National Park, rather than following the classical approaches of strict protection or integrated conservation and development, what we have seen is that interventions employ a mosaic of pragmatic approaches to address issues in forest conservation areas. The managers of conservation areas are operating in complex environmental and social contexts, and are tasked with improving

conservation, livelihoods and institutions, often with the assistance of multiple other organizations. These partner organizations are focused on specific conservation and livelihood objectives, conducting activities such as species monitoring, education and income generation, but there are also non-partner organizations operating at the same sites that often aim to improve the livelihoods of local residents, largely through health work and infrastructure development. Perhaps due to the complexity of contexts, employing practices of stakeholder negotiations, including partnerships and participation, appears to improve the progress of the objectives of the management bodies of conservation areas.

From these conclusions, we suggest that forming partnerships can help in conservation and livelihood improvement, by assisting with the management of conservation areas. Employing practices of participation and consultation with the stakeholders of conservation areas also aids in improving the performance of interventions. While case comparisons such as these are useful for finding patterns among interventions and sites, because of the wide variety of contexts, detailed case studies and more emphasis in interventions on monitoring and evaluation are important in contributing to addressing the challenge of balancing conservation and development.

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