

# Evidence-based Conservation

Lessons from the Lower Mekong

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# 1 Introduction

## Evidence-based conservation from the Lower Mekong

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Sixty million people live in the Lower Mekong Basin. They have emerged from decades of wars and civil conflict to confront a struggle of a new kind. The minerals, agricultural lands and especially the hydropower potential of their landscapes are eagerly coveted by governments and corporations from around the region. There are now nineteen dams on the Mekong river and countless more on its tributaries – Laos alone has seventy-seven active dam projects. Mines are springing up everywhere – both large industrial mines and small artisanal ones. Plantations of oil palm, rubber, fibre trees and numerous other crops are expanding rapidly. A region that until recently retained vast tracts of relatively undisturbed natural rain forests is rapidly being sliced up by expanding networks of roads.

With each passing year, increasing areas of forests, wetlands, and species come under threat from these escalating pressures of increases in human populations and associated development. To mitigate these threats billions of dollars are being spent on conservation and development initiatives in the last few areas of high biodiversity that remain. Conservation has to be achieved while simultaneously satisfying the livelihood demands of the ever-growing populations that depend on natural resources. This is certainly the case in the forests of the three Lower Mekong countries (Vietnam, Lao PDR and Cambodia). Demand for land for subsistence agriculture and for commodity crops to feed the growing economies of China, Vietnam, Thailand, Taiwan, South Korea and Japan is already making rapid inroads into the last remaining forests. As markets open further, pressures on the last remaining wildlife populations will intensify. The ability of conservation initiatives to counter these pressures is very limited, and many challenges remain. Thus it is vitally important that every dollar available for conservation is spent in the most effective way possible. Most of the larger conservation organizations and development assistance agencies are investing in projects that seek to both conserve the environment and to improve the livelihoods of the rural poor. Attempting to integrate biodiversity conservation and local economic development in this manner, as we will discuss below, has become the pervasive form of project implementation model for conservation organizations throughout the tropics.

Many conservation interventions make unjustified and unsupported claims about the links between conservation and development, about the nature of the development outcomes that local people really seek and about the real values of biodiverse natural areas to poor local people. Most conservation agencies now claim to be operating at larger spatial scales, e.g. the “landscape scale”<sup>1</sup> and are in effect attempting to achieve outcomes at the scale of large natural resource systems. One of the biggest challenges for conservation activities that are conducted at this larger landscape scale is that of *measuring progress* in improving the conservation performance of the landscape and providing an *evidence base* on what works and what does not. Similarly, development projects often focus on the areas of crops planted, and on quantifying the number of roads and schools built, children inoculated, but they often neglect the impacts of these interventions on sustaining the environmental values that underpin rural development. Thus a major challenge is to integrate the measurement of livelihood outcomes with the achievement of conservation outcomes and to provide clear and explicit linkages between the two. In addition, we have to identify, articulate and negotiate possible trade-offs that may exist between these two, often differing, objectives. This is important as there is a clear need to be able to assess the performance of conservation and development interventions that attempt to improve the outcomes at the scale of complex mosaic landscapes in which biodiversity of global concern often coexists with people living in extreme poverty.

The literature now recognizes that there are often severe trade-offs between conservation and development and seldom do we achieve “win-win” situations (Sayer and Campbell, 2004; Sunderland *et al.*, 2008, McShane *et al.*, 2011). However, many practitioners still fail to acknowledge these trade-offs, either through inexperience, a lack of in-depth scrutiny, a lack of monitoring, or a lack of honest reporting to donors or the wider community. In this book we attempt to highlight the evidence-base generated from on-the-ground integrated conservation and development initiatives and use this experience to analyse how such evidence can be used to achieve more successful outcomes for both the conservation and development of the Lower Mekong ecoregion. Access to such information is important in increasing the effectiveness of conservation practice. Linking field practitioners and academic scientists in this way essentially “bridges the gap” between the two. The intention is frequently stated (Shanley and López, 2009; Sunderland *et al.*, 2009) but this rarely happens in a meaningful way.

When we embarked upon this project several years ago we expected to be able to develop sets of simple metrics that would enable us to make statements about the conservation and development performance of projects. However, all of the projects that we describe in this book operate in the complex, messy, real world where even obtaining clarity on shared goals among such diverse stakeholders is difficult. All of the locations are subject to intense change driven by the appetites of governments and corporations for minerals, land for agro-industries and hydropower. Attributing any particular change to a project

intervention is often difficult. Even defining what development is for the isolated, marginal populations that occupy most of these areas is problematic. According to such international measures as the Millennium Development Goal indicators, the rural people of the lower Mekong are among the world's poorest. They do indeed lack many of the material goods against which we measure development. But they have rich cultures and strong family bonds, and they inhabit rich and diverse landscapes where they still have freedom to pursue a wide range of activities. Amarty Sen has defined development as "Freedom" and according to this definition the rural people of the lower Mekong may be more developed than many of their compatriots who have been drawn into the vice of the globalized economy. The relentless pursuit of economic efficiency and specialization has provided opportunities in simple manufacturing for many urban people in the lower Mekong countries. The material condition of urban people has improved – but they may have lost many of the elements of their livelihoods that came from the rich natural environment in which the rural population lives.

Our studies struggle to demonstrate improvements in material well-being stemming from the integrated conservation and development projects (ICDPs) that we review. But as the following chapters show, many hundreds of thousands of rural people have been touched by these projects. They have been empowered to engage in the planning of their landscapes. They have, in many cases for the first time, been able to engage in the process of determining their own futures. In terms of the formal metrics of development it is difficult to demonstrate the impact of these projects. In terms of giving people new power, choices and "freedom", many of the chapters that follow suggest that significant progress has been made.

## **The Lower Mekong ecoregion**

The Mekong River Basin possesses arguably one of the most diverse biological and cultural landscapes in the world (Azimi *et al.*, 2000, Myers *et al.*, 2000). Long periods of conflict and civil war have meant that much of the unique biodiversity of the region has not, until recently, been studied, (Sterling *et al.*, 2006). With the end of conflict and a gradual transition from socialist command economies to market-oriented policies, the countries of the Lower Mekong have, over the past thirty years, opened up their borders to outsiders. Major biological discoveries have been made during this period, leading the Lower Mekong ecoregion to be identified as a "hot spot" of global significance (Myers *et al.*, 2000). And now expanding infrastructure and land conversion are creating unprecedented threats to this biodiversity.

The description of many new species has created considerable excitement among the conservation community. The discovery of the saola (*Pseudoryx nghetinhensis*) in Vietnam in 1992 (a small deer that is the sole member of a new genus) sparked an exciting period of discovery of new species in the Mekong. This has been unparalleled worldwide in the twentieth century.

The new species include five additional large mammals, a primate, the grey-shanked douc (*Pygathrix nemaeus cinerea*), and a lagomorph, the Annamite striped rabbit (*Nesolagus timminsi*). The re-discovery of the Javan rhinoceros (*Rhinoceros sondaicus annamiticus*) in Cat Tien National Park in 1999 (Poletti *et al.*, 1999) also highlighted the conservation value of the region. Other large mammals of significance include a number of species of wild buffalo; the gaur (*Bos gaurus*), the banteng (*Bos javanicus*) and the kouprey (*Bos sauveli*), which are classified as Vulnerable, Endangered or Critically Endangered respectively (Nguyen, 2009). The Asian elephant (*Elephas maximus*) is also present in each of the three countries, but crop raiding and retaliatory hunting is having a significant impact on the remnant wild populations (Webber *et al.*, 2011). There are many Endangered primates in the region, including the Cao Vit gibbon (*Nomascus nasutus*) and Hainan gibbon (*Nomascus hainanus*), with respectively about 120 individuals remaining, making the latter the most Endangered primate in the world (Sterling *et al.*, 2006).

In the Mekong River itself, more than 250 fish species were identified in the mid-1990s, with five new species described between 1991 and 1996 (Sterling *et al.*, 2006). The Lower Mekong region hot spot is also home to a remarkable diversity of endemic birdlife, with around 1,300 different bird species (BirdLife International, 2001). The local and regional conservation importance of the Lower Mekong is further discussed in considerable detail within each of the case studies presented in this book.

Unfortunately much of this biodiversity is under significant threat. Economic growth is pursued with minimal regard for the environment in each of the three countries that are the focus of this study. Economic expansion has led to widespread deforestation for agriculture, pollution of waterways, declining fish and wildlife populations, dislocation of human populations and poor air quality in urban areas (Azimi *et al.*, 2000). Where forests remain, the areas are often home to chronic poverty and low standards of living (Chape, 2003; Morris and Vathana, 2003; Sunderlin, 2006). The urgent challenge is to improve the livelihoods of local people, but to do so in ways that maintain the biodiversity values of their landscapes. However, scholars argue (e.g. McShane *et al.*, 2011; Salafsky, 2011) that it may not be possible to integrate both conservation and development goals in a single programme. There are often major trade-offs involved. It is this fundamental dilemma that this book attempts to address.

## **Protected areas and integrated conservation and development**

There has been an exponential increase in the number of protected areas in recent years (Chape *et al.*, 2005). The global network of protected areas now covers 11.5 per cent of the world's surface area, with the majority of these falling within categories I–IV of the the International Union for Conservation of Nature (IUCN)'s classification (Rodrigues *et al.*, 2004; Schmidt *et al.*, 2009). These are the highest levels of protection, so the land is effectively withdrawn

from human use and production (Ferraro and Hanauer, 2011). The strategy of creating protected areas in high biodiversity locations remains the cornerstone of conservation practice (Kramer *et al.*, 1997) and this is particularly the case in the Lower Mekong, where up to 20 per cent of terrestrial habitats are under some sort of protected status (Carew-Reid, 2003).

However, many conservationists are attempting more integrated approaches to conservation, working with communities within and around protected areas, both to further conservation objectives and to improve local livelihoods. This is as much for practical (Robinson, 2011) as ethical reasons (Minteer and Miller, 2011). Many in the conservation community believe that biodiversity conservation efforts in developing countries are doomed unless local communities become an integral part of these efforts and benefit economically from them (Miller *et al.*, 2011). Many argue that the linkages between conservation and rural poverty need to be made even more explicit (McShane, 2003; Sunderlin, 2006).

Thus the standard approach to conservation that emerged over the past three decades has been to integrate conservation and development objectives into a single project package. As a result, a whole generation of ICDPs has been born. The term ICDP has been applied to a diverse range of initiatives, but linked by a common goal: linking biodiversity conservation in protected areas (PAs) with local and regional social and economic development (Wells *et al.*, 1999). In practice, ICDPs often target both the protected area, for example by strengthening management, and the local communities, by providing rural development or infrastructure. These interventions are intended to reduce the pressure on natural habitats and on the resources upon which people depend for their livelihoods (Abbot *et al.*, 2001).

Despite some perceived early successes, early enthusiasm for ICDPs has long been tempered by critical assessments of their impacts on both conservation and development objectives (Wells *et al.*, 1999; McShane and Wells, 2004). Conservation *and* development are often characterized by conflicting agendas, and many projects have unrealistic and contradictory goals, with different stakeholders having very different expectations (Ferraro and Hanauer, 2011). Additionally, many in the conservation community are concerned that the growing emphasis on social goals is distracting effort from conservation (Oates, 1999).

The Lower Mekong has been identified as a biodiversity hot spot within the “Indo-Burma” hot spot (Myers *et al.*, 2000). This, coupled with the discovery and re-discovery of many new species, has led Cambodia, Lao PDR and Vietnam to become the focus of a plethora of conservation projects. ICDPs, landscape approaches, new financial mechanisms, etc. have proliferated in the region (Pilgrim *et al.*, 2011). Despite this intensity of conservation activity in the region, reports suggest that many challenges remain (e.g. Hodgdon, 2007; Brooks *et al.*, 2011). However, in general, there is little evidence being generated on the effectiveness of current conservation interventions. This is an issue that is certainly not unique to Cambodia, Vietnam and Laos; it is also the

case in many other regions around the globe. Curiously the academic literature abounds with frameworks, models, concepts and approaches related to the integration of conservation and development and the nature of the trade-offs between these objectives (Lawler *et al.*, 2006). However, few of these studies are evidence-based and they have little impact on either the policies (Shanley and López, 2009) or the practice of conservation (Sunderland *et al.*, 2009).

### **Learning from doing: evidence-based conservation**

It is widely accepted that there is a considerable gap between the science of conservation biology and the design and execution of biodiversity conservation projects in the field. Science is failing to inform the practice of conservation. There are many reasons why this implementation gap exists. Few of the papers published in scientific journals by conservation biologists are read outside academic circles (Pullin *et al.*, 2004) and there are few incentives for academics to convert their science into practice (Sunderland *et al.*, 2009). In turn, field practitioners rarely have an opportunity to document their experiences and experiments in a manner that can meaningfully inform conservation science and the wider policy making community.

Without the evidence from experience in the field, conservation will fail to inform policy and science and vice versa. The last ten years or so have seen the development of frameworks for assessing the effectiveness of conservation actions, with the ultimate aim of improving conservation practice (Campbell *et al.*, 2001; Pullin and Knight, 2001; Sutherland *et al.*, 2004; Garnett *et al.*, 2007). The adaptation of methods developed in medicine and related fields to scientifically evaluate conservation actions has not occurred. There have been attempts to provide an evidence-base to underpin decision making but these have thus far gained little traction at the practitioner level (Pullin and Stewart, 2006). Much of the data generated during conservation practice is not routinely recorded (Pullin and Salafsky, 2010), and practitioners rarely publish their experiences. It was the intention of this project to document the implementation of conservation and development activities in the Lower Mekong in order to capture the underlying lessons learned from this vast experience.

This book brings together a series of case studies, written by field practitioners themselves, that provides the evidence-base that will allow us to learn from these past experiences. Fifteen sites, five from each of the three countries, were included in the original programme, which was funded by a grant from the MacArthur Foundation. The criteria for site selection was that the projects should cover an area greater than 10,000 hectares, should be contiguous with protected areas and should have been implementing conservation and development initiatives, often with external support, during the past ten years.

Through a series of regional workshops, as well as a final symposium held at the CIFOR headquarters in Bogor, Indonesia, an assessment was made of the approaches taken in integrating conservation and development. A regional analysis was made based upon a data set assembled by the participants in the





Figure 1.1 Protected area landscapes that partnered this project

projects. We assessed how organizations implement conservation activities and address the wide range of threats to their respective sites. An unintended outcome of this project was that country-level workshops provided opportunities for conservation organizations to learn from the experience of their peers. This was an example of the so-called “benchmarking” approach (Sutherland, 2010). At the final project workshop, we were able to bring the sites together to provide a more regional analysis.

Each site was invited to prepare a narrative summary of their respective project experiences to be included in this book. They were asked to provide evidence for the changes that occurred in both conservation and development conditions; this information informed the synthesis chapters (see below). Fourteen of the fifteen sites are presented here. Our collaborators at one site, the Bokeo Nature Reserve, Laos, unfortunately dropped out at the writing stage. The other narrative studies represent a wide range of approaches to integrating conservation and development, yet there are interesting parallels in the ways and means that implementation took place.

A series of synthesis papers was generated by conservation scientists, using experiences and data from each of the Lower Mekong case studies to provide

Table 1.1 Research sites and managing authorities

<i>Site name</i>	<i>Country</i>	<i>Project management</i>	<i>Technical assistance</i>
Cat Tien National Park (CTNP)	Vietnam	CTNP Management Board	
Song Thanh Nature Reserve (STNR)	Vietnam	STNR Management Board	WWF Quang Nam
Bach Ma National Park (BMNP)	Vietnam	BMNP Management Board	
Tam Dao National Park (TDNP)	Vietnam	TDNP Management Board	GTZ
Van Ban Nature Reserve (VBNR)	Vietnam	VBNR Management Board	Fauna & Flora International
Seima Biodiversity Conservation Area (SBCA)	Cambodia	Forestry Administration	Wildlife Conservation Society
Central Cardamom Protected Forest (CCPF)	Cambodia	Forestry Administration	Conservation International
Mondulhiri Protected Forest (MPF)	Cambodia	Forestry Administration	WWF Cambodia
Phnom Samkos Wildlife Sanctuary (PSWS)	Cambodia	Ministry of Environment and PSWS Management Board	Fauna & Flora International
Virachey National Park (VNP)	Cambodia	Biodiversity and Protected Areas Management Project (BPAMP)	
Dong Hoa Sao-Xe Pian Biodiversity Corridor	Laos	WWF through the Asian Development Bank's Biodiversity Corridors Initiative (site name – BCI)	
Nakai-Nam Theun National Protected Area (NNT NPA)	Laos	Nam Theun 2 Watershed Management and Protection Authority (WMPPA)	Wildlife Conservation Society
Nam Kading National Protected Area (NKNPA)	Laos	Department of Forestry	
Nam Et-Phou Louey National Protected Area (NEPL NPA)	Laos	Department of Forestry	Wildlife Conservation Society
Bokeo Nature Reserve (BNR)	Laos	Gibbon Experience	

an overview of the effectiveness of protected areas and how innovative tools and methods (such as PES or REDD) might be utilized for more effective project outcomes. There are surprisingly few publications that bring together experiences from the field and that are subsequently analysed by the scientific community. By bridging the gap between field practice and conservation science, using the experiences and evidence generated from the Lower Mekong, it is hoped that strategies for meaningful and constructive collaboration may be developed for more effective integrated conservation and development interventions and, ultimately, outcomes.

## Note

- 1 Defined here, a conservation landscape is a “geographical construct that includes not only biophysical features of an area but also its social, cultural and institutional attributes”.

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