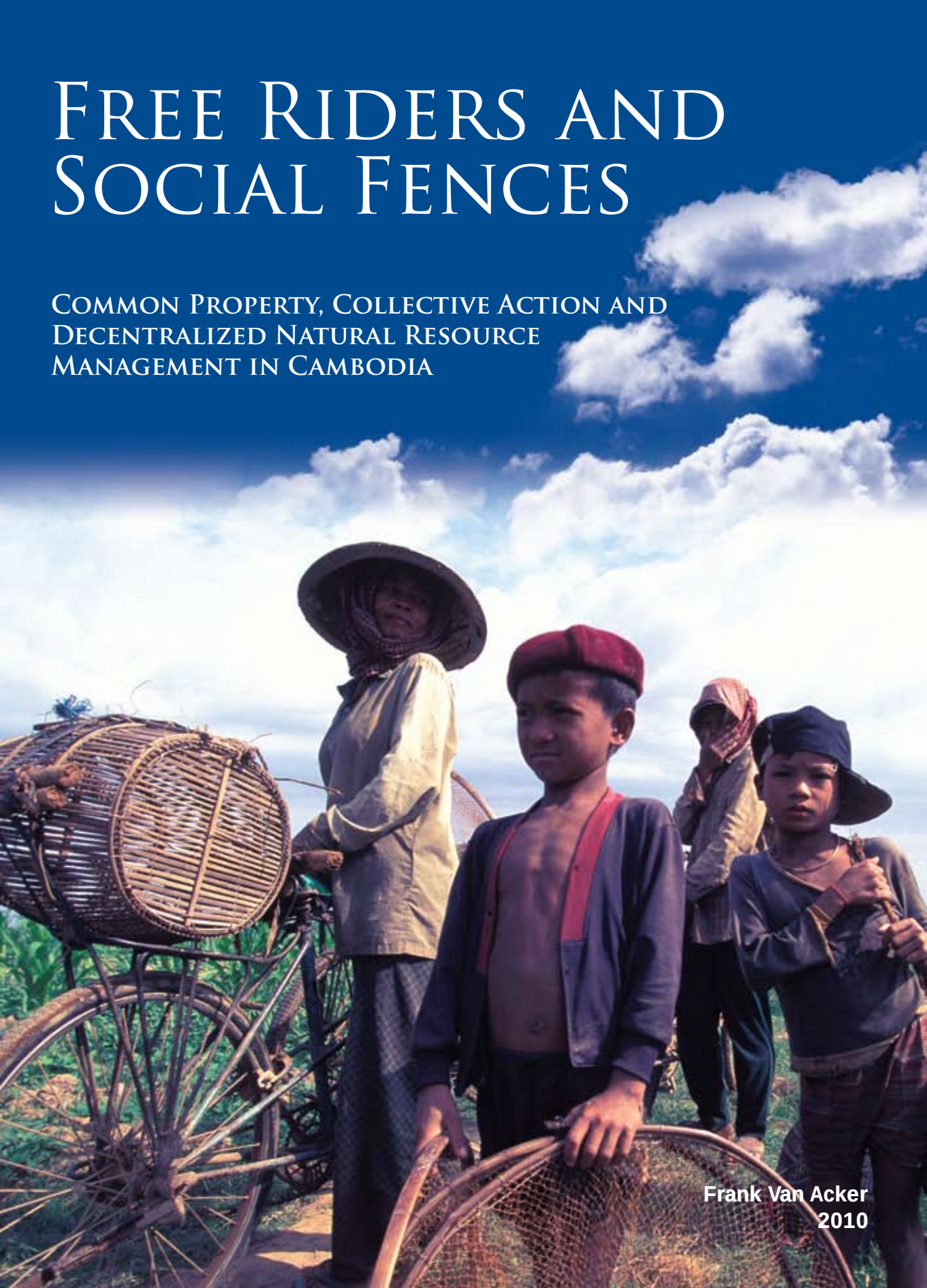
Free Riders and Social Fences

Common Property, Collective Action and Decentralized Natural Resource Management in Cambodia



Frank Van Acker

2010

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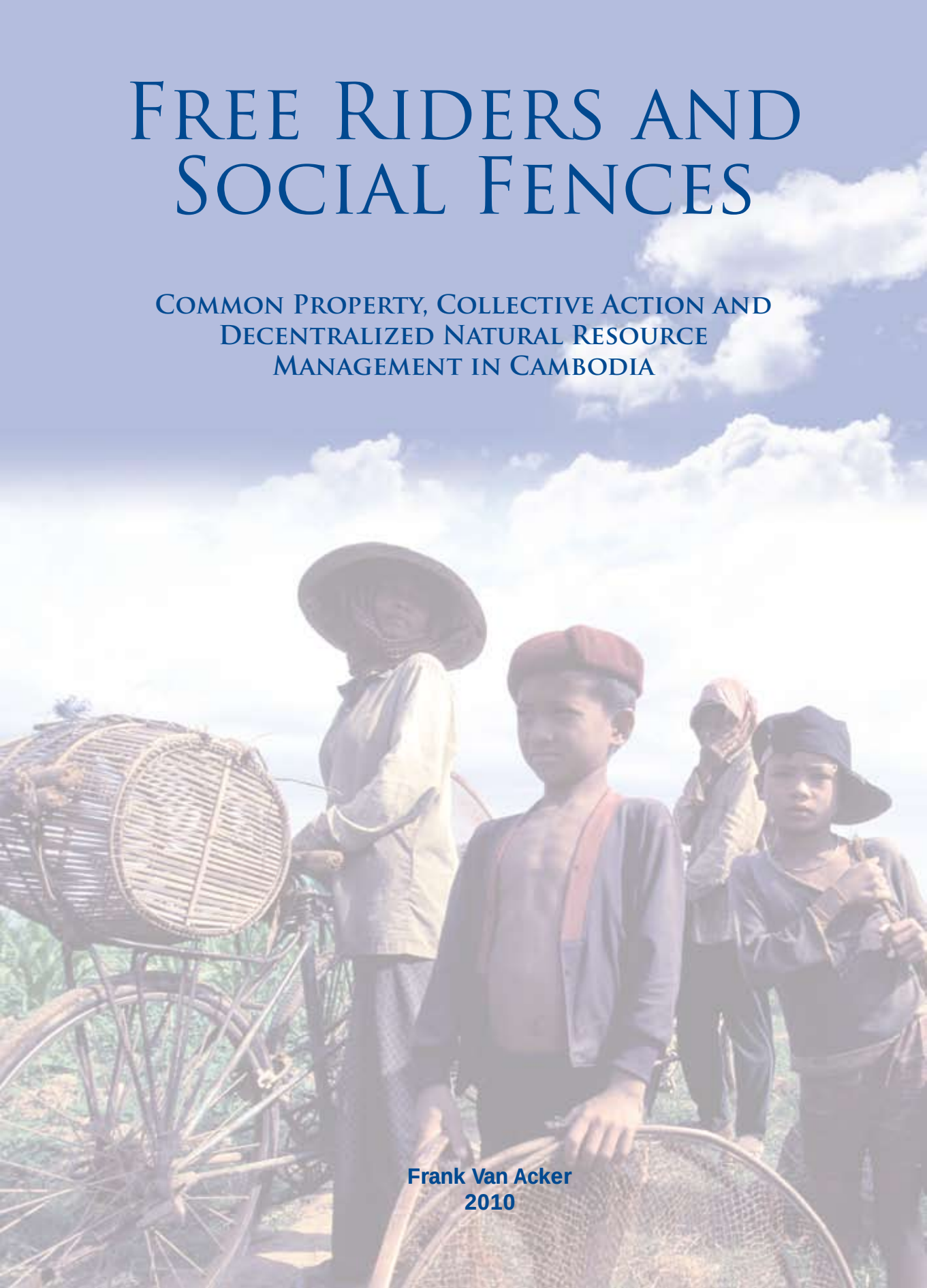

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Author's note

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"That which is common to the greatest number has the least care bestowed upon it. Everyone thinks chiefly of his own, hardly at all of the common interest; and only when he is himself concerned as an individual. For besides other considerations, everybody is more inclined to neglect the duty which he expects another to fulfil" *(Aristotle, 384-22 BC, Politics)*.

FREE RIDERS AND SOCIAL FENCES

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List of figures, tables, boxes and key concepts

Preface: Why this study?

The idea for this study grew out of a dialogue between GTZ and the CBNRM Learning Institute considering the relevance of decentralized resource management in Cambodia.

Over the past decade, practitioners in Cambodia have been exploring alternative approaches to natural resource management, attempting to integrate community-based forms of management with decentralized governance structures. The process of devolving management rights to local populations is supported through a variety of policy initiatives and legal instruments. These include laws relevant to decentralization, local council bylaws, new forestry, fisheries, land and environmental laws and the specific Community Forestry and Community Fishery sub-decrees that the government has formulated to facilitate the transfer of management authority to local users.

The public debate on resource management reform – as in many other countries – is highly charged with anticipation of benefits. To investigate these expectations, the Learning Institute and a range of partners have undertaken a host of case studies to assess the changes occurring in recent years. The creation of co-management arrangements linking communities and local governments is a strong theme in many of these case studies. So is the process of building the capacity and confidence of communities to protect and regulate access to their natural resources.

There is a considerable amount of grassroots experience emerging; bookcases, hard drives and workshop agendas are filling up. The case studies document solutions to a range of questions. For instance, have political and institutional changes helped stabilize local resources and establish a sustainable system of management? Have these changes succeeded in building community institutions and helped resolve conflict? The ensuing debate is full of valid observations. The studies underline the importance of investing in the ability of communities and local governments to manage Cambodia's resources.

It is less clear whether the case studies are leading to more generalizations or systemization. For instance, systematization might help to answer the question on how to create legitimate fences around common property. This book

> "CBNRM and participatory models of environmental management are underpinned by a mass of theory. However, the mass itself is seen as a pile of assorted ideas by those who promote CBNRM in the development industry network, where it is the discursive appeal rather than coherence and applicability which is more important" (Blaikie 2006). "

will argue that physical fences do not create property. Rather, property is created by the image of rights that people carry in their heads – images constructed in cooperation with others. So legitimacy – acceptance by others – is just as important as the notion of legality. The book refers to this concept as a "social fence". Sustainable management of resources such as fisheries and forestry often demands a form of collective ownership. It requires imagination and hard collective work to create a legitimate social fence. The existence of "free riders" is a tough challenge to building a social fence around collective property. These are the people who like to get the benefits produced by collective action, but who are happy to let others bear the costs. How to prevent free riders from appropriating the benefits yielded by the collective effort of others? If assurance that this will not happen cannot be given in one form or another, people will be reluctant to act collectively, and the notion of joint property will lack legitimacy. This dilemma between individual and collective reasoning has been dubbed the "assurance problem".

The search for an appropriate answer to this dilemma needs to be grounded in relevant (local) experience and theory. To provide a solid footing to this search, the CBNRM Learning Institute and the Administrative Reform and Decentralisation Programme (ARDP) of German Development Cooperation (implemented by GTZ) agreed to support a publication exploring the links between empirical evidence and concepts from relevant theory. However, from the outset it should be stated that an idealized distinction between theory and practice is in reality often blurred. Social science is not exact, and observations may resist systematization. Nevertheless, it is worthwhile trying to embed a wide array of insights in a more systematic discourse, and in its wake to leave a trail of useful references. The ultimate goal is to achieve an analysis that links practical and academic insights while encouraging looking forward as much as back.

Although this study is intended particularly for an audience of policy actors, researchers and field practitioners, whether government or NGO, it should interest anyone concerned with the question of how the dynamics of politics, institutional change and natural resource management interact.

Toby Carson (CBNRM Learning Institute) and
Katharina Hübner (German Technical Cooperation, GTZ)
December 2009

Chapter 1

Introduction: Plain sailing

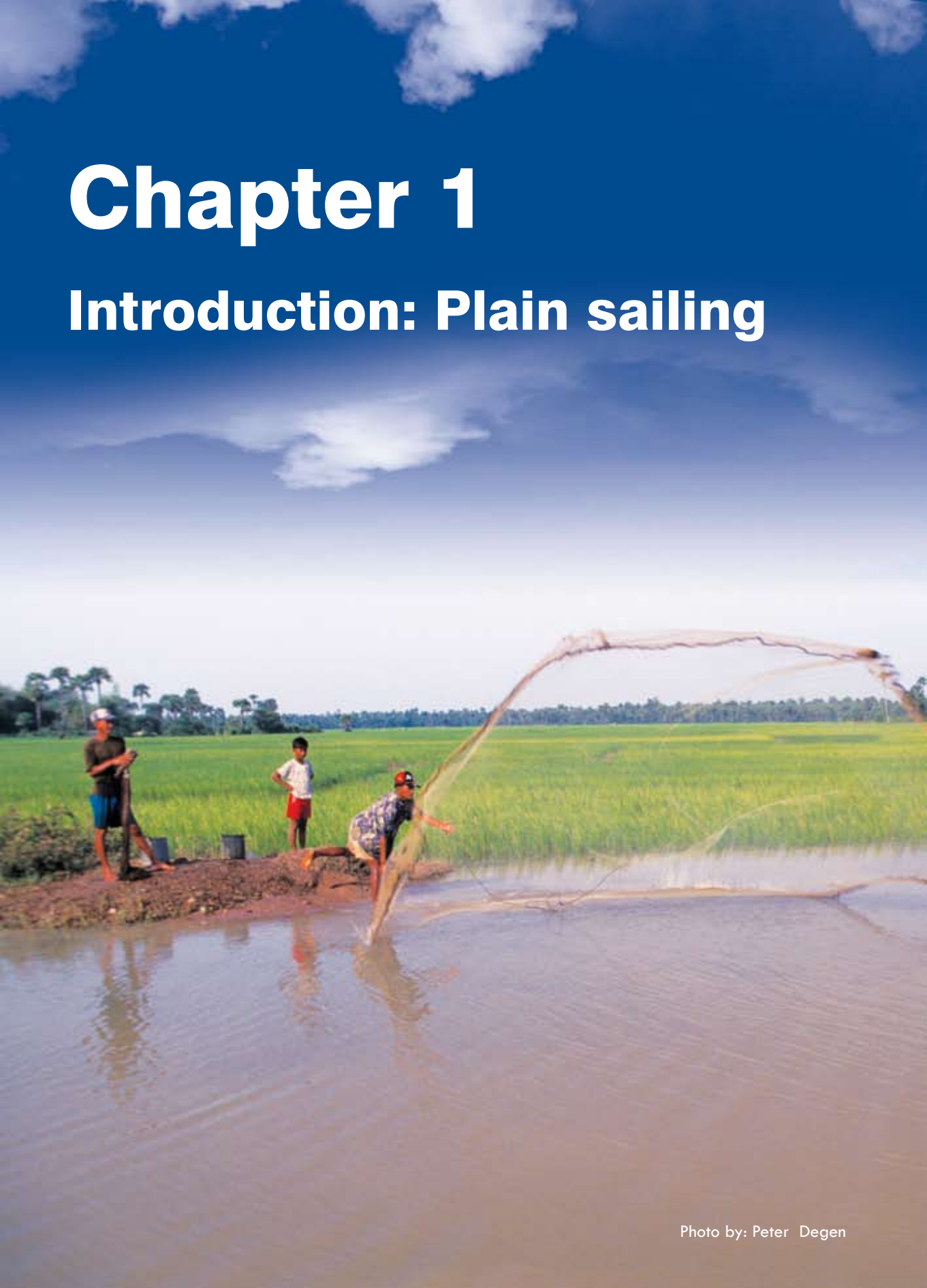


Photo by: Peter Degen

Chapter 1 Introduction: Plain sailing

Cambodia's voyage as a modern nation-state has been extraordinary. It includes episodes of genocide and war, massive displacement and repatriation, collectivization and a renewed embrace of capitalism. In this voyage, it has hoisted a new sail – that of decentralized governance. It is an unfamiliar sail. As it unfolds, flapping and beating, many of the crew are sceptical and even afraid: it will be hoisted askance, it will drive the ship off course, take the wind out of the other sails, slow down the ship. Even while the sail is being unfurled, the debate about its size and the number and thickness of the ropes to hoist and secure it continues.

The most controversial part of this innovation lies in decentralized natural resource management. Cambodia's lands, forests and freshwater and marine shores generate abundant wealth. Surely the sail should be cut to a size that leaves out these elements? Surely – if they are to be considered at all – these elements should be taken up only on the condition that there is a very stout rope, winched directly from the captain's cabin? Decentralized natural resource management continues to be the subject of much agonizing and fierce debate. The aim of this book is to dissect the debate, lay out the key elements and put them out on deck for scrutiny, with reference to some schools of thought and theoretical insights.

Our query must start by analyzing the exact meaning of decentralized resource management, assessing its potential and the conditions that help deliver this potential. Decentralized natural resource management is about the management of renewable resources that nature provides: the resources that regenerate in response to appropriate stewardship. Obviously, this includes trees and fish and excludes solid and liquid mineral wealth. What is perhaps less obvious is that nature, through its various cycles, also provides services: the production of oxygen and the sequestration of carbon, rainfall, the maintenance of biodiversity, etc. Among other things, these and other services allow for a food chain, and for humans to harvest bits and pieces of it. Attempts to quantify the value of these services are sometimes controversial, but they do demonstrate a general recognition that natural services and products are valuable.

It appears that nature provides these products and services for free, but appearances can be deceptive. Costs are involved, which may come in the form of a payment to do something, for example the cost associated with restocking. They may also come

in the form of *not* doing something, for instance the future cost of not restocking. They also include the costs associated with restraint and missed opportunity: the unrealized profit of the non-harvested log, the uncaught fish, the carbon dioxide and methane not freely belched out into the atmosphere, etc.

Any discussion about value, benefits and costs begs a question about distribution: who will pocket the profits and who will shoulder the costs? Rules determine freedoms and exposure to costs. When rules change, they change the patterns of freedom and exposure. The market is one way of allocating benefits and costs, but unfortunately does not work well when it cannot ascertain ownership. The fish in the sea do not belong to anyone, unless they are caught and (usually) dead. In these cases, a representative body of citizens must decide on the distribution of profits and costs through a process of collective choice. So it comes that the Cambodian state formally owns all of the forests, all of the rivers and lakes and many other resources in the country on behalf of all its citizens. The Cambodian political process, through its elected representatives, decides who gets to profit from the existence of a resource, and who will bear the cost of ensuring its continued existence. These decisions are then implemented by the state bureaucracy, understood as an impartial structure of administration. That is the script. To what extent the political process and the state bureaucracy in Cambodia conform to the script and are actually subjected to popular oversight is another question altogether.

As in many other countries, such a process may create some solutions but also may generate problems from the perspective of local users. Centralized policies are supply driven and consist of one general strategy designed at the top. Things are either black or white; all the shades of grey in between tend to be lost. Also, absence of adequate scrutiny prompts some state representatives to confuse collective and personal property. The (temporary) allocation of ownership to private entities in the form of concessions, supposedly in exchange for a fee to the collective, does not solve the main issue. The arrangement is still irresponsive to local needs, and the fee becomes the object of moral hazard. A demand-driven approach would have the merit of weighing up the specific circumstances of each locality or type of producer, what we call “the shades of grey”.

For these reasons, people have clamoured for the involvement of smaller groups of citizens in decisions on access and use and on the distribution of profits and costs. The key message is simple: recognition of local users’ experience improves the chances of successful resource management. The message is built on two central arguments: local people will identify and prioritize their (environmental) problems more accurately, and they will “own” the decisions to a larger extent than has been the case. Any distribution of profits and costs would therefore be more acceptable socially. It is implicitly assumed here that decentralization is democratic: everyone has an equal opportunity to participate in the political discussion. The other

assumption is that local management somehow preserves an integrated view and perspective of the environment as a landscape with many different resources capable of supporting many different needs.

The revolutionary aspect of hoisting this new sail should not be lost on anyone. It goes against deep scepticism in political circles that the poor could or should be agents of development in their own right. As Hughes and Conway (2004) state,

> "Development is seen as something to be brought to the countryside from outside, by government, parties, NGOs and donors ... Participation of the unruly and ignorant poor in setting development priorities was viewed as dangerous, and the poor were frequently blamed by government officials for problems such as environmental degradation."

In this sense, the argument from a different setting, according to which "the state came to consider forests as resources to be protected against their former users", also rings a Cambodian echo (Baland and Platteau 1996).

While for some state officials such beliefs are not devoid of self-interest in the pursuit of rent-seeking opportunities, it is also true that poverty creates a "resource management paradox". In rural Cambodia, a great many people live close to the poverty line. The continued ability to access and use natural resources constitutes their social safety net. Poverty also drives people to prefer a dollar in their pocket now to more dollars in a few years time: "poverty may be expected to drive up their rate of time preference to the point where all that matters is consumption today" (Perrings 1989). When one thinks about it, conservation implies a redistribution of resources in time: users sacrifice consumption today so that they – or someone else – may enjoy the benefits in future.

When faced with poverty, this is a luxury. Meet Sok, a charcoal maker in Veal Veng district, Pursat province. His knowledge of the forest supports his livelihood. Only, his livelihood depends on participating in further elimination of the forest. Can Sok really be pressed to impose a cost on himself, agree to be restrained in his tree-cutting activities and thereby transfer benefits to the future, not necessarily to be enjoyed by him? Users are typically sensitive to whether the *long-term* benefits of adopting conservation practices are worth the *immediate* costs of restraint. Sok will need assurance that *all* other users will exercise restraint in equal measure, and that restraint is not synonymous with consumption foregone. Without such assurances, poverty will induce people to take the opposite route: to redistribute income that could be had in the future to satisfy current consumption needs.

On a more general level, is it enough simply to assume that democratic decentralization will result in sustainable environmental management *and* improved livelihoods for the poor (Oyono 2004)? This is slippery ground. First, a great deal depends on the

democratic quality of the decentralization process and its endorsement by the national government. Does it institute accountability for all decisions that affect local natural resources? For instance, does it check land grabbing by the rich, powerful and well connected? Does it bind corporations as well as villagers? Second, when given the power, local people may not necessarily agree that a swamp provides better livelihood opportunities than cropland. According to McCay (2001), the hypothesis that rural people derive significant benefits from the forest and would conserve it if in full command is based on a "romantic" fable that communities live in harmony with nature.

This statement is surely somewhat over the top. Ample evidence exists, also in Cambodia, that local people want to protect forests and other resources from encroachment from outside. But what is sure is that management of the forest and other resources – whether centralized or decentralized – is meaningless to the charcoal maker if it denies his need to survive. In brief, decentralized resource management must provide a clear perspective on how it will strengthen livelihoods. An agenda based on moral persuasion to protect and preserve, ignoring a debate about rights and claims and incentives, is utterly inadequate and deals with only one dimension of natural resource management. And this is unfortunate for the other dimension of resource management: that increasing human pressure on shrinking habitats is having ruinous ecological consequences and that time may be running out to address these challenges effectively.

These and other elements relevant to a discussion on decentralized natural resource management will be dissected in the next chapters. In particular, the book will explore the links between poverty alleviation, resource management, collective action and decentralization, starting from a critical tension: the fact that natural resources are joint goods. They provide benefits that can be privately appropriated, but their continued existence (*provision*) demands collective action. This tension, also known as "the assurance problem", needs to be resolved by property rights which address both sides: provision and appropriation. Failure to address one or the other will result in the resource being undersupplied or not supplied at all, or benefits to be over-appropriated or appropriation to be resolved through non-transparent means. Interrogation of this tension demands analysis at three levels: good, community and polity.

The following chapters will explore the capacity of decentralized collective action to overcome the dilemma. Chapter 2 intends to enable the reader not familiar with natural resource management issues in Cambodia to understand the context, including the livelihood challenges currently facing rural villagers. Chapter 3 asks what is specific about management of natural resources. Chapter 4 queries whether the nature of environmental goods tells us something about the role of the state and the market in resource management. It also interrogates the welfare implications

Key Concept 1: Social fences and free riders

Physical fences do not create property. Rather, property is created by the image of rights that people carry in their heads – images constructed in cooperation with others. So legitimacy – acceptance by others – is just as important as the notion of legality. This concept is referred to as a "social fence". Sustainable management of resources such as fisheries and forestry often demands a form of collective ownership. It requires imagination and hard collective work to create a legitimate social fence. The existence of "free riders" is a tough challenge to building a social fence around collective property. These are the people who like to get the benefits produced by collective action, but who are happy to let others bear the costs. How to prevent free riders from appropriating the benefits yielded by the collective effort of others? If assurance that this will not happen cannot be given in one form or another, people will be reluctant to act collectively, and the notion of joint property will lack legitimacy. This dilemma between individual and collective reasoning has been dubbed the "assurance problem" (see also Key Concept 3).

of having either one in charge. Chapter 5 examines the tension between collective provision and private appropriation, and reflects on the characteristics of property rights. Chapter 6 reviews the specifics of community-based management and how it stands up to some of the conditions to resolve the assurance problem successfully and enhance overall welfare. It identifies the absence of a polity as crucial. Chapter 7 introduces sub-national councils as the missing polity and provides a brief background to the decentralization process in Cambodia. Chapter 8 goes on to explore the tension between the concepts of subsidiarity and ability, the latter from an ecological rather than a human perspective. It details some of the solutions and how these compare with the design specifics of the planned functional review process. Chapter 9 examines how market-based instruments might be a useful complement to the toolbox of management instruments. Finally, Chapter 10 sums up the main findings, challenges and opportunities.

Chapter 2

The significance of natural resources in Cambodia

Photo by: Peter Degen

Chapter 2
The significance of natural resources in Cambodia

"It is like the Khmer story about silver hidden in the bamboo. People destroyed their defences to get this silver. Today, people destroy the forest to get money" (from an interview cited in NGO Forum 2007).

Abundant resources are increasingly under pressure. Issues are low productivity, which drives people to look for new land rather than to farm more intensely, rapid increase of population, which fuels the hunger for land, and a simultaneous process of land concentration. Access to land and resources is a (property) rights issue. The slow evolution of rights has become "dis-embedded" from brisk socioeconomic development. How rights will become "re-embedded" in Cambodian society depends on which claims will gain social acceptance. Ultimately, the reshaped pattern of rights and constraints will have important consequences for poverty alleviation.

It is hard to do justice to the sheer abundance and diversity of Cambodia's natural resources in the space of a few paragraphs. Interested readers might do well to consult additional literature, vastly richer in scope and detail. To inform the arguments to be developed in subsequent chapters, these few pages will lay out some key data on the importance of natural resources, relate them to growth and poverty figures and outline a few major trends.

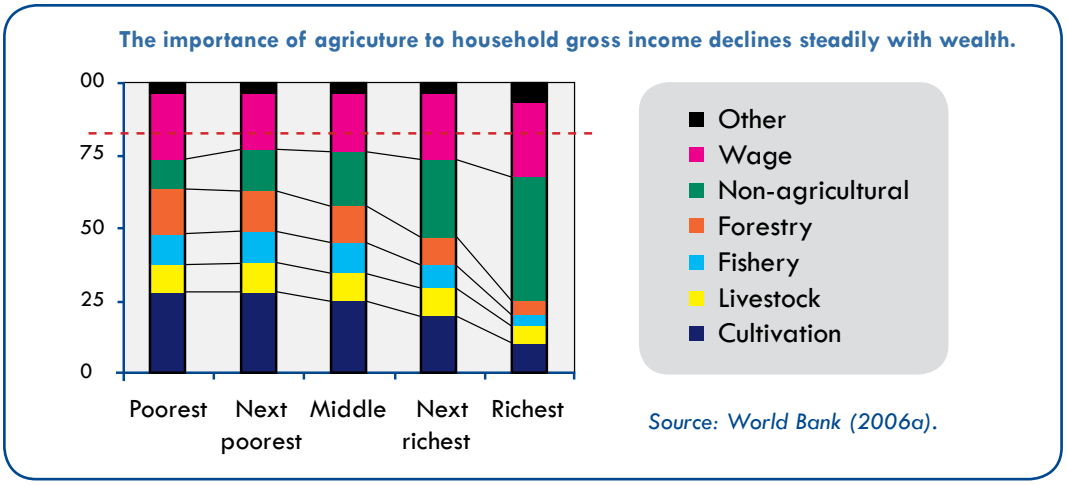
In the midst of plenty ...

Cambodia has the highest per capita endowments of arable land, water and freshwater fish and among the highest endowments of forests in East Asia (World Bank 2007). The landscape owes this abundance to its geographical location. The fertile soil collected by the Mekong river on its long journey from the Himalayas is deposited on Cambodia's floodplains and supplied with sufficient water to grow rice, the main staple. Of the land area of Cambodia, 86 percent lies within the catchment of the Mekong. At the heart of the country lies the Tonle Sap, the largest permanent freshwater lake in Southeast Asia. Its aquatic ecology is sheltered and sustained by tropical forests that cover – or did so once – the hills and plains around the lake. Forests further afield, in the upper watersheds, slow water runoff and reduce erosion and downstream sedimentation. One of these upland watersheds, the Cardomom mountains, is covered by the largest remaining tract of virgin rainforest in mainland Southeast Asia. Surrounding the Tonle Sap, flood forests protect the lake's core during the dry season and provide a vast hatchery during the rainy season.

The annual monsoon swells the Mekong, causing the freshwater wetland area to increase 10-fold in the wet season. On average, water inundates 5 million ha – nearly 28 percent of the total area of the country (18.1 million ha). In a wet year, water may cover up to 35 percent of the country (World Bank 2006a). The lake itself increases from 250,000ha in the dry season to about 1 million ha in an average and 1.35 million ha in a wet year. All this water renders a total of 6.5 million ha arable – with up to 2.7 million ha considered reasonably productive (Leuprecht 2004).

These abundant resources provide critical security for rural Cambodians and contribute considerably towards national development. The inland fishery ranks as the world's fourth largest, producing an estimated 587,000 tonnes annually of fish and other aquatic animals (shrimp, mollusc, etc) (Hortle 2007). This constitutes a source of income and employment for at least four million Cambodians. The average consumption of freshwater fish is estimated at 37kg per year, making it the main source of animal protein. Other freshwater resources commonly harvested by rural households include shrimp, snails, frogs, crabs, insects, vegetables, lotus and firewood from flood forests. Much of the upland forests near the lake and in the upland watersheds are classified as post-concession and degraded. Even so, they contain the bulk of the timber used domestically, allowing many poor rural folk to make a living from selling forest products, including charcoal and resin.

Figure 1: Agriculture and access to natural resources, by wealth group



There is poverty ...

Economic growth, poverty alleviation and natural resource management are intricately linked in Cambodia. To encounter extensive poverty in the midst of such a voluptuous setting would seem to be a paradox. Yet 36 percent of Cambodians live on an income below the food poverty line of USD 14 per month. Poverty remains widespread, especially in rural areas, where an estimated 90 percent of poor people live. Although real GDP growth averaged 6 to 7 percent in the decade to 2004, Cambodia remains one of the poorest countries in the region (Yelten et al 2006). Improving the contribution to GDP of agriculture and sub-sectors of crops, livestock, fisheries and forest, and its related downstream processing industries, is vital. Without this, a sustained increase in economic growth and a significant reduction in rural poverty will be tricky.

So why is this not happening? Three mutually reinforcing elements stand out: persistent low agricultural productivity, demographic pressure and uneven access to land.

The question of productivity

For more than 80 percent of the poor, agriculture continues to be the major source of income. Share of agriculture in GDP declined from 46 percent in 1993 to 30 percent in 2006, whereas the share of industry rose from 13 percent to 29 percent. Interestingly, the agriculture sector still employs about 60 percent of the labour force, whereas industry employs a mere 13 percent. The potential for an increase in agricultural incomes is significant. The annual growth rate of agriculture averaged 3.3 percent during 1994-2004, and the average rice yield increased gradually every year, from 1.5 tons per ha in 1993 to about 2.4 tons per ha in 2005 (CRDB and CDC 2007). But agricultural performance is volatile and weather conditions strongly influence yields. Productivity remains far behind the other agricultural producers and exporters in the region. Even the current improved levels of food and

Table 1: Agricultural productivity in comparative perspective (2003)

	Crop yields (kg/ha)		
	Rice	Maize	Cassava
Cambodia	2,150	2,111	6,318
China	3,849	3,485	16,249
Lao PDR	3,316	2,333	19,762
Vietnam	4,634	3,225	14,066
Indonesia	4,538	3,252	14,902
Malaysia	3,178	-	9,737
Thailand	2,455	3,913	17,552

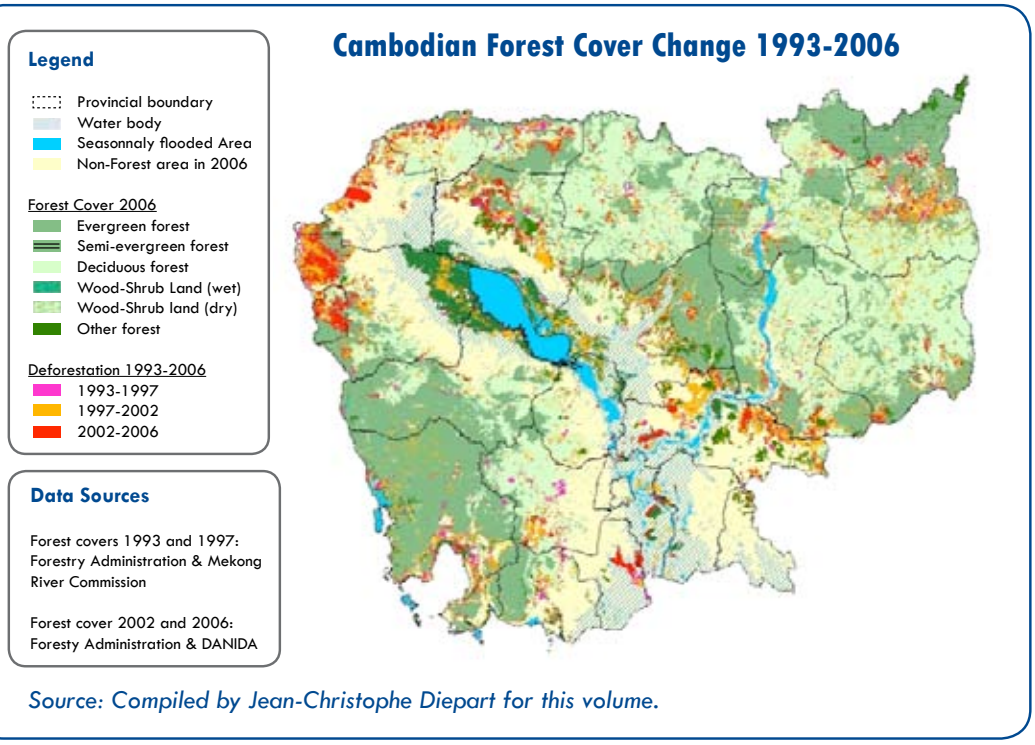
Source: World Bank (2006a).

agricultural production imply that the vast majority of villagers merely produce their own food on their own land, or on land or water resources held in common.

Increasing productivity essentially means higher yields for a given amount of land and/or labour. The observed growth in crop production is mainly a result of the expansion of farming into forests and wetlands (see Figure 2). This extensive approach to growth increasingly encounters land not or only marginally suited for crop production. According to one study,

> "Cambodia's poor plateau areas have large areas of fragile lands that are very susceptible to infertility. Their sandy soils have little organic content and limited water retention capacity. Therefore, degradation further exacerbates the existing problem of infertile lands and maintains very low agricultural yields" *(World Bank 2006b).*

Figure 2: Cambodian forest cover change 1993-2006



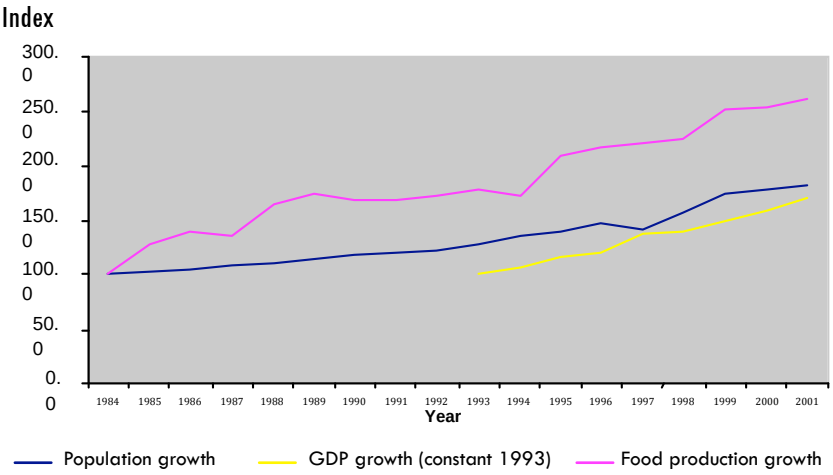
Source: Compiled by Jean-Christophe Diepart for this volume.

Demographics

A momentous demographic transition is taking place. Some would rather refer to it as a demographic time bomb. Cambodia has one of the fastest-growing and youngest populations in the world. From a population of 13.4 million in 2008, projections see close to 20 million Cambodians inhabiting the country by 2020 (pre-results 2008

census; NIS 1998). The youthfulness of the population implies continued high rates of population increase in the coming decade, as the large population cohorts of girls born in the 1980s enter child-bearing age. This development is further underscored by an increased life expectancy resulting from falling infant and child mortality. All of this implies that Cambodians will have to run just to stand still: agricultural yields will have to increase at par with population growth in order to prevent a fall in food availability. The roughly 2.3 million ha cultivated now support a total population of 11.5 million but will have to support almost 8 million more by 2020. So far, food production growth has outrun population growth, but for how much longer? If food production cannot keep up, Cambodia will become a net food importer before long.

Figure 3: Population growth, agricultural production and GDP growth



Source: Extracted from data in Key Indicators of Developing Asian and Pacific countries: Cambodia, at http://www.adb.org/Statistics/ki.asp; for the relevant dataset refer to the Annex.

The effect on Cambodia's thin labour market will be equally dramatic. The labour force has increased by 3.6 percent since 1998, pushing some 221,000 additional persons per year into the labour market. The increase will continue at the same pace for some years (Lundström and Ronnås 2006). Between 1999 and 2004, agriculture absorbed a mere 2.6 percent of the labour force increase (ibid). Despite rapid growth in manufacturing in past years, the small base will absorb only a minor part of the labour force increment in the near future. The experience of Cambodia's direct neighbour, Thailand, shows that a growing off-farm economy absorbs labour very slowly. In the 1960s, Thailand and Cambodia had the same proportion of the workforce in agriculture (65 percent). After three decades of rapid industrial and

Box 1: The Malthusian catastrophe – fact or fiction?

In his famous treatise, *An essay on the principle of population*, Malthus explained that population growth generally preceded expansion of the population's resources, particularly the primary resource of food. As a consequence of populations overstretching their resource limitations, checks will come into operation. The nature of these checks is usually catastrophic, such as epidemics, famines or wars, and will have a significant effect on the rest of the socio-cultural system, for example increased poverty. Malthus wrote his essay at a time when the industrial revolution had not gathered much momentum. Industrialization did allow industrial goods to be traded for agricultural goods, so that populations did expand beyond their resource limitations. Moreover, development induces birth rates to drop, even below bare replacement levels. An increasing number of developed nations are now facing the prospects of a declining population. Nevertheless, Malthus' observation that population increases at a much faster rate than food supply reflects a dilemma for countries such as Cambodia. They must respond to a rapidly increasing population, with limited productivity increases and limited possibilities to trade industrial goods or services for agricultural products. The solution in the short term is a mix of policy responses that bank on a combination of measures: limitations to population growth, rapid increases in agricultural productivity and brisk expansion of the industrial and service sectors of the economy. It sounds – in other words – very much like a recipe for the sort of "brown revolution" (rapid but polluting growth) that characterized development in China and Vietnam during the past decennia. Also, the limitations to this model at a global scale became apparent during the crisis in 2008: food prices soared worldwide and countries blocked exports of staple foods (including Cambodia), which gave rise to violent demonstrations in a number of food-deficient countries.

service sector expansion, the agriculture sector in Thailand still employs 40-50 percent of the workforce (World Bank 2007). With limited creation of employment outside agriculture, the sector will be forced to absorb most of the additional active population, which further reduces the available land per capita. Clearly, demography influences access to land, but access to land is not determined solely by demography.

Access to land

The importance of land is exaggerated in a primarily agrarian society where a majority of people meet their needs directly from the land (World Bank 2007). To understand Cambodia, Thion (1993) advised the observer "to wade into the mud of the rice-fields". He asserted that the land question was not a simple political problem to be settled among others: if you deal with land "you cannot move a single piece without returning to the checkerboard". Pressure on the land is growing because of increasing demand, but also because land concentration is rising. The proportion of landless rural households increased from 13 percent in 1997 to 20 percent in 2004 (IMF 2004). Compared with 33 percent in 1999, 40 percent of rural households now farm less than half a hectare, which is less than half the minimum area required to meet nutritional needs (World Bank 2007). Together, these 40 percent own a mere 5.4 percent of all cultivable land.

Aggregated, 50 percent of rural households hold just shy of 10 percent of the cultivated land. In other words, the other 50 percent hold some 90 percent. These

dynamics are lubricated by an increasingly active land market driven by massive speculation, which thrives on the alchemy of turning what looks like lead into gold: wetlands transformed into rice-fields, forests into plantations, mangroves into resorts and shrimp farms, etc. This is the Cambodian equivalent of the 18th century "enclosure movement" in Great Britain, which saw the commons transformed into a stream of revenue enclosed and available for private appropriation.

For poor rural Cambodians, the ongoing conversion of common resources into private property is a double-edged sword. Encroaching on forests and wetlands provides the space to push the land frontier further outward and accommodate the demographic pressure. But it also promotes land concentration: subsistence agriculture now exists besides a commercial sector that operates through sizeable "land concessions for economic purposes" carved from state lands. About 2.7 million ha of land are under agricultural commercial exploitation, with exclusive rights for up to 99 years. These concessions include tree plantations (rubber, oil palm, teak, eucalyptus and coconut trees), and the agro-industrial production of food such as cassava, rice, corn and soybeans (Leuprecht 2004).

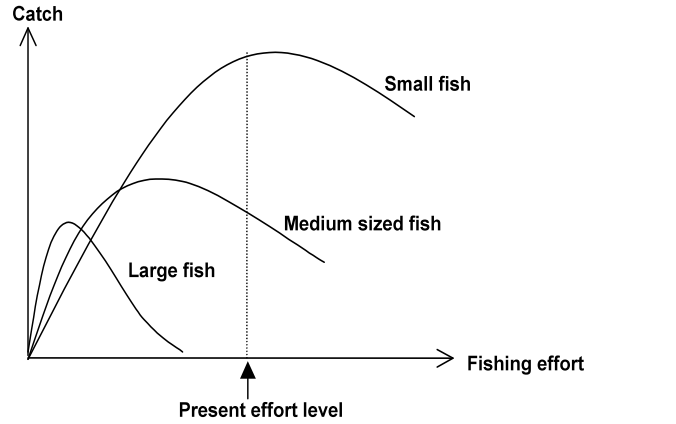
This is where land concentration meets the productivity question. Only 7 percent of these economic land concessions are actually cultivated, resulting in a significant loss of productive potential (IMF 2004). The productivity effects of land concentration, even at a much smaller level, show up in a recent study by Oxfam GB (2007), which found that 98 percent of holdings smaller than half a hectare were cultivated as opposed to 71 percent of holdings larger than 3 ha.

Since most of the land is state land, this concentration takes place at the expense of public property, owned by the state on behalf of all Cambodian citizens. According to research by the Center for Advanced Study (CAS 2006), officials – particularly at the provincial level and below – conduct a variety of transactions involving state land with little regard for consultation, transparency or accountability. At the same time, villagers expand their agricultural activities into forests and lakes. The legal regime that regulates matters of access and appropriation on state land is poorly understood and bears little resemblance to traditional or current practice regarding land use and administration. The involvement of higher-level interests in issues of state land management makes effective dispute resolution at the commune or even the district level very difficult (ibid). As the Independent Forest Sector Review (IFSR 2004) posits, the system is inherently short term in outlook. It encourages everyone to grab what they can and provides no incentives to manage the resource in a sustainable manner.

Clamping the vice: Pressure on resources

The dramatically increased pressure on Cambodia's natural resources is highly significant with regard to future poverty trends. The basic nature of most agricultural technology puts up few barriers to entering the sector. Low entry barriers encourage growing numbers of upland people to migrate seasonally to the fishing grounds, as well as allowing lowland people to migrate to forest-rich upland provinces, populated by ethnic minorities. The negative trends have been well documented: loss and degradation of forests and wetlands, over-fishing, etc. The overall loss of forest cover is estimated at a rate of 70,000 to 100,000ha per year (World Bank 2006b). Of the inundated forests, from an estimated 795,400ha (Ahmed et al 1998), fewer than 20,000ha remain (Gum 2000). Flood forest clearing leads to a higher inflow of sediment, and substantially decreases fish breeding grounds. The seemingly unstoppable cutting and burning transforms the fisheries environment from a complex flood forest ecosystem into a simple brush and paddy field system. Over-extraction has drawn down fish populations to a point that some fish stocks have collapsed: several species have disappeared and the component of larger species in total

Figure 4: Cambodia inland fisheries – approximate state of exploitation of large, medium and small migratory fish species



Source: Van Zalinge et al (1998).

catch volumes has declined (Van Zalinge et al 1998; see Figure 4).

These trends threaten rural livelihoods throughout Cambodia. The majority of the population remains very dependent on continued access to natural resources. It also banks on the continued resilience of the ecosystem to absorb the vagaries of the climate. Effects are hard to measure; for instance, does the loss of watersheds lead to

more severe droughts and, if so, to what extent? Yet it is generally believed that the overall effect points toward frequent loss of yields and consequent food insecurity. Climate change will impose additional stress on already delicately balanced ecosystems. Recent studies have suggested that Cambodia is extremely vulnerable to climate change (ADB 2009). Nearly half of the provinces are currently food-deficit areas (CRDB and CDC 2002). Consequently, the vulnerability of significant proportions of the population appears to be on the rise (Hughes and Conway 2004). This means that households that are not poor now are increasingly exposed to the risk of future poverty. But, as we have noted already, growing uncertainty about *future* income encourages the pursuit of *current* opportunities for resource consumption.

The observed trends threaten to overwhelm the management of land, (flood) forests and fisheries. What remains surprising is the rapidity with which these trends have developed. After all, a mere 20 years ago, land ownership was relatively equal and natural resources were in plentiful supply (see Box 2). People reported bumper yields in fisheries throughout the 1980s[1], yet by 2000 the prime minister had had to resort to the term "anarchy" to describe the fisheries management situation (RGC 1999).

Box 2: Changes in land distribution

The Khmer Rouge revolution drastically broke up the wealth patterns inherited from Cambodia's independence. The resulting "equality in poverty" was amended, with relatively small variations in the subsequent de-collectivization of the 1980s. Differences in land distribution were closely tied to the variation in household labour availability, which put the elderly and female-headed households, for instance, at a disadvantage. Other relevant elements are the assets of the solidarity groups, the *krom samaki*, which were distributed among the members. Some of the *krom samaki* were wealthy, others were poor. Some were fairly dysfunctional and had allowed their members to pursue private interests early on. To go from these rather limited variations to the lopsided patterns of land concentration that exist today, in the space of a mere two decades, demands additional explanations.

This chapter has outlined a context of fast economic growth. We now posit that a combination of fast economic change and slow development of (property) rights defines the core dilemma of natural resource management. The extent to which people can use nature's assets to build a livelihood depends on rights of access and use, as well as on duties to maintain or improve the resource.

Attempts to extract capital from natural resources are an important element of a more general and irreversible process of rural transformation in the region. Closeness to China, for instance, fully exposes Cambodia to that country's colossal hunger for resources (fish, timber, energy, etc). Consequently, the "fisheries problem"

(1) Personal communication, Horm Meth, former Director of Exploitation Office in the 1980s, Department of Fisheries.

or the "forestry problem" must be situated within that broader scale: the ongoing political-economic transformation of Cambodia, situated within the fastest-developing region of the world. The ongoing enclosure of the commons is part of that process. There is nothing intrinsically remarkable about this; many countries have faced – or are still facing – the same dilemma. What is perhaps more remarkable is the speed with which the transformation is happening, which dramatically surpasses any attempts to bring structure to the process in the form of socially accepted property rights.

Boserup (1961) asserted that economic development would work out its own institutional solution. In other words, if anarchy exists now, it will surely disappear over time. Polanyi (1944) agrees. According to him, markets and societies progress unevenly: markets become "dis-embedded" from social constraint and are then "re-embedded" and secured by movements of "enlightened reaction". The "new institutionalists" put the development of property rights at the centre of this re-embedding process (see, for example, Hayami and Kikuchi 1981; North 1990).

If the past 15 years of Cambodian history have witnessed markets breaking out of the social norms of previous eras (see Box 2), how can they be re-embedded and constrained in a social, governmental and regulatory context (CAS 2006)? To Granovetter (1985), re-embedding is not just some abstract idea. It is a real evolution determined by hard relations of power. Granovetter asserted that social actors would advance different claims on a landscape in transformation. Which claims will become socially embedded as property rights depends on the nature of legitimization processes. Given the extent of rural poverty, it is crucial to question how enlightened the enlightened reaction will be. Once the dust of rapid economic change has settled, what will be the probable distribution of rights? Will the deep patterns of hierarchy in Cambodian society and state be locked in further, or will there be an opportunity for a fresh wind to drive rural transformation?

Obviously, re-embedding is part of Cambodia's slow but steady reconstruction of a modern state following years of debilitating conflict. The state has a clear stake in the answer. It has taken the moral high ground by professing a desire to see broad and inclusive rural development, where local people feel more secure in their rights and less exposed to the threat of future poverty. Moving from a paper claim to an effective interest in how land and natural resources are managed and administered, by whom and for whose benefit, brings politics squarely into view. It needs politics to break the negative spiral of vulnerability, uneven accumulation and resource degradation and craft a perspective of security, redistribution and ecological recovery.

How the state is progressing in this effort is the subject of subsequent chapters. Before turning to this question, we unfold some of the basic concepts briefly introduced above.

Chapter 3

What is natural resource and environmental management?

Photo by: Peter Degen

Chapter 3

What is natural resource and environmental management?

"When a fly can settle on the ground, the area belongs to the farmer – if not, to the fisherman" (Khmer saying, cited in Swift 1997).

Interdependence in human interaction is a critical aspect of natural resource management. Resource management involves management of natural endowments, as well as making choices that create rights and duties. These are formalized as property rights that define relations between people with regard to assets. This calls for exclusion of some and not others. Rights are not static. Through trade-offs between their assets, including their access rights to natural resource benefits, economic actors aspire to optimize the overall value of their wealth. The rapid rural transformation affects the way in which rights are defined and understood. Poorly defined rights create problems, and result in conflicts about access and the existence of a "grey zone". Since property is a social fact, sustainable resource management is also a social – not a technical – question. The concept of sustainability impresses on us that social choices do matter, because natural capital is interchangeable only to a degree.

The yin and yang of resource management: Protection and exploitation

The preceding chapter noted the unholy alliance of rapid economic growth, severe ecological degradation and resilient and entrenched rural poverty. Conventional wisdom holds that the benefits of growth should trickle down to the poor, as long as growth is based on sound fundamentals, such as price setting by markets, fiscally responsible governance, etc (Aghion and Bolton 1997). But many villagers remain on the edges of poverty. Apparently, "mink coats don't trickle down" (Albelda et al 1988). How can we account for the coincidence of growth, degradation and poverty? The answer is that we need to bring institutions into focus.

The next pages outline some of the basic concepts that figure prominently in the rest of the volume. We make two critical arguments. First, natural resource management is about setting the conditions for resource renewal. But protection without access rights is the territory of "fortress conservation". So, natural resource management is also about arranging the conditions to access resource benefits. This calls for the exclusion of some and not others. Second, understanding institutions and rules begins with the reality of human interdependence. Interdependence and exclusion can be

combined only by way of property rights. The rapid rural transformation affects the way in which patterns of exclusion are drawn and results in conflicts about access, but above all in the existence of a "grey zone".

Of human interdependence and property rights

Earlier, we posited that the right to benefit from a resource creates an interest in its continued existence. Who holds the rights to appropriate the goods and services that nature provides? Who allocates these rights? The answer is given by the institutions and rules that regulate access and use of natural resources, and how these rules are changed.

Key Concept 2: Institutions

Rules, norms and governance structures regulate relationships. Often, the term "institution" refers to a specific organization, for instance the Department of Agriculture. Institutions can also be thought of as the "set of rules used by a group of individuals to organize repetitive activities that produce outcomes affecting those individuals and potentially affecting others" (Ostrom et al 1992). Institutions have also been described as "collective action in control of individual action" (Commons 1934, cited in Gupta and Prakash 1997). The point is that institutions generate stability and predictable order in human interaction; they create shared expectations and provide assurances about the behaviour of people. Without social legitimacy, institutions cannot function. The existence of "folk views" that justify the rules as well as the activities demonstrate public acceptance (Neale 1987).

Understanding these institutions and rules begins with the reality of human interdependence: the simple fact that people depend on other people to fulfil their needs. Interdependence implies "mutual vulnerability" (see also Box 19 in Chapter 4) (Mearns 1995). This expresses the degree to which one person relies on the behaviour of others towards a particular resource. The changes described in Chapter 1 suggest that rapid development brings economic actors to the countryside who are far less bound by ties of mutual vulnerability. For a fisheries concessionaire, for instance, fishery is a two-year venture in which capital – not an entire livelihood – is put at risk.

The fact of interdependence is usually a given and not a matter of choice; for example, the existence of the Tonle Sap and its fish is a gift of nature. Independent of our wishes, the lake is there: it is a natural endowment. To many, natural resource management is about the renewal of these endowments, defined by issues like the preservation of biodiversity and the protection of forests. This stress is also prevalent in the law that guides the devolution of powers to Cambodia's fledgling communes (see later chapters). Safeguarding the existence value of natural resources is undeniably a critical aspect of managing them. The importance of this is brought home by the previous chapter. But resources cannot be safeguarded in a vacuum. A crucial factor shaping people's interest in protecting a resource is access to the benefits it provides. These benefits can be goods (resin, fish, timber) as well as services (water retention, clean air). But people are rarely alone in wanting to access benefits. We have noted

that, for many rural households, access to natural resources is a crucial pillar of their survival strategy.

Key Concept 3: Interdependence and the assurance problem

Interdependence is the occasion for both cooperation and conflict. For example, a heavy pole can be raised only by the joint action of two people. The physical advantage of cooperation, however, does not mean that joint effort will be forthcoming. A dispute over the division of the fruits of joint effort may keep the pole from being raised at all. The images of rights that people carry in their heads affect the output of interdependent effort (Allan Schmid 1978). The essential difference between "independence" and "interdependence" is ownership. Independence implies a direct link between effort and ownership of the fruits of the effort: if a single person raises the pole, that person alone owns the fruits of the effort. Interdependence implies mixed ownership: if two persons raise the pole, each one owns the results of the other's efforts as well as his own. This fact gives rise to the assurance problem. Because each person co-owns the results of the other's efforts, both need assurance that they will not in fact be alone in producing the effort. If this assurance is lacking, the pole will not be raised.

Resources are scarce, people's needs numerous. Either everyone gets access, but then the renewal of the resource may be in danger, or some form of exclusion is maintained to preserve the capability of the resource to generate more benefits in future. For example, many individuals are eager to harvest the fish in the Tonle Sap. The situation (one lake, many fishers) creates interdependence. But the situation does not prescribe how the fishers should resolve it. Should some be excluded, and if so who? Or should all be excluded save one? What are the conditions of access for the ones who are granted access? And by whom and how are such important things determined? The answer is that human choice gives structure to human interdependence: who has rights and who has duties, who benefits and who shoulders the cost, etc. So a process of choice determines how the relations between people regarding access to fish are to be structured. These relations are laid down as property rights. The following chapters concentrate on the process of choice. For now, we concentrate on the concept of property rights.

Property as a bundle of rights

Property rights define relations between people with respect to a resource or benefit. The definition makes explicit the enforceable rights that people are entitled to claim, as well as attendant duties to ensure renewal of the resource ("duty of care"). As we shall see in the next chapter, natural resources are special because they are *joint goods*. Take a bicycle, for example: most people want the same thing from it, which is the ability to transport. But different people may want different things from a natural resource. Some people want timber from the forest, others mushrooms or rattan or even simply spiritual value or peace and quiet. In this sense, a property right refers not to one right but to a bundle of rights. In the case of natural resources, this bundle is big. The bundle of rights is not indivisible; rights can be split up and isolated from one another. In other words, rights can be "unbundled". For each "stick" isolated from the bundle as a specific right, the property right must be

specific about the nature of the entitlement (what), its beneficiary (who) and other attendant conditions to exercise the right: when, where and how.

The ownership status determines how strong the property right is: is it for a small stick in the bundle or the whole bundle? Table 2 indicates the strength associated with various ownership statuses (Ostrom and Schlager 1996). Outright ownership is the strongest form of property right. It can usually be opposed to any other claim in the bundle. For instance, land ownership indicates the owner's full discretion to exclude *all* others from *all* associated benefits (*usus, fructus, abusus*). Another person cannot simply walk in and enjoy the benefit of peace and quiet on someone else's land; he or she must be permitted to do so. A physical fence is a first indication that the owner is not amenable to relaxing his claim on all rights in the bundle and recognizing other claims, for instance that of the public to freely roam on the land with no other purpose than to enjoy peace and scenic beauty[2]. Ownership also implies the right to sell (alienate) the property, a right which a proprietor does not have. An authorised user has the right to access the resource (forest) and withdraw some defined resource benefits (firewood), but that is all. Authorized entrants are on the lowest rung of the ownership ladder; they have right of passage but no more.

Take fishing lots, for example. The "lot owner" is not actually an owner but a (temporary) proprietor. The owner is the Cambodian state, by a long stretch the largest resource owner in Cambodia. In the fishing lot, villagers have limited rights of use in designated areas or in the closed season. In all other areas of the concession during the open season, they are mere authorised entrants. They can pass by but not fish. These terms and conditions are laid down explicitly in the so-called "burden book".

Table 2: Bundles of rights associated with ownership positions

Right or benefit	Ownership status				
	Owner	Proprietor	Claimant	Authorised user	Authorised entrant
Access	x	x	x	x	x
Withdrawal	x	x	x	x	
Management	x	x	x		
Exclusion	x	x			
Alienation	x				

Source: Ostrom and Schlager (1996).

(2) In Europe, the general public's right to access privately owned land for recreation is called the right to roam. It has survived in its purest form in Nordic countries, where the right underpins opportunities for outdoor recreation, for instance the right to hike across or camp on another's land.

The lethal, the legal and the legitimate

Friction between what is legal and what is legitimate can generate lethal conflicts. But more often it gives rise to a grey zone of undetermined rules. How patterns of access and exclusion emerge is a very important question. The answer is often lost in the mists of time. Sometimes, it is the result of a deliberate decision. From personal experience we know that, for a property right to be valid, it needs to be both legal and legitimate.

For instance, John's bicycle is stolen and sold to Bert. Bert does not know it was stolen. For things like bicycles, possession is proof of ownership. As far as Bert is concerned, he is the legal owner. But John is not happy seeing Bert showboating around on the bike. For him, Bert's ownership lacks legitimacy, and he may well try to prevent him from riding it, even claiming the bike back. So the claims of John and Bert conflict. John's sense of entitlement comes from (previous) long-term possession, interrupted unjustly as far as he is concerned. Bert's sense of entitlement derives from having paid a market price. He does not feel he owes John anything. Put at a more general level, for claims of ownership to be successful they must be recognized by others (legitimate), as well as enforceable with the full support of the law (legal).

As noted, such claims derive from a sense of entitlement, which springs from different sources. Customs and traditions, evolved over long periods of time, are one source. These are largely unwritten (informal). People may no longer know the motivation for certain rules, but the rules themselves are usually very well known (eg the folk views mentioned by Neale 1987). For instance, the rules that guard the sanctity of spirit forests – *prei nak taa* – are understood by all. The same for resin trees: no record is kept with regard to which tree belongs to whom, but villagers know it and also understand what they can and cannot do. Claims emerging from legal and formal processes are another source and are typically reflected in written rules. These claims are often ill understood, especially when taking place in a period of rapid change and consequent legal development.

The result is that traditional claims are socially embedded but often lack legal backing in the form of written property rules. Modern law tends to ignore claims based on traditions and customs. Attempts to codify traditional entitlements into modern law are fraught with legal and political difficulty, for instance the difficulties associated with integrating the traditional collective ownership of land held by indigenous peoples into Cambodia's current land law. On the other hand, written property rules defined by modern law may lack social acceptance, and therefore have a problem of legitimacy. This is where rapid economic change creates the big problem suggested by Polanyi (1944). Rapid transformation and the quest for capital development involve the dismantling of longstanding customary arrangements of access and use. A rapid process of reform defines and lays down legal changes, displacing a gradual evolutionary process of creating meaning and acceptance. In this transition, new legal

entitlements are generated. Meanwhile, the holders of customary (old) entitlements are dispossessed inasmuch as legal reform fails to recognize their claims. Consider, for instance, the allocation of a 99-year lease on an area from which villagers have derived a livelihood for many years. The other party to the contract will be the state. The villagers may feel entitled to this land taken away from them – in their eyes – unjustly. But the contract allows the leaseholder to oppose their claim in a court of law. Whether the leaseholder will actually be able to work the land without physically restraining the locals is another matter.

So, legitimate claims of access and use may not be legal, whereas legal claims may not be socially accepted. For instance, economic concessions create legal (but not necessarily legitimate) possibilities for "outsiders" (corporations, town people, etc) to access and use village resources. The villagers themselves may well be legally denied access and use – even if the concession is left unused (the productivity issue mentioned earlier). In general, this situation of legal pluralism creates advantages for new categories of users and use, to the detriment of traditional users. So we are back at the "different claims on a landscape in transformation", mentioned earlier. Both the villagers and the concessionaire feel entitled to make use of a stretch of forest. In other words, putting a physical fence around the forest does not make it property, unless that physical fence is matched by a "social fence" ("the image of rights that people carry in their heads", see Allan Schmid in the Interdependence Key Concept 3). Social fences are the outcome of public choice processes; only accepted processes of public choice can validly resolve situations of interdependence, as we shall see. In making these choices about exclusion, society organizes human interdependence. It creates what is called a "proprietary scarcity": the right to withhold from others what they need but do not own. This is also the substance of power.

Amartya Sen (1982) expounded on the notion of proprietary scarcity, interrogating the occurrence of famine in the midst of plenty. Hunger was then usually explained as an act of fate: the hungry lack the endowments to survive (lack of skills, of the right attitude to work, etc). Sen argued that hunger could also be explained as a breakdown of food entitlements, or a denial of the right of access to food, in other words hunger as the effect of social choice rather than the result of personal shortcomings. In the same vein, it is not possible to explain the simultaneous occurrence of land concentration and landlessness in Cambodia as a failure of production. It is true that a failure of production may cause problems of access. As Chapter 2 noted, Cambodia's resource base is limited and increasingly degraded, without many gains in productivity. Consequently, access to adequately productive land becomes problematic for the growing population. But this does not explain the increasing land concentration. Only the nature and quality of the process of collective choice can explain such an outcome.

Box 3: Is wealth an act of fate? A Cambodian perspective

The perceived importance of innate abilities – talent and capacity for hard work – is reflected by rich and poor alike. Some of the respondents in an opinion poll had fallen into poverty. They were asked to give reasons for their relative impoverishment: 81 percent argued that others were better off because they worked hard, had better ideas and took the initiative and only 16 percent thought others were better off because they had privileges through their connection to the government, army, police, etc (IRL 2007, cited in World Bank 2007). This attitude towards poverty is shared by the rich. As Hughes and Conway (2004) state, "generally speaking, Khmer communities are less hesitant than INGO or donor staff to attribute poverty to vices: the poverty of particular households is often attributed to gambling, drinking, or lack of family harmony. The rich, by contrast, are often seen to have got where they are through 'good ideas' (*khomnuht khpus*) and hard work." In brief, rich and poor alike tend to see the distributional outcome of development in terms of endowment (being smarter) rather than entitlement (having better access). This "blame the poor for being poor" mentality is also reflected in many discussions where local villagers are pinpointed as the culprits for environmental degradation.

Finding common ground: Conflict and negotiation

Of social and physical fences

The previous section makes clear that bringing legality and legitimacy together is a major challenge for policy. To be sure, in a dynamic society there will always be some friction between legitimate and legal. That is the cost of change; for instance, people may start using new technology, prompting the state to catch up with legislation. In the case of Cambodia, the tension between legitimate and legal is huge (IFSR 2004). According to Granovetter (2005), the "nature of legitimisation processes determines which claims will become socially embedded as property rights". Surely, such a statement is more valid for legal claims that seek social acceptance than for claims that are already legitimate. So the question is not so much how to make socially accepted claims legal in case they are not, but rather how to make legal claims socially accepted. This is wholly in line with the direction of rural transformation. The words of the Interim Mekong Commission (IMC 1992), formulated in the context of fisheries in the Mekong basin, are all too relevant for fisheries as well as forestry in Cambodia:

> "It is a common feature that commercial aspects of fisheries development overshadow subsistence and nutritional aspects and that fish to a large extent is considered a cash crop and also, although to a lesser extent, an export commodity."

In principle, there is a simple answer to the question of how to make legal claims socially accepted: legal claims will be legitimate if they have been arrived at through a legitimate process of public choice. This transfers the problem from the claim to the process that produced the claim, which is basically a political process. Where social norms and the legal framework disagree strongly, the presence or quality of this political process is in doubt. Because the stakes are very high, the answers are often

"frontloaded" for fear that the "unruly and ignorant poor" (Hughes and Conway 2004) might actually decide for themselves. This question will be discussed at length later on. For now, we are interested in the consequences of the tension between "legality" and "legitimacy", arguing that this gives rise to conflict and the existence of a sizeable grey zone. Table 3 illustrates the four states of legality and legitimacy. What interest us here are the boxes "legitimate but not legal" and "legal but not legitimate", which have been designated respectively as "grey areas" and "conflict".

Table 3: Relationship between legality and legitimacy

		Legitimate	
		Yes	No
Legal	**Yes**	Law enforceable	Conflict
	No	Grey areas (rent sharing)	Law unenforceable

Source: IFSR (2004).

Conflicts

Given the importance of fisheries and forestry as basic resources, conflicts are likely to increase in the future; new players – in the quest for capital accumulation – will encroach further on these commons. These new players are not as stringently bound by ties of mutual vulnerability. In the absence of an adequate social fence, coercion must accompany exploitation. In Cambodia, private enforcement of resource exploitation (fishing lots, forest and economic concessions) by armed goons or subcontracted military units is not at all exceptional (Degen et al 2000). Evans et al (2004) note that

> "By the late 1990s, some 80% of the entire dry season lakeshore was under the control of 18 fishing lots. The thousands of fishermen living on the Great Lake or along its borders were subjected to threats, intimidation and gunfire when straying too close to fishing lot boundaries."

The grey zone

But a government with a proclaimed pro-poor agenda cannot be seen to shove aside blatantly the claims of rural households. Nor does excessive rural conflict serve its purpose of stability. In the end, callously surrendering the livelihoods of villagers to unfettered markets is a sure-fire formula to undermine the social order. Cambodia's political class is certainly aware of this, witness the formal suspension of forest concessions and a large number of fishery concessions. The reality is that a large grey zone fills the gap between legal and legitimate, between formal principle and informal practice, between old and new claims. This grey zone is an area of opaque rules and unclear sovereignty, in the sense that villagers have never explicitly ceded their authority to the successful new claimants. The grey zone allows villagers to continue

doing more or less as they did, but at a cost. In the grey zone, informal or customary claims – even if legitimate – must surrender to the legal rights holders. In return for continued access, the legal rights holders extract rents. In brief, the grey zone represents a shifting accommodation between formal and informal processes of governance, which is based on negotiation and lubricated by *rents* (see Chapter 4).

Opportunity for negotiation is provided by the combination of three elements: the existence of multiple benefits, the "divisibility" of rights to access these benefits and the different strengths of the different claims to these benefits (some formal, some informal). Alternative claims – usually secondary claims related to parts of the resource bundle that are of little interest to the primary rights holder – are settled in the grey area through negotiations between owner (authorities), proprietors, users and even entrants[3]. In many cases, the villagers deal directly with the "representatives" of the owner (the state), for instance the large areas of terminated logging concessions. Sometimes, blanket proprietorship is granted or simply claimed and backed up by force. The proprietor, in most cases a concessionaire, then negotiates conditions of access with all other users and extracts rents from them. But not after the proprietor has paid rents to the "owner". Even where the law is explicit and limits the rights of the proprietor, the reality on the ground often forces local villagers to negotiate and pay for the access to which they are in principle entitled. For instance, the facts on the ground do not necessarily conform to the paper reality of the burden book. Certain categories of authorized users may find it impossible to oppose their particular right to the rights claimed by the proprietor[4].

Box 4: Rights and duties are not static

Rights and duties are situated in a social context and evolve over time (see Sjaastad and Bromley 2000). To manage a situation characterized by interdependence, a shared understanding of rights and duties is a necessary condition. But this understanding is not written in stone; it is dynamic, linked to drivers such as technological change, tastes and values, etc. For instance, as long as water is abundant, the capacity of a forest to produce and preserve it may not be much appreciated. With a change in appreciation, new rights spring up, for instance the right to capitalize on services provided by the forest, such as water retention or carbon sequestration. So the whole rights edifice is subject to change and renegotiation over time.

(3) People have been known to have to pay up to pass in oxcarts through concession areas, for instance.

(4) Complaints by local fishermen will be handled not by an independent court but by the Fisheries Administration itself, which gave out the concessions in the first place.

The hallmark of the grey zone is "flexibility in times of uncertainty", allowing issues of access to be settled practically without fuss. To the extent that "legitimate" and "legal" are unable to find accommodation in the fast-moving maelstrom of rural transformation, it could also be argued that the grey zone alleviates problems of access. But the existence of the grey zone is not simply a symptom of rapid rural transformation. It is also testimony to the inability – social and political – to find accommodation between formal and informal processes. The direction of rents betrays it as an instrument to generate proprietary scarcity. The point is not to cause the majority of Cambodia's villagers to perish of famine by the roadside. The point is to establish the power and opportunities people enjoy: who has control over whom? Whose consent must be obtained by whom? Who can extract a payment from whom? In essence, the formal ownership structure dictates the principal terms of proprietary scarcity. In this sense, it also sets the direction for rural transformation, by redistributing capital in the form of rents.

If the government wants to make good on its pledged reform agenda, it will have to replace opaque negotiations in the grey zone with political processes that introduce a transparent system of rules and rights that can be effectively opposed to alternative claims. This, of course, is a normative view. The reality of democratization is that it is a gradual movement from informal to formal, from person based (patronage) to rule based. The point is to settle the accommodation between formal and informal ways of resolving things increasingly in favour of formal, transparent and accountable processes. This is where we also understand clearly the meaning of re-embedding rapid social and economic change in institutional frameworks (Granovetter 2005).

Cambodia's ecological credit card

Chapter 2 outlined a quandary. Economic growth in Cambodia over the past 10 years has come at a high cost to the country's stock of natural capital. The previous section investigated the structure and nature of rights. We argued that (property) rights constitute an important link between the willingness to protect (duty of care) and the potential to extract benefits. A broken link will have consequences for natural resource conservation. But we also observed that even secure rights cannot always stop ecological degradation. This was attributed to the tension between what the state recognizes (legal) and what the people accept (legitimate). We observed that a degree of tension is normal in a dynamic society. The next paragraphs briefly sketch the importance of capital formation as a driving force behind this tension, and introduce the concept of sustainability. This concept impresses on us that natural capital cannot be substituted endlessly for other forms of capital.

Box 5: Creating stakes – the combination of rights and benefits

		Appreciable benefits from the resource	
		No	Yes
Right to benefit from a resource (property right)	**No**	Resource destruction	Resource use conflicts/ degradation
	Yes	Resource conversion	Good chance of resource preservation

Even secure rights may generate benefits perceived as too meagre compared with alternative uses. A "thought exercise" helps to put these elements in context. It reflects on the various possible outcomes generated by the combination of rights and benefits. The exercise puts forward two basic questions: how secure are access rights (whether private or collective) and how appreciable are the benefits. The question leaves out many possible nuances and complications. For instance, the perceptions of value differ: one person may appreciate scenic beauty, another may not. Even so, it provides some food for thought. The scenario in which holders of ill-defined rights compete for access to valuable resource benefits is a common one. Experience everywhere shows that its hallmark is resource use conflict, informal access (the grey zone) and steady resource degradation (think Cambodian forests). But the question here is also, what if the rights to benefit from a resource are clear but the benefits that can be derived from it are not appreciable in the eyes of the rights holder? A probable outcome here is resource conversion (think flood forests and rice-land)

Putting natural capital to work

"Dead men don't walk", so the saying goes. Likewise, dead capital provides no returns. In a productive economy, capital is subject to a simple rule: it must produce returns. Just as water runs off to the lowest point, so capital will seek out the areas where returns are greatest. Capital formation is the process of increasing the total value of assets. If the need arises, investment (capital formation) in one area will be sourced from disinvestment (capital destruction) in another. As long as the total returns on investment exceed the cost of disinvestment, the exercise is worthwhile. Access rights are assets. As such they do not equate to livelihood capabilities: it takes other assets to transform them into these. The combination of assets and the trade-offs between them give people choice over the direction of their livelihood.

Box 6: Livelihood capabilities and the five capitals framework

Livelihood capabilities start with basics such as adequate nutrition and housing. But it is of course much more than that: people also want to have fun, to impress others, etc. Household wealth is a good indicator of the ability to enjoy livelihood capabilities. People will aim to make their capital grow by maximizing the returns on their capital. This capital is made up of different sorts of assets: one's labour and health, the ability to draw on the support of others, tools and the technology embedded in them, money and the forest and other natural resources. Also referred to as human, social, physical, financial and natural capital, together they form the five capitals framework (Porritt 2005). To increase overall wealth, people will put the different sorts of capital to work, including the natural capital around them. Whether the renewal of the natural capital base is in danger depends on people's agreement to exercise restraint.

Put differently, people take an integrated perspective in striving to improve their livelihood. They will assess the opportunities for transformation of the assets they hold.

The macro level at once reflects and influences these choices. It reflects the consequences of the decisions made by many actors (individuals, companies, etc), for instance the decline of Cambodia's flood forests was surely not centrally planned. But development also implies that each society draws on its total stock of capital and determines allowable trade-offs. In Cambodia, we have noted the existence of large areas where rules for resource exploitation are negotiable rather than widely agreed and strictly enforced. This in itself indicates a broad interpretation of the sort and number of trade-offs that can be made with natural capital. Experience shows that this is not unusual. In the early stages of development, societies opt for growth at the cost of their environment[5]. For instance, China continues to use coal-fired plants to quench its huge appetite for energy; the cost is that it shrouds its cities in poisonous air. The reasons are not hard to fathom. For instance, natural capital is usually plentiful at the start of a process of economic growth, as in Cambodia, which had plenty of forests and wetlands, etc. It is also typically easy to liquidate and transform natural capital into other assets. Over time, these trade-offs result in changes in the aggregate value of different sorts of capital. The stock of physical and financial assets increases (more houses, cars, computers, a larger money supply), at the expense of natural capital (less teakwood, less cod, more polluted lakes, more carbon dioxide in the atmosphere). These changes are also reflected in diversification of income sources (see Figure 1).

The "S word": Sustainability

The introduction defined natural resource management as the management of renewable resources. Obviously, the whole discussion about access rights to these renewable resources is futile when the resources are no longer being renewed. Sustainability is an overriding consideration in resource management. What does it mean? To most people, sustainability implies a balance between the rates of harvest and regeneration of a resource[6]. The "maximum sustainable yield" indicates the point at which the rate of harvest and regeneration are in balance. This seems to be a difficult balance, because we are more familiar with reports of harvest rates overshooting regeneration rates. The problem is that the "maximum sustainable

(5) An environmental Kuznets curve is the graphical demonstration that many environmental health indicators deteriorate in the initial stages of development before improving at a later stage. For an interesting introduction, see Yandle et al (2004).

(6) Technically, the term "rate of withdrawal" is preferable to "rate of harvest". Withdrawal includes capture or harvest, but also the degradation or depletion of a resource owing to other factors, such as pollution, loss of habitat, etc.

yield" is not necessarily the "maximum economic yield"[7]. That point is achieved when the maximum profit is realized. In economics, this is the point when more effort (more costs) starts yielding lower yields (less income). But lower yields do not necessarily produce less income: the scarcer a resource, the more valuable it usually becomes. In other words, the value of increasing scarcity warrants continued extraction past the point of maximum sustainable yield. So it happens that an industry such as fisheries continues to develop capacity to exert more effort to fish dwindling stocks (see Box 7).

Box 7: Over-fishing and changes in the catch composition

The Atlantic cod is a species that has collapsed entirely because of over-fishing. "Books like 'Cod' . . . have eloquently described how the fishing grounds that stretch from the shallow waters off Newfoundland south to Georges Bank, once considered the richest in the world, have come to be commercially moribund" (The Economist, 2008). The effects may not be as dramatic in Cambodia's freshwater fishery, but similar dynamics are unfolding. The largest species, such as the indigenous giant catfish and the giant carp, are in danger of extinction. Already in 1992, a report (Interim Mekong Committee 1992) noted that

"The present fishery operates economically in producing a large amount of third grade fish which maximizes protein output ... at the risk of overexploitation of the large species of white fish that perform extensive migrations and expose themselves to the gear in several stages. The net balance may be that a major part of biological production is utilized close to optimality, but that several species of white fish are overexploited."

According to Van Zalinge et al (1998),

"Anecdotal information suggests that in particular the catch of many large migratory and slower reproducing species has declined due to increased fishing pressure. On the other hand the catch of small and fast reproducing species may still be as high as ever."

Early data show that these trends started with the acceleration of economic development. Catch statistics from the fishery units of four provinces report a drop in total catches of first grade fish from 2,908 tonnes in 1987-90 to 1,841 tonnes in 1994-95; third grade fish production increased from 14,741 tonnes to 19,413 tonnes in the same period (Mekong Committee 1992).

The conventional vision of the economy sees production factors as infinitely substitutable. Using any resource more intensely guarantees an increase in output. This view assumes a world in which carrying capacity is infinitely expandable (see Box 8). But it would be more appropriate to think of the environment as a credit card. It does not carry an obvious expenditure limit, but debts are mounting and interest will compound for a very long time, exponentially increasing the cost of all those watersheds stripped of their cover or the mangroves converted into private beach resorts.

[7] See Charles (2001) for a concise and understandable overview of the topic with application to fisheries.

The concept of maximum economic yield demonstrates that more intense use may actually generate a decrease in output. At a certain point, processes of degradation become irreversible[8]. Even though the exact maximum sustainable yield for a given species may be unknown, we generally recognize the danger signs. Slower-maturing species will disappear first and be replaced by faster-growing species. The reduction in biodiversity will be magnified through natural links and feedback loops that trigger a wider episode of degradation and extinction. So here is a problem: what if the allocation of rights and duties is not in balance? What if more is extracted from the

Box 8: Ecological footprint, carrying capacity and the projection of future demand for fish in Cambodia

A fundamental question is whether remaining stocks of natural capital are adequate to sustain the anticipated demand of the economy. Ecological footprint analysis assesses the capital stocks, flows of investment and consumption in terms of the corresponding ecosystem areas required to support the economy. It shows that most developed countries run large ecological deficits with the rest of the world; they are net importers of carrying capacity. The projection of future demand for fish in Cambodia demonstrates that the country may before long import fish and therefore some "carrying capacity" from elsewhere.

Current consumption and projected requirements of fresh fish at different levels of demand in Cambodia, 2000-30

Year	Projected population (millions)	Future annual fish requirements (1,000 tonnes) Consumption levels (kg/year/caput)			
		20.11	25.2	31.22	37.1
2000	12.01	241.5	302.8	374.2	445.7
2005	13.59	273.1	342.4	423.2	504.1
2010	15.36	308.8	387.2	478.6	570.0
2015	17.38	349.2	437.8	541.2	644.6
2020	19.65	394.9	495.1	612.1	729.0
2025	22.22	446.6	559.9	692.1	824.3
2030	25.13	505.1	633.2	782.7	932.2

Notes: 1. Based on most recent official statistics. 2. Mean between the high (37.1) and low (25.2) estimations, corresponding to an annual freshwater fish production of 360,000 tonnes.

Source: Lamberts (2001).

Against projected future population and assuming different levels of average consumption per person per year, the table above indicates implications for future fish demand. These data are offset against the highest estimation of the present production. The shaded areas indicate where this production does not meet projected demand. From 2025 at the latest, even at a much reduced rate of consumption and against the highest possible production, Cambodia will become a net importer of fish produce (carrying capacity) to meet demand.

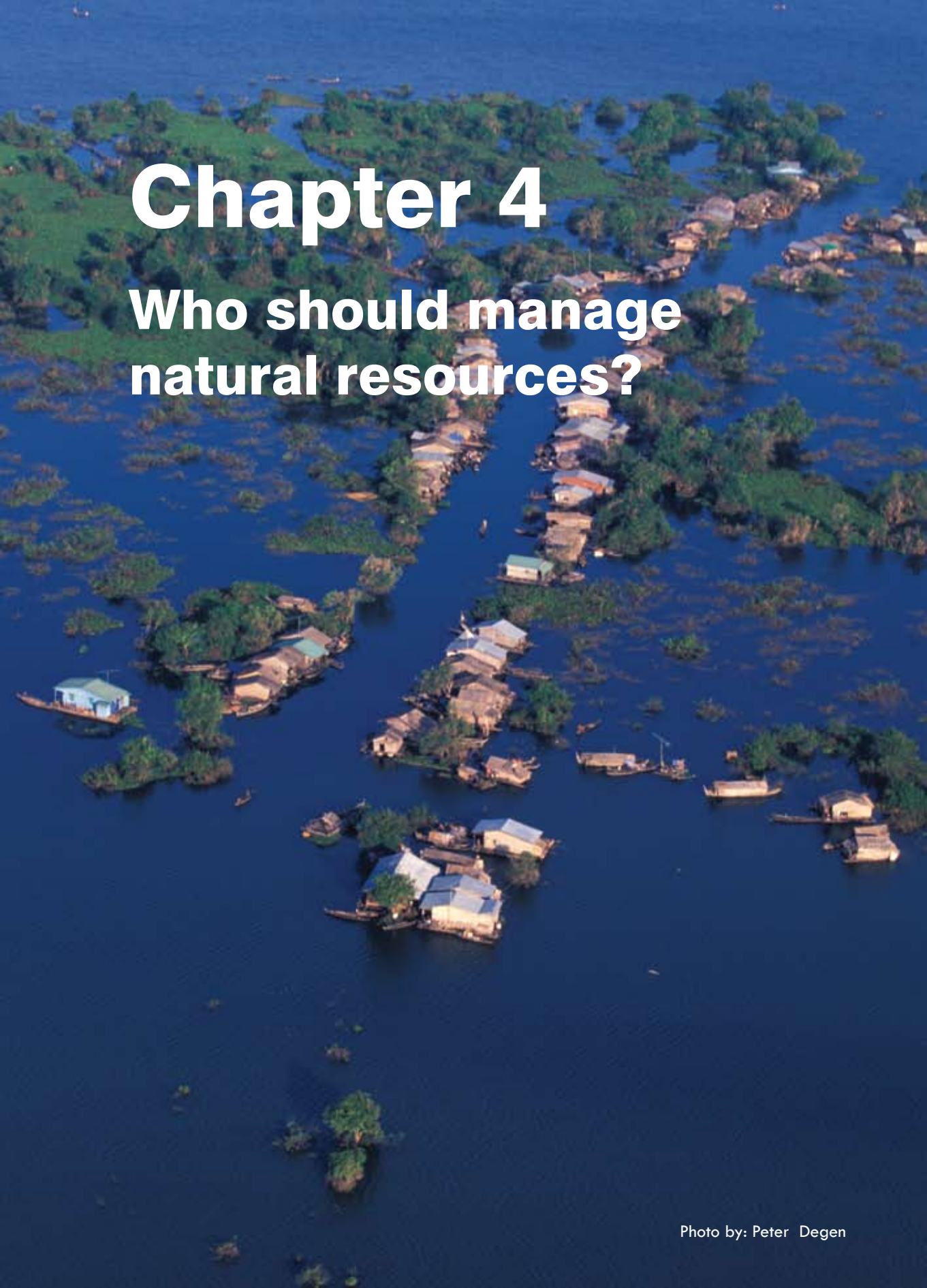
(8) For instance, the Atlantic cod (see Box 7) never recovered, even after tough measures to protect the species were internationally agreed and put into effect.

resource – deliberately through harvest or accidentally through pollution or other ills, than the resource can deliver?[9] Clearly, the process of rights negotiation, which allocates rights and duties and distributes the attendant costs and benefits, is fraught with unknown ecological consequences. The lack of a magic "sustainability meter" to determine trade-offs dictates caution in setting directions and making choices. Further on, this point will come back in full force, when discussing the ability of decentralized versus a centralized actor to determine trade-offs.

This chapter has put human interdependence centre stage. It has emphasized that adequate assurance to support human interdependence depends on a socially accepted understanding of rights and duties. Rapid development affects patterns of interdependence. Attempts to provide structure to the process of re-embedding must walk a very fine line: weigh the multitude of formal and informal claims to determine property rights, ensure that associated benefits can be captured and contribute to the livelihood security of local users and guarantee that the pattern of subsequent resource exploitation is mindful of the conditions for adequate resource renewal.

The introduction mentioned three factors that determine the context of interdependence in relation to a particular resource: the characteristics ("attributes") of the resource or good, the characteristics of the community that must interact and cooperate to make a collective choice and the characteristics of the polity or governance structure designed to facilitate and implement collective decisions. It is to these concepts that we now turn, starting with the characteristics of the good. More particularly, the next chapter interrogates who is best placed to make the choices that provide structure to the process of re-embedding.

(9) Later in this paper, we will define these "ills" as negative externalities.



Chapter 4

Who should manage natural resources?

Photo by: Peter Degen

Chapter 4

Who should manage natural resources?

"We go through cycles of reform with great promise of new results only to find failure and some new round of reformers advocating return to where we started" (Allan Schmid, 1987).

The characteristics of natural resources do not provide much clarity for justifying the role of the state or the market in resource management. Natural resources are joint goods that produce multiple types of outputs. However, the market tends to under-produce public goods and oversupply public bads, which affects the environment and the distribution of welfare. The contention that government ownership of natural resources improves overall welfare is not borne out by results. A choice between market and state is a choice between poor alternatives: either an imperfect market or imperfect government outcome. Both fail to provide exclusion mechanisms that are socially acceptable, and thus fail to close the gap between legality and legitimacy. A large discrepancy has developed between the formal decision-making system which is supposed to govern resource use and the actual pattern of interaction among resource users. This opens the door to a "third way", a decentralized process of public choice.

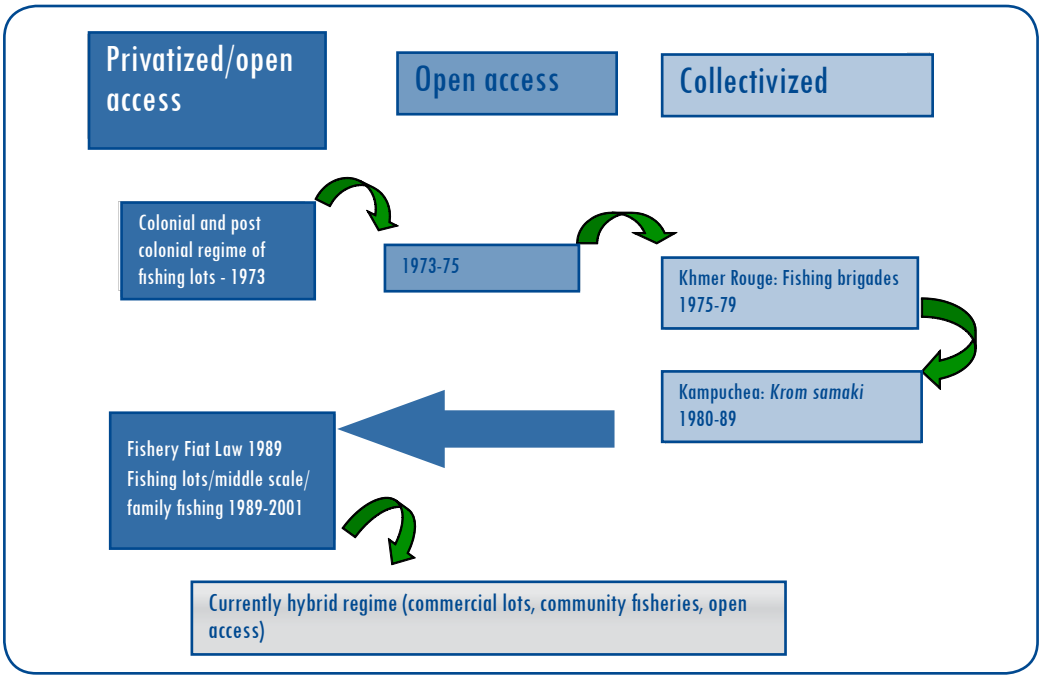
Management rights: State, market or community?

Chapter 3 laid out the key elements (the yin and yang) of natural resource management: safeguarding the resource and allocating rights to appropriate benefits. This is equivalent to the provision of a public good and the management of exclusion. This chapter will ask who is best placed to assume these roles. Are natural resources public endowments and the state thus the "natural" manager on behalf of all citizens? And what do we mean by "public"? Or should they be privatized and citizens liberated to exchange property rights freely? Or is simple "open access" preferable, without rights or rules to control access and allocation of the resource benefits? What about setting up a system of "common property", whereby a self-governing collective determines rules to control resource access?

This is an ardent and longstanding debate, going back at least 2,300 years (see quote of Aristotle on the title page). Ardent, because much money is involved, a fact not known to be helpful in achieving balanced discussions. Cambodia has been no exception. As a result, natural resource management has tended to bounce from privatization, to extreme or milder forms of collectivization, to re-privatization, to

the current hybrid mix, which involves market, state and communities all together (see Figure 5). These movements have produced the occasional drama, such as the freezing of forest concessions, cries of anarchy in fisheries and the sudden abolishment of fishing lots, the eviction of independent forest monitors, etc.

Figure 5: Historical changes of tenure in fisheries



The same passion has fired up the proponents of the various management regimes for a long time. This has involved luminaries such as Hayek and Hardin, both equally unafraid of high-minded language. Hayek (1944) contended that any involvement of the state in the affairs of its citizens was no less than a "road to serfdom". To him, development entails a historical progression from common to enclosed (private) resources, the management of which is best left to the market's infamous "invisible hand". Hardin (1968) framed the debate in reference to the perceived "tragedy of the commons", whereby individual rationality yields collective disaster. Overcoming this tragedy requires management by an external authority capable of vigorous enforcement. Hardin saw the not-so-invisible boot of the state ("fences and fines") as a means to produce the common good.

To add to the confusion, new candidates for resource management have made their way on stage: local users and local government. Or rather, old candidates newly acknowledged: self-governing institutions that link rights of access to learned habits of limited use. These have equally ardent supporters, who see a chance to put right what market and state – in their eyes – have ruined. Many market and state

supporters ogle these "neophytes" rather wearily, contending that the stress on community in a globalizing world is a misguided form of romantic yearning for the sort of harmony which – if it ever existed – is now as dead as a dodo.

How theory shapes policy is significant. To examine the debate, we need to clear some of the battlefield dust, demarcate its contours and analyze the merits of the various positions. Interrogating the role of state and market, this chapter will put forward two questions. First, whether the nature of the resource sheds light on the role that market and state should play. Second, whether the effect of their involvement on overall welfare indicates the limitations of their respective roles and provides an opening for other types of involvement.

An orange cannot be eaten twice

Is the nature of a resource guidance enough to figure out whether exclusion is possible and what the role of state and market should be? Essentially, this question enquires about the kind of interdependence the good creates and whether this determines the choice of property rights. Table 4 provides a start by laying out a basic taxonomy of goods, using two criteria: whether the good in question is rivalrous and/or exclusionary.

Table 4: Taxonomy of goods

	Exclusionary	Non-exclusionary
Rivalrous	Private good	Common pool good
Non-rivalrous	Club good	Public good

A pure private good such as an orange is characterized by two factors: if Person A consumes the orange, then Person B cannot consume the same orange (its benefit is rivalrous); if Person A fails to pay the fruit vendor, he or she can be excluded from consuming the good (its benefits are exclusionary)[10].

A pure public good is a good which, once provided, yields benefits to everyone simultaneously; its benefits cannot be exhausted by any one consumer. For example, the sunlight Person A "uses" does not detract from Person B's ability to enjoy the same sunlight: the sunlight is non-rivalrous. The sunlight is also non-exclusionary, since it is not feasible – under normal conditions – to exclude people from enjoying the sun.

(10) We must assume that this orange is apparently consumed by an economist, unwilling to stray from the guiding maxim of the profession that all people are selfish and therefore incapable of sharing the orange.

A club good is a non-rivalrous good made rivalrous by a social fence. Chances are that, without exclusion, congestion would probably cause the good to become rivalrous. For example, an empty road is non-rivalrous since Person A's enjoyment of driving along is not affected by Person B's simultaneous use. It is also non-exclusionary, since Person A cannot exclude Person B from using the road. The entry of ever more users leads to traffic jams. To resolve the gridlock, a congestion charge – as in London or Singapore – excludes those unwilling or unable to pay. Within the group of payers (the "club"), non-rivalry is (re-)established.

Common pool resources and public goods share the difficulty of exclusion. But, unlike a public good, the benefits of a common pool good are rivalrous in nature. For example fish stocks; the fish Person A harvests from the sea cannot also be harvested by Person B (the good is rivalrous). Yet Person A cannot prevent Person B from going fishing, and neither can Person B hinder Person A (the good is non-exclusionary). This creates a famous dilemma called the "free rider problem". For example, if Person A improves a tidal swamp by planting mangrove trees, Person B will be able to profit from the boost in fish and crab yields. The tendency therefore is to let others create or maintain the resource, and to enjoy its benefits for free. People will rush to "subtract" their share of the available benefits (cut the tree), but hang back and free ride when the time comes to ensure that the benefits will exist in the future (plant the forest). Although each person prefers forest, the sum of the individual decisions may ultimately produce a sterile patch of laterite.

Natural resources do not fall into neat categories, except that of so-called "joint goods" with mixed characteristics. Natural resources typically consist of a "stock" and a "flow" component: a stock – eg a forest or lake – produces a flow of resource units over time, such as timber and fruits, or services such as oxygen production or water retention. The resource stock is like a public good and must be endowed. If nature has endowed it for us, the relevant management question is whether and how to maintain it. If nature has not endowed it, the management question is whether and how to create it, for instance by digging a pond or planting a forest. On the other side is the stream of benefits, which can be appropriated. Some of these benefits are rivalrous (timber); others are non-rivalrous (clean air). As noted in Chapter 3, the resource flow can be thought of as a bundle of goods and services, subject to different claims, to which a corresponding bundle of rights must be defined.

Different types of users may be interested in different parts of the bundle (see Box 9). For example, Cambodia's floodplains serve as a fishery resource base. They also provide seasonal land for agriculture, water for irrigation and domestic consumption, wood and poles from flood forests for cooking and construction, gravel and sand from the riverbed for construction and public works, water flow to evacuate effluents and create energy, etc. The management question is how to distribute

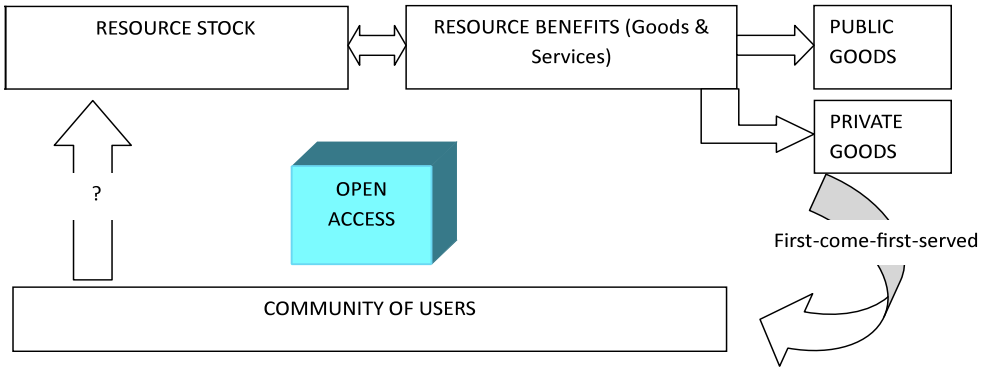
access and use rights for the rivalrous goods and services. If they are up for grabs without management, access to the rivalrous resource benefits is open. All other choices demand a number of management decisions: whom to exclude or include; how much of which particular benefits accepted users may appropriate, and under what conditions (time, place, technology); how to unhorse the free rider and ensure that non-contributors to the provision of the public good (the resource stock) are excluded from the private benefits.

Box 9: Cambodia's sophisticated multi-use system

The plain in Srayov (Kampong Thom province) is characterized by a mosaic of patches of shrub and grasslands. Land use patterns change constantly, ranging from rice cultivation (at the edge of the plain), to grassland grazed by cattle, to shrub land, where a variety of non-timber forest products are collected. This diversity is maintained through a range of practices such as fire or ploughing, with the objective of ensuring a flexible and diverse supply of natural products of crucial importance to local livelihoods while maintaining the fertility of the overall agro-ecosystem. The different rice cropping systems are adapted for different water depths and encompass very important aquatic bio-diversity. The grass is crucial as fodder for the cattle that generate a significant part of the farming income, and the shrubs are important for the energy supply of households (firewood). Fishing in the ponds of the receding floodplain is part and parcel of this logic, aimed at maintaining multi-functional agro-ecosystems (Diepart 2009).

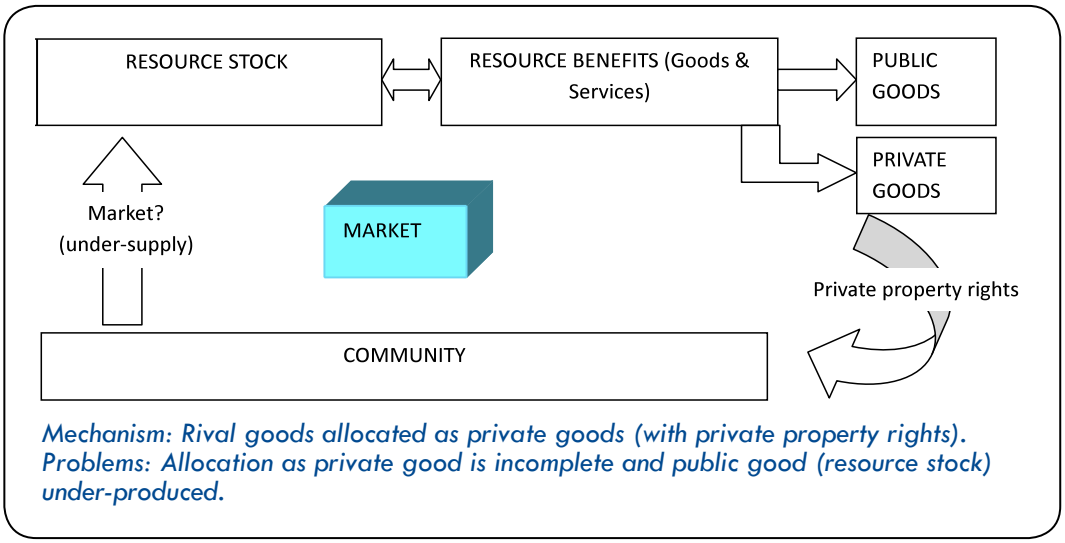
The following sections will examine the role of market and state more closely. Figures 6 and 7 provide a schematic outline of the "no management" model of open access as well as the "market-based" model.

Figure 6: Open access



Mechanism: Allocation of rival benefits determined on first-come-first-served basis. Problems: Rapid degradation and exhaustion of rival benefits and public good not produced.

Figure 7: Market-based model



Mechanism: Rival goods allocated as private goods (with private property rights). Problems: Allocation as private good is incomplete and public good (resource stock) under-produced.

Enclosing the commons?

When exclusion is simple and the good is rivalrous, the interdependence is easily resolved. Private ownership of a pure private good usually settles the question of exclusion. In a capitalist system such as the one Cambodia has adopted, the market typically determines private ownership. This it does on the basis of price signals. Ultimately, ability and willingness to pay a market price settle the various claims. The user is also the owner with a full bundle of rights; the owner enjoys the discretion to exclude all others, enjoy all the fruits (benefits) and transfer the associated entitlements to others by sale, gift or legacy (see also Table 2 in Chapter 3). Discretion translates as the ability to make decisions that bind others. Clearly, private ownership provides the least complicated link between endowments and entitlements. In Cambodia, the government has adopted private ownership as one of the routes to settling the exclusion question. It has granted private rights on state land to citizens as well as companies over the past 20 years. Some – like Hayek – have argued forcefully that such a modern-day "enclosure movement" is an inevitable by-product of development.

Box 10: Commercial privatization of natural resources in Cambodia

The commercial privatization of the natural resource base has proven highly contentious. The state has the authority to grant private rights on state land in the form of concessions for forestry, agriculture and fishing. Individuals or corporations acquire the right to exploit the resource under agreed terms. The effects on the environment and poverty alleviation have not been encouraging. Fishing lots, for example, are based on a system that auctions off access rights to productive inland fishing grounds for two-year periods. The concession grants concession holders exclusive use rights over fishing grounds or anchor points for large-scale fishing gear. Specific instructions for the management of each lot are contained in a burden book and include times of open and closed seasons, lot boundaries and access routes, and define allowable gear types and locations. It has turned out that the two-year period is too short to alter the basic dynamics of an open access fishery. It does not assure lot owners that benefits from investing in maintenance of the resource base will accrue to them. Yet it is long enough to ensure that lot owners can do serious damage to critical fish stocks by subtracting as much as possible before their lease is up. Alternatively, a fishing lot owner can choose to do nothing and still thrive, simply extracting rents by subleasing the concession. As long as these rents exceed the auction fee, the owner turns a tidy profit. The auction process has itself also created rents. The amounts have been such that frequent auctions for short periods have been preferred over infrequent auctions for much longer periods of time (Degen and Nao 1998). Under increasing pressure, the government is reviewing its approach of privatizing state land. It has abolished half of all fishing lots and has agreed to a reduction in the number of economic concessions larger than 10,000ha, although implementation has lagged so far. The remaining forest concessions are suspended and inactive. Nevertheless, a recent sub-decree (no. 26) allows the Ministry of Agriculture, Forestry and Fisheries and the Forestry Administration effectively to grant areas of state forestland for plantations. Many would argue that the conversion of forests to plantations is still forestry.

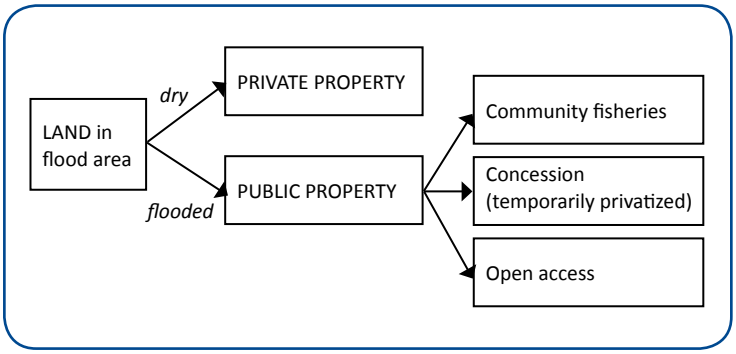
But natural resources are joint goods, coveted by many different sorts of users (see Box 10). Earlier, we mentioned that property rights are not indivisible. Enclosing the resource stock will typically fail to capture the complete set of all rights in the bundle. This is evident for the benefits with public good characteristics (the example of oxygen produced by the trees). But it also applies to benefits with common pool attributes, where exclusion should normally settle the rivalry. For instance, the sale of land may legally settle the question of ownership during the dry season. During the wet season, when individual land holdings are covered by water, the area and the fish and other mobile resources in it become state property. The landowner cannot exclude others from harvesting the fish found on his property.

As a result (see Chapter 3), entitlements frequently coexist, quite often uneasily. In the fisheries example, the state may privatize part of the area (fishing lot), see to a management agreement with a community fishery to cover another part and leave the remainder freely accessible (see Figure 8 and Box 11 below). In other cases, such coexistence may be problematic, for instance for resin trees. According to custom, even in the middle of a common forest, resin trees are private property subject to the full range of *usus*, *fructus*, *abusus*; ownership can be sold or bequeathed, and unauthorized tapping will be considered theft[11]. Yet forest concessions granted by the state have made short shrift of such concerns. As a result, they have either generated conflict or had to be settled in the grey area.

[11] Resin trees are protected under Cambodia's Forest Law (Article 98).

The frequent interlocking of claims, some recognized as legal but hardly legitimate, and vice versa, presents a twofold dilemma. The lack of effective mechanisms to guarantee absolute exclusion exposes the benefits of privatized resources to rapid exhaustion and degradation, as if they were open access. In fisheries especially, it concerns "an imperfectly and thwarted series of attempts to capitalize a resource that is in many fundamental ways extraordinarily difficult to commodify and privatize" (Sneddon 2003). Also, in return for the benefit rights, the private owner usually shoulders the task of providing the public good (the duty of care), for instance the duty of the fishing lot owner to protect the flood forest. But, without adequate assurance that returns can be appropriated, the public good will be undersupplied or not supplied at all.

Figure 8: Bundles of rights frequently coexist



Box 11: When a fly can settle on the ground ...

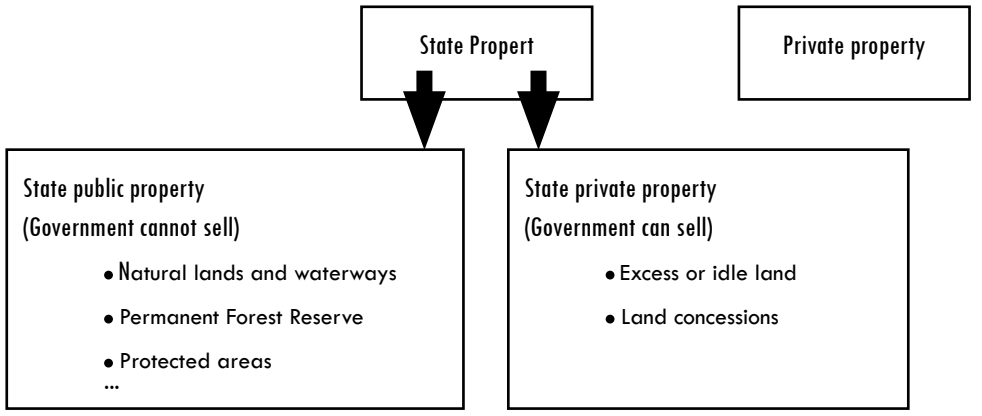
The annual flooding cycle on Cambodia's central plain regulates access rights to the resource base. Specific locations are used alternatively, even simultaneously at times, for agriculture, fisheries and hunting/gathering. The crowded agricultural and fishery calendar on a limited space highlights the intricacies of resource allocation. Fishing is done in the Tonle Sap proper close to the shore (*prek*), the flooded areas (*beng*) and the associated outlet canals (*stung*). After the peak floods in November, the waters recede and fishing swings into high gear. From December to February, barrages and fences filter the fish from the *stung*. Between February and June, the late recession season, the barrage and fence fishery is combined with seine fishing to harvest any remaining fish. The calendar for rain-fed rice cultivation follows the same hydrological cycle: a cultivating season takes advantage of the arriving floods (June-September), another one profits from the presence of high floodwaters when special varieties are used (floating rice) (September-January) and a final one follows the receding floodwaters during the peak of the fishing season (February-May). So, barely has the water drained from the plains, and fishers are still pursuing the fish, when farmers plant rice again. In the words of the Khmer, "when a fly can settle on the ground, the area belongs to the farmer – if not, to the fisherman".

Coercive exclusion and the boot of the state?

Hardin (1968) advocated "mutual coercion mutually agreed upon" to restrain overuse of the commons. The classical economic theory of market failure endorses Hardin's austere outlook. It holds that private producers will not supply public goods. They fear that consumers will prefer to take a free ride and deprive them of a profit (Bator 1958). One solution to prevent free riding is to make everyone a contributor. It is left to the government to finance the provision of these goods through taxation or other means (for instance obligatory labour) and enforce users' restraint. In essence, the state assumes property rights over the common pool resource; the state's bureaucrats manage and the state's "boots" (troopers, rangers, inspectors, etc) enforce.

Formally, the state, acting as permanent custodian of these resources, should help to ensure their renewal. In Cambodia, the state has declared ownership of various natural resources. Many of Cambodia's commons are part of the so-called "state public land" and "state private land" (see Figure 9). This comprises all of the country's forests, rivers, lakes, etc[12]. These are usually referred to as the Permanent Forest Estate, the Fisheries Domain, etc. Nevertheless, state ownership raises a number of pertinent questions (see Box 12).

Figure 9: State private and state public land



Source: Oberndorf (2005).

(12) Relevant ministries and agencies in Cambodia are exceedingly territorial about their (geographic) area of competence. For instance, the Forestry Administration "owns" the Permanent Forest Estate, the Fisheries Administration the Fisheries Domain, the Ministry of Environment the parks and protected areas, etc.

Box 12: Eminent domain

Does the state have the right to declare ownership of all land and resources? Essentially, this means that the state seizes a citizen's rights in property without compensation and without consent. In Cambodia, this situation is a legacy of the communist past, when the Communist Party acted as sovereign. In practice, all inhabitants became tenants of the state. Should the state continue to play the role of supreme landlord and hold these resources? According to the Cambodian Constitution, the *people* are the sovereign. They delegate the power to exercise their sovereign powers to the representatives in government. The word "public" in state public land, for instance, does not mean that these resources are public goods. Rather, it refers to the interests that all citizens hold in the property. So any exclusion should be organized by common consent. This complicated situation becomes all the more pertinent when the government takes property, not for public or civic use, but to hand it to a third party for "economic development" in the form of concessions. These concessions are decided not by accountable representatives of the people (Parliament), but by individual ministries and assorted (appointed) authorities. Whereas state public land could still benefit from the presumption that it serves a public use, such presumptions do not exist for state private land. This is the part of the national territory designated to be alienated temporarily to third parties. In principle, the people own an interest in this property. Since they are the sovereign, and the land therefore is alienated on their behalf, should they not be entitled to compensation if the government exercises its eminent domain power? This is also the crux of the problem in designating ancestral lands. It both limits the eminent domain power of the state and in principle obliges it to foresee mechanisms to compensate the recognized ancestral landowners in case it does exercise such power.

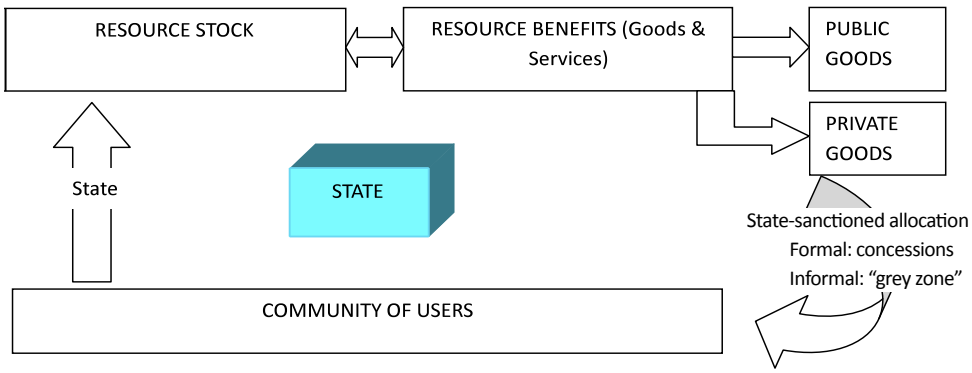
Instituting public ownership theoretically resolves the question of supplying the public good (providing the resource). On the flipside, it leaves the exclusion problem in the hands of the state. Remember that exclusion shapes opportunities and the structure of interdependence. It is now the government that must sort out the various claims for access and use and establish priorities and conditions. In principle, the government has resolved this problem by offering a mix of temporary access options as well as open access under specific conditions. Concessions and licensing are mechanisms for time- and place-bound exclusion. Leases and licenses can vary from the very long term, for instance 99 years for economic concessions, to the very short term, for instance seasonal leases for immobile fishery installations such as fences and *dai*, or the annual forestry coupes[13]. Besides these commercial operations, open access provisions have allowed local villagers to access most resources (forests and fishing grounds), subject to specific restrictions, such as gear and seasons in fisheries.

As far as theory goes this is all right. In practice, the setup is fraught with difficulties. As noted before, there is the risk of rent seeking. To be added is the ability to harness the security apparatus of the state to back up rent-seeking behaviour. Rents denote value independent of production. Usually, value is generated by a process that mixes factors of production (labour, capital, etc). Not so for rents, which are occasioned by virtue of existence; land, for example, "exists" and embodies a certain economic rent. Rents are captured by incidence of ownership. The huge tracts of land and resources owned by the Cambodian state are capable of generating

(13) Licensing for mobile commercial freshwater fisheries operations, the so-called "middle-scale fisheries", was abolished in 2001.

large rents. The mechanism to extract these rents is the allocation of temporary exclusive access rights. There is nothing inherently wrong with this model. On condition, of course, that the process of granting and extinguishing such rights as well as the use of monetary compensation received in return is subject to adequate mechanisms of oversight and accountability.

Figure 10: State-centred management model



Mechanism: State provides public good and allocates rival benefits.
Problems: Allocation of rival goods leads to rent seeking and public good still under-produced.

Unsurprisingly, the agencies and persons empowered to make such decisions on behalf of all others will be tempted to allocate rights in return for private benefits. By preventing or evading adequate processes of oversight and accountability, rent-seeking risks dominate the process of granting access rights to state property. In Cambodia, it affects the formal distribution of temporary rights (concessions and licenses). More than that, it also touches the grey area where the informal distribution of access rights is negotiated (see Box 13). According to the World Bank (2007), "there is little tradition of transparency or accountability in the management of state

Box 13: Rent seeking in the forestry sector – a voice from the field

Rent seeking affects not only the allocation of property rights to commercial interests (concessions, licenses). The IFSR (2004) described the existence of a subsistence variant of the favour-for-rent system:

"Control is exercised through a nexus of local politicians, business men, military and officials. Since there is effectively no clear legal basis, producers have to negotiate their share of the forest rent with those who exercise power over them, the resource and the market chain. Since harvesting and sale of forest products, small timber, charcoal, resin, etc. result in a livelihood for the producer it is tolerated by officials. However, with this tolerance goes rent-capture which leaves the producer with the minimum required for survival."

assets generally, and this is certainly true in the case of natural resources".
The trade of favour for rent is premised on a credible threat of force by the state, or the opportunity to use the state security apparatus for private purposes. In general, the state holds a monopoly on the use of force, for instance the powers to arrest wrongdoers and forcibly confiscate and destroy their gear. The ability to mount a credible threat of force is intended to back up common consent as to the conditions of exclusion and care, determined by an adequate process of public choice. So the use of force should be restrained by voluntary compliance, and rarely is the state expected actually to deploy force or exert violence.

As noted earlier, the state in Cambodia allows non-state entities to mount their own security or make use of its security apparatus for private purposes; for instance, the involvement of the military in forest exploitation has been well documented (Global Witness 2007). In other words, actors other than the state are able to mount a credible threat of violence in the name of the state. This ability allows those with formal rights to enforce them if legitimacy is contested. Not surprisingly, the state's actions – or actions in the name of the state – are often intimidating to those too poor or powerless to negotiate rents. As a result, the state's resource management decisions are frequently contested. At the same time, the uptake of the duty of care is questionable.

Of welfare and externalities

The claim that the public good aspect of resource management demands state ownership is very much contested. The potential loss of welfare provides a more solid base for the government role in resource management. As stated, natural resources produce multiple types of outputs. Private property and privatization are a means to distribute access and determine the structure of interdependence via market competition. Markets function by way of price signals. When the price mechanism fails to account for the full social costs or benefits associated with a good, there is market failure. This leads to the good or service being over-consumed, overproduced or under-produced relative to what is socially optimal. Without collective decision, usually through government intervention, the good or service will not be correctly priced, leading to a deadweight loss of economic welfare.

To bring this into perspective requires a brief detour through the theory on externalities. Externalities arise when the actions of one person have unintended external effects on others. Essentially, externalities create a divergence between private and social costs or benefits, where social costs and benefits are defined as the sum of the benefits and costs for all persons affected. For example, a farmer in the floodplain sprays his paddy with DDT. This imposes higher costs on other producers: when the DDT washes into the lake and kills scores of fish, fishers have to make more effort to obtain the same yield (which – loaded with DDT – may make them sick, imposing additional costs). The DDT-spraying farmer does not consider this effect

in his or her calculations. The private cost that the farmer incurs in purchasing and spraying DDT is trivial compared with the unintended cost (less fish production) the fishers face as a result of the farmer's actions. The cost of increasing production using DDT is not correctly priced; the difference is a negative externality. Because of it, economic welfare decreases: too much of the "bad" (DDT-sprayed rice) will be produced in terms of overall costs and benefits to society. Society as a whole would be better off if less rice were produced without DDT, instead of more with DDT.

Key Concept 4: Externalities

The presence of externalities means that the prices we pay for goods and services are lower than they should be, and the quantity of things we consume is higher than it should be. The costs borne by nature are not accounted for in the production costs or in the prices paid by consumers. These costs are "externalized", or passed on for others to worry about. To internalize them again, we must add a social cost (not just private costs) to the prices we pay. Externalities can be "internalized" through market mechanisms, government regulation, self-governing institutions or a mix of these institutions.

The common pool nature of many natural resource benefits combines competition for access with the difficulty of exclusion. The difficulty of exclusion summons negative externalities. The costs people consider in their decisions typically underestimate the costs imposed on society. For instance, the cost to biodiversity of cutting a single tree in the forest is insignificant, so the rational response for an individual is to cut it. If many more individuals "subtract" a tree, the end result may be a drastic change in biodiversity, as well as in groundwater availability and the microclimate. Trees and climate are linked as part of the ecosystem (see the Key Concept 5). All this does not change the decision environment for the individual: the individual benefit is always greater than the individual share of the total cost, which is distributed over many more people. In our example, only a few persons redeem the profits from logging, but the costs of climate change caused by deforestation are distributed globally.

Key Concept 5: Ecosystem

Even though natural resources may appear as distinct components – a stand of trees or a pond – they are interrelated as part of an ecosystem: a tree is part of a watershed that is part of the hydrology of a region. Ecosystems concern the relationships and feedback loops among components. Living things (like animals and plants) and non-living things (like the climate) in an area all combine to perform essential ecosystem services, for instance recycling dead matter. A change in one component will ripple through the ecosystem and cause a change in all the others. How any particular component will respond to (over)use is partially determined by its relationships with other components.

The same difficulty of exclusion arises in the case of positive externalities, when social benefits are higher than private benefits. Beekeeping is the classic example: benefits from beekeeping include honey as well as pollination of the fruit trees of nearby fruit producers. Because the additional benefit of pollination is external and

typically not monetized, the beekeeper has no incentive to take it into account. As a result, too little of the benefits will be produced relative to social needs. Positive externalities are typically associated with the provision of public goods. Free riders are all too pleased to see others realize these benefits for free.

When social and individual costs (or benefits) differ, the solution is to internalize the difference. Internalizing externalities will increase social welfare, for instance encouraging the beekeeper to expand operations and provide social benefits to others, or restraining the DDT sprayer from producing more, so lowering the social costs imposed on others. Market-based instruments encourage these changes in behaviour through market signals (see Chapter 9). Trading carbon credits, for instance, is a way of internalizing the cost of carbon emissions in the calculations of private producers.

Where there's a resource, there's an Administration

It is generally accepted that the state should encourage the supply of public goods (more pollination) and check the production of public bads (less DDT). This role raises some questions. Will the cost of providing the public good be shared equitably, or will some be free riding? Which public bad will be taxed or banned, and which will be allowed to exist? How effective are the state's actions? To understand this, we must assess effects on economic efficiency and social equity.

Economic efficiency is concerned with achieving a given benefit at the lowest possible cost. The costs to coordinate the production and consumption of a public good or bad are high. In many cases, producer and consumer are not even aware of each other's existence or cannot trace their problem (or benefit) to a specific point; for instance, numerous factories may cause the pollution of a river, affecting many fishers. What damage has been suffered by each fisher, and which factory is responsible for what part of this damage? In such a scenario, the affected parties are unable to internalize the effects through direct bargaining and the state needs to step in. Two observations jump to the fore when assessing the effectiveness of the state in playing this role. First, there are limitations to what any single state can do. Many externalities cannot be internalized at the level of the state and demand an even broader canvas, for instance climate change, the downstream effects of damming the Mekong upstream, etc. This line of argument will be pursued further in Chapter 9.

The second observation is that fragmented actions of the state carry the danger of creating new externalities. We noted earlier that the Cambodian state is not a monolith. Each element of the environment is linked to a public agency. The various sectoral ministries and agencies keenly defend their right to autonomous decision making. This is not surprising: the ability to lock out public scrutiny is an important condition in incubating corrupt and rent-seeking practices. The lack of coordination

between government agencies results in duplication and fragmentation and induces a certain short-sightedness. For instance, the Fisheries Administration manages the Fisheries Domain in order to manage access to fish. The boundaries of the Fisheries Domain extend to the high watermark at peak flooding, which includes a good part of eight provinces. Even though some of the areas may not see water for months, the Administration will attempt to impose limitations on other sectors, for instance on the extraction of river sand or the construction of holding structures for irrigation water. The effect is that decisions relevant to one sector, made within the confines of a particular agency or ministry, impose costs on another sector. So, as the state assumes the right to deal with externalities, it creates new ones in the process. Overall, the net effect on economic efficiency is ambiguous; state intervention may eliminate some coordination costs but generate new ones in the process.

What effect do government interventions have on the distribution of income and wealth? On this count, the net effects of the state's actions are equally ambiguous. It is difficult to get a good grasp of the costs and benefits to society; many of them are unquantifiable or shun scrutiny. For instance, the monetary value of the gains realized is impossible to quantify. Take, for example, a government intervention intended to prevent logging in a critical watershed. How to value the various benefits produced by the watershed in the absence of a market and how to assess the distribution of benefits over the population in the absence of clear access rules? The market value for timber is easy enough to observe, but the value of the ecological services has to be deduced, often leading to controversial outcomes. The distributional effect of rent seeking is equally difficult to calculate. However, in general, the evidence points towards significant adverse effects (see, for instance, Gupta et al 2002).

So the net effect of the state's actions on welfare, underwritten by local and foreign taxpayer money, could at best be a wild guesstimate[14]. Simply judging from the trajectory of resource availability, the state's actions present a mixed success at best. As Chapter 2 pointed out, rural poverty remains deeply ingrained in Cambodia's social fabric, while the threat to the resource base has not abated. As a nation, Cambodia is still gambling that the current benefits of transforming natural capital into other types of assets is worth the future costs of ecological degradation and social inequality. Is this a true reflection of public choice? If not, how could it be improved?

(14) Foreign taxpayer money in the form of bilateral and multilateral aid.

A third way?

Resource management is complex. It involves shaping the conditions for renewal of the resource as well as managing the demand for its benefits. At the same time, it is hard to manage the competition to access these benefits by way of exclusion. The market and state play an important role in this endeavour, but a choice between either of them turns out to be a choice between poor alternatives: either an imperfect market or an imperfect government outcome. Allocation of private property rights via the market produces patterns of exclusion which may not be socially accepted. Moreover, the public good aspect of many of these resources – the duty of care – will be ignored. The expectation that government ownership will counter these adverse effects is not borne out by results. There is also the additional cost to society of rent seeking. In the absence of an accountable and transparent process of public choice, the outcome will be equally short on social acceptability. In the end, the government may fail to provide effective protection as well as secure access for those who need it most – the rural poor. It has finally dawned on all stakeholders – including the government – that central authorities have limited potential to impose local solutions for natural resource management.

This realization has been an important step in the process of developing new strategies to legitimize the state. Whether it was a genuine reflection of a shift in attitudes within government, or was inspired by the dangling carrot of aid money, is a somewhat moot discussion. Government is not a monolith, as we have seen, and surely both tendencies are represented in it. The point is that it opens the door to new approaches. As we will argue, it is this opening that needs to be explored and exploited as much as possible in the effort to hold government to its promise of redistribution (poverty alleviation) and ecological protection and recovery. But what exactly does the door open to? It opens onto the vista of decentralized public choice and collective action. Some scholars recognized early on that exclusion was a matter of governance rather than government. Experiences on the ground demonstrate that a rich variety of institutional arrangements for decentralized governance can result in the regulated, sustainable use of common pool resources (Ostrom 1990). This is an especially powerful formula in cases where access rights to a particular resource are not constant, for example because the resource is mobile (fisheries), or because specific locations are used alternatively, even simultaneously at times, for agriculture, fisheries and hunting/gathering (Van Acker 2005). These conditions apply fully to Cambodia. Whether the decentralized approach is a viable route for resource management depends on the strength of voluntary coordination. Without coordination, members of the public rarely volunteer efforts beyond their own interest. It is to this issue that the next chapter turns.

Chapter 5

The dilemma of collective action

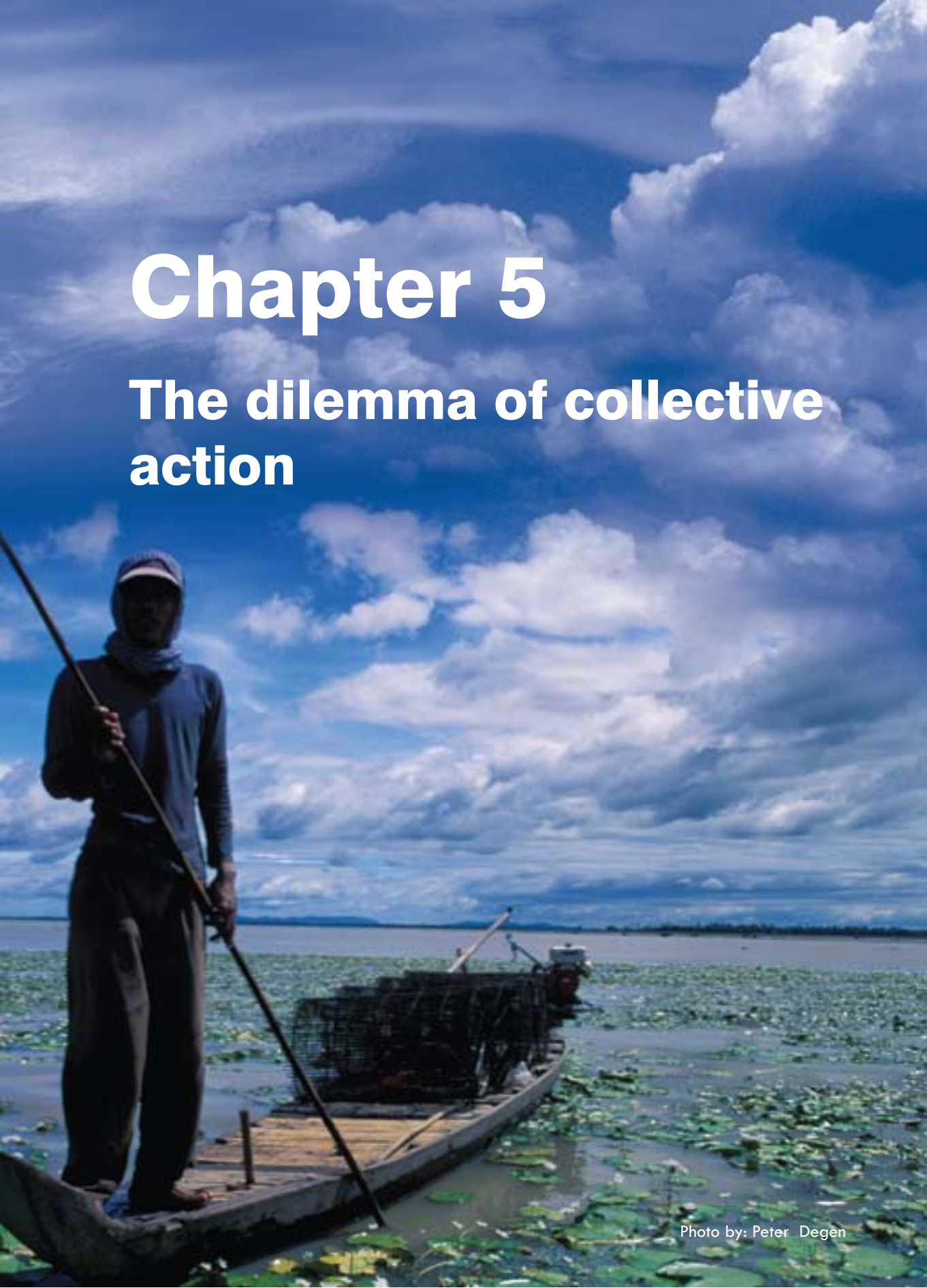


Photo by: Peter Degen

Chapter 5 The dilemma of collective action

"The problem is not so much that the collectively rational outcome cannot be supported but that it will not materialize because the agents fail to communicate and coordinate their actions" (Jodha 1992).

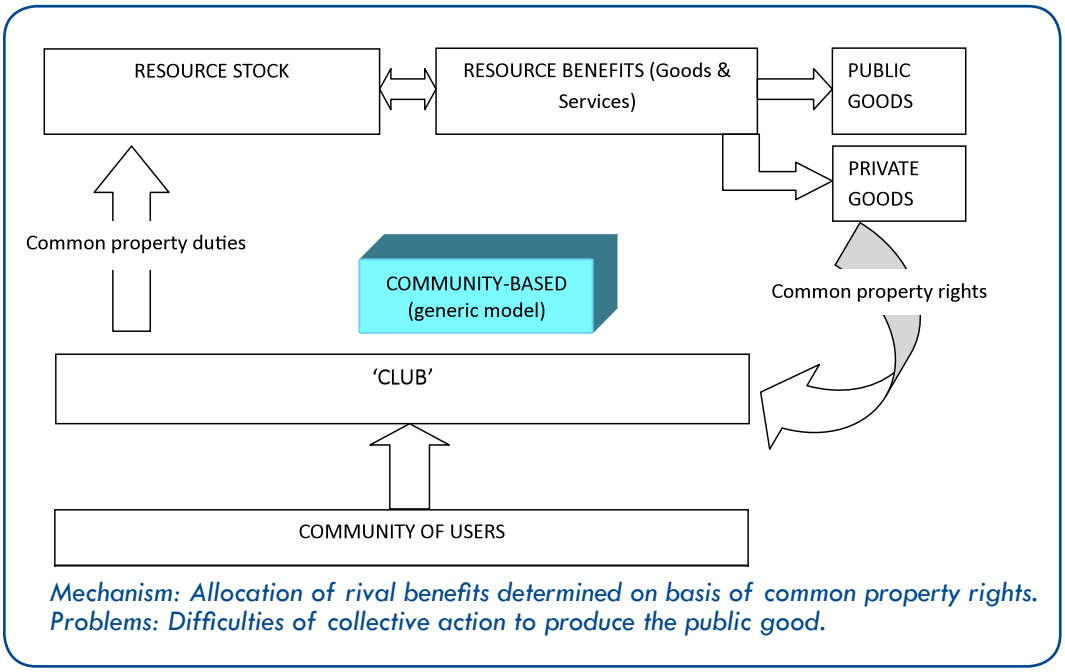
Can local voluntary cooperation produce public goods and arrange the distribution of benefits in a way that members of the public accept as legitimate? History reveals a large number of instances where learned habits of limited use effectively resolve the free rider problem. The approach to voluntary collective management hinges on a strong link between investments in social capital and returns from natural capital. This creates a fundamental tension. Users must spend time and resources to coordinate a solution which may be contrary to their interests, yet are uncertain of exclusive benefits. A breakdown of the cost of collective action reveals transaction costs, the cost of internalizing externalities as well as opportunity costs associated with postponing income. In settings such as Cambodia, with little (known) history of decentralized collective resource management, the question is whether existing (bridging) social capital can leverage the creation of these new institutions. There is a historical path dependency in determining the kind of institutions that can be adopted at any time. Cambodia's particular setting and history may imply that the (transaction) costs of collective action are comparatively high. To assess whether the conditions for secure and adequate returns are firmly in place, two elements are critical: the value of the resource under collective management and the security of collective tenure.

The dilemma of collective management

Blanket government ownership is not a cure all for market failure. What, then, is the key element of an institutional solution? The discussion has moved on from institutional formats *per se* – market or state – to governance. Can local voluntary cooperation give structure to the interdependence that natural resource management must structure? To do so, it must be capable of delivering public goods and configure a socially acceptable distribution of benefits in the process. Borrini-Feyerebend and others contend that a "paradigm shift" has occurred in conservation. This has refocused resource management strategies, local people's involvement being encouraged rather than restricted (Borrini-Feyerebend 1996; 1997). Under the right conditions, local people can certainly be effective resource managers. A large number of instances have been documented that show how learned habits of limited use

effectively resolve the free rider problem. There are a few reasons for this: locals have acute knowledge of their specific agro-ecological environment, build decentralized systems based on consensus and use social sanctioning mechanisms that regulate behaviour better than external enforcement. Cambodia's Community Fisheries and Forestry groups are examples of such institutional arrangements[15].

Figure 11: Community-based management model



Mechanism: Allocation of rival benefits determined on basis of common property rights.
Problems: Difficulties of collective action to produce the public good.

Implicitly, the paradigm shift assumes opportunities to establish a common property regime, even where none existed before. Common and private property regimes are similar: both define rights as well as duties. Unlike private property, rights are held jointly by a group, defined as the common property owner. Individual rights of group members are sanctioned by the collective. The next chapters examine the opportunities for common property ownership and decentralized resource management in Cambodia. Before doing so, a few basic concepts need to explored and mobilized. The local conditions for collective management depend on the strength of local

(15) The terms "Community Forestry communities" and "Community Fishery communities" are now more commonly used to emphasize that decision making is for a community and not only for a committee. Even so, much of the relevant legislation refers only to community management committees. This text will use the word Community Fishery or Forestry group, because it will make a strong distinction further on between a whole community and a group of users.

(decentralized) collective action. The next pages examine some of the concepts that influence the strength of collective action, starting with net present value and discount rate.

Of net present value, discount rates and opportunity costs

We tend to think of collective management of the resource base in terms of familiar goods, such as timber or fish. But theory is neutral about preferences and treats them as given. So, collective management can be linked to a much broader array of goods and services: oxygen, peace of mind, scenic beauty, etc. When it comes to production or protection decisions, the ability to put a value on these goods and services is important. An easily verifiable market value has an advantage. For instance, the market for timber helps to establish the value of the benefit—timber—easily. The market offers a ready platform to clear supply and demand and transform the benefit into cash. As discussed earlier, a natural asset is thereby transformed into capital and thus wealth. But the natural asset in this case, the forest, produces more than timber. For instance, it offers scenic beauty. Only there is no market for scenic beauty. All sorts of alternatives could be used to approximate a value theoretically, for example the price people are willing to pay to travel and stay in a place of beauty (see Box 14). To many, such efforts remain moot academic exercises. In day-to-day market interactions, the lack of easily verifiable value makes it appear as if the good or service has limited or no value. That is until the eco-service breaks down and society is faced with the cost, for instance the cost of drought caused by deforestation.

Box 14: The value of the world's ecosystem services and natural capital

Although Costanza et al (1997) acknowledge that there are many conceptual and empirical problems inherent in producing such an estimate, they perceive it as critical.

"The services of ecological systems and the natural capital stocks that produce them are critical to the functioning of the Earth's life-support system. They contribute to human welfare, both directly and indirectly, and therefore represent part of the total economic value of the planet. We have estimated the current economic value of 17 ecosystem services for 16 biomes, based on published studies and a few original calculations. For the entire biosphere, the value (most of which is outside the market) is estimated to be in the range of US$16--54 trillion per year, with an average of US$33 trillion per year. Because of the nature of the uncertainties, this must be considered a minimum estimate. Global gross national product total is around US$18 trillion per year."

Source: Costanza et al (1997).

The value or worth of a resource is often expressed as the current value of future benefits: the net present value (NPV). Earlier, the concept of rent was introduced. The NPV is another word for the rents embedded in a resource. In theory, NPV should indicate the value of all the goods and services it will generate in future. In practice, it reflects the current value of one or a few easily quantifiable streams of future revenue. For instance, to a forester, a forest is only as valuable as the marketable

timber it contains now and in the future; the current market value of this present and future timber minus the estimated extraction cost sums up the NPV. Obviously, the forest provides plenty of other goods and services that this calculation ignores: rattan, mushrooms, scented wood, absorption and storage of carbon and rainwater, a location for spirits to dwell (Cambodia's spirit forests), etc[16].

Accordingly, the timber will be under-priced. The benefit of producing timber ignores the cost that the potentially irreplaceable loss of scented wood, scenic beauty, spiritual value, water and soil retention capacity represents. Chapter 4 explained the difference as a negative externality. Imagine it were possible to easily monetize the value of the other goods and services produced by this particular forest. NPV of the forest would be much larger. If the forester were to be forced to compensate for the value he or she destroys in harvesting timber ("internalizing externalities"), calculations of NPV would yield much smaller values (see Box 15 below on emissions trading as a way to correct NPV). In essence, he or she would calculate the current value of standing and future timber, minus the extraction costs, minus the current value of other benefits destroyed in the process. To turn a profit, the price of timber should then be much higher.

Put differently, awareness of a broader array of benefits and costs will lead to a different appreciation of NPV, or the rent embedded in a resource. Per definition, concessions focus on one or a few extractable benefits. Local people often have a much broader appreciation and recognition of the different types of use and sorts of users related to an asset. Linking this back to the main concern of this chapter, it is assumed that local coordination will lead to the creation of local rules that recognize and value a broader array of goods and services. Different sorts of extraction and harvesting will be put in a broader perspective, and lead to better conservation outcomes.

Box 15: Emissions trading as a way to internalize externalities and correct net present value

People globally are worrying about the effect of greenhouse gas emissions on climate change. This underlines the fact that calculations of NPV can be used to consider events far in the future, beyond a normal investment horizon. New policy will have the effect of forcing businesses to internalize the costs of emissions: the cost of emission will be passed to the sources of the emissions. An Emissions Trading Scheme foresees a limit or "cap" on the amount of a pollutant that can be emitted. Polluters receive emission permits, which represent the right to emit a specific amount. The total amount of permits cannot exceed the cap. Polluters who need to increase their emission allowance must buy credits from those who pollute less. The critical point in the whole exercise is that the cost of mitigation will be vastly inferior to the cost of global warming.

(16) Earlier, we noted that rights are dynamic. This is, of course, strongly linked to the changing appreciation of rents present in the resource. For instance, the ability of trees to store carbon has been known for a long time but until very recently represented no monetary value. Likewise, the ability of animals to produce fur represented high monetary value until fairly recently, but does so much less today. Changes in taste, technology, etc, drive this process.

Discount rate and opportunity costs

The analysis of NPV cannot stand without an understanding of the additional concept of discount rate. NPV summarizes the current value of future benefits. The discount rate expresses how valuable is future compared with current income. Discount rates are the opposite of interest rates: interest rates determine the future value of a current amount of money, whereas discount rates reflect the current value of a future amount of money. In the next paragraphs, we will argue that poverty as well as unclear or insecure property rights affects the rate at which the value of future benefits is discounted.

In the absence of adequate exclusion mechanisms, property rights to benefits are ill (or not at all) defined. Rival claims will lead to competition to harvest the benefits before others do. The implication is that ill-defined rights lead to higher discount rates than would be the case had property rights been clear. In extreme cases, the discount rate will be so high that it indicates zero value of a resource or asset beyond today's consumption or harvesting, for instance the harvesting rates of certain fish species in the high seas mentioned earlier. According to theory (the Hotelling rule), uncoordinated competition will force the adoption of an infinite discount rate, ascribing a zero value to future revenue. This is another way of saying that unregulated competition often leads to destruction of the resource by full extraction of the rent embedded in it[17].

Insecure property rights have the same effect. If rights can be taken away at random, or the time horizons that apply to them are brief, people will tend to discount the future more heavily. For instance, two-year leases for fishing concessions force high discount rates on the concession holder. There is no certainty of access beyond the two allotted years, so the concession holder will attempt to extract as much as possible during the two years. This, combined with high fees, gives rise to unsustainable practices, such as dry pumping, to catch the very last fish (Degen et al 2000). In general, time horizons should be in keeping with the regeneration rate of the asset in question. Hardwood trees, for instance, regenerate slowly; sustainable harvesting demands that property rights are in keeping with this regeneration rate. The issue of insecure and time-limited property rights will emerge again when we assess formats for Community Fishery and Forestry.

Earlier, we noted that poverty induces a person to prefer current as opposed to future consumption. Without money in the pocket now, what is the value of money in three years time? Logically, there is a tension between a high preference for current

(17) "Hotelling rent" or "scarcity rent" is the maximum rent that could be obtained while emptying the resource stock.

consumption and the need to slow down resource degradation. Although poverty leads to an inclination for higher discount rates, it would be a fallacy to conclude that natural resource degradation is caused chiefly by poor people. Property rights constitute the intervening factor. It is to property rights and the tension between a high preference for current consumption and the need to conserve resources that the next section turns.

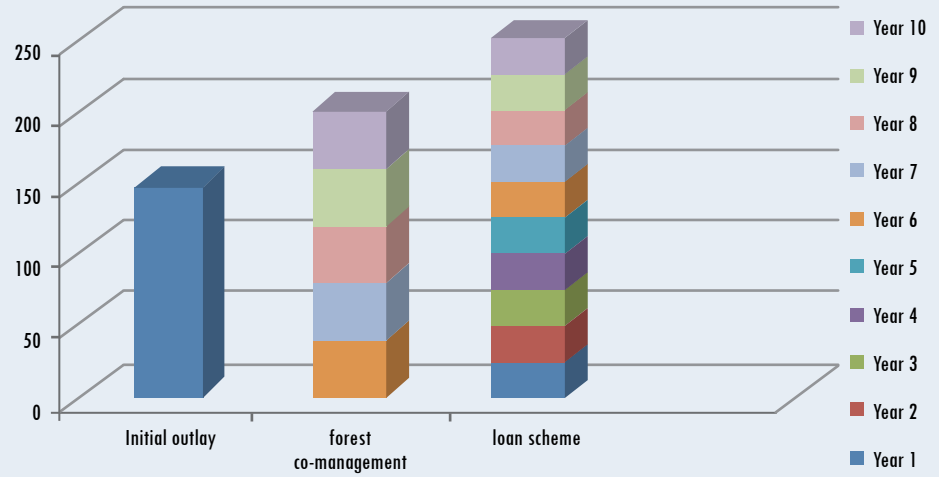
Before doing so, a final concept needs to be introduced to help describe this tension: opportunity cost. Essentially, conservation demands that the future value of resource benefits be discounted more slowly. In accepting a lower discount rate, consumers of a particular benefit agree to forego potential income (or rents). Usually, such acceptance is based on a promise of future benefits. The value of the next best alternative foregone is called opportunity cost: this is the cost of making one choice rather than another. The cost is equal to the value of what the resources in question could have produced if they had been used in the best alternative[18]. As a concept, this reflects the reality that people must often choose between mutually exclusive alternatives. In so doing, they lose the opportunity to get perhaps bigger or more secure returns elsewhere.

Earlier, we explored the five capitals framework; people draw on their various assets – substituting one for another – in their attempt to increase the overall returns on all the assets they hold. To increase their wealth, they will tend to minimize the opportunity costs they incur. This is easy to understand; if they forego an opportunity, this entails a loss of potential earnings. These potential earnings are transferred elsewhere. A transfer of earnings is a transfer of wealth. So, incurring an opportunity cost constitutes a wealth transfer, to other persons, now or in the future. For instance, when Person A chooses the future value of water retention, he or she loses the pleasure of cashing in the current value of the timber. When others are ignoring this choice and liquidating the timber all the same, the potential wealth increase is transferred to these others. When these others are not able to ignore Person A's choice, because of secure property rights, this wealth is transferred to the future, where Person A or other persons may tap it.

The theory about comparing opportunity hits a snag when it encounters opportunity costs that are hard to quantify. This is especially the case with the existence value of a resource, for instance peace of mind or scenic beauty. Because it is not quantified,

(18) In practice, people often refer to a minimum standard to determine opportunity costs. According to Hotelling, resource stock owners "expect their assets to earn dividends at the normal rate of return" (1931). For example, they may refer to the commercial interest rate. If their investment yields a return lower than what they could obtain by simply keeping their money in the bank and doing nothing, then it is not a worthwhile opportunity.

Box 16: Net present value, discount rate and opportunity costs



A group of farmers are part of a co-management scheme; they have agreed to replant trees on a degraded site. The agreement does not allow them to extract any benefits from the replanted forest during the first five years. After that, the agreement limits them to harvesting rattan, branches for firewood, etc. The farmers agree to use a time horizon of 10 years, exceptionally long because they are all poor. Using the 10-year window, they calculate that the yield will be zero during the first five years and USD 50 annually in subsequent years. The estimated future income of USD 250 they consider to be worth USD 200 as a current lump sum (NPV). They also calculate that they will have to invest USD 150 jointly in the first year to buy seedlings, fencing and patrolling equipment, signposts, etc. In principle, the co-management scheme yields a small profit of USD 50 in current money. Alternatively, if they were to lend out the USD 150 at the going local rate of 20 percent per annum, they would get a total income of USD 300 over the 10 years. This is worth USD 250 in current money (NPV), using the same discount rate as the one applied to calculate NPV of the forest co-management alternative. The return on their initial capital in the forest co-management scenario is USD 200 over USD 150 (133 percent over 10 years or 13.3 percent per annum); in the loan shark scenario it is USD 250 over USD 150 (166 percent over 10 years or 16.6 percent per annum). Comparing the rates of return on their initial capital, the farmers' rational choice is to spend their joint capital lending it to other farmers rather than using it to create a forest. If they choose the forest, after all, they incur an opportunity cost of USD 50.

it appears to be worthless in economic calculations, and will often be treated as such, especially by actors for whom resource management is determined by a purely economic rationale, such as concession holders. Yet this is not how many people feel about these values. The challenge is to determine ways and means to define existence and other values (especially of ecosystem services such as carbon sequestration, water retention, etc). By showing up such values on the radar of resource management, the rents they embed are made visible, and the cost of missed opportunity related to conservation can be highlighted, even internalized.

Where's the dilemma?

Armed with the concepts outlined above, we can understand the dilemma of voluntary collective resource management. The dilemma resides in the combination of two features. On the one hand, it needs individuals to shoulder more of the costs imposed on others (bads) and produce more of the advantages that benefit others (public goods). On the other, individual preference for the future must be aligned with the social preference, by lowering the discount rate. Taken together, this means that individuals must agree to take on more costs, and defer using the benefits. Put differently, the voluntary production of a public good sounds like a tall order. The next paragraphs will look at each of these features in turn.

One is the recognition of the multi-use and multi-user setting; moving from a singular interest, such as logging, to a more holistic view of a resource is necessary to stop degradation. A more holistic view implies broadening the recognition of the array of rents embedded in the resource, for instance its capacity to deliver ecosystem services. This in turn leads to a reconsideration of the costs and benefits of any particular type of exploitation, and the need to internalize the costs (externalities) previously imposed on other users or society as a whole. Voluntary coordination implies that individuals agree freely – for common benefit – to shoulder more of the costs imposed on others (bads) and produce more of the advantages that benefit others (public goods). This is equal to taxing personal income and subsidizing other people's income. Although taxes and subsidies are familiar as part of the (coercive) fiscal repertoire of the state to correct market imbalances, voluntary collective action means they are adopted freely and willingly.

The other strand concerns the individual preference for the future, which must be aligned with the social preference. Stopping degradation and moving to a more holistic management mode has implications for the rate at which the future value of resources is discounted. The existence value of natural resources and their capacity to deliver ecosystem services is important to any society: people like natural beauty and peace and depend on rain for agriculture, etc. Consequently, aligning individual preference for the future with the social preference implies lowering the discount rate. For instance, people may agree to increase the mesh size of their nets so fewer undersized fish are caught, or ban fishing altogether from a certain area or during a certain period. Such actions reduce their level of appropriation in line with a jointly agreed level. Consequently, more mature fish – capable of reproduction – will be available in future.

The essential trade-off being made is an investment in social capital to produce natural capital. The investment in social capital is essential to generate the coordinated action necessary for management of common pool resources. The natural capital

produced is the renewal of the resource stock. Most people would think it absurd to tax oneself and postpone consumption all in the name of some common good, unless three conditions were fulfilled: effective assurance that free riders will be excluded, effective participation in setting the rules for contribution and appropriation and effective assurance that future appropriation of benefits will be possible, in other words ownership of process, security of tenure and the right of continuous and unchallenged use of the resource. Each of these conditions will be assessed.

Assurance, collective action and social capital

Free riders undercut the efforts of others to produce public goods. Their existence provokes gloomy forecasts about the chances of public goods production emerging freely. The expectation is that people will withhold cooperation unless they are confident that more is to be gained from cooperation than from non-cooperation. Where common pool resources meet the absence of effective coercion, Hardin (1968) saw tragedy. The chance that individuals will act freely and collectively to provide public goods was assessed equally unenthusiastically by another seminal writer. Mancur Olson (1965) theorized that individuals would be motivated to contribute only if there were benefits strictly reserved for the contributors. He called this the "collective action dilemma".

To resolve the free rider problem, Chapter 4 indicated that pure public goods can be turned into club goods by way of exclusion mechanisms. Clubs exclude non-members and re-establish non-rivalry among members to access benefits. In a way, self-organized institutions for resource management are like clubs. Following Olson, collective resource management entails a collective agreement tantamount to the creation of a club: strictly reserved benefits for the members in return for fulfilling the duty of care. Success is delicately balanced between the accessible benefits gained from partnership and the costs of creating and sustaining the joint exclusion mechanism. As noted, this management solution is at odds with members' short-term interests; the purpose of the club is to defer consumption in order to conserve resources. So everything hinges on the returns assured in the longer term.

The next few pages will examine in turn the costs and benefits of cooperation. Starting with the costs, what does the cost of collective action consist of? A breakdown reveals transaction costs, the cost of internalizing externalities as well as opportunity costs associated with postponing income. Each of these will be discussed below.

Costs and effects of social lubrication on collective action

The robustness of local institutions is a key factor in shaping the cost of voluntary collective management. Can they serve as load-bearing structures? The existence of "ready foundations" and the availability of "cement" should facilitate the formation

Key Concept 6: Transaction costs

Coordination costs are essentially transaction costs. Coase (1937) introduced this concept when studying the nature of bargaining and economic exchanges[19]. The joint creation of a common good is also a form of bargaining. Resource users will consider the cost of reaching the agreement (obtaining the information, time and effort to negotiate, etc), the cost of policing and enforcing the agreement to prevent free riding, etc. In brief, transaction costs are the costs created in the process of negotiating, maintaining and enforcing collective (resource management) agreements. Experience in coordinating social action is an asset that pushes down on transaction costs. Consequently, it increases the net benefits to be had.

of new clubs. Ready foundations are traditional or pre-existing structures for collective resource management. In Cambodia, these are scarce (see Box 17). What about the cement? The cement that binds people together – the willingness to trust others enough to cooperate – has been called "social capital". Putnam (1993) considered social capital central to solid institutional performance: it shapes the tendency and success of a given group or community to collectively engage. The supply of social capital depends on the density and form of social networks. But not all social capital is equal. The literature distinguishes between a "bonding" and "bridging" variety (Box 18).

In settings like Cambodia, with little (known) history of decentralized collective resource management, the question is whether existing social capital can leverage the creation of these new institutions. An additional question is how this could be done:

Box 17: Informal or traditional resource user groups in Cambodia

Apart from practices by indigenous groups, community ownership and management do not appear to have strong foundations in tradition. Except for the complex land management arrangements of indigenous communities and the collective ownership of the *prei nak taa* (spirit forests) everywhere in Cambodia, few instances of traditional or customary management in Cambodia have been documented. In fisheries, for instance, studies could not find a single example of traditional fishers' associations (Phounsavath et al 1999); nor is there a record of their existence in the past (Degen and Nao 1998). Most natural resources appear to have been used by local communities under open access. It is quite probable that there was little need for them in the past: resources were abundant and population density low. Even so, appearances may be deceptive and formats for collective ownership and management may have existed at some time, or still exist. It is important to distinguish here between institutions as organizations or as a system of organizational practices and rules. The education sector provides a clue. Institutionalized spaces of participation created by education reform policies, such as school boards, are relatively new. Yet, despite 25 years of political turmoil, Cambodian communities have traditionally provided support to schools through school associations (Pellini 2008). However, it is clear that few measures have been taken to uncover traditional resource management practices and rules and codify them into law.

(19) During the 1970s, the concept of transaction costs was developed more fully (for example Alchian and Demsetz 1972; Davis and North 1971; Williamson 1971). These authors drew on Coase's early contribution, as well as the writing of organizational theorists such as Barnard (1938) and Simon (1961).

ex nihilo (out of the blue) or based on historic forms of local governance? Putnam (1993) posits that strong traditions of civic engagement support the emergence of "virtuous circles". In other words, social capital is the product of long periods of investment: history creates a "path" and with it "path dependence". This essentially means that the set of options available to address a given circumstance is influenced by all past decisions (Libecap 1989). Straying far from the path is improbable[20]. This brings to mind the distinction between legal and legitimate, in that it is hard to create rules *ex nihilo* that do not lean on a body of socially accepted practices and rules. As noted, in Cambodia there is little indication of a path of voluntary collective resource management. It is not clear whether the apparent absence owes to the actual scarcity of customary rules and practices, or rather to the scarcity of documented instances of customary rules and practices.

Over the years, some sort of consensus has emerged on the relative absence of robust community institutions in Cambodia (Working Group on Social Organization

Box 18: Social capital

Repeated interactions among members in social networks produce trust and prevent opportunism and cheating (free riding). The formation and maintenance of networks constitute social capital, and the trust embedded in them works as a productive asset in society. As social networks grow denser, a virtuous circle emerges: a general climate of trust which benefits everyone and invites individuals to invest even more in being trustworthy (Putnam 1993). However, if norm-abiding individuals realize that others around them behave opportunistically, social capital will be devalued (Coleman 1988). Empirical evidence demonstrates a positive link between level of social capital and ability to collectively manage resources and deliver services (Narayan and Pritchett 1997). However, social capital may also work in the opposite direction. Fukuyama (1995) claimed that "the strength of the family bond implies a certain weakness in ties between individuals not related to one another". Putnam defined two forms of social capital: "bridging social capital" and "bonding social capital". These correspond to two types of social networks: bonding social capital cements homogenous groups in closed networks such as family; bridging social capital bridges diverse social groups in horizontal networks (Putnam 2000). Horizontal networks enhance community cohesion and are considered to be positive social capital assets: the embedded trust facilitates transactions and reduces transaction and monitoring costs. Bonding social capital formed by exclusive groups and hierarchical patronage systems is an asset for the individuals and groups involved. To society they may be a deadweight, as they lobby and act against the interests of other groups. For example, rent seeking and corruption usually rely on strong personal connections (patronage) but reduce overall wellbeing (ibid).

in Cambodia 1999)[21]. The echoes of Ovesen et al's (1996) observation that "every Cambodian household is an island" still resonate. Some argue that the history of conflict and genocide, forcible relocation and closed governance of the Khmer Rouge and

(20) In more technical terms, a continuous movement along the path is probable, but a discrete jump away from it is not. Interesting literature analyzes this in terms of moving through a "fitness landscape" (see, for example, Jones 1995).

(21) Note that the absence of robust community institutions in Cambodia is not the same as the absence of social capital in Cambodia.

subsequent years has damaged Cambodia's social fabric. Cambodia has certainly suffered from politics that harnessed state power in an exceptionally authoritarian and predatory manner[22]. Local participation was not just ignored, it was actively discouraged. These are the sorts of conditions that imprint on the social fabric the wisdom of evading, rather than engaging with, state authorities. In the process, communities are thrown back onto trusted formats of social capital, such as kinship.

However, the consensus is not limited to the post-Khmer Rouge years; it goes back to the first anthropological studies of the 1950s. In a much-cited 1968 work, Ebihara asserts that Cambodia's villages lack groups formed on non-kinship principles. In Khmer culture, traditional groups organize around the *wat* (pagoda) and focus on observance of Buddhist ceremonies and mutual assistance, for instance labour-sharing groups (*krom provas dei*). Such networks, organized by kinship and affinity, essentially function as insurance mechanisms by pooling risks between households. Their weight is limited to the influence sphere of the temple, typically village level.

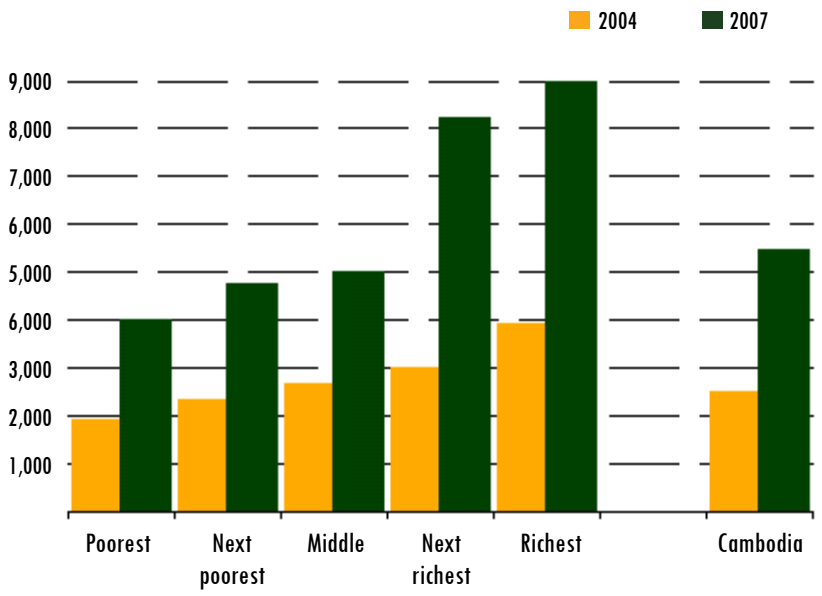
In the space of these few pages, the scope of the discussion on formats and quality of social capital in Cambodia cannot be usefully reflected. Sticking to the main theme, it is clear that the context of "mutual vulnerability" is changing. Investment moving into the countryside is transforming relations of production, and learned habits of restraint fall by the wayside. The transformation is indicated by the rise of a class of agricultural labourers, internal migration, the commoditization of land and resources, absentee ownership of land and resources, rising economic divergence, etc (see Box 19).

Box 19: Mutual vulnerability

People's interdependence in relation to natural resources is undergoing rapid change. Important factors are migration, rising inequality, absentee landownership, speculation and the increasing proportion of the rural population that does not depend on the land or natural resources for a living. The World Bank Poverty Assessment Report (2006a) notes that "inequality has increased most notably within the rural population. Thus, while the poorest fifth of the rural population have made progress ... they continue to fall further behind in relative terms, as the living standards of other groups improve at a much faster rate." The rural transformation is best reflected by the price of land, which increased by 30 percent on average each year over the past three years (World Bank 2009). The value of land operated or owned by the richest people has increased by leaps and bounds (see Figure 12). Speculation causes landlessness to coexist with large holdings, owned mostly by people in urban areas, many of which are fronts for speculation. On migration, especially rural-to-rural, very little comprehensive information can be found. Existing data highlight tremendous social pressures. For instance, the annual demographic increases between 1998 and 2007 reached 2.8 percent in Battambang province, but 19 percent and 17.9 percent, respectively, in the districts of Kamreang and Sampeuv Lun (Diepart and Sem 2009). A study on conflicts and sales to outsiders by villagers in Ratanakiri finds that "village elders claimed the land problems in their community were caused by in-migration which undermined their local culture and community solidarity. As time continued, villagers started to become more selfish and care about their own issues rather than work together to preserve their local culture and resources" (Thann et al 2009).

(22) Which is why an exceptional international court has been summoned to deal with it.

Figure 12: Median value of land operated or owned



Source: World Bank (2009).

These are all factors that erode whatever traditional sense or form of community has outlived the forced and brutal collectivization (see, for example, Mysliwiec 2004). A few case studies underline the difficulties that modern pressures bring to bear on traditional resource management. One research paper illustrates how migration, lack of legal clarity and the lure of money are crumpling indigenous land management practices in Ratanakiri province (Box 19). These pressures risk transforming systems of rules, even traditional indigenous ones, into open access situations that closely reflect Hardin's tragedy (Bromley and Cernea 1989).

As argued, the fallout of rapid rural transformation on the condition of Cambodia's natural resources has been remarkable: it demands the creation of new institutional formats and spaces to deal with the management of these resources. Picturing local users as passive recipients of such change would be all too easy. They may respond to increasing pressure from outsiders by actively seeking to create local management solutions (Poffenberger 1996). Olson's (1965) concept of "latent groups" appears useful for these Cambodian circumstances. Every society and community has a base level of latent capacity for collective action (Esmail 1997). The associations articulated around the pagoda make up Cambodia's latent base level. As noted, the absence of traditional resource management organizations does not indicate the absence of traditional resource management rules. However, it does signal the absence of strong horizontal collective habits that surpass the village-level scale of self-organization in Cambodia. There is nothing unusual about this; data from the field and from game

theoretic experiments demonstrate that small groups are common (see Baland and Platteau 1996).

The question, however, is whether the voluntary collective action that can be mustered to safeguard resources will be able to stand up to the pressure of rapid rural transformation. For instance, to be effective, decentralized resource management will require voluntary action beyond village groupings (see below). Lacking a strong cement of bridging social capital, mobilizing latent groups to fill new institutional spaces will have to overcome heavy transaction costs. Civil society has invested a great deal in this regard. It has multiplied the occasions for people to build small virtuous circles: cow and rice banks, self-help groups, savings and credit groups, etc. A host of case studies suggest that the threshold to engage in collective action is now lower than in the past, but still find difficulties in surpassing the local level (see Box 20).

Box 20: The scale of collective action

A recent research paper noted that the scale on which people were able to organize formed an important constraint to effective advocacy (for land management and distribution). In the cases studied, advocacy occurred only on the village level, despite the fact that the issues around which people were mobilizing often raised matters that could have been dealt with more effectively on a larger scale. For instance, they would have lent themselves to joint claims involving multiple villages. This did not occur. For the moment, advocacy appears to be based on ephemeral groups that form around personal connections. The absence of broader social movements around land and natural resource issues in Cambodia is notable (CAS 2006).

The new institutional space for resource management is crystallizing into specific formats. Community associations for resource management are the newest addition to the broad family of community-based institutions; hundreds of such groups now exist to manage access to fisheries, forestry, protected areas, water, etc. Are these developments indication of a new form of legitimization process, whereby the state seeks to shorten the distance between legal and legitimate? Or is it mere window dressing, to accommodate donor demands for a more representative democracy? Obviously, the mere existence of a group does not reveal anything about its effectiveness. It also says nothing about its internal governance or the proportion that acts collectively versus the proportion that is free riding. Overall, doubts about the quality of social capital embedded in local groups linger: is it mostly of the bridging or of the bonding kind? Is it possible for community associations to evade the pervasive hierarchical structures and networks of patronage, especially once they surpass the micro level of collective action?

We started the chapter by considering decentralized voluntary coordination as an option to provide the duty of care, in exchange for specific benefits. If local resource management groups cannot escape capture by local elites, exclusion is virtually meaningless. Assurance demands that membership creates a recognizable

social fence. When club members are beholden to non-members through patron–client networks, the social fence is porous. "Patrons" outside the community association may simply hitch a free ride on the efforts of their "clients" inside the association, who will be reluctant to sanction them. In other words, it would not really be a club at all. Rather, it would be a sort of lattice in which new horizontal sticks (bridging social capital) criss-cross a longstanding vertical trellis (bonding social capital). Without effective exclusion, access to the resource base and the distribution of benefits will still be subject to opaque negotiations (the grey zone) and possibly lead to conflict. And without uncontested and adequate rewards to overcome the transaction costs, the public good will continue to be undersupplied.

The omens are not particularly good. According to Diepart and Sem (2009),

> "In a society characterised by strong hierarchical links such as in rural Cambodia (Ledgerwood and Vijghen 2002), economic and social powers are twin forces. Rural elite, as gatekeepers to networks and resources (Hobley 2007), will be more likely to receive confidence votes during a local election to form a local management committee. Non-elite people are more or less likely to grasp forest-based opportunities, to use their voices to challenge power structures or to rely on others to be proxies for their own voices according to their dependence on a patron (*khnang*) and integration into a patronage network (*khsae*)."

To these and other questions and concerns we will turn in the next chapter. Before doing so, we must examine in more detail the side of benefits from collective action as opposed to costs.

"One benefit of being poor is that it doesn't take much to improve the situation" [23]

The preceding section suggests that the cost of coordinating collective action may be high compared with other societies or even with Cambodia's own pre-Khmer Rouge past. Such propositions are more than exciting academic fodder. They underline the stress Olson placed on selective incentives to mobilize latent groups. Individuals care about current and future costs and benefits, and how these compare. Again, it should be stressed that the notion of benefits is broader than economic returns that are easy to monetize. Benefits are the advantages and rewards individuals appreciate and value. Appreciation extends further than mere consideration of their level or quantity. The quality of these benefits, as well as the security of access, are equally if not more relevant. The conditions for secure and adequate returns are shaped by two critical elements: perceived value of the resource under collective management and security of collective tenure. These are examined next.

[23] Anonymous quote from a Cambodian villager.

The level of benefit flows

Collective action demands that people incur opportunity and transaction costs. The level and quality of benefit flows are important incentives encouraging them to do so. The previous chapter elaborated on value and benefit flows of a resource. It outlined the concept of net present value, which reflects the current value of future benefits. It was noted that value is largely subjective, based on appreciation of benefit streams. Some people may only be interested in benefits that can be monetized. To others, the existence value of a resource is more significant than its capacity to deliver monetary gains. But the hallmark of rural transformation is that commercial interests overtake all other considerations, as we have seen.

Markets and the ability to liquidate benefits become more important and shape the judgement of value overall. The market determines resource allocation, and channels capital to areas or sectors with the highest returns. Because they underestimate or simply ignore value that cannot easily be monetized, returns underestimate the costs imposed on others. As argued, the failure to internalize such externalities leads to an excessive amount of capital routed to natural resource exploitation. The true cost is absorbed by society as a whole. The process of commodifying resources, once underway, is not easily reversible. In a capital-starved society, it represents the most convenient source to start generating wealth, at macro as well as micro level. The process also shifts opportunity costs, particularly when property rights are problematic. When everyone is extracting rents from a resource, the opportunity cost of restraint is very high.

Local users find themselves in a quandary. Their ties to nature and land should not be exaggerated (the romantic fable alluded to earlier). The overwhelming majority is poor and depends on the ability of a given resource to deliver material benefits. However, the contrary assumption, that non-material benefits are irrelevant to them, is not correct either, as many case studies point out. Spirit forests for instance, embedded in beliefs and customs, represent incalculable value. The point is that local users carry a picture of value in their heads, which only they can reveal. Accordingly, they should participate in identifying the benefits and advantages that are valuable to them and that constitute a worthwhile return on their investment in social capital.

Such considerations do not deny a very basic rule governing human behaviour. At a given discount rate, the higher a particular and appreciated value, the stronger the incentive it offers[24], in this case an incentive to invest in social capital (coordinated

[24] The constant is the discount rate, the level of benefits is the variable. As noted earlier, an obvious way to increase the level of benefit flows is to increase the discount rate for a given NPV. This of course runs entirely counter to the idea of conservation, which is premised on the notion of lowering the discount rate and stretching the time horizon.

action) and incur transaction costs. It does not really matter which particular incentive triggers the cooperation of a group of people, whether it be the supply of water, timber, clean air or peace of mind. What matters is that any of these will take longer to materialize the more a resource is degraded; a denuded plot with a few scroungy bushes will produce less timber, clean air, etc, than a beautiful forest grove would.

Ribot (2004) cautions against the tendency to retain lucrative opportunities under central state management and to transfer the management of degraded, non-commercial, low-value lands and resources to local groups. Imagine a restaurant that launches with a slogan that promises abundant and good food, rapidly delivered. If the image in the slogan depicts a large plate of garlic shrimp with rice, do not expect the clients to cheer management when they are actually served a cup of soggy boiled rice. Some will wait and see if better things are on the way, others will walk out and find a better restaurant in which to spend their few pennies. The combination of transaction and opportunity costs helps explain this. Users assess the cost of investing time and effort to create a public good (the forest) in terms of the alternative income lost; because the resource is severely degraded, comparatively more joint effort is needed to restore it. While producing such effort, the cost of missed opportunity elsewhere is mounting. Generally, when facing a degraded resource base, a local resource management group is left with a couple of scenarios.

One scenario is that of high opportunity costs, for instance severely degraded areas close by urban centres or plantations in need of manual labour. The problem with this scenario is the risk of underinvestment in social capital and failure to generate the necessary commitment to joint action. This scenario is not at all uncommon in Cambodia, because one of the main effects of rural transformation is to raise the opportunity cost of conservation almost everywhere. After all, it is the very creation of opportunities to draw on alternative income sources (trade, industry, etc) that fuels the motor of economic growth.

The opposite scenario is one in which opportunity costs of conservation are low. Even though rural transformation is pervasive, it is a process. So it is by no means impossible to find remote areas that face severe resource degradation, with few options to draw on alternative income sources (trade, industry, etc). In such cases, short of voting with their feet and migrating, cooperation to achieve ecological recovery is an option. But how viable is it? Essentially, degradation implies that there are few rents worth extracting. So, ecological recovery of degraded areas stands for renewal of the capacity to generate rents in future. As noted, successful recovery is based on the condition of lowering the discount rate, for instance by creating more restrictions. But lower discount rates signal a preference for future as opposed to current consumption. In the kind of poor rural areas where opportunity costs would be low, such a preference can be assumed only at one's peril. Returning to our restaurant, we find that the assembled and hungry clients are now told that the promised plate

of garlic shrimp will be considerably delayed. Few clients will be jumping for joy. Yet this is exactly one of the provisions of Community Forestry in Cambodia: limited benefits until five years after the creation of the association.

In brief, a degraded resource base sharpens the collective action dilemma. It increases the opportunity costs of social investments: harder (collective) work is required for more distant and fewer benefits than would be the case for a less degraded resource base. Consequently, a scenario with limited incentives presents specific risks: underinvestment in social capital and the attraction of other areas or sectors with better opportunities. On the ground, this would look like lukewarm enthusiasm and limited engagement with the collective effort, as well as a movement of people voting with their feet.

Security of benefit flows

We noted that people are interested and motivated by matters of cost and benefit. This does not make them walking machines that assess, calculate and compare costs and benefits instantaneously. Such a perfectly rational being that acts to maximize utility under any constraint is called *homo economicus*, and has long been the mainstay of classic economic theory. Analysis has become much more sophisticated[25]. For instance, people will often prefer lower but more secure returns to high but insecure returns. In other words, people's willingness to take risks is limited. It is important to point out the effects of insecurity in a poor but rapidly transforming rural environment. "Peasants" are held to be risk averse. Some see this as a sign of backwardness. Literature suggests that aversion to risk is not a sign of retardation, but the result of a realistic assessment of uncertain economic circumstances that make people feel exposed and vulnerable[26].

Consequently, the level of benefit flows is only part of the story. A more complete storyline cannot ignore the aspect of assurance: how sure is it that the incentives will actually materialize? We noted that the duty of care calls for collective and coordinated action. Following Olson, this demands a specific group or club that is enticed by the prospects of benefits. Prospective members of the club will assess security from free riders: what degree and duration of exclusion is offered and how is the offer guaranteed? The state in Cambodia owns – or claims to own – nearly all the natural resources of the country as well as the monopoly of force. Consequently, it is the only actor that can determine as well as guarantee the conditions of exclusion.

(25) Development of the field of behavioural economics is a particular response to the very limiting assumptions underlying neoclassic economic theory. For a basic reference on bounded rationality and behavioural economics, see Simon (1957).
(26) See, for instance, Hoffman (1996); Lipton (1968); Scott (1976); Ellis (2003).

Unpredictability is the last thing members of a club will want to hear about. Yet Box 21 below demonstrates that interactions with the state are typified by the state's unpredictability; what you see is not necessarily what you get.

Box 21: State–citizen interaction to resolve land and natural resource conflicts

Institutions established outside of the central patronage system of power risk being ineffectual. Written laws, legal processes or rule-based forms of decision making have played little role in the process to resolve land disputes. Higher-level authorities look for interim solutions to avoid decisions that could lead to an escalation of the conflict. From villagers' perspectives, this has meant that processes are unreliable and outcomes uncertain. Similar sentiments have been expressed by representatives of the private sector, who feel frustrated by their interactions with a state constantly reversing administrative decisions based on political pressure. In these circumstances, a deterioration of trust has been observed between citizens and the state, particularly at the local level. To the extent that this is a widespread phenomenon, these disputes risk undermining the hard-won progress that is being achieved through the Royal Government of Cambodia's (RGC's) local governance reform programme (CAS 2006).

Natural resource management requires a continued investment of time and effort over many years. A lack of assurance far enough into the future may fail to register against relatively high transaction costs to organize collective action. Community Forestry, for instance, provides agreements for a period of 15 years, which can be extended. The criteria for making such decisions are still vague. To boot, the state retains the right to cancel an agreement in the national interest if it so desires. A collective investment of this magnitude and duration that delivers uncertain returns is risky, and risk invites a risk premium.

In the context depicted here, a risk premium translates as a higher discount rate or a higher value. But a higher discount rate runs counter to the need to harmonize the individual and social rates of time preference. Remember that this is fundamental in aligning the harvest and regeneration rate of natural resources. Demand for a higher value indicates that individuals will weigh the opportunity costs more carefully. After all, failure to appropriate the fruits of collective action has a price that will be weighed in terms of other more certain forms of revenue. In both cases, the reaction of the individual runs counter to the need for collective action, which is to provide a public good.

To sum up, voluntary collective resource management is itself a rare public good, not freely or willingly supplied. Its supply calls for particular conditions of care and exclusion relevant to a specific resource, condensed in a common property regime that governs access and use of that resource. But the questions relevant to other types of resource management are also pertinent for common property regimes. Does it put up an effective social fence that keeps out free riders? Does it guarantee adequate exclusion far enough into the future? What rights does the state guarantee and will it meet its obligations? The impression to be had from this brief chapter is that success is far from guaranteed. As with other public goods in short supply, the

state sees a need to step in and rectify the situation. It has not so much supplied the voluntary decentralized collective action itself – that in itself would be a contradiction. Rather, it has supplied a format for such collective action: co-management. This will be examined in the next chapter.

Chapter 6

The nature of the club

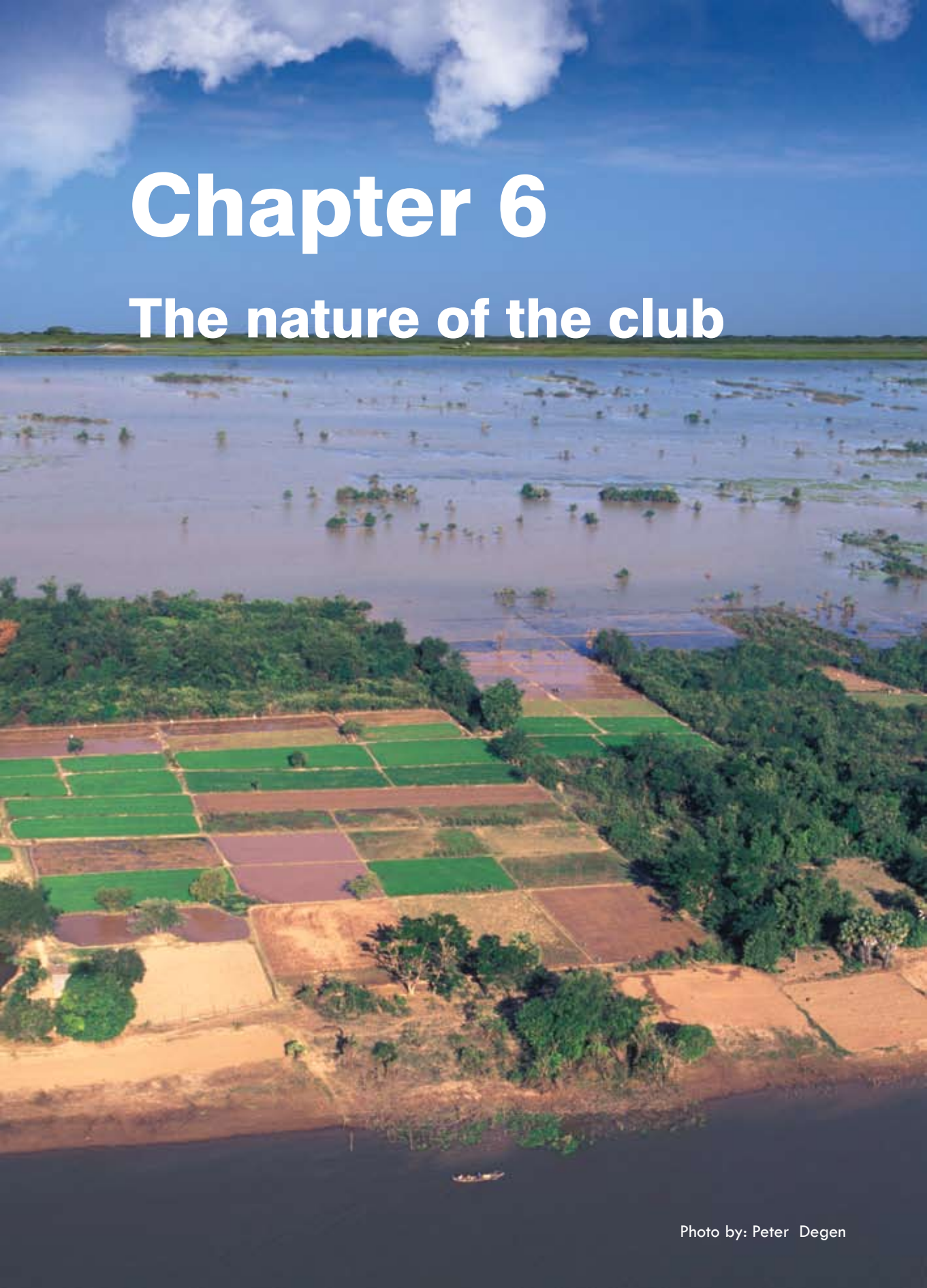


Photo by: Peter Degen

Chapter 6
The nature of the club

"The theory of public goods cannot simply assume there is a public" (Boulding 1970).

Assurance is critical in creating effective common property rights: individuals must be convinced that benefits are worth the cost of cooperation and that all others are contributing. Our analysis so far has seen local people as willing collaborators and cooperation emerging freely in response to appropriate incentives. From this perspective, cooperation with the state results from a demand by local people for inclusion in the management of their resources. This chapter looks at reality on the ground, and observes that the state in Cambodia has supplied a format for local collective action: co-management. The question of credible commitment of the parties acting collectively now involves the commitment of the state in its cooperation with local communities. In a relatively short time, co-management has become an important method to organize access and use of Cambodia's natural resources. A number of issues deserve close attention: the transaction costs of state–community interaction, the capacity of local communities for effective enforcement, the participation of local communities in determining local rules, the extent of community rights government endorses and the community's perception of value in the scheme. Overall, the absence of a polity is a critical limitation of the Cambodian co-management approach. Is it really possible to manage local resources bypassing local political processes?

Options for decentralized management

The Cambodian Constitution states that "all persons, individually or collectively, shall have the right to ownership" (Article 44). There are two plausible options for collective ownership: that with and that without state involvement. According to Ostrom et al (1992), "self organized institutions have been devised without reference to central authorities and sustained over long periods of time without enforcement by external agents". Collective ownership without the state is not a much exercised option in Cambodia. The constitutional provision is not enabled by sector-specific laws. There is also not much evidence of informal or traditional resource users who have organized themselves as collectives. In reality, local communities exercise their option for collective ownership in the form of a co-management partnership with the state.

Key Concept 7: Co-management

Co-management is a partnership arrangement between local communities and the state which divides management rights and responsibilities between them. The aim is to manage a particular resource, for instance community forests or fisheries.

Co-management fundamentally relies on community cooperation. The question is how rights and responsibilities are divided. One source states that "there are only a very few examples in Cambodia of CBNRM activities on the community-based side of the natural resources co-management spectrum" (Carson et al 2005). Put differently, the state continues to exercise control. Why is this? We argue that any division of responsibilities is based on negotiation. This is no different for co-management. Stronger community rights (and responsibilities) should be based on a demand for collective ownership rights by "the community", as well as a willingness state-side to acknowledge such a demand. But we have already noted the limited scale of social action around land and natural resources. This is not to say that demand is absent, but it is certainly not large scale and/or militant. On the supply side, diehard habits of "command and control" of state land cannot simply be lifted by decree. What about acknowledging citizen demands? As the World Bank (2007) notes, "the effects of conflict are still seen in institutions oriented primarily to sustaining the state and less to responding to citizens' demands".

The number of community-based management associations has expanded rapidly since the government created regulatory frameworks for co-management. There are now management groups in fisheries, forestry, protected areas, coastal areas, water use, etc. Some of these associations the government has "encouraged". Others were on the ground before the regulatory frameworks existed, supported by civil society initiatives and the like. These groups must now comply with government co-management stipulations, or be denied recognition. Whether new or existing, most if not all of the co-management associations are "introduced" groups as distinct from "traditional" or "customary" groups (Sunderlin 2004). If they are introduced, can they be legitimate? If such groups have limited legitimacy, how can they help resolve the critical tension between legal and legitimate? Previously, we outlined two different interpretations of institutions: as organizations or as sets of rules. It is entirely possible that a new organization will build on accepted communal rules and therefore be legitimate in the eyes of the community. The very pertinent question that will occupy the following pages is the extent to which the rules pertaining to the introduced groups for co-management are legitimate as well as legal.

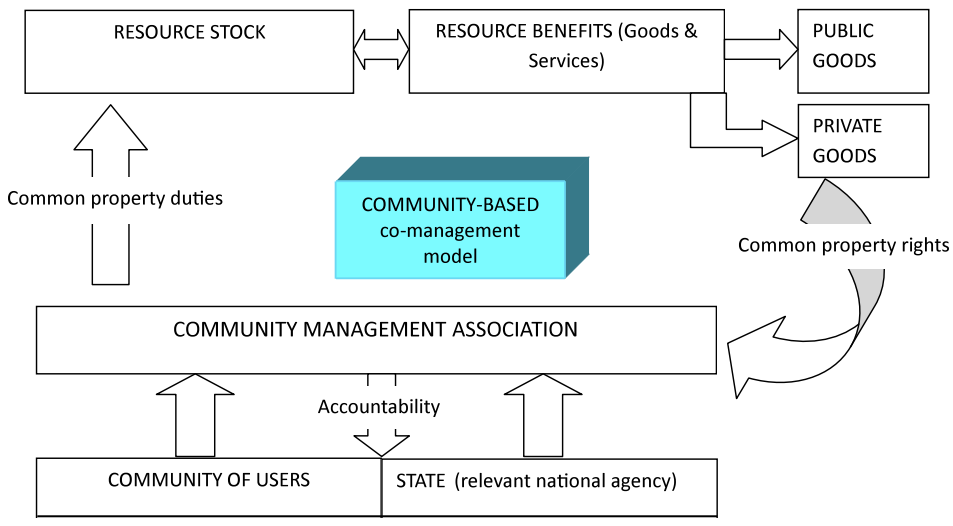
Box 22: Decentralized fisheries management – Community Fishery

In 2000, the government declared 56 percent of fishing lots to belong to communities. The decentralization process began with the first passage of the Royal Decree, continued with the final Sub-decree on Establishing Community Fisheries (promulgated in 2000 and officially passed in 2004) and ended with the passage of the Sub-decree on Community Fisheries Management in June of 2005. With these legal reforms in place, the decentralization process now has the legal means to enable co-management of inland fisheries in many areas of the country. Throughout the country, more than 400 Community Fishery associations have been set up at village level. In the beginning, these associations worked primarily on enforcement and education of village members about sustainable fishing practices. Now, with the Communities Fisheries Management Sub-decree passed, associations are starting to form Community Fishery plans for reaching their goal of fisheries resource conservation and management.

The supply of new institutions: Co-management

The heart of the matter is clear. Government supplies new institutions for resource management. In doing so, it seeks cooperation with local communities and compliance from those who started local resource management schemes earlier. The fundamental trade-off being made between state and community is the continued recognition of state authority in resource management in exchange for the rule of law. The previous pages explained that local users are likely to follow if they perceive there to be value in the scheme and if they find the changes in government policies and the behaviour of its agents credible.

Figure 13: The co-management model



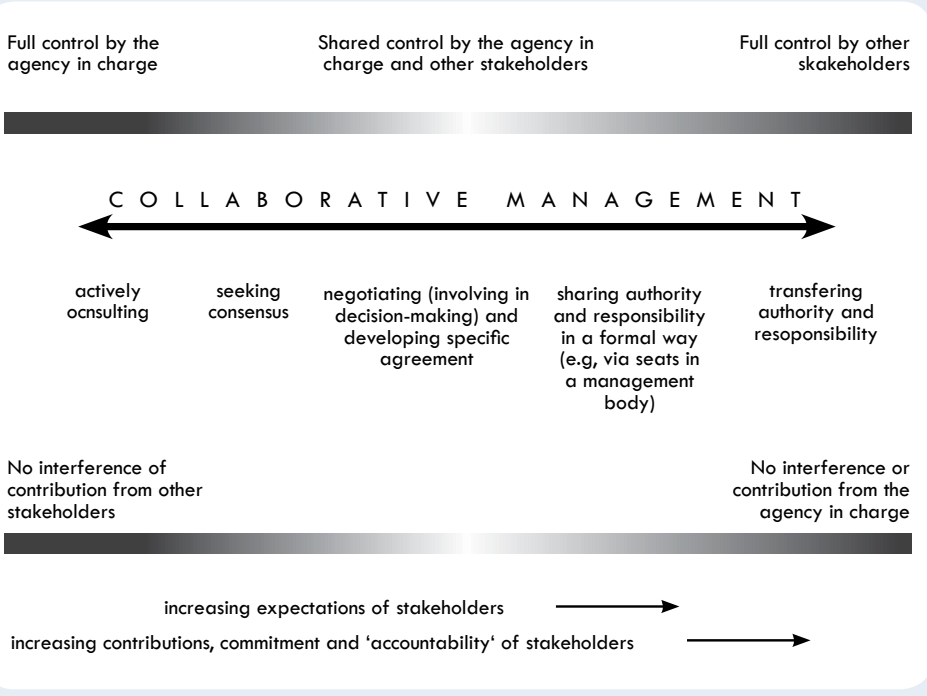
Mechanism: Allocation of rival benefits determined on basis of common property rights.
Problems: Difficulties of overcoming assurance problem (local communities – state).

This development obliges a shift in our analysis. So far, the interest has been in understanding how communities can overcome problems of competitive interaction under scarcity through collective action. Now the question is somewhat different: how to move from the voluntary supply of institutions to meaningful local inclusion in a co-management framework? How can powerful government agencies entice local communities to regulate resources that the state continues to consider its own? The previous chapter examined the conditions for successful collective action *per se*. This section uses the insights gained and applies them to "pre-formatted" collective action. We do this by carrying out a critical study of three familiar puzzles. The word "critical" refers to a questioning attitude towards a new type of received wisdom,

Box 23: Co-management as a process of negotiated control

The figure below represents co-management as a continuum of complete government to complete local control. Moving left to right along the continuum, the extent of local rights and responsibilities increases. The objective is to guarantee access and rights for local communities in exchange for shared responsibilities in natural resource provision. Co-management is based on a process of negotiation, since both sides must agree to the specified rights and responsibilities. The government perspective is to give as much control as necessary to satisfy the objective of creating or providing the public good (lake, forest, etc). The users' main concern is to access the resource flow. Their perspective is to obtain as much control as possible over access to the resource flow. In principle, a successful co-management process allows for the incorporation of different values related to conservation and human exploitation. The chances of moving towards the complete local control end of the continuum are unlikely. As a result, the rewards will always be less than what a community would settle for, had it been in full control.

Continuum of participation



Source: World Bank (2009).

which sees co-management as a benign technical solution to a complex political problem. "As with the participation literature in general, the bulk of the collaboration literature either discusses the merits of co-management or examines examples of collaboration" (Prystupa 1998).

The three familiar puzzles are the effective containment of transaction costs, effective exclusion (the social fence) and effective incentives. In turn, an effective check on transaction costs depends on keeping association and enforcement costs low. An effective social fence hinges on the degree and duration of exclusion, as well as its legitimacy. Effective incentives refer to the value of future benefits, which depends on inclusion in the co-management deal of the goods and services actually valued by the community. If co-management is to be a success, the collective property regime must allow transaction costs to be low, and provide incentives that are valued as well as secure. The next sections look at these elements in turn.

Transaction costs

The cost of cooperation

This section will examine the issue of transaction costs in a context of institutional innovations and powerful interests. One paper (World Development Report 1992, cited in Gupta and Prakash 1993) contends that

> "Transaction and management costs are high specially when a 'soft' state tries institutional innovations which undermine the interests of powerful coalitions. This is pronounced in case of environmental issues where the generators of the externality typically belong to dominant groups."

Co-management is subject to all the transaction costs associated with collective action: the costs of stimulating agreement between participants, as well as enforcing the outcome. Co-management is specific: it brings together in resource management efforts not only community members but also community members and central government represented by the various line administrations. This raises the bar in efforts to establish effective collaboration. Besides the usual problems of overcoming hurdles to cooperation between community members, co-management must also scale the barrier between citizen and state. This barrier, as one can imagine, is high. In the past, contacts between local communities and central government authority, by way of its assortment of inspectors and (armed) rangers, have often been adversarial. The relationship is characterized by significant differences in power, networks and relationships, information, skills, perspective and attitude. These all sum up as distrust (see Box 24). The distrust is mutual: government agents doubt local competency, especially in dealing with its instruments of rational planning and management.

Box 24: *Srok* and *prei*

The historian M. Vickery paints a picture of rural Cambodia before the Vietnam War, noting that the Khmers distinguish between *srok*, civilized, and *prei*, wild, forested, untamed, applying the distinction to people and behaviour as well as to the land. In Banteay Chhmar, "definitely *prei*", Vickery was struck by the "lack of hospitality" and the "sullen independence" of the people: "they wanted nothing to do with officials and townspeople, who brought only trouble and demands. 'The villagers hated their pretensions and false promises of aid and development."

Source: Freeman (2004).

Power differences are not imaginary. As mentioned previously, Cambodian administrations involved in natural resource management conceive their mandate as being one of ownership of a specific resource base, rather than stewardship. The communist history has left a legacy of departmentalized structures; these "stovepipes" have traditionally been command and control agencies, with limited appreciation for bottom-up approaches. Each type of community management group – fisheries, forestry, protected areas, etc – is locked into its own stovepipes, without much coordination with the other types. The conversion of Department into quasi-independent Fishery and Forestry Administrations has further solidified this fragmentation.

A bulwark of specific administrative requirements skilfully hides the limited discretion of these local associations; they need to outline plans, maps and bylaws and define objectives, outputs, outcomes, indicators, means of verification, steps, quantifiable costs and benefits, time-bound activities and so forth ad infinitum. "All these militate against the actual moment of relinquishing professional and pecuniary control by the state" (Blaikie 2006).

Building an institutional culture of cooperation on the basis of rational planning affects transaction costs: downward for the state, upward for the locals as they struggle to comply with co-management requirements: a surplus of formats, different for each aspect of resource management (forestry, fisheries, etc). The requirements are set very high. For instance, in the case of Community Forestry, there are strict timelines for producing management plans after signing an agreement, quarterly reporting, etc. In his powerful critique of engagement between local and centralised institutions, Blaikie (2006) argues that its contradictions necessarily reproduce the local in a bureaucratically manageable form. More specifically, standardization and replicability are essential to render the local manageable, and "blueprinting" grows to be the established practice.

> "Re-imagining the local so as to render it manageable requires its black-boxing and containerisation. A black box simplifies by hiding troubling complexities within, and obscuring even smaller scales (the household, women ...), and a local politics of control and inequality. CBNRM projects in reality may become an opportunity for new political entrepreneurs, both internal and external, rather than an opportunity for target groups." [27] *(Ellis and Ade Freeman 2004).*

Packing local information and concepts into the formal planning boxes remains a daunting challenge, not least for the government administrations themselves. Nonetheless, it is the locals and not the government who must constantly struggle to demonstrate competence, apparently helpless without perpetual capacity-building efforts from "outside". Difficulties are usually attributed to the recipients, who are charged with incapacity and foot dragging on reform. As a result, government and civil society agents continue to "facilitate" the dialogue about the sort of local knowledge and choices that are acceptable. The results are then "ventriloquized" as the voice of the community (Blaikie 2006)[28]. Such needless complexity weakens community ownership.

One could argue that over time state–community interactions should become more predictable and less costly, as the steep learning curve is scaled. Maybe so, but at present there is a widespread perception that government institutions and practices impose needless cost and time constraints. For instance, it may take more than two years to complete the intricacies involved in the seven steps required to formally establish a community forest in Cambodia's Permanent Forest Reserve[29]. There are no solid data – as far as could be ascertained – on average time periods to complete the process to formally set up community fisheries or forests. As such, we have to find a proxy for the transaction costs that dealing with government brings. Taking time and cost to obtain an average license in Cambodia as proxy, findings are an average of 28 procedures (versus a regional average of 17) over an average of 247 days (compared with the regional average of 153), at an average cost approximately four times that of the regional average (World Bank 2006).

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(27) For some interesting thoughts on how the enabling environment could be improved for Community Forestry, see Gilmour (2007).

(28) This proved to be the strongest point of debate during discussions of initial drafts of this book, more particularly whether facilitation could be likened to "ventriloquition" and the difference between government and civil society facilitation. It certainly turned out to be food for thought, and therefore the passage has been left as is.

(29) The seven steps are: community forest formulation, development of management structure, development of management committee bylaws, boundary demarcation and planning, development regulations, development of Community Forestry agreement and development of management plan (Sokh and Ty 2005). The two years cited is based on personal communications with Jean-Christophe Diepart.

Marschke (2004) also underlines the divergence between the multitude of complex procedures to which villagers are subjected and their results:

> "Yet another villager complained, 'We have made so many plans, but our forests continue to be cleared and our fish are fewer and fewer' .... At this point, there is an emphasis on detailed planning, in part because facilitating the creation of a resource management plan is easier than actually solving an issue. Less emphasis needs to be placed on creating plans, so that the 'action' part of these processes can happen."

This is not to deny the importance of process and dialogue, or that of a final plan. It merely underlines the fact that transaction costs are made in function of collective action to realize a public good and harvest its benefits. Without the collective action, there is no public good but there are also no benefits. Consequently, the returns made on the investment in social capital risk are negligible.

Box 25: The government–community interface – a voice from the field

There is a continual lack of trust between the Forestry Administration and communities, as can be seen in widespread expectations by local people and many other organizations that the quality of forest resources that will eventually be granted Community Forestry status will most likely be low degraded areas as opposed to rich forest areas (McKenney et al 2004). Generally speaking, Community Forestry has been marked by mistrust. The Forestry Administration has been hesitant to let community forest management function in high-value forests. One staff member remarked: "even some graduate-level people are not able to do proper forest inventory or develop forest management plans, so how can a local community be asked to carry out such tasks?" (Imarith 2005). The Forestry Administration, however, seems to be coming round. More recently, it has battled on behalf of local communities for community forests inside economic land concessions and old forest concessions.

The cost of enforcement

The fundamental trade between citizen and state at the heart of co-management schemes, acceptance of continued state authority versus effective rule of law, is touched by a paradox. On the one hand, effective enforcement is necessary to eliminate free riding. On the other, many natural resources are either localized or spread over large areas. This makes state monitoring and enforcement very costly, if not impossible (Bromley et al 1992; Ostrom 1990). A prominent rationale for binding local communities into management agreements is to replace official monitoring by the "eyes" of the community. Paradoxically, by decentralizing monitoring, the centre encroaches on previously acquired *de facto* rights. With resources under central government management, local people have been able to negotiate access flexibly, if certainly not freely (the grey zone). With resources under co-management, the state reasserts its authority through a strict menu for access and use. At the same time, it devolves the monitoring task to local communities. As such, local communities face a more rigid set of options for access and use, which they themselves must supervise.

A more rigid set of options for access and use is entirely in line with the exclusion generated by the formation of a club. There is no reason to assume that locals would be reluctant to supervise resource access and use, provided two conditions are fulfilled. First, as noted, access options should also reflect their preferences. This point will be assessed further. Second, effective supervision involves monitoring as well as enforcement, and the two should be tightly linked. Enforcement refers to the ability to restrain individuals or suppress activities by force: arresting offenders, confiscating illegal equipment, etc. At one time, it was debated whether some local people or officials (for instance village chiefs) could or should be deputized[30]. The consensus is that the state (police and assorted inspectors and rangers) should retain the sole right to use force: "Article 80 of the Forestry Law gives powers of temporary detention and confiscation only to Forestry Administration officials qualified as judicial police" (NGO Forum 2007). Consequently, community groups are to draw on so-called "suasion" methods to fulfil their end of the bargain as far as control is concerned: information, persuasion and education.

Many community patrols have been deployed on this basis. This is fine as long as they work hand in glove with the state. The problem is that the government officials tasked with enforcement usually take little action. It is not unknown for them to reverse the actions already taken by the community, leaving the local monitors hanging. Earlier, we noted that the use of state force has often been hijacked for private purposes. It would be rather naive to expect these same forces to turn around and protect the interests of local users against their former or current "masters". A host of case studies document the harmful effects of patronage and corruption[31]. In Chambok Prasak, for instance, "many villagers have given up on protecting the forest due to what they see as official support for forest destruction" (NGO Forum 2007).

People are understandably hesitant to risk dangerous confrontations with illegal – potentially powerful – users. Nor do they want to become village snitches and risk being shunned by reporting their neighbours (without subsequent enforcement). The threat of social ostracism is a powerful formula which supports community supervision, but it works in two directions: offenders may suffer from it, but so may the monitors. This quandary is presented starkly by a paper describing an African context (Banana et al 2000):

> "Enforcement involves going on patrols, confrontation with well-armed illegal harvesters and hostility from local communities. Consequently, the cost of any monitoring (enforcement) is greater than the cost of not enforcing. Thus, 'not enforce' is the monitors' dominant strategy."

(30) They would then become auxiliaries (of the police or fishery inspectorate) (Nao Thuok, Director General of Fisheries Administration, then Department of Fisheries).
(31) See, for instance, NGO Forum (2007) or Amariei (2004).

Voices from the field relate the difficulties of forest protection in Cambodia in the face of a powerful momentum towards destruction and conversion (NGO Forum 2007): "Powerful people from outside don't stop cutting the trees, so why should we stop ... soon the concession company will come to clear the forest, so people think they should clear it first."

In brief, the commons remain subject to conflict and negotiations to decide access rights. Large tracts stay outside the powers of supervision of local users. In forestry, for instance, community forests cover not more than 1 percent of the total forest area in Cambodia, with the majority located in areas of no, little or heavily degraded forest resources (Braeutigam 2003 and Babon 2004, cited in NGO Forum 2007). But even where they are formally mandated to carry out controls, conflict will persist. The continued existence of these conflicts casts doubt on the basic assumption supporting co-management, which is that government has settled all problems of sources of power and interdependence between people. It cannot be assumed simply that the state is a neutral party, indifferent to distinct interests. The claims of legality and legitimacy cross each other in a tangled web. It is by no means guaranteed that community-based supervision and demand for action will be followed by official action based on a disinterested assessment.

Table 5 outlines the possible conflicts local committees may face, distinguishing between conflicts involving users within a given management sector (eg fisheries or forestry) or from different sectors. If anything, the table relates the difficulty of dealing with the various intra-sector conflicts by means of suasion. As to inter-sector problems, the committees are totally powerless. They are part of a co-management arrangement with a single authority. Consequently, they are subjected to the very same difficulties these agencies encounter in solving inter-sector disputes. Such conflicts tend not to relate to resource access *per se*. Rather, they are to do with struggles over the basic purpose of the commons and their manipulation for different purposes, for instance conversion of wetlands or forests for farming, or dam building to generate energy.

These schemes share a common feature: commercial interests lean over subsistence and nutritional concerns. Referring to fisheries in the Mekong basin, Sneddon (2003) puts it thus:

> "Given the importance of fisheries as a basic resource in the basin, these conflicts are only likely to increase in the future as states—in the quest for capital accumulation—further encroach on aquatic commons. What scale these assume, and which actors are engaged in the struggles (eg, states versus states, communities versus states), will play a profound role in directing subsequent transformations in the basin."

Table 5: Pressures and conflicts in natural resource management in Cambodia

Intra-sector	Inter-sector
Area and timing: Operations in excluded areas and seasons, eg logging in protected areas or fishing during the closed season **Technology:** Use of banned technology, eg electric fishing or excessively small mesh size of nets **Appropriation:** Harvesting of excluded species or juveniles (eg through excessively small mesh size of nets); conflicts between competing users	**Conversion** of the resource base **Externalities** affecting resource base: eg siltage of lake through dam building, increased use of pesticides **Gaps and overlaps in enforcement** re agency and functions, eg Department of Forestry vs. Ministry of Environment **Competing uses** of resource base, eg storage and diversion of water (irrigation), dry pumping ponds to catch the last fish depriving farmers of irrigation water

The benefits of cooperation: From free rider to unwilling rider

Local compliance with co-management rules depends on "carrots" as well as "sticks" (enforcement). The more alluring carrot is one that includes local preferences. Previous chapters made the case that local users may very well have great appreciation for the existence value of a resource and its "ecosystem services". But local users certainly do not ignore exploitation rights which yield benefits that can be privately appropriated. For instance, if rattan collection is important to the locals, then its inclusion in the Community Forestry agreement is a worthwhile incentive for them. This in turn depends on how effectively local people have been able to contribute to rule making.

So how effective is local input in deciding what values to incorporate in the management rules? Participation – involving local people in processes of collective choice – is necessary but not sufficient. How credible is the commitment to local participation? In the end, participation must be shored up by authority. But, given the authority to make rules, people may well sanction timber harvesting in forests or rice cultivation in wetlands. In reality, many community-based approaches concentrate on subsistence use rights. The rights to harvest high-value goods are often the ones flagged as non-negotiable. For instance, the Forestry Law (Chapter 9, Article 40) recognizes traditional rights of a local community to harvest forest products and by-products without a permit. It defines these products (dead wood, grass, fruits, resin, etc) and underlines that their use should be consistent with traditional family use and the natural balance and sustainability of forest resources. By implication, other products and other types of use require a permit. Article 24 makes this explicit, by stating

that permits are not required if the harvest is at or below customary subsistence use. Harvest levels that surpass personal subsistence needs must be in accordance with an approved management plan, with a holding period of five years.

Consequently, collaboration between state and community begins with an agenda of limited options. This is reasonable for community protected area agreements, where conservation is paramount; it is less so for Community Forestry and Community Fishery. It is hard to dispel a feeling of scepticism on learning that communities are saddled with the liability for externalities that have accumulated over the years, and for which they shoulder only a partial responsibility. The assumption appears to be that subsistence use rights are a large enough carrot to support the provision of the public good. If we reformulate the issue in terms of NPV and discount rates, two issues stand out. First, putting high-value production out of bounds (for instance commercial forestry) decreases the value of NPV. Second, the initial window of five years, as well as the limitation of subsistence rates of harvest (if not part of the management plan), decreases the discount rate[32]. That is, benefits will be strung along further in time. The more resources are degraded, the more such concerns stand out, as pointed out earlier.

The IFSR (2004) states that

> "The major focus for community forestry has been on protection of the resource both from internal and external claims, with some forests under limited production; in the main, community forestry has been focused on relatively degraded areas of forest and not on those areas of high production value."

This statement may lose some of its relevance as Community Forestry moves into larger areas of better forest. However, almost everywhere has been heavily logged, so protection is a natural response when no big timber remains[33]. The picture is less sharp for Community Fishery. Aquatic stocks are much harder to assess, given migratory patterns. Even so, there have been some claims that the best fishing grounds are kept under private management (as fishing lots). One study asserts that "released lots included only the smaller ones – with values estimated at less than 30 million Riel (about US $7700 each) – and not the most productive ones" (Cacaud et al 2003, cited in Delaney 2006).

(32) It is expected that the Forestry Administration will relax some of the provisions of the law in future. For instance, it is coming round to accepting that requirements for inventory and management planning are not always appropriate and will likely interpret some parts of the law less strictly (personal communication, Chief Technical Advisor, RECOFTC).

(33) Personal communication, Chief Technical Advisor, RECOFTC.

The strict limitations of exploitation rights, combined with built-in time delays and the relative degradation of the resource base (less clear for Community Fishery), bears an opportunity cost. In an opportunity-poor environment, the cost of not pursuing the next-best alternative is low. But even the poorest people utilize forest resources for subsistence because they lack alternatives. Development implies that opportunities expand; with them, communities grow more diverse and more separated by issues like background, interest and wealth (see Box 19 in Chapter 5 on mutual vulnerability). In a context of high pressure and unclear and/or unenforced property rights, Hardin's tragedy may well unfold. Even if community stewardship leads to increasing health of the resource base, the community is not sure of owning the ever more enticing benefits (see Box 27 below on time inconsistency). People may prefer the substitution of natural capital for cash upfront to its absorption as a flow over the years, if the flow's future existence cannot be guaranteed. In brief, it is doubtful whether a whole community with diversifying interests can live by the rules to maintain or even create a forest on the promise of subsistence rights. Insecure property rights compound this dilemma: it is to this issue that the chapter turns.

Box 26: Alternative land use values in Sumatra, Indonesia

A study considering the economics of land uses in Sumatra gives an interesting overview of land use values (Taconi et al 2006). It compares local benefits provided by intensive agricultural and agro-forestry systems with those of extensive forestry. The authors contend that intensive land use systems such as oil palm plantations provide higher returns to labour and land than land use systems such as extensive forestry. Consequently, they present greater opportunities for villagers to move out of poverty (poverty elimination rather than poverty avoidance). The authors base their findings on discussions with local villagers as well as a study of the available data. However, they do concede that "economic analyses of land use are fraught with problems, for example because of the scarcity of data available, and are often criticized for not reflecting well the full value of ecosystems, and particularly natural resources' contributions to livelihoods". Clearly, such comparisons are contentious. The table below highlights some of the concepts discussed so far, as well as underlining the fact that opinions on land use are varied. These varied opinions – as the authors stress – also exist at village level.

Economics of land use in Sumatra

Land use	Scale of operation	Returns to land at social prices (Rp 1,000/ha/year	Employment (day/ha/year)	Returns to labour at private prices (Rp/day)
Natural forest conservation	25ha fragment	0	0	0
Community-based forest management	35,000ha common forest	9.4 to 18	0.2 to 0.4	11,000 to 12,000
Commercial logging	35,000ha concession	-32 to 2,102	31	-17,349 to 2,008
Rubber agro-forest	1-5ha plots	73	111	4,000
Oil palm	35,000ha estate	1,480	108	5,797

Notes: 1. "Returns to land at social prices" signifies private benefits + positive externalities (the value of eco services); 2. "Returns to labour at private prices" signifies the private benefits that can be appropriated for the labour expended; 3. The discount rate used is 15 percent (very high!!).

Credible commitment and the security of benefit flows

Co-management ties the state and local users into a joint definition of exclusion and subsequent enforcement. Joint enforcement is problematic, as noted earlier. The substance covered by the exclusion mechanism may not convince everyone, a point just discussed. Both elements refer to the assurance problem. Many case studies underline that villagers do not accept *uncertain* returns. Unfair deals and outside influence are recognized for what they are, a dilution of collective property rights. The assurance problem in a co-management arrangement consists of two basic elements: consensus on the nature and extent of community rights versus government authority, and credible commitment by the government.

Serious difficulties remain in reaching a consensus on the nature and extent of community rights. Are forests, lakes, seashores, etc, common property that users and the state agree to share, or state-owned property to which local users may be granted limited rights? The exercise of "eminent domain", as well as the time-bound nature and conditions of community rights, points to the latter interpretation. This has led to gaps and knots in the policy and legal frameworks, for example the land rights of indigenous people, in which case the state is principally to agree to community ownership rather than community management. Such a provision contradicts the basic setup, in which the state owns the resources and grants time-bound possession. Where laws and policies have been formulated, reaching a common understanding on their meaning is frequently problematic (see Box 19 in Chapter 5 on Ratanakiri). In many cases, procedures and structures are in place but remain unsupported. This leaves communities in a precarious limbo because considerable problems of outsider and illegal exploitation of natural resources continue (Kinakin et al 2005).

In this sense, co-management presumes a new capacity of local communities. It also requires a change in the way state agencies operate. First, it needs more coordination between its technical line agencies, whose decisions often conflict. This raises questions about the robustness of decisions taken by any single department. The restricted sector-based approach generates ambiguity, which is problematic in the case of a resource exploited by many different types of users. The ambiguity contributes to frictions between the various departments and agencies, and must be settled through negotiation. Accordingly, as the CAS (2006) report states, "the dispute resolution practices encountered in the field show few characteristics of a modern bureaucratic state".

This leads to the second point. Co-management requires that the state must credibly commit to the processes and outcomes of state–community interactions. More than this, local communities must perceive the state to be credibly committed. Essentially, this is a problem of reputation building (see Box 27). We have posited that credible

state commitment requires a new capacity to articulate and represent local demands, which is not guaranteed. Blaikie's (2006) words, reflecting the very different context of Malawi, appear very applicable to Cambodia:

> "The local for them [officers, rangers] is a site of instruction, implementation and control ... Partnership, social engineering and taking local politics and local technical knowledge seriously are emphatically not what professionals are currently trained for."

Essentially, government officials expect to have a high degree of discretion in dealing with rules. As one study (Sedara and Ojendal 2007) puts it,

> "There is a widespread opinion that departments do not execute the work directly by cooperating with elected councillors, but rather just come to inform people about new regulations without giving any clear account or grounds for making decisions. Ministries are seen to be either too centralised and acting with too much bureaucratic delay, or they are plainly uninterested in local wrongdoing but keen on generating bribes."

Successful local management should essentially be built on a shift of discretion from the state to the local managers. Yet it is not the locals but government that claims and retains the right of discretion.

Box 27: Time inconsistency and the rules of the game

Time inconsistency is a well-known problem in the literature on bargaining. In essence, it refers to uncertainty over the commitment to maintain the rules of the game. Almost all power-sharing agreements are time inconsistent, because the incentives of the parties change over time. As the value attached to natural resources changes over time, commitments may be reversed. For instance, the villagers who are party to a Community Forestry agreement will want to incorporate the benefits they helped produce in their management plans. Changing incentives may also lead government to reverse its commitments to local communities so that apparently solid agreements turn out to be "flexible". "In several cases, communities continue to be excluded from lots which were in theory cancelled, as local authorities collaborate with large fishing operators and local military units to continue to manage the waters as private holding" (World Bank 2006a). Similar problems occur when authority shifts from one agency to another. For example, in Stung Treng province, all activities to do with dolphin protection and tourism have been shifted from the Ministry of Environment and the Fisheries Administration to the Dolphin Authority. This is a newly created administration under Cambodia's Heritage Act, which answers only and directly to the Council of Ministers. Being a new agency, it is not bound by previous agreements reached by the Fisheries Administration. When authority shifts in this way, bargaining structures change and partnership agreements risk cancellation. It is hard to see how a reputation system could develop in such fluid circumstances: whose reputation exactly?

The substance of power is the ability to act without the permission of others. The introduction mentioned the intention of this book to describe interdependence in terms of cost, externality and power. The issue of power is very complex and needs to be assessed from two angles. First, we followed Granovetter (1985) in observing

that social actors have different power and will advance different claims on a landscape in transformation. The nature of legitimization processes then determines which claims will become socially embedded as property rights[34]. The second angle concerns the nature of state building in Cambodia. Clearly, this process has been very conflicted in the past. This makes the issue of social cohesion and political representation in rural Cambodia a vital question. Practices of extraction, redistribution of resources and concentration of resource ownership are at the heart of this vital question. The introduction of co-management can be seen as a shift in legitimization strategies adopted by the Cambodian government. The reform efforts can be seen as an important part of redefining these legitimization strategies. At the heart of these are growth and poverty eradication. This implies the creation of wealth, as well as some form of redistribution of existing wealth[35]. The central question in this chapter has been about the substance, rather than the rhetoric, of this shift.

Throughout previous chapters, we found the ubiquitous free rider disturbing the intentions of people who want to organize the supply of a (public) good. Co-management was introduced as a scheme to support voluntary supply. But does this allow local communities to extend their claims on a landscape in transformation? On paper, the state expects behaviour compliant with the duty of care. To enforce this, it continues to assume broad powers. For instance, any compliance issue is grounds for either the Fisheries or the Forestry Administration at cantonment level to terminate community agreements without third party recourse: they are both party and judge. This introduces a situation whereby a state agency can "divorce" a local association, but the local people cannot opt out of the proposed framework. A person who pays for some public good that he or she genuinely does not want becomes an "unwilling rider". As Mehrotra (2006) points out, since "exit" is normally not an option for villagers, only "voice" is available in local arenas. It is to the issue of voice that we now turn.

Of bargaining and reservation levels

The capacity of local people to balance the pursuit of their own welfare with that of others has not been lost. Numerous case studies underline this simple fact. People do voluntarily agree to manage and protect degraded forest areas, inland fisheries, etc. Co-management has been introduced as an institutional format to accommodate and encourage decentralized management. In the future, it may become the dominant format for organizing access and use of Cambodia's natural resources. Nothing is basically wrong with this, provided that closer attention is given to a number

(34) Refer to Nozick (1974) to view development as an account of material appropriation.
(35) The difference is that a redistribution of entitlements leads to a redistribution of opportunities. The outcome still depends on people's livelihood capacities. A redistribution of wealth makes an abstraction of livelihood capacities and concentrates on equality of outcome – the livelihood benefits.

of serious structural problems: the degree of formalization and standardization, the problematic link with enforcement, the value created by the access and use options, the quality of the partnership in terms of participation and the credibility of government commitment.

Underlying all of these problems is the more fundamental question of the nature and extent of community rights and, with it, of local discretion. The exercise of discretionary local powers should be the essence of local management. Is this validated by an overly prescriptive emphasis? As long as there is no clear indication – in law, policy and practice – of the extent of community rights that government is willing to commit to, the issue of credible government commitment cannot be resolved. This brings us back to the essence of co-management: it is the result of a bargaining process between state and community to determine the position of the co-management solution along the state–community continuum (see Box 23, earlier). We noted that this bargaining involves two very unequal powers. Each side has a "reservation level" and "outside options" (Morrow 1999). A reservation level is the minimum deal a party is willing to accept. Outside options are the alternatives a party will exercise when it considers the deal to be below its reservation level. This brings to mind the question of legitimacy, discussed earlier.

For the mostly poor local villagers, in their interaction with the state, overt means of resistance are not an outside option. Essentially, they occupy the position Allan Schmid (1987) alludes to when he states that "for a man of little property, the freedom not to agree to a wage offer is the freedom to starve". As Scott (1985) argues in his seminal work, conformity of the less powerful is calculated and not unthinking; an undercurrent of resistance always runs beneath a surface of compliance. They may appear to accept their domination in public. In reality, they never stop questioning their domination using "hidden transcripts": covert methods of resistance and critique (Scott 1990). Could it be that the persistence of illegal practices under co-management arrangements signals the scepticism of local users about the legitimacy of the setup, more than it reflects poor enforcement? Scepticism of the value of the public good created, of the value and security of private benefits that can be accessed, of the commitment of government. From this perspective, the locals are exercising their outside options simply by continuing to do what they did before: accessing and using the resource as they always did and challenging their community co-managers to take action.

In the end, the most important question remains unanswered. We refer back to Polanyi (1944) and the need to re-embed economic development in socially accepted structures of rights and duties. Previous chapters highlighted the speed of rural transformation and assessed the current episode of rights determination as an attempt to engage in this re-embedding process. Above, it was noted that the need

for social cohesion drives a process in which the state must look for new ways of rural representation. This process is evolutionary, not revolutionary. That is, the state with its core of vested interests is not looking for deep and radical changes to the way it governs. Rather, it is seeking to accommodate new demands.

Is co-management an adequate governance response to widening social tensions? The format for decentralized collective action is essentially an institution supplied by the state. By itself, it does not fully address a fundamental tension. On the one hand, economic pressures are a major cause of social stress which also affects resource use. These pressures emerge prior to accountable and adequately participatory systems of governance (Polanyi). On the other, the development of a rule-based system to address pressure is conceived as an essentially technical project, based on administrative rather than political devolution, in which the extent of meaningful participation and downward accountability is debatable. In other words, it does not look (yet) like the "accountable and adequately participatory system of governance" we have mentioned. The absence of a polity is the most fundamental limitation of the Cambodian co-management approach. This brings us to the next chapter.

Chapter 7

Enter the polity

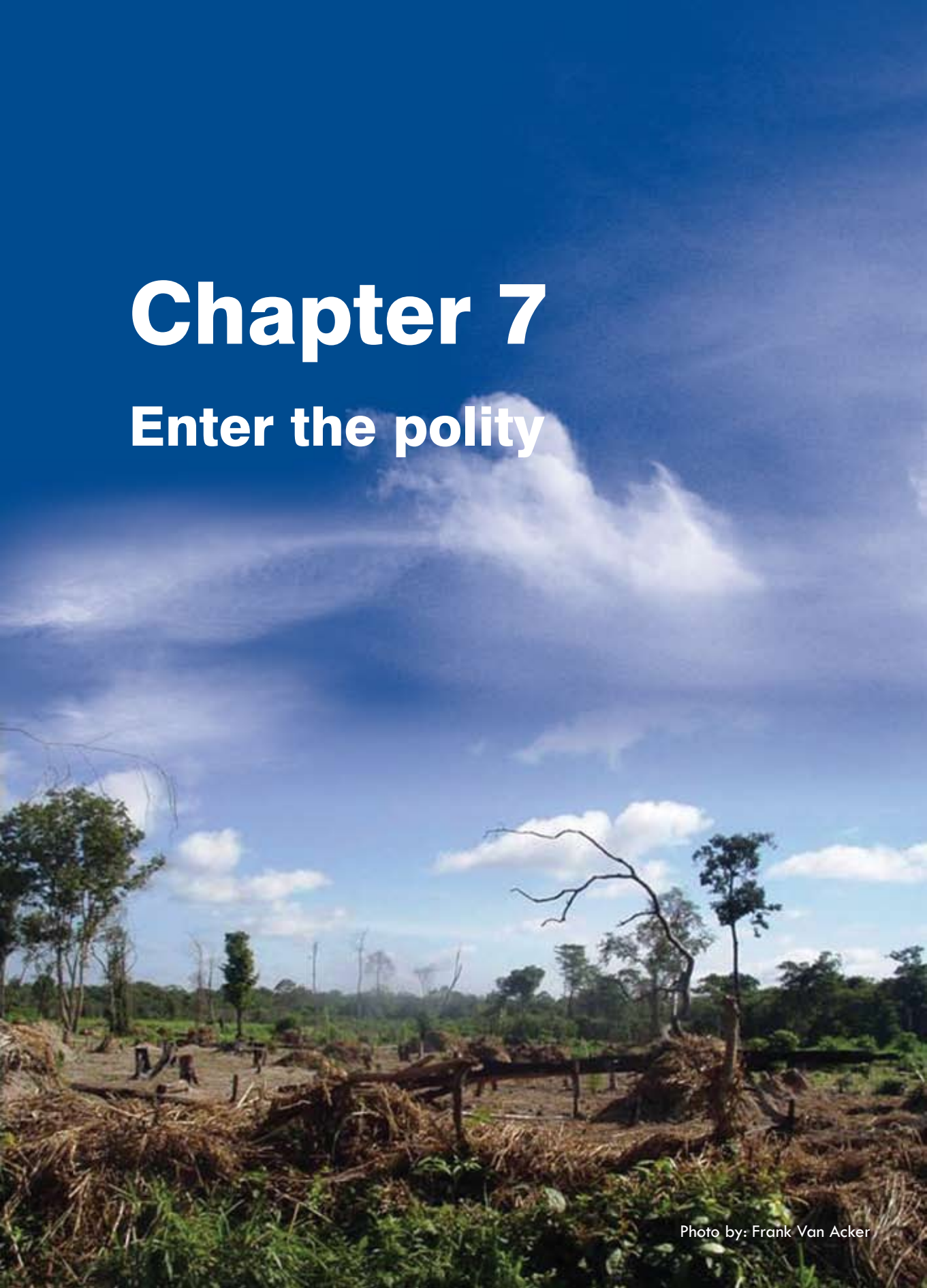


Photo by: Frank Van Acker

Chapter 7

Enter the polity

"The interests of the party, on whom the costs have been shifted, do not adequately get reflected, if the party does not have the means to exert 'countervailing power' through the political process" (Gupta and Prakash 1993).

Our analysis of socially acceptable resource management has introduced three planks so far: the characteristics of the resource and the consequent management needs, the attributes of communities and their ability to overcome coordination failure and the prospect of organizing collective action via a direct interface between communities and the state. The interface between the local and the state is critical. Will the creation of a local political arena result in better resource management decisions? We argue that a local political forum has greater potential to sort out divergent claims on limited resources than the distant arena of national politics. Local councils operate at the level of the citizens directly concerned by questions of access and use. They are also accountable to them. Because of this, chances are that they will identify and prioritize environmental problems more accurately and induce people to feel greater ownership of the decisions made. Local elections in 2001 shifted some attention towards the promise of involving elected commune councils in resource management. This chapter sketches the importance of a local polity, provides a brief overview of the political decentralization process and lays out some of the challenges to local council involvement in resource management.

Polity: The missing link

Public goods that provide private benefits: these pages have followed citizens interacting in their quest to reap such benefits. We have argued that successful resource management calls for the definition of enforceable rights. These in turn call for a process of collective choice, so that the legal outcome is embedded in social consensus. But economic systems for production are changing. It is not only local choices that influence people's lives: the preferences of non-community members and global markets are also increasingly influential. As a result, the bundle of rights associated with a resource becomes the subject of renewed competition.

The point of the competition is to resist costs (the duty of care) and access benefits. Its result is a pattern of production and redistribution. A democratic consensus on production and redistribution requires a transparent competition of ideas and proposals. In a period of rapid economic transformation, the complex interplay of identity and community renders such a consensus dynamic: it cannot be decided for

all time. A dynamic consensus demands a governance platform capable of producing change in a transparent and representative manner. Community-based natural resource management has been introduced as the designated vehicle to sort out divergent claims between community members. Its goals are "empowerment and conservation" (Carson et al. 2005). This is another way of saying that redistribution will be tilted towards the poor as well as the future. It also implies that governance will be participatory and representative. Consequently, community-based natural resource management should be judged on its ability to produce a legitimate consensus on production and redistribution based on a transparent competition of ideas and proposals.

This is the realm of politics. Effective politics require two things: a political community and political capacity. A political community is composed of people with rights and responsibilities. From a normative viewpoint, rights belong to people and cannot be denied. From a pragmatic perspective, rights and responsibilities are influenced by an economic system for production and distribution. For instance, a poor person has a right to housing, but income and wealth will influence the fulfilment of this right. The tension between promise and reality demands a redistributive approach. Effective redistribution calls for political capacity, which in turn demands a polity. A polity must have the power to enforce democratically formulated rules for the good of all, not accommodate the preference of a few.

How best to achieve and enforce a consensus on rules that determine rights? Earlier, we noted that credible and accountable rule setting and enforcement form the Achilles heel of the co-management approach. This chapter posits that a meaningful answer to the question demands intermediation by a local polity.

Key Concept 8: Polity

In the truest sense of the word, community associations should be polities. In contemporary English, "polity" is not a familiar word. It is introduced here to connote a very basic and old notion: the form of government in which all citizens are equals and have a share of political power. It is an inclusive form of government. According to Aristotle, the true purpose of the state is to help its members live a good life. Political institutions that merely aim at the good of the rulers are perversions. In this text, polities are understood to be civic bodies composed of peers, elected by their fellow citizens ("first among equals"). The following are understood to be the roles of a polity: achieving sufficient cohesion by finding common values that are acceptable to a majority of the political community, setting rules in accordance with those values and ensuring compliance. Political decentralization is understood as the delegation of powers for autonomous decision making to a local polity, in the case of Cambodia the local councils.

The following pages evaluate co-management from this perspective: does it allow a transparent competition of ideas and proposals to reach a legitimate consensus on production and redistribution? We find that the underlying concept of community does not correspond to a political community. Also, its rule setting does not involve a polity.

First, a co-management body does not represent the entire political community. Although its decisions on resource use are supposed to bind all, it answers to only a segment of that political community: the community of users who seek particular benefits from the resource in question[36]. Without representation and accountability, there is no guarantee that decisions on resource use and access by a small segment of the community will be unbiased or accepted by all (legitimate). For instance, Community Fishery concerns all those who seek access to the benefits of the Fisheries Domain. This does not represent the locals aspiring to use the same domain to collect gravel, discharge effluents or redirect and store water for irrigation. Yet Community Fishery rules and bylaws may well ignore their preference. This is not to say that Cambodia's freshwater rivers, lakes and wetlands should be used primarily for purposes other than fisheries, or that Cambodia's forests should be clear-logged. The point is that decisions on resource access and use are decisions of public interest: they must weigh the interests of different types of use and users. Some people want forests, others do not; some want forests but cannot get access; others do not want forests but are forced to contribute to the patrols.

At heart, co-management treats political communities as unproblematic. The approach is therefore inherently technical: it detaches collective action from the social relations in which collective action is embedded. On the one hand, it assumes the common good to be known and understood by all. Consequently, conflicts are seen to arise only in the context of agreed goals. Without voice and without options for exit (opt-out clauses), those with conflicting views are turned into unwilling riders. On the other hand, the approach presumes that institutions can be designed with predictable distributional outcomes: Community Forestry will empower the community. But, within the community, a constant struggle for differential access to resources is ongoing. How else to explain the pervasive patronage networks?

Earlier, we posited that resource management is about creating the conditions for exclusion. And power is about the ability to exclude. The implication is that local resource use associations may be captured by private interests. As one author put it (Van Koppen 2007), "vesting formal rights on the basis of an administrative act

(36) A community forest can be established with 60 percent of a community supporting it. The other 40 percent can then be legally excluded. This raises many questions, not least because the boundaries of a community forest do not necessarily coincide with an administrative boundary. Some community forests concern villages in different communes.

implicitly favours those proficient in and connected to administration". So the danger exists that community associations will represent an even smaller proportion of the political community. As a result, co-management schemes may unwittingly create new hierarchies or reproduce (even polarize) existing hierarchies. For instance, who are the members of the ruling committee of a fisheries association? How did the committee arrive at a set of rules and bylaws? Diepart and Sem (2009) challenge the premise that community-based resource management "empowers" (redistributes power to) local communities: "the participation of local people in community-based natural resource management has reinforced local elite power". Communities are not a "black box"; creating new mechanisms of exclusion is bound to affect the inner workings of the box.

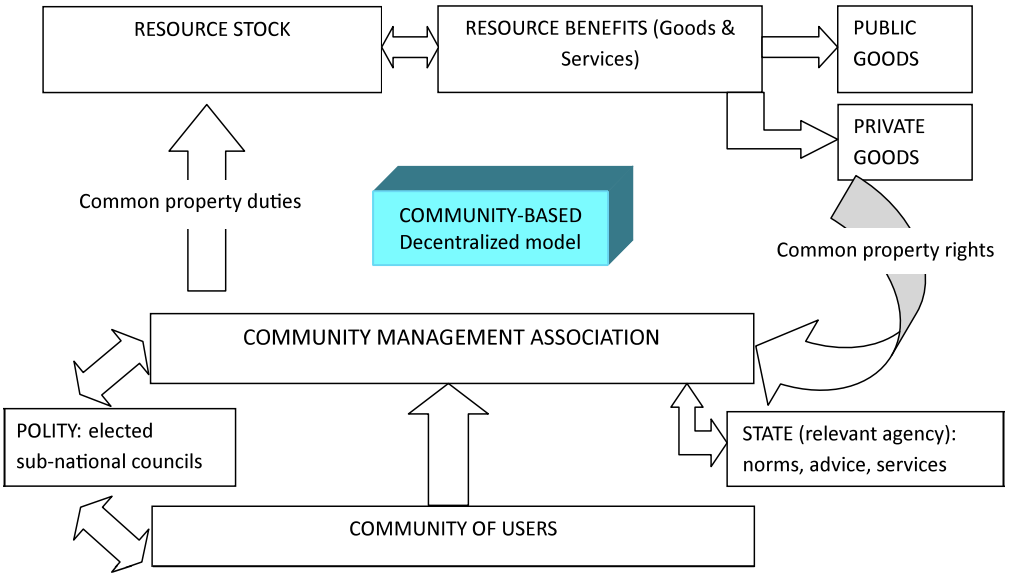
How to create transparency and opportunity for (different) voice? This is the concern of political capacity. Do co-management associations have political capacity? A polity is composed "of the people" and governs "for the people". Earlier, we underlined the cooperation between communities of users and the state as the backbone of co-management. Together, these define the public interest and offer a menu of options and rules. The nation-state itself is the highest polity. One could therefore argue that co-management bodies are polities, because the state is part of the agreement. However, this is a fallacy. The state is represented by an administration, which cannot be unseated by the people through elections or recall. We also remarked that the state's assertion of monopoly over the creation of rules is not seriously dented. Moreover, in principle and in practice, state bureaucracies do not answer to the local people. In theory, they are answerable to the people's representatives in Parliament, but this presumes open political competition and an active and able Parliament. In practice, as pointed out, the various administrations and agencies behave as owners of the eminent domain, not as stewards holding it on the people's behalf.

So, in practice, decentralized resource management refers to the reluctant association of a group of local users with the administrative custodians of a particular sector which sets resource access rules. This is odd, because decentralized political capacity does exist: commune councils directly elected by and answerable to the entire local political community. However, the capacity to set rules for resource management is more or less excluded from their political capacity, as will be examined further. In other words, the capacity to exclude is excluded: local councils are not empowered to formulate and modify the distribution of rights. The feeling that the exercise of political capacity cannot be entrusted to local people is pervasive. Space in this volume is limited, and the emphasis is not primarily on explaining Cambodian politics[37]. Instead, the next section will investigate the potential of local government to sort out divergent claims to limited resources. The issue is not that local governments

[37] For an excellent analysis, refer to Conway and Hughes (2004).

should take over resource management from the state and local associations. Rather, the concern is to clarify the complementary roles of local councils and co-management associations.

Figure 14: Community-based decentralized model



Mechanism: Allocation of rival benefits determined on basis of common property rights.
Problems: Coordination among a multitude of actors.

Political decentralization: Bane or boon for improved natural resource and environmental management?

Community associations and local councils are pathways to decentralized management. Both imply a movement of discretion and authority from the central to the local sphere. Political decentralization is the process of creating a local polity where there was none before. We have noted the importance of a local polity to legitimately address issues of local exclusion. However, political decentralization is often held up as a mechanism to address two sorts of concerns associated with the provision of public goods: equity and efficiency. Equity is about exclusion and deciding whose interests or preferences count. Efficiency is about removing obstacles to coordination. Previous chapters associated coordination, or lack of it, with externalities and transaction costs. They also outlined the fragmented sectoral outlook and approach as a dominant challenge in improved natural resource management.

To respond to matters of equity and efficiency, local councils have a number of instruments at their disposal: oversight, legislation and service delivery. What follows is an assessment of the promise of local government in resource management, using the three critical conditions for successful resource management: affordable transaction costs, effective exclusion and worthwhile incentives (affordable opportunity costs). More specifically, it will look at four questions. First, a better reflection of local preferences creates more worthwhile incentives. Can local councils help improve the quality and effectiveness of participation? Second, less fragmented decision making contributes to lowering transaction costs. Can local councils play a role in creating a more integrated perspective? Third, effective exclusion is necessary to solve the assurance problem. Can local councils be a factor in improving compliance with local rules? Related to this, can local councils play a role in addressing the problem of credible government commitment?

Potential is one thing, its fulfilment another. A wide gulf still separates promise from practice, a point elaborated further. One must be wary of proclaiming local councils as the new panacea to every one of Cambodia's (resource management) ills. All sorts of agenda are loaded like packs onto the "donkey" of political decentralization. The donkey is still very young, and natural resource management is but one of those packs. But we will also argue that there are ways and means to narrow the gulf and help local government fulfil more of its promise.

Creating value through enhanced participation

Cooperation is based on value. Earlier, we used the analogy of the restaurant menu: the more value local people perceive in decentralized resource management (the menu), the more likely their cooperation (visits to the restaurant). But we also noted that resources do not have a uniform meaning for all people. A social choice must be made between individual preferences. This is easy when individual preferences are similar. But doing so in a context of increasing social differences is tricky. On the one side is the pervasive culture of patronage in the Cambodian countryside. This culture sharply contrasts with the goals, if clearly not the practice, of the modern state. On the other side is a clear government commitment: creating ability and opportunity for the most vulnerable and voiceless citizens to express preferences and propose rules. How can local government promote the ability and opportunity of the silent part of the community to get involved? At a more general plane, how can they ensure a better match of local preferences with public goods provision?

The councils can play a direct as well as an indirect role. The more direct role is their mandate to produce public goods and hinder the production of public bads. In Cambodia, commune councils have some powers to legislate, plan for service delivery,

etc. The powers of local councils will be the subject of the next chapter. Indirectly, councils can help establish value for their citizens by ensuring more genuine participation. For instance, local councils can develop instruments such as the Most Vulnerable Household List (Box 28). This and other instruments are a means to support and oversee quality of participation and leadership in co-management arrangements.

Box 28: Most Vulnerable Household List

In Cambodia, attempts to reach the poor for development activities and social transfers have focused on "area targeting" (identification of poor districts, communes or villages). Within a village, the differences between the very poor, poor and better off can be quite large. The really poor and vulnerable families are often not heard. As a result, interventions often fail to reach them. The introduction of a self-managed process to identify the poor at household level has resulted in the Most Vulnerable Household List. The main actors are villagers and their representatives, community-based organizations and the commune councils. The list is drawn up by villagers with oversight from the commune councils. Village representatives review and adapt the proposed selection criteria to establish the list, including the housing and income situation, available means of transport, land ownership and rice production. Identification is integrated into the commune planning process (GTZ Community-based Rural Development Programme).

Countering fragmentation

Even genuine participation in rule setting may create new externalities. Co-management implies that rules are set and managed by different types of associations. Each of these is locked into its own sectoral perspective (stovepipe). The various types represent a demand for a particular (and preferential) type of access. For instance, Community Fishery is about accessing Cambodia's wetlands and rivers to harvest fish, not to extract gravel or divert water for irrigation. Fragmented decision making adds to transaction costs and creates externalities. Yet the concept of ecosystem imprints a clear message: resource management is not about fisheries in one village or forestry in another. It is about the integrated management of a landscape. This landscape performs many functions. Managing it demands constant trade-offs between protection and (types of) production, in response to rapidly changing conditions. Local councils (should) represent all citizens, those in need of sand and water as well as fish. The local political arena is the designated forum to negotiate a number of trade-offs and to supervise compliance with the consensus reached by the various parties.

This consensus should be reflected in the local government planning instrument. Community fisheries, forests, etc, produce their own management plans. However, the amalgam of local sectoral management plans (forestry, fishery, protected areas, etc) is not the same as an integrated local resource management plan. Local councils have the potential to create a "placemat" which integrates the various resource management plans and reflects differing rights to differing resources. As the World Bank (2007) makes very plain, "given population increase and limited rural urban migration, competition for access to natural resources is increasing, requiring the

capacity to set resource use priorities on the basis of multiple objectives and stakeholder inputs". In Cambodia, mechanisms are being developed to link decentralized planning to land use planning (see Chapter 8). Just as an integrated local management plan should be more than the sum of sundry sectoral ones, an overall resource management vision for Cambodia should be more than the sum of local placemats. Connecting the local to the national and vice versa demands a management continuum. The options to create an integrated planning framework across administrative levels will be discussed further.

Monitoring the monitors

The word "monitoring" conjures up images of policing and enforcement. Should local councils get involved in enforcement? This is a contentious issue. Basically, there is no need for local councils to be the guardians of the forest, as long as co-management groups in tandem with line administrations effectively enforce agreed rules. The reasons are twofold. First, local government has itself limited coercive power. For instance, it cannot impose fines. Mandating local councils to enforce management plans is not a solution, without granting them concurrent coercive powers. But even if such powers were to be had, the danger is that the imposition of top-down directives might trump the notion of local negotiation. We have argued that the main role of local governance is to create and manage the space for local politics ("negotiation") rather than enforcing rules.

The other argument is that councils should do what others are not doing. Even if community groups and line administrations worked well together, their cooperation would leave a number of questions unresolved. For instance, is exclusion and enforcement applied even-handedly? Do the community associations live by their own rules and bylaws? Are the line administrations biased in executing their duties? Through their own internal procedures, the line departments may be capable of resolving conflicts related to their sectoral concerns, but fragmentation has rendered them myopic. Conflicts that involve different types of resource use or resource users require an integrated perspective. Such disputes are no small matter; Table 5 calls attention to the overlapping claims and conflicts generated by questions of natural resource access. Related to the area under their control (their placemat), local councils have the duty to ensure that all preferences are accounted for in the competition for access and use. Developing an integrated perspective does not mean that all preferences under the sun are to be transformed into actual access and use. Rather, all preferences should have equal opportunity of representation in the (political) contest of ideas and proposals.

Even though conflicts can be pushed back, the concrete situation on the ground will never be free of conflict. Demands for access and use change rapidly, because rural transformation is a very forceful process. Consequently, valuable though the political process is in ranking preferences, it will never completely eliminate conflicting

demands for preferential access (fish or gravel, so to speak). Local arbitration is then a way to sort out these conflicts. The councils are accountable for the quality of this arbitration to their electorate; in principle, their expressed preferences form a line past which local councils cannot stray too far. In return, local people accept commune authorities as effective agents for dispute resolution, provided disputes are small. As CAS (2006) states, "while smaller disputes could be resolved at the lower levels, when cases involved higher-ranking officials or influential outsiders, a commensurately high ranking or influential interlocutor needed to be found to resolve the dispute". The statement points to a very problematic reality: a local process to determine exclusion and access, based on equal voice and opportunity, has limited currency in the world of the wealthy and powerful. To forge and solidify the link between local preference ranking and the situation on the ground, local development plans must relate to local land use plans. These in turn form a cascade that integrates planning and land use from top to bottom. The whole edifice demands an effective rule of law, which is still very problematic in Cambodia[38], but there really is no other way to stop the wealthy and powerful from railroading local rule setting.

Addressing the reputational problem

All parties to a co-management agreement must be able to commit credibly to the agreement. The shared authority and responsibility of government and community to (re)distribute rights forms the essence of co-management. The commitment of central government and its various agencies to a process of rights (re)distribution is not perceived as very credible. Can local government provide an answer to this problem? We argue that it can provide an institutional *and* reputational answer to the question of credible commitment. A reputational solution depends on the capacity of parties to the agreement to sanction each other for ineffective implementation. In Cambodia, the institutional landscape is fluid and claims and jurisdictions overlap. This makes it difficult to pin down the identity of the government party (the time inconsistency problem). Bring in elected local government as an authoritative partner to the management collaboration and the issue looks different. This provides a clear institutional anchor point as well as a reputational solution. Obviously, elections may change the composition of a council. Even then, the council remains clearly identifiable as a local institution underwriting a formal commitment. Unlike an administration, if a council breaks its promise, it runs the risk of being ejected in a next election.

Sub-national governance reforms in Cambodia

Political decentralization concerns the establishment of functional local polities. The characteristic of a functional local polity is its ability to define enforceable

(38) See, for instance, the annual US Department of State country reports on human rights practices (section on trial procedures). The latest one can be downloaded at http://www.state.gov/g/drl/rls/hrrpt.

rules. We have argued that local councils have a valid role to play in organizing access to natural resources, directly or indirectly. Their main contribution is to anchor decentralized resource management by adding local accountability to the mix. Their accountability is different from that of co-management groups: the main responsibility of a local polity is to develop an integrated perspective that responds to the entire *political* community. In Cambodia, the current sub-national governance reform aims to organize this environment. This section provides a brief background to the sub-national governance reform and some of its challenges.

Some background

Governance reform in Cambodia is pursued along two related tracks: "decentralization" and "deconcentration". In Cambodia, decentralization is understood as the process whereby powers and finances are devolved to elected commune councils; deconcentration is the process whereby central level tasks are delegated to provincial, municipal and district authorities. The difference lies in accountability: local councils are accountable to their electorate (downward); the other authorities remain accountable to the centre (upward). The Strategic Framework for Decentralization and Deconcentration Reform (RGC 2005) details the government vision on sub-national governance. Two laws provide the legal framework for this vision. The Law on the Administration and Management of Communes/Sangkats (LAMC), adopted in 2001, applies to the communes[39]. The Law on the Administration and Management of the Capital, Provinces, Municipalities, Districts and Khans (the so-called Organic Law), adopted in 2008, applies to all other administrative levels.

The LAMC led to the election and establishment in 2001 of 1,621 commune councils. Commune councils are expected to serve the interests of their citizens and improve socioeconomic development, and have been granted executive and legislative authority to do so. Councils at the other sub-national levels will receive specific functions, including natural resource management. The appropriate levels for environmental governance will be decided by a review process: which functions to transfer to which councils and which to retain at the national level.

The LAMC vests the commune councils with powers of "general competence", which describes the right to act in any area unless specifically restrained to do so. The Sub-decree on Powers and Functions creates a wide range of roles and functions, including that of "protecting and conserving the environment and natural resources". It stipulates that commune councils have an opportunity as well as an obligation to engage actively in the protection and promotion of natural resources, with the exception of forestry. The legislative authority enables communes to pass rules to

(39) The English term "commune" will be used to cover the Khmer terms *khum* and *sangkat*, the English term "district" will be used to cover the Khmer terms *srok* and *khan* and the term "provincial" will be used to cover both provincial and municipal government entities.

regulate local resource management. The commune fund ensures some money for implementation of planned activities. A number of other financing mechanisms, such as local taxation, are yet to be implemented. It is important to underline that the general competence clause provides "discretionary powers". Discretion refers to the ability of those in power to decide how they will apply or exercise that power. The next section will elaborate on this point.

Local government authority to manage and protect natural resources springs from the legal and policy framework for decentralization. Sector legislation and policies provide additional opportunities for commune council involvement in resource management. For instance, certain areas in the Land Law mandate a direct role of commune councils, such as conflict resolution procedures, creation of cadastral maps, land registries and social land concessions (Oberndorf 2003). Moreover, each ministry has the scope to broaden or limit the opportunities open to local councils, holding the right to make its own legally binding decisions on what to deconcentrate or decentralize, given the existing legal frameworks and policies.

Reality check

At this point, the promise of decentralization needs to be checked against its practice. The questions raised earlier were four. To start, do local councils help to improve the quality and effectiveness of participation? Second, do local councils play a role in creating a more integrated perspective? Also, are local councils a factor in improving compliance with local rules? Finally, do local councils play a role in addressing the problem of credible government commitment? A positive answer to all of these questions hinges on the reality of local discretion. We argue that the central plank of local discretion is still not fully in place.

The LAMC does not specify the need to predefine discretionary functions. By implication, commune councils have a right of initiative: to develop rules, to make and execute plans, etc. Local discretion is a central plank in the process of creating local polities. It shapes the ability of local councils to exercise their right of initiative and determine access to the natural resources in their area. Granting local discretion was earlier referred to as devolution (of powers and functions). Devolution demands a clear outline of the functional as well as geographic boundaries of authority that local councils (will) enjoy. And, again, it calls for credible commitment from the central government to the process. The contention that local discretion is (still) problematic is based on three arguments; first, the functional area of application is not fully determined; second, the geographic area of application is unresolved; and third, the concept of local discretion is not uniformly understood or even accepted.

Considering the functional boundaries of local discretion, it appears that the line ministries remain very centralized and retain a firm grip on the direction of decentralization reform. Approaches and direction for decentralization differ within

and across sectors, and various ministries remain at different stages in the process (Urban Institute and CDRI 2008)[40]. The reform of forestry and fisheries has created decentralized administrative structures (the Fisheries and Forestry Administrations) which are disconnected from the other decentralized political structure of the state. This reform implicitly rejects the role of local polities in the management of these resources. As Flam (2008) states,

> "In many cases the functional review process [see Chapter 8] will require a sector ministry to consider whether to transfer functions from its sub-national units to sub-national councils. For most ministries, the inclination will be to maintain the status quo. Even for functions that are implemented at national level, it is to be expected that ministries will prefer to deconcentrate to their own sub-national units than to decentralize or delegate functions."

The independence that ministries enjoy in deciding on D&D reform in their sector comes at a price: it distracts from a consistent and transparent method across all sectors, engages national and local institutions in project-specific approaches and fails to address the fragmentation of mandates and the duplication of roles and responsibilities.

The functional boundaries of devolution are obscure but the geographic boundaries are also hazy as long as the type and size of state property remain undefined. The LAMC explicitly excludes communes from any say over the Permanent Forest Reserve, which the Forestry Administration directly controls. Since it is off limits for commune councils, knowledge of its exact boundaries is essential. However, the different types of state property have not yet been demarcated and the extent and exact boundaries of the Permanent Forest Reserve continue to be contested by the various sector ministries. Even in the absence of clear agreement, the Forestry Administration itself classifies 59 percent of the land in Cambodia as forest (Forestry Administration 2008).

This claim, combined with the exclusion clause in the LAMC, undermines the authority of commune councils to organize access to a large part of their combined territory[41]. Put differently, a functional limitation (no authority over the Permanent Forest Reserve) pushes back the geographic boundaries of a commune council's authority, and puts it back under the control of the centre. The importance of this point cannot be overstated; the same 60 percent of land that is claimed to be forested remains

(40) The process is known in Cambodia as D&D reform. Initially, D&D stood for "decentralization and deconcentration"; the meaning has now shifted to "democratic decentralization".

(41) To be more exact, the part of their territory that the Forestry Administration considers also to be part of the Permanent Forest Reserve.

under direct control by the centre. This has a bearing on the potential role of the commune council in co-management, because the council is prevented from entering into Community Forestry agreements[42]. They may, however, facilitate the creation of community forests by integrating them into the commune development plan. This amounts to a role as facilitator of – not party to – co-management processes[43].

It is also not clear how and whether they can obtain management rights over the other types of state property. For instance, what happens to state land after it has been privatized? In the past, large tracts of land were allocated as economic land concessions (plantations) and the forests in these areas cut. The law now specifies that the total area of a concession should not exceed 10,000ha. Those that are larger should be reduced. The reduction would leave an area that is no longer forested and no longer state public land. In principle, these areas should then no longer be excluded from the authority of commune councils.

Credible commitment also jumps to the fore. The implication that decentralization entails a transfer of authority to set priorities and make decisions is not uniformly understood or even accepted. There are strong echoes of the blueprinting (Blaikie) that perplexes co-management. Councils must adhere to complex and detailed management conditions, subject to stringent oversight. The conditions include the requirement to submit development plans and budgets to governors and departments for comment. Although these should be advisory in nature, they seem to be considered in practice as binding. Yet commercial interests, approved by the state, that enter a commune's territory and use its resources are subjected to very light – if any – oversight and compliance pressures.

However, villagers do take the reputational problem seriously and seek guarantees from the local councils. One study notes the feeling of a local councillor (Sedara and Ojendal 2007):

(42) Imagine, for instance, that a proactive commune council provides incentives to individual households to plant trees on their private land to create a sort of communal forest reserve. The council cannot enter into a Community Forestry agreement with these same households, only the Forestry Administration can.

(43) The IFSR (2004) advocated an approach known as Partnership Forestry. This focuses on partnerships between commune councils and the Forestry Administration, which aims to establish "prior claims", keep forest rent in the public sector and ensure holistic and sustainable forest management. The core of this approach is a partnership between the Forestry Administration and the commune council, expressed in the form of a commune forest plan. The website of the Administration gives no details of this approach or its status of implementation. Obviously, if it is to become a mainstream forest management modality, communes can no longer be excluded from forestry.

> "The commune council is what the Forestry Committee and villagers turn to in order to report matters and seek help. We are very serious about working for the people. But what can we do? We just report to relevant authorities at the top, i.e. district and relevant departments. Sometimes after a few days we see the same perpetrators come back to commit more crimes. The higher authorities do not care because they are not living with the people, but it is the commune council that faces the heavy burden of explaining to people. The council is caught between higher authorities and villagers. Obviously, people challenge the commune, not the district or other agencies."

Assessing the bounds and exercise of local discretion, the resource management potential of commune councils remains unfulfilled. They do have discretionary general powers that allow them to do what the law does not explicitly forbid. However, the fluidity of the reform landscape has kept them within bounds of what the sector ministries and agencies explicitly allow. As a result, the development planning process has preoccupied the new communes. Planning is generally seen as the cornerstone for their involvement in resource management, rather than rule making or other types of functions. But is it possible to plan for resource access and use without clarity on land use? Clearly, local polities in Cambodia are still some way off from a system of local government that is based on a healthy dose of local discretion ("own functions") and the ability to raise local revenue to finance at least some of its expenditures autonomously.

What are the reasons for this situation? The rationale most often invoked is that of local capacity. On the sidelines, the dangers of local corruption are whispered about. No doubt the "capacity" of local villagers to run their own affairs is an issue. However, what is most often meant is the sort of capacity to comply with the many formal requirements: meetings, plans, budgets, etc. It is not the down-to-earth ability to assess the circumstances and direction of rural transformation in their area. Certainly, it cannot be assumed that elected councillors represent the interests of the poorest or remain unperturbed by the attractions of rent seeking. But is strengthening central control the answer? It is like putting only some parts of a vehicle together, assessing its subsequent struggle to move and then proclaiming its ineffectiveness. The issue from the start was about getting the vehicle to run, and the thing to do is to put in the missing parts.

To dismiss out of hand the potential of local councils for discretionary decision making would be a mistake. It may be that systems that are already democratic provide a more credible commitment to decentralization than systems in which democracy is still fragile, as some contend (Wantchekon and Simon 1998). No doubt the legacy of a very centralized state weighs heavily on the fragile shoulders of the new local councils. To shake this off will take time and confidence. But watering down the decentralization process will not remedy worries about local competence and susceptibility to corruption. Rather, the correct antidote for limited transparency,

accountability, participation and awareness is strengthening the power of the citizenry to ensure that decentralization is democratic. The experience of local elections so far has demonstrated the capability of people to hold the governing party to account. People are increasingly finding their voice and articulating demands. So the focus should not stray: the issue is how the existence of a local polity can help local communities pursue their demands in ordinary politics. This depends above all on creating clarity on the geographic and functional fronts: land use classification and functional assignments. The next chapter considers in more detail the reallocation of powers and functions from national to sub-national levels.

Chapter 8

A framework for decentralized natural resource and environmental management

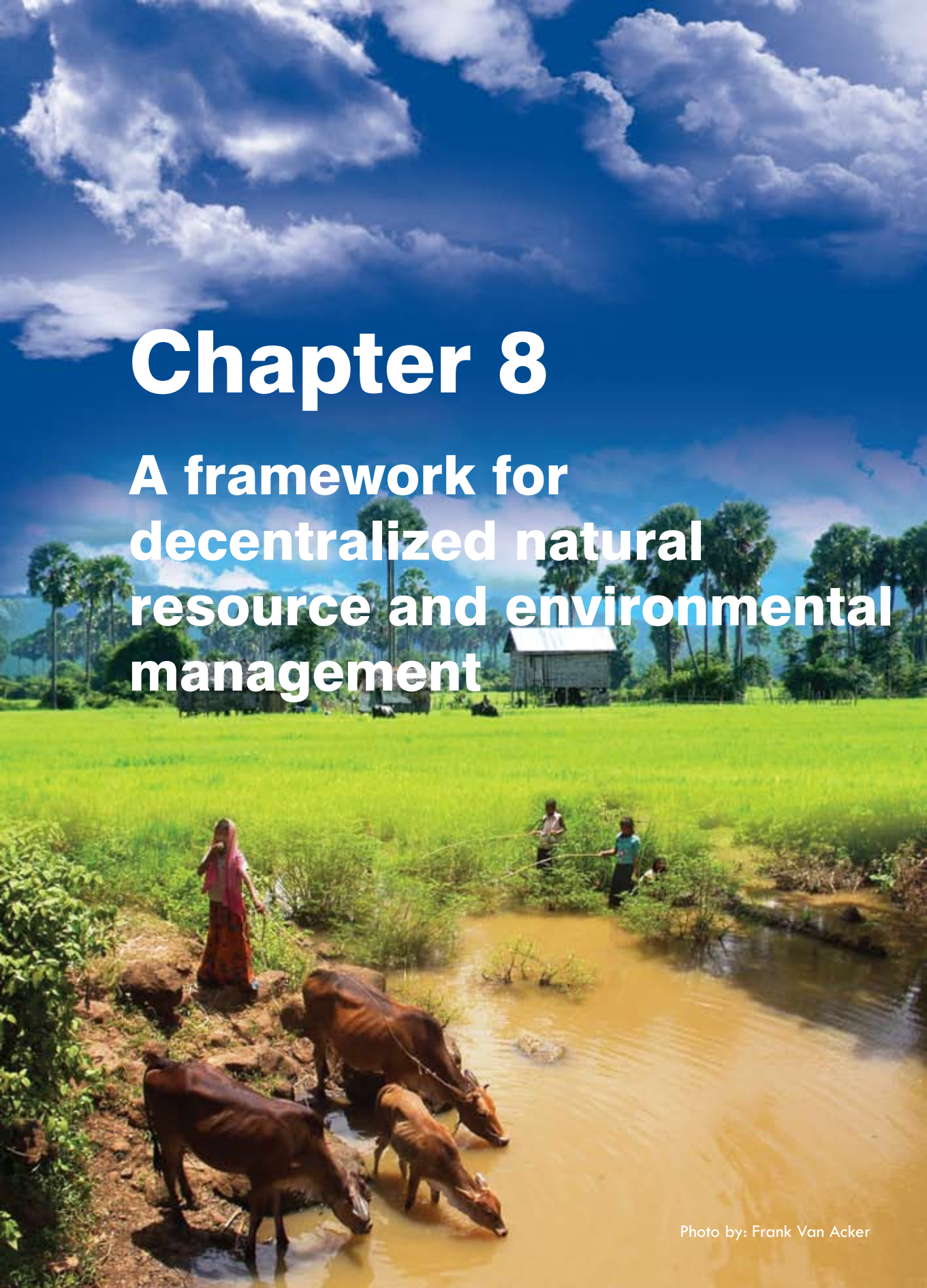


Photo by: Frank Van Acker

Chapter 8

A framework for decentralized natural resource and environmental management

"Fundamentally, functional review is a political process ... This reality must be accounted for in terms of identifying responsible institution(s) and the stakeholders to involve, and in terms of creating adequate space for political negotiation and consensus building" (Flam 2008).

Our analysis of socially acceptable resource management has introduced three planks so far: the characteristics of the resource and the consequent management needs, the attributes of communities and their ability to overcome coordination failure and the prospect of organizing collective action via a direct interface between communities and the state. The interface between the local and the state is critical. Will the creation of a local political arena result in better resource management decisions? We argue that a local political forum has greater potential to sort out divergent claims on limited resources than the distant arena of national politics. Local councils operate at the level of the citizens directly concerned by questions of access and use. They are also accountable to them. Because of this, chances are that they will identify and prioritize environmental problems more accurately and induce people to feel greater ownership of the decisions made. Local elections in 2001 shifted some attention towards the promise of involving elected commune councils in resource management. This chapter sketches the importance of a local polity, provides a brief overview of the political decentralization process and lays out some of the challenges to local council involvement in resource management.

The turbulent intersection of local discretion and local capacity

We have argued that local councils have a relevant role to play in natural resource management. This argument brings us to the turbulent confluence of three main lines of questioning – social, political and economic – and their guiding principles. Who are the resource benefits for (equity)? Should such decisions be entrusted to local councils (subsidiarity)? How to ensure that costs are internalized as much as possible (efficiency)?

Who the resource benefits are for is a question that cannot be answered in the abstract. The intention of government to substantially alleviate poverty is an important clue. But it has designated two ways to achieve this purpose, both equally important: creation and distribution of wealth. Local people need to weigh the use of their resources carefully and decide whether production, protection or conversion

serves the purpose of wealth creation and redistribution best. Remember that each decision has redistributive effects because it shifts benefits and costs. The role of local councils in the first instance is to organize and oversee these decision-making processes – within the limits of their powers – to ensure transparency and the opportunity to participate.

What are the limits of power, or better, which resource management powers should local councils hold? From a governance perspective, the key principle in organizing an environment for effective decentralized governance is subsidiarity. This means that decisions should be taken by the lowest level capable of doing so. Subsidiarity signals that discretion is essential to democracy. "Subsidiarity", "general competence" and "local discretion" (see previous chapter) are like three sides of a triangle: one cannot exist without the other.

Key Concept 9: Subsidiarity

The Strategic Framework for Decentralization and Deconcentration Reform describes it in this way: "the principle of the greatest effectiveness and efficiency of delivery of public services by administrations closest to citizens and as ensure accountability to citizens" (RGC 2005). The Organic Law leaves open the question whether the lowest level of council should be preferred (see Flam 2008). Subsidiarity is an organizing principle found in a host of environmental treaties such as the Rio Declaration on Environment and Development, its plan adopted as Agenda 21, the Climate Change Convention, the Desertification Convention, etc. For example, Agenda 21 calls for delegation of water resource management to the lowest *appropriate* level (UN 1992a); the Rio Declaration emphasizes that "environmental issues are best handled with the participation of all concerned citizens at the relevant level" (UN 1992b) and so on.

The denial of local discretion is a denial of local capacity. We tend to see the link between capacity and discretion from the other end: limited local capacity leads to limited local discretion. This is because the understanding of capacity is usually put in a context of human ability. From an environmental management perspective, the notion of capability is much broader; it refers also to the ability to avoid externalities. The rejection of general competence in the case of forestry implies a concern that local councils do not know what they are doing but also a fear that they will create too many costs for others when making forestry-related decisions. The issue of capacity qualifies local discretion, insisting that local power must be well bounded so that its exercise does not impose costs on people who have no opportunity to resist. Formulated more broadly, a local government decision should not result in negative consequences outside its administrative boundaries. The autonomy to make an environmental decision should therefore rest with the lowest level of government capable of handling it without significant residual externalities. It is clear that subsidiarity and "minimal residual externalities" are uneasy bedfellows. At least, this is the case when considering negative externalities.

On a side note, it is somewhat ironic that the same worries do not surface in the case of positive externalities. Indeed, the whole point of conservation is to generate positive externalities, such as clean air, water retention, carbon sequestration, etc. One of the mainstays of community-based approaches is conservation. The environmental services that communities fulfil clearly go beyond their territorial boundaries. Hence, one of the main concerns associated with community-based management is to induce local communities to generate benefits that go beyond their area of jurisdiction, in other words how they can be made to shoulder the costs of generating a range of benefits that accrue elsewhere. We will come back to this point, but for now concentrate on the containment of negative externalities.

The restriction of local powers: Right versus privilege

To determine the appropriate unit and level for environmental governance, the capability to internalize negative externalities is important. It would be absurd for a commune council to make decisions affecting the whole of the Tonle Sap. For example, granting it powers to dam tributaries will affect many people in downstream communes, and may even alter the hydrology of the lake altogether. At the level of a commune, such externalities cannot be internalized. It would be equally absurd for the state, rather than the commune council, to occupy itself with access to a fish pond located in a village. The pond is located within the commune's boundaries and serves the people within those boundaries, and the impact of decisions affecting it should be well contained (internalized) within these same boundaries.

Alas, many cases are not that clear-cut. Even though natural resources appear as individual and distinct components, such as a stand of trees or a pond, they are interrelated as part of an ecosystem (see Key Concept 5 in Chapter 4). So the appropriate framework for natural resource management is integrated resource management, a point also emphasized in the previous chapter. But at what level should an integrated vision be developed? If natural resources are always interrelated as part of a larger ecosystem, then how is one to apply the idea of subsidiarity? This appears to throw a spanner in the works of decentralized environmental governance. Two important principles meet here. On the one hand, it is not just or efficient to create benefits by externalizing costs. On the other, the right to be involved in decisions that affect one's life is fundamental. We argue that the opposition of "environmental capacity" to "local discretion" is simplistic. It undermines people's rights to participate in choices that affect their lives and to hold decision makers to account. The complexity of natural resource management calls instead for an imaginative approach. These points will be elaborated on below.

On one side of the argument is the precautionary principle. This expresses the idea of caution practised in a context of uncertainty, and suggests that decision makers have a duty to anticipate harm before it occurs. The strong version of the precautionary principle implies that activities should not proceed when potential

adverse effects are not fully understood (UN 1982). If it is impossible to understand *all* the effects rippling through an ecosystem, is it possible to draw firm conclusions about the extent to which residual externalities are minimized? Given the interrelated character of natural resources, the principle of subsidiarity cannot guarantee that all externalities will be contained within local boundaries. The more centralized the level of management, the more certain that residual externalities will be minimized within its borders. Ultimately, this is the level of the state[44]. In Cambodia, the argument is often implied in the contention that many of the councils lack the scale or size to sustain management responsibilities. Instead, district rather than commune councils are proposed as the lowest tier with effective powers for environmental governance. But district councils are not directly elected, so are they polities? What of the importance of local autonomy in designing rules and making decisions to manage natural resources? It is important to keep in mind what we are fundamentally talking about: the appropriate level for effective collective choice.

So on the other side stands the notion of democratization. This stresses that participation in collective choice is not a privilege but a right. It also implies that representatives of the people are accountable to those people for the choices and decisions made on their behalf (via direct elections). From this perspective, the principle of subsidiarity

Figure 15: Thinking outside the box

Source: The New Yorker Collection 2005 Leo Cullum from cartoonbank.com. All rights reserved.
Taken from http://www.alumni.hbs.edu/bulletin/2009/june/ideas_opinion.html.

(44) The ultimate level is actually that of the entire globe (eg global warming). In the absence of an effective way to manage global externalities, the community of sovereign states is tasked to deal with them, for better or for worse.

does not so much translate as a question about what powers and functions the centre agrees to hand down. Rather, it translates as the need to motivate a decision not to move particular powers and functions from a higher to a lower level. The Cambodian government has subscribed to the principles of democratization and subsidiarity, by way of its Constitution, its policies and laws, its endorsement of several international environmental covenants as well as the centrality of the general competence clause in the LAMC.

Environmental governance is crucial to the livelihoods of many rural Cambodians, and is not served by the simplistic opposition of environmental capacity and local discretion. How best to combine local discretion with the capacity to minimize residual externalities? An imaginative approach weaves two strands into the overall resource management framework: capability to balance the short-term demands for ecological goods and services with the long-term sustainability of the ecosystem; also, support for the emergence of effective and democratic local institutions. What would such a framework look like? It should consist of three planks: cooperation between local councils, agreements for intergovernmental power sharing based on a process of reassigning powers and functions and procedures for intergovernmental coordination. We concentrate on the latter two points.

Balancing capacity and democracy

Cooperation between local councils

Externalities or economies of scale in production do not necessarily require large political units to articulate demand. Cooperation between local councils allows them to contract services jointly, for instance in the form of inter-communal joint ventures or management schemes. Councils can also choose to provide the good or service by way of a public–private partnership (see Box 29). This way, they contract with suppliers who embody economies of scale but who can provide just the level and

Box 29: Public–private partnerships in water provision

Cambodia has a very low rate of access to safe water in rural areas (30 percent of the population). The MIREP programme (Small-Scale Piped Water Systems) was established in 2001 to assist rural communes. The programme aims to set up water service systems in partnership with the private sector through simple technologies for piped water in small communes (200 to 500 households). Special arrangements have been put in place for the poor, such as standpipes and subsidized connections. Commune councils own the systems and create commune water committees to follow up on activities at local level. The introduction of public–private partnership is often the only way for communes to put in place relatively expensive piped water services. The MIREP programme targets areas where water infrastructure is absent or where access to safe water is difficult. The programme attracts private sector participation in investment and management of water infrastructure. On average, entrepreneurs finance 60 percent of the cost of each system. The balance is financed by the public sector, by the users or by subsidies. The project has put in place several types of arrangements: management, leasing, concession and privatization contracts. The rate of connection is increasing everywhere.

kind of service the local unit wishes, instead of a common service for the whole area. The decision units remain small.

Unbundling of powers and functions

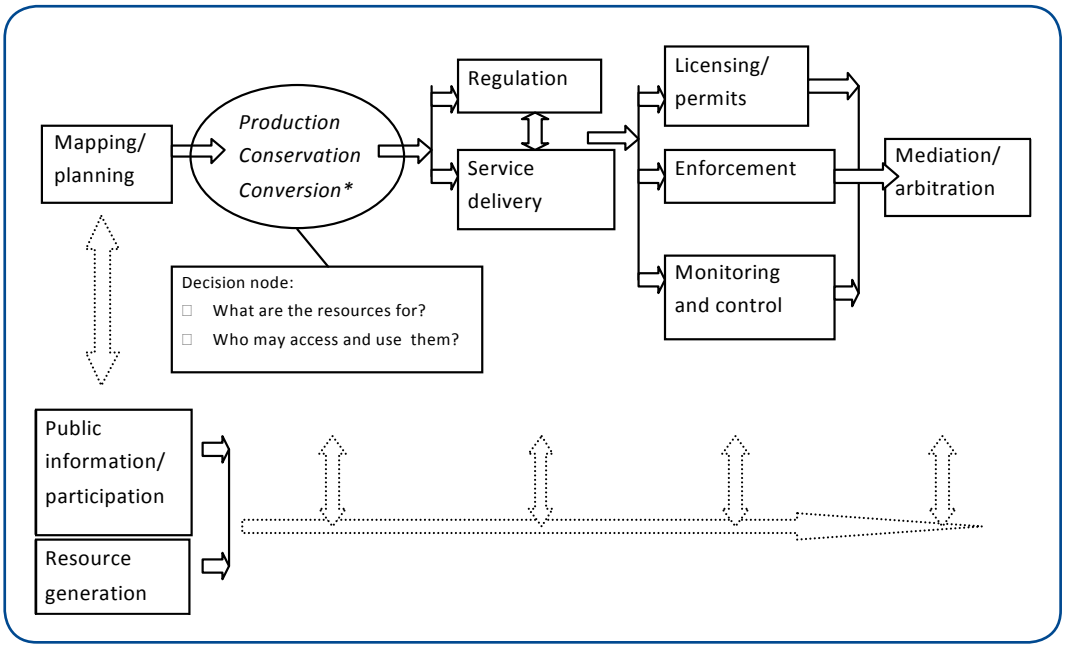
Of powers and functions

Unbundling aims to limit the ability to impose costs on others who cannot resist (negative externalities). Chapter 3 presented the concept of property as a bundle of rights. Ownership is never complete or absolute; others may have or acquire rights over parts of the bundle. A right constitutes an effective claim to exclude others. With rights come powers. So it is not surprising that power can also be thought of as a bundle of powers which is never absolute and must also be shared. Put differently, the ability to make binding and enforceable decisions that affect the distribution of costs and benefits must be distributed and not concentrated. In this context, good governance is especially pertinent. This suggests that the ability to make enforceable decisions is exercised in a spirit of respect for citizens' divergent interests and their right to individual liberty. This section introduces the concept of unbundling of powers and functions. It sheds some light on the nature of powers and functions, introduces the process that will determine the distribution of powers and functions for each level of government and stresses the importance of a value-based outlook.

The concept of function is used in so many different ways and areas that no single universal definition exists. Essentially, a function expresses a relation between an input and output. For the purpose of our analysis, a function is understood as i) a collection of related activities or tasks that ii) produce a specific service or product (serve a particular goal) through iii) the application of knowledge, tools and funding. For instance, planning can be thought of as a function which requires a sequence of steps resulting in a specific output (the plan). In the case of the commune development plan, the steps are prescribed and defined in detail. The idea that form and function should be linked is well known, referring to the ability to mobilize knowledge, tools and funding. More particularly, it means that the agency producing the service or product should have the necessary (but allowable) means to do so, as well as the discretion to apply the means. Functions come in a host of flavours, for instance licensing, enforcement, monitoring, adjudication, planning, public information, etc. Figure 16 sets out a typology of functions.

This brings us to the concept of power. Political science distinguishes between three sorts of power: legislative (setting rules), executive (making decisions by these rules) and judicial (interpreting rules and resolving disputes). Hence, the power to manage resources can be thought of as a bundle of rights relevant to resource use: the right to set rules, implement and enforce the rules and resolve disputes. The three sorts of power and the different types of functions generate a vivid but perplexing landscape, through which local councils must navigate in their role of resource

Figure 16: Typology of functions flowchart



manager. Unbundling of powers and functions is like setting traffic signs in this landscape. Certain areas are off limits, other areas are accessible only with light vehicles (reduced powers), etc. On a broader level, unbundling signifies a selection of authorized rights and/or a break-up of functions into smaller bits which are redistributed whole or partly to lower-level councils. For instance, the mediation of land conflicts between villagers is an accepted role for commune councils. This acceptance does not extend to the mediation of conflicts which concern state land; intervening in conflicts between concessionaires or ministries is seen as the prerogative of higher government levels.

Box 30: An example of powers and functions – licensing

Licensing is an important aspect of organizing exclusion in the context of access to common pool resources. As a function, it refers to the permission to access or use a resource for a defined product, for a defined period of time, in a defined area, for instance permits for fishing or tree cutting (triage). In this example, the legislative power related to licensing consists of establishing and decreeing the relevant processes and norms: where and when to fish, using which gear, etc. The executive power could be summarized as entitling actual resource use in line with established rules: the issuance of permits, monitoring and enforcement. The judicial power in this example would refer to the arbitration of cases where permissions appear to be contradicted. Of course, there is another important principle: democratic governance. This calls for independent powers and areas of responsibility for the three so-called "estates" of government (executive, legislature and judiciary). This is precisely the problem we pinpoint with the judicial powers of the Fisheries and Forestry Administrations; they set and enforce the rules and play referee as well. The table at the end of the chapter provides a more elaborate example of a combination of powers and a common set of functions.

The functional review process[45]

Functional review is the process to achieve unbundling. It analyzes a government sector to identify its functions and then determines whether the function and its corresponding resources should be transferred from the national level to the provincial, district or commune councils. The Organic Law sets out the general framework for the review, including a list of priority sectors for functional review. It also stipulates that the review should further prioritize basic and essential functions within those sectors. An inter-ministerial national committee is responsible for driving the reform process and must determine the level to which each function should be allocated based on criteria set out in the Law (see Box 31).

The functional review process determines more than the level of allocation. It stipulates whether the function is obligatory ("must do") or permissive ("may do"), whether accountability should be downward (decentralized function) or upward (delegated function) and what resources and capacity development are required. A function that is not obligatory is automatically a permissive function, which a council may choose to implement or not. Only when it is impossible to assign a function to any of the sub-national councils will it be retained at national level. Only at that point does the question of deconcentration arise, particularly whether the ministry national or sub-national units should be responsible for its implementation. The role of the national committee is complemented by the power to make decisions that are binding on ministries.

Box 31: Unbundling – the criteria set out in the Organic Law

The Organic Law deals with functional review in Chapter 5, Articles 200 and 213-40. It sets out a number of criteria: the function's relevance to the area of a council, the extent to which a council will be able to practically manage a function, how beneficial and useful the function will be within the area of a council and the impact the function will have within the area of a council. The interpretation of these criteria in the context of natural resource management is not as straightforward as it appears. The function's relevance to the area of a council cannot be contested when a resource already exists in the area of the council. So anything to do with ensuring the continued existence of the resource ("provision") is per definition relevant, even though forestry has (questionably) been excluded. More debatable are the functions related to production (for instance logging) and post-production (operating a sawmill). The extent to which a commune will be able to manage a function is a confusing criterion. It seems to indicate that capacity determines devolution, whereas the law itself is explicit that capacity – finances, personnel and assets – must be transferred together with the underlying function. It is preferable to interpret this criterion as the capacity to avoid imposing costs on others (minimal residual externalities). The last two criteria appear to indicate the importance of value addition, a point dealt with in a separate section further on.

In practice, functions and powers will often be limited, using criteria such as value, scale or sub-function. Table 6 gives a hypothetical example for fisheries. Note that the use of criteria such as scale or value is not without problems. For instance, in the

(45) Based on Flam (2008): refer to this paper for a comprehensive outline of the review process, criteria, etc.

table, value is used as a criterion to determine the authority for permitting investments in caged fish culture: it sets a cut-off point at USD 10,000[46]. An investor may perceive a council as easier to influence than the national authority, and divide a total investment above the cut-off point into smaller ones which fall under the authority of a commune council[47]. Moreover, values change but authority, once defined in legislative documents, is much harder to change. This is not to say that value and scale are bad criteria. Rather, such options need to be assessed carefully and supported by the necessary safeguards.

Table 6: Unbundling of powers and functions – hypothetical example in inland fisheries

Criteria	National authorities*	Commune councils
Value	Approval of bamboo barrage and permits for cage culture if investments > USD 10,000	Approval of bamboo barrage and permits for cage culture if investment ≤ USD 10,000:
Scale	Inland aquaculture > 0.5ha; Licensing of marine fishing boat with engine > 33 CC; Maintenance of waterways that connect communes	Inland aquaculture ≤ 0.5ha; Licensing of marine fishing boat with engine ≤ 33 CC; Maintenance of waterways that connect villages within a commune
Sub-function	Enforcing the Fisheries Law; Developing basin-wide fisheries management plan; Signalization of boundary and waterway markers in the Tonle Sap; Planning and developing national fish marketing infrastructure	Enforcing of seasonal and area closure; Developing commune fisheries management plan; Maintenance of boundary and waterway markers within commune boundaries; Building and operating fish and passenger landing site

*Note: * Can deconcentrate tasks to provincial and district authorities.*

Business unusual: A value-based outlook

An important reason for involving the locals in resource management is to marshal their support in conservation; we need them to produce positive externalities. However, we have argued that decentralized resource management is a difficult act of balancing capacity and democracy. To resolve this demands an original approach. Unbundling is part of this. How original it is depends on how the powers and functions are "sliced". We have argued that unbundling should not take what the general competence clause in the LAMC gives. The danger of allocating degraded resources for local management has also been pointed out. This hazard

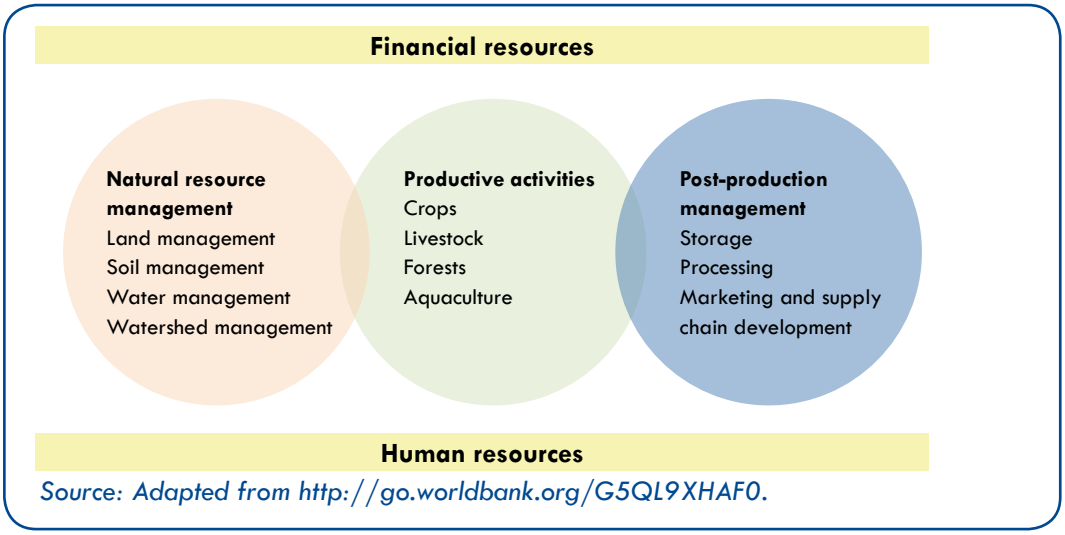
(46) The line agency may itself decide to deconcentrate this particular function to its provincial or district office.

(47) Until recently, provincial authorities had the power to decide on economic land concessions smaller than 1,000ha.

has a functional equivalent: reallocating powers and functions in such a way that leaves local councils with the duty to protect. To generate conservation, unbundling should link rather than separate protection from production, for two reasons. First, protection without production cannot solve the assurance problem. We argue that the possibilities to appropriate value "downstream" in the value chain are an important element in conservation decisions "upstream". Also, conservation demands a lifecycle perspective (Humphrey and Schmitz 2000).

A so-called value chain is a useful context to organize the powers and functions related to resource management. A value chain considers provision (upstream), primary production and post-production activities (downstream) (see Figure 17). The upstream functions are those which must be undertaken to ensure renewal of the resource base: without them, the resource and the goods and services it produces would not exist at all, or would exist only in altered forms (degraded, fragmented, etc). For instance, efforts to create and preserve forests are necessary to ensure that biodiversity is maintained, carbon is withdrawn from the atmosphere or timber is available for future harvesting. The primary production activities are those most commonly associated with natural resources: logging, fisheries, etc. They are associated with tangible benefits which may or may not be privately appropriated, depending on the property rights regime. Or they can be services, such as clean air, whereby private appropriation is never an option. Downstream are the post-production activities which add value to produced ecological goods and services through processing, storage, etc, for example turning timber into charcoal, crocodiles into purses or clean air and scenic beauty into tourism, or pumping and storing water for irrigation[48].

Figure 17: The natural resources value chain



Source: Adapted from http://go.worldbank.org/G5QL9XHAF0.

(48) Referring back to the discussion of externalities, it is clear that these services are positive externalities.

Past chapters stressed the importance of value, incentives and benefits. We have noted that the resource base is an endowment. Although a lake or forest can be created through human effort, more often than not these resources exist simply by act of nature. The LAMC explicitly mandates local councils to protect natural resources, with the exception of forestry. Put differently, they must deal with the responsibilities and costs of ensuring renewal, which implies a collective effort. In return for shouldering costs to realize a public good, the assurance problem tells us that secure and adequate benefits must be part of the deal. Without tangible incentives, chances are that the resource will be undersupplied. We have also noted that not all value has a price; for instance, the existence value of clean air has no market price. But marketable value has the advantage that it is easily exchangeable for many other desired goods and services; for instance, timber can be sold and the money used to buy a car, education, health services, etc. Marketable value is usually associated with the primary production and post-production activities[49].

Authority over the benefit centres in the chain defines power relations. These are the places in the value chain that provide the opportunity to extract rents. For instance, in logging, rents are situated in the approval necessary to cut down trees, operate sawmills and transport the timber. It is quite possible that the process of unbundling will fragment the value chain into different centres of authority. The danger is that local councils are excluded from the functions dealing with primary production and post-production. For example, already they have no authority in the field of forestry production (logging, etc). The argument of negative externalities may cause commune councils to be excluded from post-production decisions. For instance, it could be argued that a fish-processing plant, through its effluents, risks creating pollution that cannot be contained within the boundaries of the commune. The authority to issue such licenses should therefore remain at a higher level. In this scenario, local councils may continue to have very limited authority over the generation and distribution of benefits.

The second argument is that of the lifecycle perspective (see Box 32). This refers to the discount rate and NPV mentioned earlier. Conservation implies lowering the discount rate, as well as increasing the array of benefits taken into account in decisions about protection or production. Put differently, conservation concerns the entire productive capability of the resource stock over a long time, rather than a particular sort of benefit during a short time. One of the most important roles that local councils can play is to develop an integrated perspective for resource use in their area.

[49] Chapter 9 will develop the concept of marketable ecosystem services. Essentially, these are marketable aspects of provision.

An integrated perspective basically asks four questions: what to produce and what to conserve, how, when and how much of it. Each of these decisions interacts with the local environment. These are the same questions a lifecycle perspective must ask. Whereas an integrated perspective is concerned with these questions in space (the placemat), a lifecycle perspective is concerned with them in time. Conservation demands that an integrated perspective go hand in hand with a lifecycle perspective. Separating local authority from authority over the benefit centres implies that local councils are unable to ensure a long-term integrated vision of resource use in their area. They may formulate such plans, but actual decisions may be taken elsewhere, following entirely different criteria. Essentially, if local councils are left with authority over the protection of resources only (the duty of care), they are left with the liabilities generated by the extraction of rents elsewhere[50].

We have compared unbundling of powers and functions to setting traffic signs in a perplexing resource management landscape. On a broader level, unbundling signifies a selection of authorized rights and/or a break-up of functions into smaller bits which are redistributed whole or partly to lower-level councils. For instance, the mediation of land conflicts between villagers is an accepted role for commune councils. This acceptance does not extend to the mediation of conflicts that concern state land; intervening in conflicts between concessionaires or ministries is seen as the prerogative of higher government levels.

Box 32: The lifecycle perspective

The value chain approach developed by Porter (1985) models a firm as a chain of value-creating activities. The goal of these activities is to create value which exceeds their total cost. This is also called a return. A chain exists if the cost of one activity affects that of another. A value chain analysis assesses the total investment returns over the long term (the so-called "lifecycle perspective"). The value chain approach is relevant in the context of natural resource management. The links between the provision of the resource (planting trees), primary productive activities (cutting them down) and post-production value addition (making charcoal) are very strong. Also, resources generate a wide variety of activities which will last over a long time and typically generate small benefits (or savings) throughout this period, in terms of goods and services. Yet many resource management decisions are based on their value as short-term business opportunities. These typically do not capture the externalities imposed on other users and producers (eg pollution). They also ignore the positive externalities that the entrepreneur cannot monetize (eg water retention). In choosing between two alternatives, for instance the choice between extensive forestry and logging, the calculation of return on investment must be expressed in NPV. Extensive forestry provides a wide range of benefits over a very long period. Logging provides a short spike of tremendous profit, with immense costs spread over a wide space and over a long time. Calculated over a long time, NPV can take into account these costs as well as (social) benefits that are usually ignored, for instance the safety net function or the creation of social capital through successful collective action. The point is to arrive at a solution which accounts for the entire productive capability of the resource stock, not one particular sort of benefit during a short time.

(50) Note that the development of ecosystem services is a possible trump card for those left with authority over provision (the duty to protect). It will be interesting to watch whether and how this will affect the final distribution of powers and functions in the future. In essence, it concerns the emergence of a new benefit centre.

Of village republics and coordination

So far, we have argued that the diversity of rural needs and opportunities is best served by a territorial rather than a sector-based approach. Territorial approaches (placemats) have the advantage of linking sectors to local polities. Political decentralization allows local councils to formulate a problem statement concerning the renewal and exploitation of natural resources in their area. Enhanced autonomy signals the ability also to select suitable management options. Unbundling is the political process that aspires to enhance local autonomy. At the same time, it wants to ensure that sub-national authorities are incapable of overreaching themselves and imposing costs on others who cannot resist. In the case of a commune council, these are the inhabitants of all other communes and towns. The result will (or should) be a setting in which the authority to manage natural resources is much more distributed. This will change not only the way in which the various authorities interact with the landscape, but also the way in which they interact with each other.

It is crucial that the functional review put measures for effective coordination at the centre of a redesigned institutional landscape. The following section discusses the challenges of intergovernmental coordination. It argues that coordination should not so much be understood as a mandate (of a coordinating body), but rather seen as the development and implementation of a decision support framework. The functioning of such a framework may or may not require a specific coordinating body to drive it. We would do well to state an important caveat upfront. Even a flawlessly designed coordination framework may find that, in the end, the biggest challenge could well be cultural: the acknowledgement that there are multiple objectives in resource management that require different approaches, the recognition of interdependence rather than hierarchy and the acceptance of controversy as a by-product of democracy which thrives on a staple of "loyal opposition".

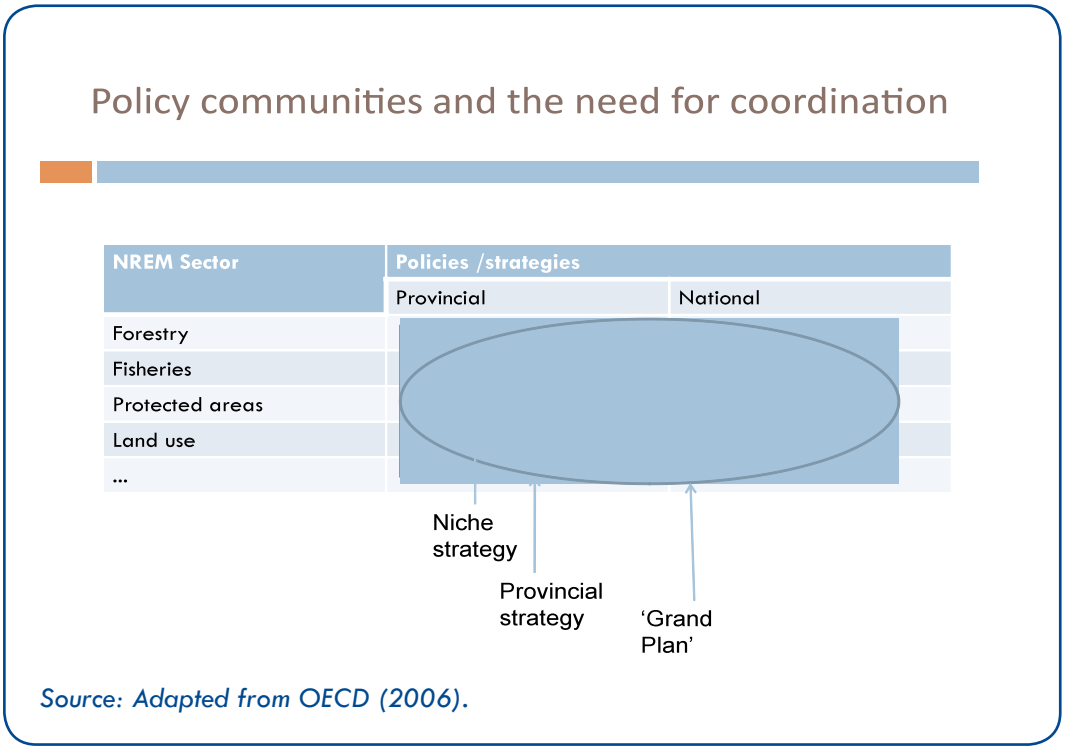
A functional wilderness?

Which authority at which level should hold which part of the total bundle of powers and functions? The typologies of functions, powers, additional criteria, the value chain, etc, provide a rich format for unbundling. Should commune councils have a say in the provision of a resource, for example the protection of a mangrove area? Should it be enabled to make decisions related to processing, as in the transformation of trees into timber? If so, to what extent: should its autonomy encompass any or all of the functions (plan, license, enforce, etc)? Or should its discretion be limited to a certain value? And to what extent should its autonomy encompass the powers to design the rules, apply them (make decisions) and interpret them (settle conflicts)?[51]

[51] Clearly, the principle of a healthy separation of power should also apply at the local level. The same authority cannot make rules, implement and enforce them and provide arbitration that follows implementation and enforcement.

The previous section pinpointed a number of possible issues in the way environmental governance is unpacked and rewrapped. Assuming the process of unbundling is genuine, what changes can be expected in the way natural resources are managed? We argue that increased local autonomy will result in a more complex and dynamic environment. Obviously, if all local governments and all levels of government – rather than a few institutions – make decisions regarding the access, use and management of natural resources, a more complex and diverse situation will arise. What is less well understood is the effect on the governance dynamics between "top" (central government) and "bottom" (communes). Decentralization implies the creation of sub-national polities: councils with powers that go beyond service delivery to actual representation of the needs of a political constituency. The existence of different polities in turn will give rise to "policy communities" at the different sub-national governance levels. A complex patchwork of policies, strategies and decisions will emerge: grand national plans that provide vision and set directions but provide little detail (the National Strategic Development Plan (NSDP), the Rectangular Strategy, etc), national sector strategies, niche strategies and policies (eg a particular area, plant or species, etc), provincial strategies, commune investment plans, etc (see Figure 18).

Figure 18: The future "policy complex"



Source: Adapted from OECD (2006).

The purpose of decentralization is not to create a collection of independent village republics. More diversity is not necessarily the same as more arbitrariness, provided that local autonomy is complemented by a framework which effectively organizes interaction. How will the various authorities interact in the complex and dynamic environment pictured above? More specifically, how will consistency between the local and national level be promoted? Local councils should not fall foul of the broad strategy agreed for a particular use (fisheries, forestry, etc), or a particular user (priority for poverty alleviation). Clearly, the sum of local plans and decisions should more or less add up to these broader objectives. Looked at from the side of the national, the question is how to maintain consistency in public policy across sectors and regions while encouraging local initiative. From the side of the locals, the question is how to assimilate the sectoral policies – which are, after all, fairly blunt instruments – into a workable integrated local plan which suits the local preferences.

Effective coordination

A changing context where power is effectively more dispersed creates mutual dependence and encourages "two-way" negotiation and information across and between the various levels, for example the need to avoid conflicting land use plans. Coordination as understood hitherto in Cambodia will have a hard time standing up to such a challenge. Essentially, it will have to move from a command and control culture embedded in the customary top-down model of interaction to a negotiated governance approach. As mentioned several times, the interaction between the various sectors is in many ways competitive. The results have been interagency conflicts and management vacuums (see previous examples on land use designation). Decentralization complicates the picture. The need to actually dialogue with "lower-level" governance structures rather than issue directives is unfamiliar territory in Cambodia. Existing coordination bodies such as CARD (the Council for Agricultural and Rural Development) have not been created to effectively tackle the problems of sectoral competition and the command and control culture that guides intergovernmental interaction. They have been thrust on stage to confront the recalcitrance and suspicion of sector agencies with limited means and hardly any teeth.

The problem is that effective coordination does not so much ask for a separate organization capable of issuing binding directives. Rather, it calls for an effective decision support framework to guide intergovernmental cooperation. The decision support framework has the national government involved less in implementation and more in setting clear targets, formulating minimum standards and providing knowledge and funding to local authorities. Within this overall context and within the limits of their powers, local councils develop specific strategies and initiatives adapted to local needs and preferences. Already, local initiatives of sector agencies have to be integrated into local council plans. Adherence may be another matter, but the drift of the institutional change is clear. The Organic Law provides for a number of additional instruments which (potentially) alter the interaction between national

and sub-national authorities. It foresees the creation of technical facilitation committees at the provincial and district level. Members of these committees will include representatives of sector ministries which provide services in the area of the council. It also foresees strengthened unified administrations at various levels, with their own staff, funding, etc. But, above all, an effective decision support framework calls for a coherent and consistent land use plan (see Box 33).

Box 33: A spatial planning framework to enhance community-based resource management

The integration of CBNRM initiatives into a comprehensive spatial planning framework at the provincial level can reinforce local actions and give communities stronger recognition. Currently, such a framework is being piloted in Battambang province. The guiding principle is to develop complementary approaches that strengthen the work of local communities and communes. Past experiences with CBNRM initiatives indicate that the benefits resulting from a quasi-exclusive focus on supporting local communities is limited when local conditions are isolated from the wider agro-ecological and socioeconomic contexts. A provincial spatial planning framework helps to integrate community entitlements into larger land use patterns. The province is sufficiently decentralized to capture the local conditions and at the same time address the interrelations between the different components of the agro-ecosystem. These are now mainly – and poorly – captured by standalone sectoral plans. The framework also provides a mechanism for vertical integration: land use plans gain further resolution at district level and become legally binding land use plans at commune level. The outstanding problem, however, is that forestry and fisheries management are not decided at provincial or district level. These administrations have their own structures, and management issues are decided at inspectorate or cantonment level, which do not correspond to districts or provinces.

Figure 19: Birds' eye view of the fisheries sector (overview of compentences and functions)

Upstream: Provision of aquatic goods and services (habitat management)

Map, inventorize, plan, zone and demarcate

- Determine boundaries of community fisheries and fishing lots
- Map and inventorize aquatic resources
- Develop resource use plans and maps

Coordination

- Organize norms, rules, processes,
- (Approval of) establishment of Community Fisheries organizations and adoption of bylaws

Restore fish resources and environments

- Set up and maintain fish sanctuaries
- Fish stocking
- Regeneration of flooded forest
- Control of dewatering of lakes and streams
- Cladding of embankments
- Digging/maintenance of trap ponds, fish ponds
- Control and management of solid and liquid waste

Protection and maintenance

- Prevention and combating of illegal fishing and other activities
- Prevention of sanctuary encroachment
- Maintenance and signaling of waterways

Public awareness raising

Midstream: Production of aquatic goods and services (fishery management)

Fish

- Capture fisheries
- Cage and pond culture of fish and prawns

Other aquatic products

- Fuel wood
- Wildlife for exploitative use (skins, meat, etc)
  - Captured: snakes, turtles, etc
  - Cultured: crocodiles, etc
- Plants/herbs for human/animal consumption (cultured, eg mung bean, floating rice and wild plants)

Recreation

- Wildlife, plants and trees for non-exploitative recreation
- Recreational swimming and boating (ecotourism)

Spiritual (non-user) value: lotus harvesting and cultivation, etc

Waterway transportation

Water regulation

- Drainage and flood mitigation and abatement
- Fish spawning and migration

Gas regulation

- Maintenance of temperature/air quality
- Global climate regulation

Soil retention, soil formation, nutrient regulation

- Maintenance of arable land
- Pollution dilution
- Dispersal of seeds and translocation of nutrients
- Pollination of crops and vegetation

Downstream: Processing of aquatic goods and services

Processing of fish and aquatic products

- Fish drying, smoking, etc
- Prahoc production
- Fish feed production
- NTFP processing

Marketing of fresh fish

- Fish landings
- Fish markets
- Ice production and cool storage capacity

Water retention and storage for household and irrigation purposes

Harnessing of recreational and spiritual services

- Access and use infrastructure (roads, bridges, landings, restaurants, lodges, information centres, etc)

Note: This is an indicative and not exhaustive list.

Figure 20: Birds' eye view of the forestry sector (overview of compentences and functions)

Note: This is an indicative and not exhaustive list.

Chapter 9

Market-based initiatives for resource conservation: Opportunity or blind alley?

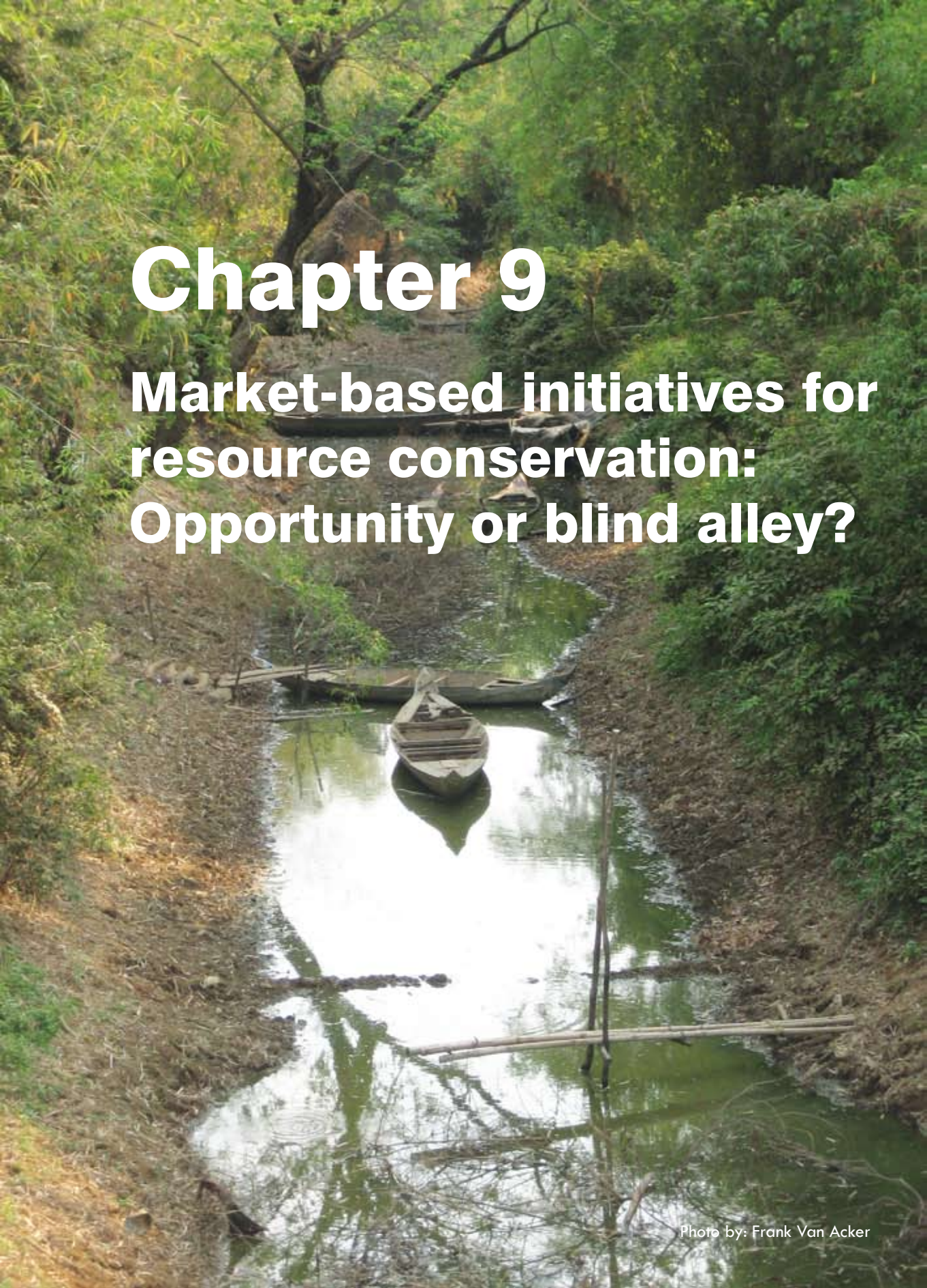


Photo by: Frank Van Acker

Chapter 9

Market-based initiatives for resource conservation: Opportunity or blind alley?

"There is no market for smoke" (Coase 1960, in his example of the smoking factory next to the laundry).

The assurance problem has featured prominently in these pages. It presents a paradox that bedevils all efforts to collectively ensure the continued existence of Cambodia's flood forests, its Mekong dolphins and so many other flagships of its particular and rich biodiversity. The paradox resides in the reluctance to contribute to the provision of a public good, because the benefits may accrue elsewhere. Efforts to link renewal to exclusion, legally as well as legitimately, are very complex.

One of the major difficulties is that benefit centres are situated lower down in the value chain (primary and post-production). That is where rents embedded in a resource are easiest to extract. This presents two important problems: if conservation is the rationale for collective action, then primary production activities should be curtailed (and consequently much of post-production activities). Also, particular benefit streams from primary and post-production often accrue elsewhere, because they are easy to privatize (usually temporarily). But what if other types of rent embedded in the resource could be extracted, for instance the ecosystem services provided by a resource, such as the water produced and retained by a forest? What if these rents were associated with the maintenance or even creation of the resource base, rather than its exploitation to extract benefits such as timber or fish?

Market-based instruments (MBIs) provide some new answers to the old assurance question. Green labelling, conservation tenders and "cap 'n' trade" mechanisms are increasingly familiar instruments in the toolbox of environmental management. This chapter assesses these new tools. The timing for such an assessment is now. At national and international levels, unlikely alliances between governments, hardnosed business interests and "greens" are pushing these new instruments, resulting in a range of green measures and options. Four issues will be addressed in this assessment. First, the meaning of MBIs and the conceptual foundation for their use, second, a typology of MBIs, third, a number of case studies to demonstrate how the different types operate and their degree of success and fourth, the lessons that can be derived,

and the possible contribution that MBIs can make to help manage difficult natural resource management issues in Cambodia[52].

The meaning and context of market-based instruments

What are market-based instruments?

Markets are platforms for exchanging value between the producers of value and those who see advantage in consuming it. This exchange is based on information about the costs and benefits of different options. MBIs do not aim to improve environmental outcomes by setting rules. Rather, they encourage the production of environmental value through the market (Stavins 2000). Participants in the economic system search for transactions which create value and maximize their private or collective wellbeing. MBIs focus on that search.

This chapter focuses on the two basic premises that underpin the promotion of markets

Key Concept 10: Market-based instruments

MBIs use market signals to encourage action that produces environmental value.

for environmental management. First, such markets are currently missing, so that market-based decisions do not incorporate environmental values. Also, creating markets to reflect environmental values will yield better management outcomes.

Policy context: Why use market-based instruments?

This section assesses why markets for ecosystem goods and services are missing. It argues that creating such markets is not as revolutionary as it sounds, and that creating a more dynamic format to demand and supply such services entails moving away from central government dominance over demand as well as supply. Decentralized governance provides a mechanism for a more diversified expression of demand. MBIs make it possible to respond to such demand in a cost-effective way.

The case of the missing markets

Market mechanisms price and allocate many goods efficiently: they reflect costs and benefits correctly. A problem arises when economic value misrepresents social preference. In that case, the marketed part of the economy does not reflect all costs and benefits. For instance, the loss of scenic beauty is not included in the cost of

(52) Sometimes MBIs are referred to as "payments for ecosystem services" or "payments for environmental services" (PES). As we shall see further, these concern a specific type of MBI.

logging. Consequently, existing markets misallocate resources to the production of environmental goods and services. For example, markets provide signals to Cambodia's landholders that clearing land for agricultural production is valuable. Similar markets to signal the value of conservation actions are missing or inefficient. If such a market were to exist, it could induce some landholders to specialize in managing and selling biodiversity, rather than clearing the land to produce and sell crops. But where is the market for biodiversity preservation? Coase (1960) sketched the example of a smoke-belching factory next to a laundry line. He observed that there is no market for smoke, even though the owners of the laundry as well as the smoke might want such a market. In brief, there are some goods and services that people would like to exchange, but the platform for such transactions is missing.

Missing markets are problematic for an important reason: some negative externalities cannot be internalized and some positive externalities will not be realized. The existence of externalities means that not all costs and benefits are included in production and consumption decisions. Because the relationship between production and the environment is problematic, a lot of potential value remains unrealized. Missing out on potential value is always a problem. After all, resources are scarce and needs are high. But it is especially a problem for a developing country like Cambodia that can ill afford to misallocate (waste) resources. MBIs aim to change the incentives so that social preferences are better represented in individual production and consumption decisions.

Creating "hothouse" markets

Creating markets is not as revolutionary as it sounds. Polanyi (1944) argued that

> "Economic history reveals that the emergence of national markets was in no way the result of the gradual and spontaneous emancipation of the economic sphere from the governmental control. On the contrary, the market has been the outcome of a conscious and often violent intervention on the part of the government which imposed the market organization on society for non-economic ends."

However, we also noted the complex nature of the environment with its mixed characteristics. Markets for environmental goods and services are unlikely to resemble the familiar commodity markets. Roth (2002) notes that, for such complex problems, "markets don't grow like weeds – some of them are hothouse orchids". In other words, they will not develop spontaneously but will have to be designed artificially.

To design markets for ecological goods and services, we need to understand the incentives and objectives of the participants in such markets. Who are the buyers and sellers of environmental goods and services, and what drives them to sell or not to sell, to buy or not to buy? How can these incentives be changed? To gain a basic

understanding, we must briefly dive into the public good–private good dichotomy explored earlier.

With a private good, the market sets the price and consumers adjust the quantity they are willing to buy. If the price is high, consumers adjust their preference downward and buy a smaller quantity. Consequently, the good will be oversupplied relative to demand. To clear the market, the price will fall. If the price falls below production costs, supply will dwindle and demand will force the price back up again. So the quantity of production and consumption is set with reference to price signals; at a given price, not everyone is willing to produce or consume the same quantity.

Ideally, the "market" for a public good should work in the same way. On the demand side, consumers should be able to express their willingness to pay for a given quantity and quality. On the supply side, producers should be able to express their costs to produce a given quantity and quality. However, these basic premises do not hold for a public goods market, for two reasons.

On the demand side, free riders hide their true preference, hoping that others will pay for them. For instance, many individuals like a diverse and rich landscape, but hide their willingness to put dollars on the table to pay for it. So the demand, which appears to be zero, or at least very low, does not reflect the true social preference. Consequently, the good risks being undersupplied. As a result, politics step in: a process of public choice must approximate the social preference.

On the supply side, one finds that the supply of a public good cannot easily be scaled. For instance, it is impossible to adjust the quantity of biodiversity produced or consumed in the same way as the quantity of orange juice. This creates the problem of the unwilling rider, for whom the cost at which a good is supplied exceeds the willingness to pay but who is unable to express a preference by consuming a smaller quantity, because the quantity is given.

So government steps in to *provide* a public good and enforce everyone's contribution. In response to the social preference that it has approximated, it will make sure that the good or service is made available. In this volume, we have encountered and discussed two sets of problems. First, the government in Cambodia takes its responsibility to mean that it should also *produce* these goods and services. Not only this, it believes it should hold a monopoly to do so. It has been very reluctant to share this authority with local people or their elected representatives. We have already highlighted some of the problems of public sector management: lack of transparency leads to rent seeking, and lack of competition kills all incentives to control costs. However, in order to fulfil its responsibility to *provide* a public good or service, government could just as well procure the good or service. Also, there is no basic governance principle stating that only central government is capable of expressing

demand for environmental outcomes. We have argued that letting decentralized governments express such a demand at local level has advantages.

In what way would markets for ecosystem goods and services respond to these concerns? Who procures and who supplies? The "customer" or buyer of biodiversity, water retention, etc, is typically the government, for the reasons laid out above. The theory on markets holds that a situation with many buyers is preferable to one with a single buyer (*monopsony*): it leads to more vigorous markets. Likewise, environmental markets should be more vigorous with more than one buyer. The implication is that local governments act as environmental managers, with the power to assess and express local demand. We have discussed this at length. The only caveat, as argued in Chapter 8, on coordination, is that the preferences of local and central managers need to be closely coordinated. The theory on markets also holds that a situation with many suppliers is preferable to one with a single supplier (*monopoly*). Suppliers of ecosystem goods or services could range from individual farmers to community groups or businesses.

What would be the advantages of generating ecosystem services through competitive markets? First, they would increase efficiency: the public good would be produced by the agent capable of doing so at the lowest cost. To bring this into focus, we need to recall the concept of opportunity cost. The key feature of market-based approaches is that individuals choose whether it is financially sensible to take particular actions. In principle, the producers with the lowest opportunity costs will be the ones most capable of producing the good. Essentially, MBIs encourage greater change by those for whom change is relatively cheap. Without markets, government is left to discover for itself which activities, and then which suppliers, could achieve the goal at least cost. Second, they address the problem of the unwilling riders. This is especially so when the expression of social preference is decentralized. Rather than having a fixed quantity at a fixed cost, competition delivers dynamic cost setting that is attuned to the local willingness to pay.

Market-based instruments: Conditions and typology

Basic conditions for market-based instruments

MBIs do not burst into existence spontaneously. If so, the markets and instruments would already exist. So they need to be designed. But even a quick observation of the field overwhelms the observer with its complexity. What are the basic design features of MBIs? Some background on their typology is in order.

What sorts of MBIs exist?

All MBIs intend to align private incentives with social objectives. There is more than one method for reaching this objective. MBIs can be characterized in two ways: either by type or by the extent to which they rely on competition. The classification by type differentiates three formats: price based, quantity based and market friction (Collins and Scoccimarro 2008). Price-based instruments adjust the prices of goods and services in the market; quantity-based instruments set the environmental good or service at a socially desired level; instruments designed to reduce market friction aim to reduce transaction costs. The other way to distinguish MBIs is the extent to which they rely on competition: on the demand or the supply side or both sides. This way of looking at things also yields three formats: double sided, single sided and zero sided (Schilizzi 2003). Double-sided MBIs organize market competition on the demand as well as the supply side. In the case of single-sided MBIs, market competition exists on one side of the market only, usually the supply side. Zero-sided MBIs are a special case, because they do not rely directly on competition (see Table 7).

Table 7: Typology of MBIs[53]

	Zero sided	Single sided	Double sided
Price based	Taxes, subsidies, grants	Most types of auction	
Quantity based	Offsets, quantitative restriction (non-tradable permits)		Most types of tradable permits
Market friction	Eco-labelling, revolving fund, underwriting and guarantees, insurance		

Table 7 summarizes the various types and provides some examples. Environmental auctions and subsidies are examples of price-based MBIs. How do they influence market prices? Via an auction, the "purchaser" of better natural resource management is able to select the tenders that provide the greatest benefits at least cost. Auctions are usually one sided: suppliers compete to provide a tender at the lowest cost. Subsidies are financial incentives to encourage specific activities; they basically offer a payment for a unit of output or input, for example paying a farmer a fixed sum for each meter of fence constructed.

Cap 'n' trade mechanisms and offsets are becoming increasingly familiar. These instruments are examples of quantity-based MBIs: they create a market to facilitate the trade of an environmental good such as water, or a pollutant such as CO_2. A "cap" on the market specifies the desired amount of change by setting the maximum allowable amount of resource use or pollution. Then entitlements are defined and

(53) Various hybrid forms exist, for instance offsets could be auctioned or even traded. The table is not meant to capture the richness of variety, but instead is an indication of what main types and categories exist.

distributed in the form of permits. The market creates the opportunity to trade permits between those for whom the desired change is easy to achieve and those who find compliance more difficult. Such mechanisms are usually double sided: market competition for tradable permits exists on the supply as well as the demand side. These types of markets look familiar because they are similar to the commodity markets we are all used to: suppliers attempt to sell their good at the highest price; buyers try to purchase it at the lowest. "Offsets" are MBIs which also create a cost. The agent responsible for pollution or environmental degradation in one area must counterbalance the effect somewhere else, for instance the obligation to offset cutting of trees on one site by planting trees somewhere else. The difference with cap 'n' trade mechanisms is that they are one-sided MBIs. There is competition on one side only, usually the supply side.

Market friction MBIs aim to make markets more effective by reducing the obstacles that hinder their functioning. The free flow and availability of information on the quality and quantity of trade is a basic condition for well-functioning markets. The lack of information – or lack of access to it – increases transaction costs and creates uncertainty. Uncertainty contributes to risk. But even with adequate information, markets are still risky places. Mechanisms to help reduce the level of risk are important. Also, ensuring adequate liquidity in the market is crucial. The creation of a trading platform for socially desired services has little purpose if the services cannot be sold because the buyer lacks funds, or the supplier is short of capital to produce the service. This type of MBI intends to tackle problems of uncertainty, risk or liquidity. For instance, labelling and certification improve the information exchanged between producers and consumers about certain attributes that consumers are prepared to pay a premium for. The dolphin-friendly label on cans of tuna is one example. Many ways also exist to inject liquidity or decrease risk; some examples would be the creation of a revolving fund, the development of insurance products or guarantees to underwrite private investment.

The next section gives some examples of the various mechanisms in action, more particularly eco-labelling, direct payments for watershed services, tenders and offsetting for land use change and trading of SO_2.

Market-based instruments in action

Signalling greenness: The Forest Stewardship Council's certified forest products programme[54]

The FSC is an international association created in 1993 by representatives of the timber industry, forest owners, social groups and environmental organizations. It aims to ensure the permanent existence of forest areas through improved forest management practices. The cornerstone of its approach is forest management certification. The FSC verifies responsible forest practices in all types of forests and plantations worldwide. It is estimated that 107 million ha in 78 countries – the equivalent of roughly 10 percent of the world's production forests – are certified by the FSC. Certificates represent responsible forest management practices which comply with the social and environmental standards of the FSC Principles and Criteria. These include compliance with national legislation, respect for local use rights and indigenous peoples' rights, maintenance of the ecological functions of the forest and its biodiversity and adequate management planning and monitoring of the operation[55]. On the supply side, the FSC trademark allows manufacturers and traders to demonstrate that timber comes from a responsibly managed forest. On the demand side, certification empowers consumers to express their demand in the market for responsible forestry.

The certification process is initiated by the forest owners: they request an independent certifier to assess whether forest management meets FSC requirements. The FSC "chain of custody certification" tracks the flow of certified wood across borders through the entire supply chain – processing, transformation and manufacturing – to the final product. An FSC-certified product (chair, plank or any other wood-based product) means that the production chain can be fully and reliably traced from the forest to the consumer. Only FSC-accredited certification bodies can monitor and certify companies to FSC standards. They audit each FSC certificate at least once a year. In case of non-compliance with FSC requirements, the company must make the prescribed changes within a given timeframe. The FSC website has details on all FSC certificates, including regional distribution, and type and ownership of forests. Many FSC certificates concern community-owned forests.

(54) This information has been extracted from the central website of the FSC and the websites of its various national chapters. The home page can be found at www.fsc.org.
(55) Some logging companies have set up their own competing certification organizations with weaker standards. They differ from the FSC in that they permit companies to certify themselves rather than demand independent third party certification.

The FSC has also started two schemes that are very relevant to Cambodia: the Small and Low Intensity Managed Forests (SLIMF) initiative and group certification. SLIMF are defined as forests of 100ha or fewer. SLIMF adapts the FSC system to the needs of small and low intensity forest operations, with less rigorous forest management criteria. Group certification allows a group of forest owners to share certification costs.

Payments for ecosystem services: The case of watershed services

Payments for ecosystem services (PES) are a means to compensate a variety of land use and management practices which promote conservation. The services provided by watersheds are critical; human subsistence, health and safety, agriculture and economic development all depend on them. Public payments for watershed protection currently represent the largest market for environmental services, at up to USD 2 billion annually worldwide[56]. Large programmes have been established in the US and China, but numerous smaller watershed programmes exist all over the world. These channel compensation to all sorts of suppliers: businesses, community groups and private farms.

Watershed protection services must be funded primarily by local water users. Unlike carbon sequestration and biodiversity conservation services, which benefit the global community, watershed protection services benefit mainly local and regional users. There is little additional scope for attracting payments from the international community. Unlike forest certification, for instance, there is little demand by individual consumers for a market for eco-certified bottled water (Scherr et al 2007). However, being local in scope, it is relatively easy to identify the users or beneficiaries of watershed services. Among the users, many potential categories of buyers exist, for instance municipal water suppliers, hydroelectric facilities, industrial users and irrigation systems.

Why would they be prepared to pay for these eco-services? It turns out that investments in sustainable watershed management are often substantially cheaper than investments in new water supply and treatment facilities. A number of cities in the US have found that every USD 1 invested in watershed protection can save any where from USD 7.50-200 in costs for new filtration and water treatment facilities (Trust for Public Lands 1997, cited in Scherr et al 2007). Le Maitre et al (2002) describe the removal of thirsty alien tree species and the restoration of native vegetation in Cape Town's watershed in South Africa. According to them, this has led

[56] Large markets exist for water quantity trading among water users in countries such as the US, Australia, Chile and Mexico. These are markets for ecosystem goods (water) rather than the ecosystem services that produce the water.

to water production at a fraction of the cost of the alternatives, for example water diversion or reservoir projects. The paragraphs below describe the experiences of watershed service trading in Ecuador and Costa Rica.

Payment for watershed services: Public–private payment for ecosystem services schemes in rural Ecuador and Costa Rica

Ecuador[57]

The forests and grassland of an upstream watershed provide the water supply of Pimampiro municipality. A total of 638ha of the area is controlled by an agricultural cooperative, the Asociación Nueva América (New America Association, ANA). Encroachment on forests and grassland put the city's water supply at risk. ANA and the municipality have agreed to cooperate to preserve forest cover and grassland and protect sources of drinking water. The municipality and members of ANA sign a contract that lays out plans to manage the land sustainably. The contract in return stipulates the compensation per hectare of land. Conserving primary forest and grassland attracts the highest payments (USD 1/ha/month). Less is paid for secondary forest (USD 0.75/ha/month). Agricultural land attracts no payment. Payments are made after quarterly inspections. Providers are excluded from the scheme after repeated non-compliance. An international grant of USD 15,000 kick-started the scheme in 2001. The municipality directs 20 percent of residents' water charges into the fund (less than USD 4,000/year), but this covers only a fraction of the payments made to the upstream community. The costs of administration, oversight and technical assistance are borne by the municipality and other parties. Ideally, the scheme should expand to cover the entire upstream area that provides water, a total of 4,285ha. But this would imply a six-fold increase in compensation payments, which is currently beyond the municipality's reach. Clearly, the scheme cannot survive without external funding. The experience of Costa Rica shows that this can be done successfully.

Costa Rica[58]

In 1996, Costa Rica created Forest Law *7575* to support the development of the forestry sector. The law introduced compensation to owners of forested property, or property in the process of reforestation, for the environmental services provided to society, for instance regulation of hydrological cycles, scenic beauty, carbon sequestration and biodiversity conservation. The PES programme foresees compensation mechanisms for private landowners and private companies involved in hydropower, brewing and tourism. Both are paid for the maintenance of primary forest, establishment of forestry plantations or forest management.

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(57) Compiled from European Tropical Forest Research Network (2001) and Wunder and Albán (2008)

(58) Compiled from European Tropical Forest Research Network (2001) and Ferroukhi and Schramm (2003).

From 1997 to 2000, the programme included 251,226 hectares belonging to private forest owners (4.9 percent of Costa Rican territory). They receive payment from the Fondo Nacional de Financiamiento Forestal (National Forestry Finance Fund, Fonafifo), which works with funds provided by the national government. Of the taxes collected from fossil fuels, 3.5 percent goes to Fonafifo. Agreements with the private sector resulted in payments for 17,611ha. Private sector agreements come in two types: purely private agreements, which involve no institutional agreement with Fonafifo, and agreements between Fonafifo and private companies. For instance, a conservation NGO and a hydropower company agreed an annual payment of USD 10/ha to the NGO for hydrological services of forests in the Peñas Blancas watershed. Another interesting case is the hydrological fee established by the drinking water company of Heredia in three watersheds. The company collects USD 0.0057/m3 for consumed water, which it reinvests in local forest conservation and reforestation. Agreements mediated by Fonafifo include that with the Compañía Nacional de Fuerza y Luz (National Power and Light Company, CNFL), whereby USD 47/ha per year is compensated to landowners with or without land title during 10 years in three watersheds.

Cap 'n' trade: The Acid Rain Program in the US[59]

Acid rain refers to the deposition of acidic components, whether wet (rain, fog, etc) or dry (particles and gases). The principal cause of acid rain is the acid formed by sulphur and nitrogen oxides (sulphur dioxide or SO_2, nitrogen oxide or NOx) from human sources, such as electricity generation and cars. Coal power plants are among the most polluting. Acid rain has adverse impacts on forests, freshwaters and soils. It kills insects and aquatic life forms, causes damage to buildings and impacts human health. In Scandinavia, there are many lakes with acidic water containing no life and many dead trees. Newly industrializing countries such as China, Indonesia and Thailand – as well as their neighbours – will probably be affected by acidic rainfall in the future.

The US Clean Air Act Amendments established the Acid Rain Program in 1990, introducing a cap 'n' trade mechanism aiming to reduce SO_2 and NOx emissions. The cap set a maximum allowable level of pollution and penalizes companies which exceed their emission allowance. It has been lowered over time to reduce the amount of pollutants released into the atmosphere. By 2000, the final nationwide cap on SO_2 emissions of 8.95 million tons per year began, a full 10 million tons below the 1980 level of 18.9 million tons. Under the Act, permits are distributed annually to polluting entities (one permit per ton of pollution). The total amount of allowances

[59] The website of the US Environmental Protection Agency at www.epa.gov/airmarkt/progsregs/arp/basic.html provides an invaluable source.

or permits equals the cap. A company may emit only as much as it has allowances for. Some companies have a hard time bringing pollution in line with their permits to pollute. Trading allows companies to trade allowances with each other, although the total number of allowances remains fixed. The trade creates a market for pollution, helping companies innovate in order meet their allocated limit. The companies capable of cutting pollution below the limit set by their permits end up with extra allowances, which they can sell to other companies. Put differently, the market allocates costs and benefits in line with the capacity to reduce pollution.

To track progress, ensure compliance and provide credibility to the trading component of the programme, involved companies must install systems which continuously monitor emissions of SO_2 and NOx. The programme has yielded 100 percent compliance and remarkable environmental and economic results. Power plants have reduced their SO_2 emissions far below allowable levels. Since the 1990s, SO_2 emissions have dropped 40 percent, and acid rain levels have dropped 65 percent since 1976. The long-term costs of the programme are far below projections. Experts initially estimated that cutting emissions would cost USD 3-25 billion per year. After the first two years of the programme, the costs were less than USD 1 billion per year. The scheme also generated innovative citizen action. In addition to the distribution of permits, the US Environmental Protection Agency auctions off 250,000 pollution permits annually to the highest bidder. These allow their owners to emit 1 ton of SO_2. In these auctions, citizens and groups can purchase SO_2 emission allowances alongside electric utilities and other producers of air pollution. In doing so, they hope to reduce the supply of allowances, so that the price of allowable emissions increases. Rather than using or trading the allowances, these groups take them permanently off the market ("banking" them) and so take additional SO_2 out of the air. By raising the price, they make it more worthwhile for companies to invest in emission reduction technologies rather than purchasing pollution allowances.

Auction-based approaches for conservation payments: The Bush Tender and BushBroker programmes in Victoria, Australia[60]

Bush Tender is an auction-based approach to improve the management of existing patches of native vegetation on private land. Victoria state has one of the most cleared landscapes in Australia. Much of the native flora and fauna is of high conservation significance. It is important for salinity control, water quality, land protection, greenhouse and landscape reasons. Achieving an increase in the quality and amount of native vegetation across Victoria is critical, and depends on substantial efforts of private landholders: 12 percent of Victoria's remaining native vegetation is on private land but this supports 30 percent of Victoria's threatened

(60) Based on Parkes (2007) and the Victoria State Department of Sustainability and Environment website at www.dse.vic.au/DSE.

species populations. Of the native vegetation remaining on private land, 60 percent is threatened is endangered, vulnerable or depleted.

The state government piloted auction-based approaches and offsetting to achieve a net gain in native vegetation. The approach consists of providing funding to community groups and individuals to restore and manage vegetation on properties with an important biodiversity value. Landholders are invited to submit a bid to carry out conservation works on their property. Winning bids are those which offer the best value for money. Successful landholders receive periodic payments for their management actions under agreements signed with the state government. The theory is that the MBI allows the Victorian government to obtain a greater area of protection for biodiversity values at a lower cost than other options. Evaluations indicated that the pilot auction preserved 25 percent more native vegetation than disbursing the same amount of money as conservation grants.

Victoria's government also requires offsetting: specific types of native vegetation cannot be cleared without a gain in native vegetation elsewhere. To clear such vegetation, a permit is required. Often, offsets can be generated on the permit applicant's own property. But there are situations where this is not possible, because the property lacks a suitable site or the applicant is unable to manage the native vegetation in the long term. In particular, developers in the property business need to source suitable and accepted sites for offsets. The government has established a system of native vegetation credits, which indicate a gain in the quality or quantity of native vegetation. These credits must meet specific conditions, including a secure agreement between the landholder and a public agency and a management plan to establish and maintain native vegetation. A credit can be used as an offset only once. The agreement is registered on land titles, so that the obligation stays with the title, independent of who the owner is.

BushBroker is a system set up to register and trade native vegetation credits. It is basically a database of accepted native vegetation credits which can be bought and used to offset the approved clearing of native vegetation. Everyone wins: potential buyers are able to find a cost-effective option to secure offsets which match the required characteristics; landholders find an income stream that rewards their conservation efforts. The environment also benefits: BushBroker provides an instrument to develop more intact areas of native vegetation, rather than an amalgam of small isolated areas, and so achieves better biodiversity outcomes. The government operates BushBroker, which involves overseeing the registration, listing, extinguishing and quality control of native vegetation credits. However, the owners and buyers of credits trade them directly, without the involvement of government.

Looking for a double dividend

The promise of a market-based approach

How to align private incentives with social objectives in the context of natural resource management? This question has been of particular interest to us. The current chapter has introduced MBIs as a way to promote this alignment. But what gives an MBI an edge (or not)? Basically, the conditions are no different for MBIs than for the other instruments, such as co-management. People will be favourable to it when it creates benefits which are worthwhile. The ownership of the right being traded must also be clear, so that the benefit can be appropriated. At a deeper level, people must be empowered to engage in MBIs. These are issues to do with capacity. The next few paragraphs look at these in turn.

Capacity

In these pages, we have used the notion of capacity broadly. For instance, we have used it to refer to the ability to internalize externalities. The notion of capacity has also been situated in the broader context of empowerment: being capable rather than merely being skilled. This links back to the rights debate and the issue of legitimacy: to what extent will the poor be able to participate in the market for eco-goods and services? Will the allocation of costs and benefits determined by such instruments be socially accepted?

MBIs certainly provide an opportunity to involve low-income households and communities in markets that transact ecosystem goods and services. Whether the opportunity can be fulfilled depends first of all on their awareness of such mechanisms. But being aware is not enough. It must be complemented by the capability to participate in the design of the instruments. In Cambodia, skills related to resource management are structured around compliance with prescribed rules. The skills required to deal with the flexibility offered by MBIs are rare. This is also true on the government side: government agencies with responsibilities for environmental management have little or no experience in designing MBIs. New mechanisms, however, are piloted to raise awareness and promote knowledge sharing[61].

A broader understanding of capacity brings us to rights and responsibilities. These are not well defined in Cambodia. Experience has shown that defining property rights over environmental assets is not easy, especially when this concerns state land. This has led to many problems, some of which have been assessed in this volume. The perception may exist that MBIs will help to depoliticize the environmental debate. It

(61) See, for instance, the Equator Initiative (www.equatorinitiative.org). The Equator Initiative addresses the interrelated problems of biodiversity loss and poverty and aims to advance innovative projects in biodiversity conservation and poverty reduction.

is thought that the market provides a systematic and forceful mechanism to demand ecological stewardship. But markets in themselves are neutral about the distribution of benefits and costs, so the issue of rights certainly does not go away. Who benefits from these mechanisms will depend on current ownership of the rights being traded. It also depends on future ownership of new types of rights. As noted, MBIs are one way of internalizing externalities. We have highlighted that they may help capture rents which remained hitherto uncaptured. Demsetz (1967) argued that new property rights emerge when the gains of internalization exceed the costs. Who will own these new types of rent? Certainly, to allow trading over ill-defined property rights is likely to be very complex and ultimately unworkable.

The new property rights may include rights similar to intellectual property rights, for instance rights that protect indigenous ecosystem knowledge (see Box 34). The emergence of new property rights has the potential to change the terms of negotiation between suppliers and beneficiaries of ecosystem services. It does constitute an opportunity for poverty alleviation and creating voice, but not automatically so. MBIs alone will *not* lift people out of poverty (Graff-Zivin and Lipper 2006, cited in Bulte et al 2008). This book has argued that the environmental debate is political as well as technical. Society benefits from a transparent discussion of rights and responsibilities, and the allocation of costs and benefits that comes with it. Market instruments should not be used as environmental band-aids at the expense of such debate. So the emergence of MBIs to promote investment in ecosystem stewardship needs to be paralleled by a broader dialogue about rights and benefit sharing.

Box 34: Who "owns" the knowledge of local plant life?

During free trade negotiations between the US, Colombia, Ecuador and Peru, Washington insisted that the treaty uphold the patents registered by US companies. These are developing biotech products based on the ancestral knowledge of Andean peoples about the properties (pharmacological, nutritional and industrial) of the local plant life. In the chapter on intellectual property of the draft treaty, the US insisted on the freedom to claim patents on plants and animals, designated as "inventions". The Andean countries insisted on the right to claim compensation for the commercial use of their biological resources. Their demand that the pact recognize the economic value of their biodiversity was the first such claim that had Washington faced in free trade discussions. In a further step, at the World Summit on Sustainable Development in 2002, the Venezuelan president announced the establishment of an Organization of the Petroleum-Exporting Countries (OPEC) type eco-services cartel of 12 countries. It wants developed countries and corporations that want to use indigenous expertise on a wide range of plants and animals to pay for access.

Source: Perelet (2005).

The economics of market-based instruments: Nature for sale?

Are MBIs a good deal from the perspective of low-income rural households? That depends on the benefits that can be captured. Markets determine the price, hence the potential benefits. The interplay between demand (willingness to pay) and supply

(opportunity costs) determines the price in the market. If supply overwhelms demand, prices will be low, as will the incentive to produce. Below we briefly analyze some demand and supply considerations.

The evolution of demand for ecosystem goods and services

Suppliers need to be aware of the new mechanisms, as pointed out above, but so do the consumers. Demand for things like certified wood or dolphin-free tuna is influenced largely by the awareness of private consumers. Raising awareness is a long and protracted process. In the meantime, the public sector plays an important role in organizing and expressing such demand. Public demand has been caught in the slipstream of a number of international processes and is accelerating; witness the speedy transformation of the debate on reducing greenhouse gas emissions into new trade-based instruments. The Kyoto Protocol, for instance, includes flexible mechanisms such as emissions trading and the Clean Development Mechanism (CDM)[62]. The key international processes that drive the transition include the transformation of agricultural subsidies, the elaboration of new modalities to implement multilateral environmental agreements and the growing interest in MBIs by multilateral development banks, the private sector and the international conservation community. Especially worthy of note are the multilateral environmental agreements. A number of signatory governments have started to pursue ways to achieve convention objectives through MBIs. More particularly, the Convention on Biological Diversity, the Convention to Combat Desertification and Ramsar (the Convention on Wetlands of International Importance) are exploring such instruments, for example wetland mitigation banking discussed in Ramsar and biodiversity offset payments discussed in the Convention on Biological Diversity.

Box 35: Wetland mitigation banking

Parties seeking permits for activities that affect wetlands must first avoid and then minimize those effects. Any remaining damage must be compensated. Historically, the regulatory preference for compensation has been on-site creation, restoration or enhancement of a wetland. These mitigation efforts resulted in several smaller "postage stamp"-sized wetlands which had limited success in reaching full potential. Mitigation banks typically involve the consolidation of many small wetland mitigation projects into a larger, potentially more ecologically valuable, site. Mitigation banking requires that compensation occurs before a site is affected by a project. The mitigation bank projects are put in place prior to allowing unavoidable impacts and generate credits. Those credits are purchased to offset impacts to wetlands that occur in other locations.

Source: Based on the Wetland Mitigation Banking homepage, Department of Ecology, Washington state, at www.ecy.wa.gov/programs/sea/wetlands/mitigation/banking/index.html[63].

(62) These allow countries to meet their greenhouse gas emission limitations by purchasing emission reductions credits from elsewhere, through financial exchanges, or through projects that reduce emissions in other countries with excess allowances.

(63) This website is very useful, containing a number of interesting databases and reports. A more specialised reference is Shine and de Klemm (1999).

We mentioned the growing interest of multinationals in MBIs as market-friendly approaches to environmental protection. Many welcome MBIs as part of their agenda on corporate social responsibility. However, the use of private equity and venture capital models to promote poverty alleviation and ecological recovery is not without its critics. Should entrepreneurial activity be allowed to make vigorous inroads in conservation activity? For instance, Forest Re – one of the world's biggest insurance firms – specializes in the design of insurance and reinsurance products for forestry and tree crops worldwide. The fear is that they may overwhelm local initiatives or cause the phasing-out of government financing. By developing and serving larger-scale markets, such companies may influence the commercial environment. Will low-income sellers be muscled out of a potentially interesting niche of the value chain (see the example on intellectual property rights)?

In summary, demand for ecosystem services is rising. This demand is expressed by public agencies and, increasingly, the private sector. To the extent that the international private sector also enters the market on the supply side, the question of pro-poor business models becomes more important. This brings us to the supply side.

The evolution of supply for ecosystem goods and services

The supply of ecosystem services implies a change in land use and management. Below we briefly assess what risks and costs are associated with such changes.

Risk: Change is not without risk, and people will associate different land use options with differences in risk. According to the literature on technology adoption, risk and uncertainty raise the perceived costs of change (Sunding and Zilberman 2001). For instance, a subsidy to let land lie fallow is a safer proposition than the restoration of specific types of native vegetation. But risk is also associated with the perceived security of the agreement on offer. This could affect even a fairly simple action, such as letting the land return to its natural state. Since demand is often expressed or mediated by government or public agencies, the assurance problem rears its ugly head again: is government credibly committed to the process and outcomes?

Transaction costs again: Two issues in particular are relevant to Cambodia. First, the same problems that affect markets in Cambodia will also influence markets for ecosystem goods and services. Markets in Cambodia tend to be inefficient and small: information does not circulate as freely as it should, disputes cannot be settled transparently and swiftly, etc[64]. By implication, transaction costs are substantial and the amount of capital commanded by the market small. Accordingly, the successful use of MBIs requires better functioning and "deeper" markets, which demands

(64) The 2008 Transparency International Global Corruption Perceptions Index ranked Cambodia 166th out of 180. See http://www.transparency.org/news_room/in_focus/2008/cpi2008/cpi_2008_table.

non-market interventions. As Libenstein (1984) observed, "markets exist as a powerful coordinating mechanism but only when supported by other coordinating mechanism of non-market character". For instance, what alternative mechanisms exist to finance the investments of poor producers if credit is not available on reasonable terms? What transparent and independent arbitration mechanisms exist?

Second, much of the landscape in Cambodia is fragmented into a mosaic of pastureland, wetland, fields and forests (see Box 9 in Chapter 4). To produce ecosystem services in such mixed landscape mosaics calls for cooperation of the many different players involved. Considerable transaction costs are associated with developing and aggregating the efforts of many small farmers. How high the costs will be depends on the number of participating farms or community groups, the number of hectares under contract and the number and frequency of verification measurements required. Will these transaction costs not overwhelm the incentives that can possibly be offered? More in general, how to effectively intermediate between the market-based efforts of many small-scale suppliers and the typically large-scale private and public buyers? Also here, to keep transaction costs in check, non-market measures will need to support the market; for instance, cooperatives or groups of sellers that mediate between small sellers and large buyers.

All systems go for MBIs in Cambodia? Should Cambodian administrations, local governments, farmers and community groups plunge head-on into the market for ecosystem services? MBIs present promise; the demand for eco-system services is accelerating. It would be unwise not to create mechanisms which allow farmers, landholders and local firms to meet that demand and capitalize on emerging markets for ecosystem services. But a host of pitfalls remain. We have argued that the capacity of the Cambodian government to design and manage complex instruments, or back them up by regulation, is limited. The problematic functioning of local markets in Cambodia has also been noted, as has the existence and functioning of self-organized groups. We remarked that trading over ill-defined property rights is likely to be very complex and ultimately unworkable. So far, relevant experiences with MBIs in Cambodia have been limited to a few projects selling carbon offsets: biogas and improved cooking stoves[65]. The absence of information from the field limits policy learning.

The key message is to tread carefully. There may be some immediate opportunities, for instance where an easily adoptable framework exists, with procedures and regulation proven to work and backed up by independent third parties. The last point is important because it limits the issue of credible government commitment. Examples could be the SLIMF initiative of the FSC, or selling carbon offsets by way

(65) Information on these projects is available at http://www.carboncatalog.org/projects/cambodia/.

of the CDM. Imagine that forest management agreements between the Forestry Administration and Community Forestry associations include periodic coupes, provided that implementation is audited under the SLIMF initiative. As to the CDM, it is already being piloted in Cambodia. However, the most promising application for Cambodia is forest conservation and afforestation (Reduced Emissions from Deforestation and Degradation, REDD)[66]. For instance, an American firm (Terra Global Capital) has signed an avoided deforestation deal with the government of Cambodia. Besides a number of NGOs, partners include Cambodia's Forestry Administration and nine Community Forestry groups. Wetland mitigation banking under Ramsar might also provide interesting opportunities for Cambodian participation. Payment for watershed maintenance schemes could be assessed and some pilot initiatives developed, for instance in combination with a Community Forestry agreement. Cambodia's experience with public–private partnerships for domestic water provision could be very relevant here (see Box 29 in Chapter 8). Other fairly straightforward PES schemes could involve private landholders, for example to establish specific vegetation corridors across a fragmented landscape. This would require the creation of new legal categories, such as private forest reserves[67].

Overall, many conceptual and design issues remain to be solved. This is not the same as saying it cannot be done. Conceptual issues include a better understanding of how different institutional mixes (regulatory, community-based and MBI) can be combined. Another question that needs more scrutiny is how best to aggregate and mediate the services delivered by many small-scale suppliers. Design issues are many, but relate mainly to cost effectiveness of the instruments and mobilization of the investments. To address these issues, desk studies will be necessary but not sufficient. Concrete pilots will be needed to generate experiences and feedback.

(66) REDD is a methodology for avoiding the release of CO_2 emissions and, by using these forests as carbon sinks, abating future CO_2 emissions. At the 2007 Conference of the Parties to the UN Framework Convention on Climate Change, REDD was recognized as a valid mechanism in the fight against climate change.

(67) Private reserves allow the promotion of conservation efforts on private land and encourage landholders to combine plots into a recognized protection area.

Chapter 10

“Tania”: There are no ideal answers

Photo by: Dr Jean-Christophe Diepart

Chapter 10 "Tania": There are no ideal answers

Who says one size fits all?

Environmental problems arise because the interaction of biological, economic and social systems is complex. Poverty, agriculture, environment and trade are fundamentally linked. These links exist everywhere, but the connections are more obvious in developing countries. There, poverty frequently coincides with the predominance of agriculture in the economy. This sharpens the question on how to overcome the fundamental tension between individual and social preferences. On one thing everyone agrees: our natural environment has changed dramatically in a mere few decades. Finding solutions is much harder. For some the answer is regulation, only in stronger doses: tighter national supervision. Yet the logic of more robust national regulation is flawed. The likely outcome is that markets will (continue to) outreach the scope of effective governance.

The move towards a market economy is transforming the balance between public and private ownership and, with it, patterns of exclusion in society. What sort of governance is needed to respond effectively? What sustainable changes in the management of natural resources will help lift rural people out of poverty? We have argued that sweeping regulation and supervision imposed from afar on local communities are not helpful. Rather, strong and effective local oversight will do more to promote a stable environment and prosperous local economy. Broad governance reforms have indeed created local polities, but their freedom to act is still very much debated. What now? This volume is not intended to produce an action agenda or a set of recommendations. Whether it satisfies what Putnam (1993) refers to as the "interocular traumatic test" is left to the appreciation of the reader[68]. But we should conclude by indicating a number of take-home lessons emerging from all these pages.

(68) "Findings should hit the reader between the eyes."

The main take home-lessons

Rural transformation is irreversible

Change is an essential element of development. Economic forces drive an increased demand for resources and space, and so produce a continuous interaction between natural processes and human activities. This results in a transformation of the way people cooperate, exchange and transform goods and services, dis-embedding such processes from their "bed" of norms and customs. The effect is to widen the gulf between what is legal and legitimate. The consequences for the landscape are rarely planned. The actors causing the effects are the ones with the competence to do so. Competence derives from institutions, which define property and exclusion. The rapid transformation of society is redefining the competence to cause change; persons and companies from outside Cambodia's villages are increasingly in formal command of village resources. They gain control via institutions and processes over which the villagers have little – if any – influence. True, the need to sustain a growing population continues to propel villagers' demand for resources and space. But so does the lack of alternatives.

Indeed, there is a parallel process of land concentration, powered by the need to accumulate capital. Extracting the rents embedded in natural resources has been a straightforward way to kick-start the process of capital accumulation. Efforts to extract these rents are not informed by learned habits of restraint. Landscapes are changing accordingly. The voracious appetite for land and resources is driving the conversion of forests, wetlands, mangroves, etc, polarizing space in intensively used areas and growing areas of marginalization. Even so, the argument here is not that plantations should be banned or rural transformation halted. Clearly, these dynamics must be placed within a broader scale, that of the ongoing economic transformation of the sub-region. Given Cambodia's integration in this region and its absorption in the global economy, as well as the needs of a rapidly growing population, the process of rural transformation is indeed irreversible. So, the question is not how to turn back the clock. Rather, it is how to ensure that transformation is sustainable in the broadest sense: reflective of the preference of the (rural) majority as well as of the capacity of the landscape for renewal.

Management: Not neutral or merely technical

Natural resources provide many different goods and services, on condition of their renewal. Natural resource management is about setting the conditions for renewal and exclusion. Renewal is akin to the creation of public goods. Essentially, it is about creating positive externalities. But where there are positive externalities there are free riders. The assurance problem summarizes the tension between renewal and extraction: contributing to the creation of public goods demands adequate and secure incentives in the form of resource benefits. But what methods might be adopted,

by whom, to secure whose claims? And how to measure the preference for the creation of public goods, the prevention or mitigation of public bads, the protection of vulnerable people? Property rights configure the distribution of costs and benefits. Government has something to say about this. It has placed poverty alleviation top of its agenda. Put differently, it will help poor people create wealth and so help themselves. People need secure rights to be able to do this: this is one of the basic conditions for growth and wealth distribution. The implication is that government will assist in securing property rights for the poor rural majority. Will this effectively happen? That depends on how the conditions for growth and wealth distribution are determined. In other words, the quality of governance is important as well.

It so happens that – besides poverty alleviation – the government has also put democratization centre stage. By underwriting the concept of democratization, it expresses something essential: it is partial to a representative and accountable process of public choice to approximate the social preference. This is important, because we noted that a shortfall in the quality of governance cannot legitimately close the distance between claims and rights. Those with the power to dictate the terms are those with access to the institutions that make the decisions. These are not your typical local villagers. Why, for instance, should they bear the cost of absorbing negative externalities generated elsewhere? Clearly, desired environmental outcomes cannot be enforced if they are not also desired by the local people. So, at heart, re-embedding requires more than administration: it requires filling democratic deficits. Effective claims must rest on political contracts between the state and citizens. Consequently, the conditions for renewal and exclusion and the shifting of costs and benefits cannot be resolved outside the arena of politics. In the absence of an effective political contract, the pattern of exclusion and the distribution of costs and benefits are askew.

Subsidiarity: Drafting a local political contract

To make collective decisions, villagers need a decentralized political arena. This is the place to participate in decision making, follow the money and results and call those responsible to account if things go wrong. The shorter the links to accountability and the more reduced the command chains, the more room for flexibility and innovation in decision making. In this regard, subsidiarity is a powerful concept. It tells us that collective decisions must start from the recognition of local diversity and the need to weigh the opinions of all constituents. In the context of Cambodia, it tells us that the process must be informed by options and incentives that appeal to the rural majority, which happens to consist mainly of poor subsistence farmers.

The local councils (polities) now in place everywhere are a vital element in creating and protecting the local political space. Essentially, they have been mandated to establish a political dialogue between local actors in rural development, and between these actors and the state. It is critical that the institutions of the central

state make place for these new polities. True, subsidiarity may produce negative externalities. It needs a process of unbundling and assigning powers and functions to remedy this difficulty. The argument that local politics are no panacea for the problems of national politics – notably corruption and rent seeking – is useful but beside the point. It is useful because it reminds us of the constraints that the social context places on institutional performance. "Decentralisation has enabled the establishment of local democratic institutions, but democratic politics are yet to develop locally" (Sedara and Ojendal 2007). But it is beside the point, because narrowing the scope for local governance is not the solution to local rent seeking. The point of local governance is that it creates local accountability. The solution is to help the locals get organized and demand it.

Blend approaches to managing

Who should manage resources? We noted that this question cannot be answered in the abstract. True, commons on state land form an overwhelming proportion of the valuable ecosystems, but that does not make the state the natural manager. Rather, it raises the question why the state should hold all this land. Decentralization calls for the bundle of powers to be unbundled and distributed over a variety of actors. The state will surely resist such a process – in practice if not in principle – as long as it "owns" all the resources. In looking for the right measure, it is clear that any approach will need to combine the strengths of the public sector with that of local self-organized groups, and bank on the market as a force for good. Different instruments and institutions are necessary to arrest degradation, to regenerate and to sustain a resource. So what are the roles of these various actors?

We have put two things in perspective. One is that a complex mosaic of private farmland and local commons supports rural livelihoods in Cambodia. Also, an institutional architecture respectful of this local diversity does more to advance the cause of sustainable natural resource management than detailed plans and blueprints that assume it away. Focusing the attention on compliance with one or a limited number of blueprints may end up with a convergence on the wrong solution and may compromise further debate. Rather, natural resource management needs sensible traffic rules which will allow various localities to manage their own mosaic. Letting a variety of approaches and regulatory models flourish will yield problems but also certainly successes, from which a great deal can be learned. Variation rather than blueprinting is the raw material of innovative economic growth.

So the role of central government is not to prescribe solutions. Rather, it is to elaborate and manage a decision support framework which helps to analyze trade-offs on the basis of objective criteria. In addition, central government is the ultimate guarantor of the rule of law. Without this, the assurance problem cannot be resolved and no single agreement can stand. An important role for local councils is to create the conditions for meaningful deliberation of the local trade-offs between protection and

production. National and sub-national authorities should not take it on themselves to produce the public good. That would be tantamount to enforcing resource renewal. Rather, they must cooperate to create and uphold the rights and duties that encourage community groups, households and companies to produce the public good in return for a secure and worthwhile share of the rent. No doubt the political and administrative picture emerging in the end will be complex. Gaps and overlaps will be inevitable. To deal with such a policy complex, the development of a coordination framework should be an integral part of promoting the decentralization agenda. In the environmental area, this is certainly no luxury. Environmental and rural development discussions are firmly intertwined; the array of institutions mandated to deal with these policy areas requires integration and coordination of expertise across a vast area.

How to harness the force of the market as a force for good in Cambodia? True, market forces present far from an impressive track record where sustainable development in Cambodia is concerned. Much of this has to do with problematic governance and the rule of law, but it also concerns market failures that are intrinsic to the production of public goods. However, the emergence of a type of rent that promotes stewardship rather than exploitation is a powerful complement to any rule setting. Whereas ecosystem services have always been there, the ability to price and trade them is new. The ability to reward the production of positive externalities helps to align private and social preferences. There is ample room for innovation and piloting. But market innovations do not resolve problematic governance. The potential profits from ecosystem services are massive and, without prior definition of property rights, may simply fuel more inequality.

What does the public do for itself? Meaningful collective action

We have noted expressions of partiality from government: partiality to structural change in the form of poverty alleviation and democratization. But paper is patient and entrenched interests exceptionally resilient. So, meaningful collective action calls for authentic formats of citizen action. As Sen (1990) puts it, "public action includes not just what is done for the public by the state, but also what is done by the public for itself".

It is hard to overestimate the significance of citizen movements. For instance, small-scale suppliers of ecosystem services will have to cooperate to deal with large-scale buyers or the state. But this is more than a question of cutting transaction costs and increasing efficiency. It is also about meaningful participation and accountability. For instance, who will hold the rights to harvest carbon credits, receive payments for ecosystem services, etc? Community groups tied into co-management can never be equal partners with the state, unless they aggregate in line with the administrative structure of their state partner. For instance, there could be a district forestry committee – not as a committee of the district council but as an independent aggregation of local forestry

committees – a provincial forestry committee and an apex council of Community Forestry. The main advantage of such a setup is that it does not ask the state to mediate what citizens do for themselves. They can talk to one another directly. As Weissing and Ostrom (1992) state, "to the extent that self-organized units do not exist in physical and institutional isolation, they may learn a lot from one another by sharing their experiences". In this way, the structure can mobilize opinion and action independently and provide critical mass to seek representation at various scales. Put differently, if co-management is a negotiated process between local users and the state, then local users need to combine their strength to negotiate effectively with the state. Only in this way can they produce any movement along the so-called co-management continuum in the direction of local communities. A lot could be learned from some ongoing initiatives in Cambodia[69].

It will take time

As Putnam (1993) put it, "where institution building is concerned, time is measured in decades". Decentralized resource management implies a reallocation of powers across the various levels of governance. The state has given itself 10 years to complete the job. Many observers balk at this glacial pace, suggesting that, by the time the governance picture has been clarified, there may well be little left to manage. In other words, the problems may have become irreversible.

There are two answers to this. First, there really is no alternative to the slow, culture-bound work of building institutions. This is especially so when challenging the rules of the game and negotiating new ones. Such institutions need time to stabilize. Without it, the tiger may be saved today, but the tiger's habitat lost tomorrow. Building institutions and making policy are messy. There is rarely a perfect match between the outcome and the textbook model and participants should be prepared for second-best solutions. But these should be based on agreed principles: there can be second-best solutions but not second-best principles.

Second, a mix of instruments and approaches will be necessary, each acting over different timeframes. Command and control – if properly enforced – has the fastest response time and is appropriate for emergency measures. Self-governing institutions such as community associations may bring about durable changes in behaviour, but typically require a long time to emerge. MBIs work across different timeframes. In all of this, it is important not to forget the key issue: translating ecological policy into actual poverty alleviation, but also ensuring that economic growth does not irreversibly destroy Cambodia's natural capital base.

(69) A local NGO, Centre d'Études et de Développement Agricole Cambodgien (Centerfor the Study and Development of Cambodian Agriculture, Cedac) is slowly building a coalition of farmers from the ground up (Farmer Nature Net, see www.cedac.org.kh/fnn.asp).

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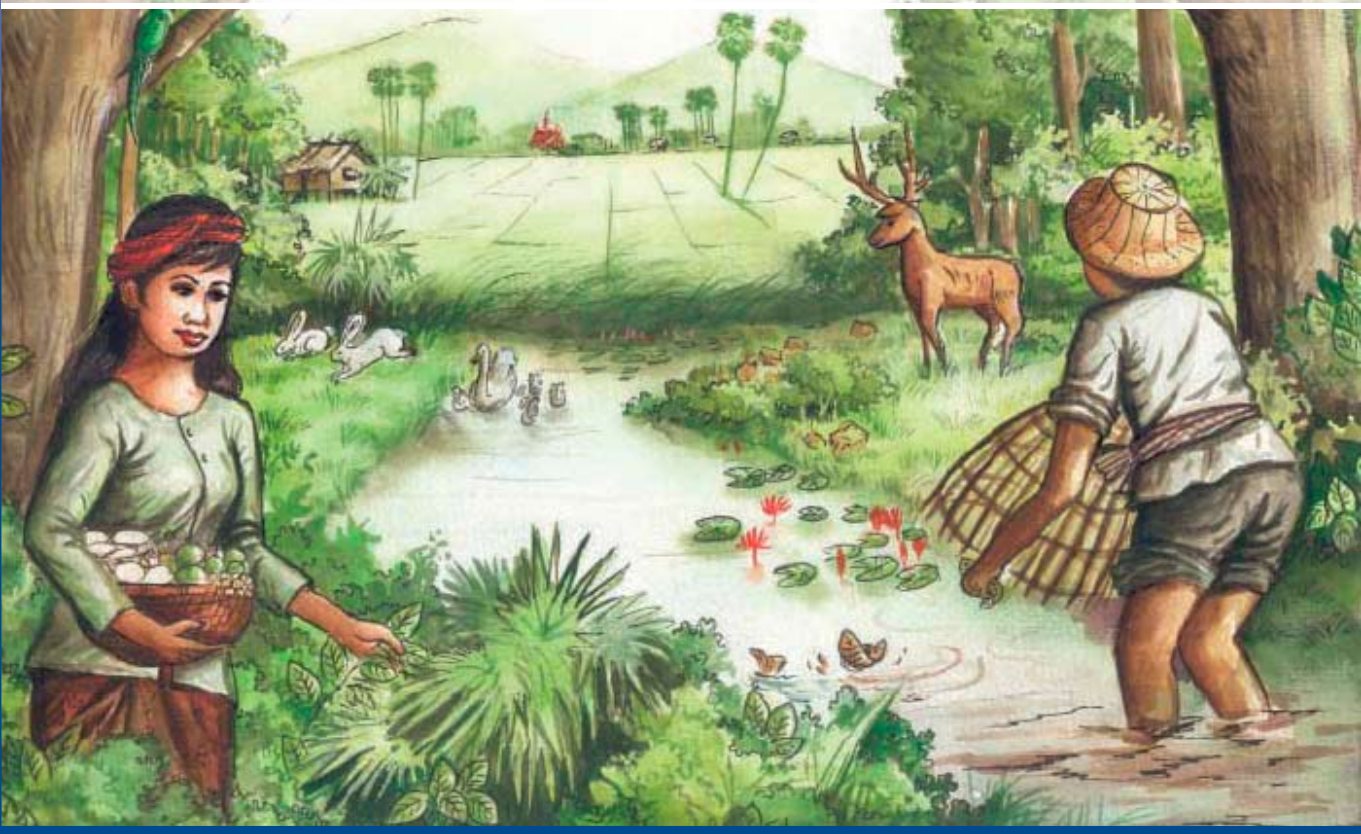

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