Chapter 3
Open to All?: Reassessing Capture Fisheries Tenure Systems in Southern Laos

Ian G. Baird

Abstract Capture fisheries are among the many different common property resources in the Mekong River Basin described as being historically 'open access'. It is widely accepted that this continues to be the case, and that a 'tragedy of the commons' is therefore inevitable. The myth that all fisheries resources in southern Laos were historically 'open access' is challenged in this chapter. Using the examples of the fence-filter trap and wing-trap fishery system in the Khone Falls area of Khong District, Champasak Province, the operation of fence-filter and wing traps along perennial and seasonal streams in southern Laos, and the pit-trap fishery system in Pathoumphone District, Champasak Province, it is demonstrated that pre-existing tenure systems for fisheries management are far from being 'open access'. Rather, private resource ownership is socially and culturally sanctioned in these ecologically and socially very different fisheries, as part of a common property management system based on first claims to fishing sites and labor inputs. 'Open access' rarely exists in southern Laos, something that may not become evident without sustained field observations. However, discursively characterizing fisheries as 'open access' can be used to justify interventions by government and outside agencies.

Keywords Common property resources • Inland fisheries • Mekong River • Open access • Tragedy of the commons

3.1 Introduction

In the Mekong River Basin many different common property resource management systems, including those for capture fisheries, are typically described as being historically 'open access'. This essentially implies that from pre-modern times until now those resources have been open to exploitation by all, without risk

I.G. Baird (✉)
Department of Geography, University of Wisconsin-Madison, 160 Science Hall, 550 North Park St., Madison, WI, USA 53706-1491
e-mail: ibaird@wisc.edu

K. Ruddle and A. Satria (eds.), *Managing Coastal and Inland Waters: Pre-existing Aquatic Management Systems in Southeast Asia*, DOI 10.1007/978-90-481-9555-8_3,

of being prohibited, limited or sanctioned (Fujita and Phanvilay 2008; Baran et al. 2007a, b; Viner et al. 2006; van Zalinge 2002; ADB 1997). Some believe that many fisheries in Laos are 'open access' (MRC 2006; MRCS 2001; Choulamany 2000; Lorenzen et al. 1998). For most fisheries managers, 'open access' equates with 'unmanaged', implying that resources are therefore extremely vulnerable to overexploitation and depletion, and urgently requiring management interventions from outside. For example, a report produced by the Mekong River Commission Secretariat (2001: 1), as part of an environmental program training case study, stated that, "[o]pen access fisheries are typically characterized by excess harvesting and unsustainable fishing practices."

The idea that local, pre-existing fisheries management measures are unsustainable and thus inadequate, sets the discursive conditions that make outsider-initiated changes in management wholly justifiable, even righteous, by managers and their advisors who see inland fisheries resources as potentially subject to a 'tragedy of the commons' (Hardin 1968). The framework people use for assessing fisheries greatly affects the way they imagine such concepts as 'fish declines' (Bush and Hirsch 2005). Hardin's ideas have profoundly influenced the ways people view fisheries management, approaches to natural resource management in general, and how these subjects are taught.[1] Foucault's (1991) work on 'governmentality' demonstrates how the discursive aspects of constructing fisheries management issues are crucial for understanding how governments and others choose to address particular situations.

In this chapter I argue against the generally dominant assumption that inland fisheries resources in the Mekong Region were historically mostly 'open access', and are thus in need of fundamental restructuring to stop them from being managed as 'common property resources'. Further, I demonstrate that inhabitants of the Mekong River Basin in southern Laos have developed complex systems of fisheries management that are far from being the typically assumed 'open access'.

First I examine some ideas related to common property management and social theory. I then present examples of three important and long-established fisheries that always have been based on restricting access. The first is the fence-filter and wing traps fishery for small migratory cyprinids in the mainstream of the Mekong River, in the Khone Falls area of Khong District, Champasak Province, in southern-most Laos. The second is the fence-filter and wing trap fisheries in seasonal and perennial streams in southern Laos. The third is the use of pit-traps for fishing in the back-swamps of eastern Pathoumphone District, Champasak Province.

[1]Hardin argued that common property resources are fundamentally vulnerable to overexploitation because individual users tend to maximize personal benefits, even when the resources they depend on are being overexploited and depleted by the combined actions of users striving to maximize individual benefits, both at the expense of the resource and ultimately of their own interests.

3.1.1 The Tragedy of the Commons

A large international and inter-disciplinary literature that developed during the 40 years since Hardin's (1968) tragedy of the commons thesis appeared has vigorously debated the value of his ideas. There have been many attempts to refute its fundamental premises. Since Hardin was a natural scientist, and people tend to be convinced by arguments presented by those with similar backgrounds, it is not surprising that his thesis has been extremely influential among biologists, geographers, natural resource managers, and the general public. Many have been attracted by the straightforward assumptions in Hardin's theory.

A major problem is that Hardin's thesis tended to justify the alteration of common property management systems to those based on either state control (i.e. such as government managed and enforced protected areas, or government controlled access to resources via quotas or closed exploitation periods) or private control of resources through various means (i.e. community management, private ownership and company control, among others). Essentially, Hardin's work has influenced many to believe that common property systems should be altered to 'non-traditional' forms of management that more effectively 'limit access' to resources (Ostrom 1990; Andelson 1991; Steins et al. 2000).

On the other hand the fundamental and crucial flaws in Hardin's thesis have been noted. First, it essentially collapses 'common property' and 'open access' resources into a single category, reducing many long-standing common property systems to simplistic systems that allow unfettered access to all-comers. Subsequently it has been widely demonstrated that most common property managements systems are far from being 'open access'. Access is often restricted through overt rules and regulations, as well as informal rules and everyday social and cultural norms. This includes practices not formalized in law or mandated by the state. More commonly, however, limitations to access are embedded in socio-cultural practices, including subtle norms (Ostrom 1990; Andelson 1991; Steins et al. 2000). These realities are frequently difficult to recognize without in-depth study of particular circumstances, since important nuances are embedded in local historical, political, economic, cultural, social, and ecological issues.

In addition, a large literature has emerged showing that people are not simply the dominant, individual profit or benefit-maximizing resource exploiters assumed by Hardin. Instead, behavior is almost always mitigated by various social and cultural networks and practices (Bravo and Marelli 2008; Steins et al. 2000; Tanner 2007; Wagner and Talakai 2007). That people everywhere, and not just those living in isolated, inward looking villages of the South, but also urban inhabitants of the industrial economies of the North, are often irrational social animals can be illustrated by tipping behavior in up-scale North American restaurants. Although there are no formal requirements for customers to tip, nevertheless they usually add 10–20% of the meal price to their bill as a tip. If not, it would probably be assumed they were displeased with either the food or the service, or both. Whereas for regular customers this could be construed as rational behavior to ensure future good treatment, it does not explain

such behavior by a one-time only patron. In other words, there is no obvious rational economic reason for their leaving a tip. Were people to always act as Hardin's argument assumes it could be reasonably anticipated that all one-time patrons would not leave a tip, thereby maximizing individual benefits. That the opposite behavior is the norm indicates that there exist strong, socially and culturally embedded reasons for tipping (cf. Azar 2003).

3.2 The Fisheries

3.2.1 Fence-Filter (Tone) and Wing Traps (Li) in the Mekong River

Khong District, in Champasak Province, is well known for the Khone Falls, the only large waterfalls on the Lower and Middle Mekong River (Daconto 2001) (Fig. 3.1). Located just north of the Laos–Cambodia border, the Khone Falls area is famous for supporting some of the most important fisheries in the Mekong River Basin. Two of these are the fence-filter trap (tone) and wing trap (li).[2]

3.2.2 Khone Falls Tone Trap Fishery

This fishery targets small cyprinids, known collectively as 'white fishes',[3] of which at least 32 species are believed to annually migrate over 400 km up the Mekong from the Tonle Sap River and Great Lake, in Cambodia. These migrations are linked to lunar cycles, with most fish passing through the Khone Falls to the middle Mekong at the beginning of the new moon. In Laos, fish are expected to arrive during the Chinese New Year, i.e., the beginning of the third month of the Laotian lunar calendar. This period typically falls during a dry season, between late-January and early-February. The fish tend to migrate upstream in the daytime, and the fishery typically lasts for a couple of months, with peak catches during new moon periods, or a little after. Trap catches are low when fish are not migrating. This fishery is among the most important in the Khone Falls area, meeting both subsistence and income needs (Baird 2001; Baird et al. 2003; Baran et al. 2005).

[2]See Claridge et al. (1997) for detailed descriptions of the fishing structure designs for each, as the traps built in the Khone Falls are not identical to those with the same names elsewhere in Laos.

[3]'White fishes' refers to mainly cyprinids that inhabit large rivers and streams. Their colors are often considered to be 'whiter' than 'black fishes' (Channidae, Anabantidae, Claridae and Heteropneustidae, constitute this group) found in more stagnant swamp-like conditions.

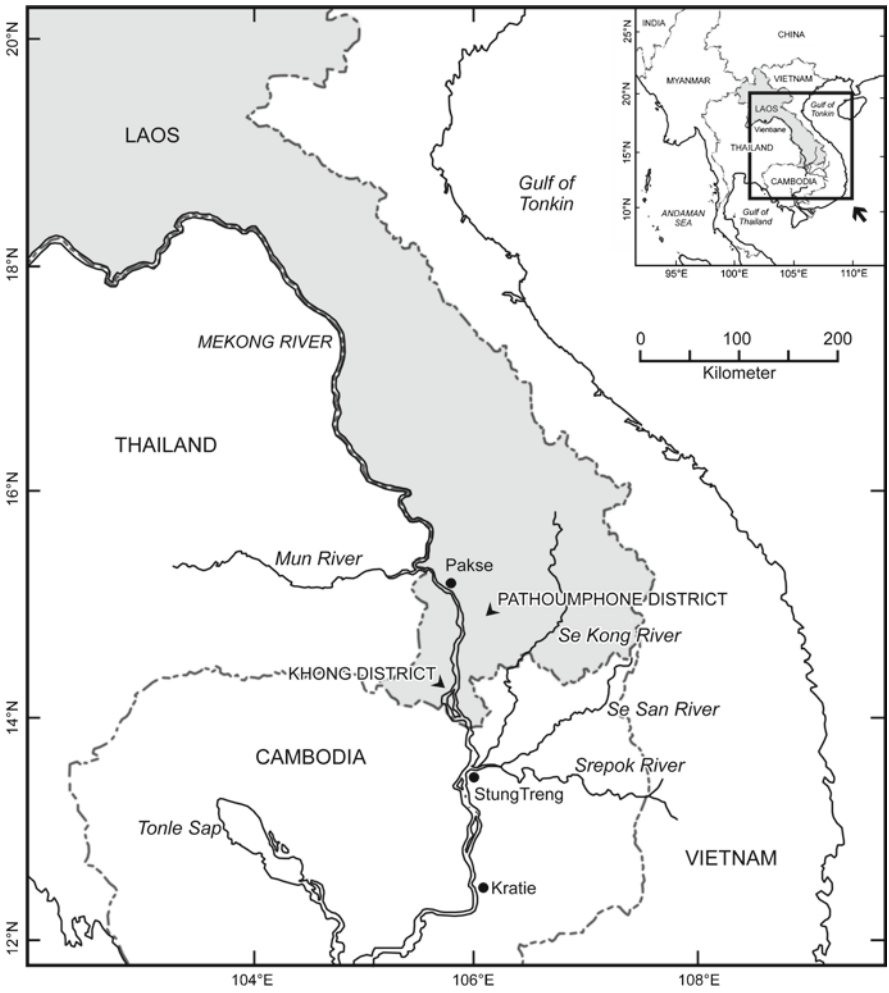

Fig. 3.1 Locations in Laos

The fish tend to move up different channels, and if ascent is blocked by waterfalls or rapids, they return downstream, and are caught in the tone trap. Since these traps catch only fish moving downstream, the Khone Falls is the only place where this kind of fishery can be established, as it only works if rapids or waterfalls are located directly upstream. The main species caught by this fishery are *Henicorhynchus lobatus* (45%), *Paralaubuca typus* (33%), *Henicorhynchus siamensis* (5%), *Labiobarbus leptocheilus* (5%), *Botia modesta* (4%), *Crossocheilus reticulatus* (1%), *Cirrhinus microlepis* (1%), *Tynnichthys thynnoides* (1%), and *Lobocheilos melanotaenia* (1%) (Baird et al. 2003).

The tone fishery involves building trap structures in the rapids of the various channels below the main waterfalls. These structures are typically made of wood,

Photo 3.1 Fence-filter trap (tone) in the Don Nok Kasoum Channel during the dry season to catch migratory small cyprinids, Khone Falls, Khong District, Champasak Province, Laos

bamboo and rattan (Photo 3.1). Various trap designs are used, each based on past observations of the nature of local fish migrations and catches.[4] Many structures are rudimentary, and strong ones are generally not required because water flows are low during the season of this fishery.

3.2.3 Khone Falls Li Fishery

The li fishery in the Khone Falls area primarily targets schools of medium-sized pangasid catfish migrating up the Mekong River, and smaller quantities of other species migrating downstream. However, as with the Khone Falls tone fishery, even if they are trying to migrate upriver, fish are caught when moving downstream to seek alternative routes to avoid rapids or waterfalls. The main species of catfish caught are *Pangasius conchophilus* (41%), *Pangasius krempfi* (5%), *Pangasius bocourti* (4%), *Pangasius larnaudii* (3%), and *Pangasius macronema* (1%) (Baird et al. 2004). The main cyprinids taken are *Henicorhynchus lobatus* (13%), *Scaphognathops bandanensis* (7%), *Cosmocheilus harmandi* (4%), *Cyclocheilichthys enoplos* (3%), and *Puntioplites falcifer* (2%). Over 100 species have been recorded as being caught by this fishery (Baird et al. 2004).

Unlike the dry season tone fishery, these migrations of pangasid catfish and the other species taken are not linked to lunar cycles. Rather, they are associated with hydrological changes and rising waters in the Mekong River. The fishery takes

[4]People in Khong District are famous for their local ecological knowledge (termed 'intimate knowledge' by Raffles (2002) about Mekong fish and fisheries (Baird 2007).

Photo 3.2 Fence-filter trap (tone) in the Xang Pheuak Channel. Khone Falls, Khong District, Champasak Province, Laos

place from May to July, as the waters rise with the onset of the monsoon. After that many traps are either flooded or washed away by the powerful current at the height of the monsoon (Baird et al. 2004; Baran et al. 2005; Hogan et al. 2007).

Like the tone fishery, the li trap structures are made of wood, rattan, bamboo and nails. Li traps are typically much larger and stronger than tone traps, because they must withstand the strong current and higher water levels of the rainy season (Photo 3.2). They are typically built in March and April, when water levels are at their lowest, to be ready for use when water levels rise in May. Building a li trap is hard work that generally takes a group of people many days or even a month or more to complete (Roberts and Baird 1995).

3.2.4 Khone Falls Tone and Li Tenure

The tone and li fish traps in the Khone Falls area are typically owned by ethnic Lao families living in the surrounding villages. Essentially, a tenure right is established by a 'first-comer', with the first person to claim a fishing spot owning in perpetuity the rights to the same fishery at the same time each year (Roberts and Baird 1995; Baird et al. 2003, 2004). In the past, ownership of rice fields was familiar to all, although people had no title deeds. Similarly, fishing spot ownership was known. However, whereas land rights have received formal State recognition, fish trapping spots have not. Nevertheless, government officials in Khong District recognize that people have tenure over certain fishing spots, and the officials have ownership lists. Generally, they uphold these claims, thereby recognizing pre-existing ownership regimes.

The government does not tax the fish caught using tone and li traps, but owners are taxed based on the amount of timber used to build them. Thus, forestry officials visit the traps, assess the amounts of wood used, and charge the users forest use tax. For this reason the Forestry Section of the Khong District government has remained involved in capture fisheries management, despite the task having been allocated nationwide since the 1990s to the Livestock and Fisheries Section. Both Forestry and Livestock and Fisheries are, however, under the district Agriculture and Forestry Office.

For as long as anyone can recollect, tone and li fishing sites in the Khone Falls area have been considered *moun moladok* (inheritable property). Therefore once a claim to a particular fishing site has been established, typically after one season of use, its de facto owner can choose to either use the site privately by himself, team up with others to use it together (in which case catches are divided equally), or rent it to others, either people from the same village or those from other communities. Fishing spots can also be bought and sold like other private property. And, like agricultural land and other private property, they can be divided among successors.

Unlike rice fields, which are generally recognized as being owned year-round, fishing spots are owned only for particular seasons. For example, a tone fishery and a li fishery in the same location might not be owned by the same person(s). However, this is not problematic because the fisheries are seasonally separated. Frequently, trap sites are owned by groups of people or families, sometimes but not always related. Sometimes ownership shares in fisheries are sold or traded to others, while other shareholders retain their shares.

Ownership of tone and li trap sites has also long been important in determining where people could establish new sites. For example, social pressure would be exerted to prevent a person from establishing a new trap site just upstream of an existing one, for fear that it would end up with much of the historic catch of the trap downstream. However, there are limits to the ability for downstream trap owners to prevent those upstream from building new traps. There are some tensions over these matters, which local people appear constantly to be negotiating.

In the Hou Sahong channel of the Khone Falls area there is a special tone fishery targeting the migratory catfish *Pangasius macronema*. Although most traps in the area are privately owned, the village of Hang Sadam communally owns a long-standing fishing site at *Tat Pho*, adjacent to their village. Participation in the fishery is restricted to village members, who work together to make the traps and who receive nearly equal shares of the catch. The system appears to function well, since there has been apparently little dissention among users, or calls for changes in either resource tenure or management (Baird, Hogan et al. 2001).[5]

[5]It should be noted that there are plans to build the Don Sahong Hydroelectric dam on the Hou Sahong channel in the general area where the communal fishery for *Pangasius macronema* is located (see International Rivers 2008).

3.2.5 Fence-Filter Trap (Tone) and Wing-Trap (Li) Fishing Along Seasonal and Perennial Streams

Unlike the fence-filter and wing trap fisheries specifically designed for a particular habitat on the mainstream of the Mekong River in the Khone Falls area, the fisheries described in this section occur in various forms, designs and sizes, and in a wide variety of different locations throughout Laos. They are found almost everywhere streams are used by migratory fish at the end of the rainy season.[6]

3.2.5.1 Stream Tone and Li Fisheries

Unlike the highly specialized fisheries at the Khone Falls, many other less-spectacular kinds of fence-filter and wing traps are common and widespread through Laos. They are typically important for rural livelihoods (Photo 3.3).

There are some fundamental differences between the Khone Falls fence-filter trap and wing trap fisheries and those elsewhere. For example, whereas the Khone Falls traps are active in the dry season, early in the calendar year, stream fence-filter and wing traps are operational during the rainy season. Although some people use these traps at the beginning of the rainy season to catch fish migrating upstream into natural ponds and wetlands to spawn, they are used especially at the end of the rainy season. Another major difference between the fence-filter and wing traps in the Khone Falls area and those in streams is that whereas the former target

Photo 3.3 Wing trap (li) during the rainy season to catch mainly migratory catfish, Khone Falls, Khong District, Champasak Province, Laos

[6]See Claridge et al. (1997) for detailed descriptions of these types of traps.

long-distance migratory ‘white fish’, stream traps target ‘black fish’ migrating short distances from seasonal to perennial water bodies. These include *Channa striata*, *Clarias* spp., *Trichogaster trichopterus*, *Puntius brevis*, *Hampala dispar*, *Anabas testudineus*, *Ompok bimaculatus*, *Rasbora* spp., and others. Thus the species composition of both fisheries is almost totally different. Another crucial difference is that the fish caught in the Khone Falls are migrating upriver when trapped, whereas those caught at the end of the rainy season are all moving downstream to exit the progressively drying wetlands and streams.

3.2.5.2 Stream Tone and Li Tenure

Although there are significant differences in the two types of fence-filter trap and wing trap fisheries discussed here, the tenure arrangements associated with stream tone and li traps are quite similar to those involving tone and li traps in the Khone Falls. That is, stream tone and li traps are privately owned, and ownership is based on who fishes first in an area using a fixed trap.[7] Once tenure is established, others cannot erect similar types of traps during the same fishing season in the direct vicinity of the already established trap site. They may be able to do so if their trap is located a significant distance from the other.[8] Thus, the trap site comes to be regarded as private property that can be transferred like land, and which is inheritable, just like fence-filter traps and wing traps used in the Khone Falls area.

However, in some cases fence-filter trap and wing trap tenure is affected by land tenure issues, which is not generally the case in the Khone Falls. If a trap site is located in a commons area, adjacent to common forest areas for example, the above formula for establishing tenure would almost certainly be applied. However, access is further limited if a fishing site is located adjacent to someone’s private land. In such cases people may argue that their right to operate fish traps in the stream is dictated by their ownership over adjacent land. Thus land rights and fishing trap rights can sometimes be linked. The claim can be especially strong if a farmer owns the land on both sides of the stream in question. In those cases it would be hard for someone to fish at a particular location without first obtaining permission from the owner of the adjacent land. However, if fish trap ownership preceded land ownership, then the rights of the land owner would generally be greatly reduced. Of course, the unique ecological, social, cultural, political and economic circumstances all greatly affect the forms that tenure arrangements take.

The management of stream fish traps is generally done entirely by local people, with very little interference from state agencies. This sort of fishing is considered to be ‘traditional’, and therefore local people see the use of these traps as an inherent right, just like growing rice. People often use them to catch the raw materials for

[7]Mobile gear often involves different rules and norms.

[8]This distance can vary depending on various ecological, geographical and social factors.

making fermented fish paste (*pa dek*), a culinary staple. In addition, these traps tend to catch smaller amounts of fish compared to fence-filter and wing traps used in the Khone Falls. Stream trap catches can, however, range from just a few kilograms of small fish to hundreds of kilograms of fish, including larger, more expensive table species. The government is not interested in generating revenue from these smaller fishing operations, thus they are rarely if ever taxed. The only exception might be if a particular trap was well-known for catching particularly large quantities of fish. Then, the state might demand some of the benefits. The community might also request a cut. There are various possibilities in a diverse region such as this.

3.2.6 Pit-Trap (loum pa) Fishing in Swamps

The *'Khet Beung'* area of eastern Pathoumphone District, Champasak Province, is located tens of kilometers east of the mainstream Mekong River, and away from any other large rivers. Unlike the Khone Falls area, the *'Khet Beung'* area is not known for its many islands and multiple channels, and it is not the type of average place where stream traps are used. It is a special place with rich forests and plentiful natural wetlands, the largest of which are known as *'beung'*, Eastern Pathoumphone is known as a 'wetlands region' and is one of the largest wetland complexes in Laos (Claridge 1996). Seventy percent of the district's land is included in two of Laos' National Protected Areas (NPAs), the Xepian NPA in the southeastern part of the district, and Dong Houa Sao NPA, in the northeastern part of Pathoumphone.

The ecological and socio-cultural circumstances of the Khet Beung area differ considerably from those in the Khone Falls area. For one, the long distance migratory fish do not occur, whereas 'black fish' similar to those caught in stream traps are common. On average, the most abundant species in pit-traps, based on percentage of total weight, are *Channa striatus*, followed by *Monopterus albus*, *Clarias batrachus*, *Trichogaster trichopterus*, *Puntius brevis*, *Hampala dispar*, *Anabas testudineus*, *Ompok bimaculatus*, and *Rasbora* spp. Snakes, crabs and snails are also harvested in smaller quantities. None of the main species caught in this fishery are the same as dominant species in the Khone Falls area, although many are the same as those caught by stream traps.

According to surveys done in 2006 (the results of which are unpublished), each pit-trap yields 15–30 kg of fish. Some yield less fish and more *Monopterus albus*, others yield more *Channa striatus*, whereas in others *Clarias batrachus* are the most common, depending on the particular ecological conditions involved. Often, predatory fish have eaten many of the smaller species before the areas are harvested, but in some cases early harvests can result in higher catches of small minnows and carps.

Unlike at the Khone Falls, the ethnic Lao people and minorities who live in Pathoumphone do not wait for the Chinese New Year for fish to migrate up the Mekong River. Neither do they catch their fish at the end of the rainy season, like those using stream traps. Instead, they anticipate declines in water levels as the dry

season arrives. They wait for the many perennial and seasonal natural ponds that dominate the landscape of this region to partially or fully dry out, then they take advantage of the ecological conditions to catch fish. Harvesting tends to occur at the height of the dry season.

The most important way that villagers take advantage of the ecological conditions of the Khet Beung area to catch large amounts of fish is through the adoption of a long-standing fishing method particular to the area and its ecological conditions: pit-trap fishing (*loum pa*, in Lao). This involves digging deep pits (often one or more meters deep and a meter or more in width and about the same in length) at the bottom of perennial or seasonally inundated wetlands during the dry season. The pits are then filled with sticks and other vegetation before they are inundated during the rainy season. When water levels begin to drop naturally at the end of the rainy season, in October or November, fish move to deeper waters, including the pit-traps that villagers have set up. Depending on the individual ecological conditions of each wetland and pit-trap, once water levels have declined considerably, especially from December to February, villagers remove the sticks and other debris from the pit-traps, and scoop out the water so that the fish can be caught easily.[9]

3.2.6.1 Pit-Trap Tenure

As with the tone and li fisheries, the pit-trap fishery in Pathoumphone is far from being 'open access'. Each pit-trap is considered to be privately owned by villagers living either in the village closest to the area, or in neighboring villages. Tenure over the pit-traps is obtained through labor inputs. Once a pit-trap has been created, it is owned in perpetuity by the digger or the digger's family. As with tone and li fishing spots, pit-traps are considered to be inheritable property, and they too can be rented out and sold like other private property.

Pit-trap tenure can be compared with that applied to wood resin trees (*Dipterocarpus alatus*) throughout much of Southeast Asia. In most places ownership of a wood resin tree is based on who first tapped it (Baird and Dearden 2003; Baird 2009). The same principle applies in Pathoumphone, where a pit trap is owned by the person who first dug it. Similarly, Baird and Bounphasy (2005) found that wild honey bees in Pathoumphone are managed privately, based on ownership of their nests. However, unlike pit-traps and wood resin trees, private ownership is not permanent. People who discover bee nests in the forest, mark the trees to claim ownership of the nests during that dry season. Others may not exploit bee nests in a tree already marked. Then, at the end of the season, when all the nests have been harvested, the marked trees revert to being the common property of the village.

[9]More recently, there have also been limited reports of people using gasoline powered pumps to remove water from pit-traps.

There are apparently no restrictions on how many pit-traps a person, family or household can own in Pathoumphone, and villagers typically report that the number depends largely on the labor available for harvesting fish and maintaining the traps. Frequently, families own between a few and over ten pit-traps. It might be expected that numbers would be restricted, because the catch of each is probably affected by the total number in the same wetland. However, informants report that the number of private pit-traps is not restricted. Essentially, common wetlands can be partially privatized by digging pit-traps. However, their owners have no tenurial rights over the communal wetland in general as a result; fishing rights are restricted to particular locations at certain times of the year. Therefore tenure rights are strong, but seasonal and partial. Owners also must periodically dredge their traps and otherwise reinforce them with wood, both to maintain fish production and unequivocally establish their tenure over particular pit-traps.

3.3 The Nature of Tenure and Governance

The cases described in the preceding sections represent three examples of clear-cut, long-standing tenure arrangements for fisheries in southern Laos. Despite the very different circumstances associated with each fishery, all three involve complex common property resource management rules and norms that include private tenure arrangements for managing resources. Further, scarcity of good fishing spots characterizes all of these fisheries. The scarce nature of fishing sites has apparently encouraged villagers to develop private tenure systems in all three instances, thereby avoiding conflicts over the basis for production.

However, these cases also raise many important questions about tenure arrangements associated with other fisheries, which may or may not be organized in the same way as tone and li or pit-trap fisheries. They also raise questions regarding restrictions on the use of mobile gears and whether, for example, the use of casting nets and gillnets is allowed in rivers. Although at first glance many net and hook based fisheries appear to be 'open access', which fishers will likely affirm to be the case, the reality might be quite different.

'Open access' implies that outsiders can fish as they wish, and theoretically this should be possible if the system is truly 'open access'. However, few situations in Laos can be accurately described as fully 'open access', although many could be considered partially 'open access'. The term open access is frequently confusedly used to describe situations where common property management systems are in place (Ostrom 1990).

There are also other local fisheries management systems in Laos that regulate access to particular resources. For example, there are many different ways that individuals and communities manage seasonal and perennial wetland fisheries (see Tubtim and Hirsch 2005; Mollot et al. 2007). Mollot et al. (2005) have documented complex arrangements for limiting access to a *Macrobrachium* shrimp fishery in the Nam Khan River of northern Laos. Some important places

for setting gillnets in the Khone Falls area are also privately owned, like tone and li traps. The same applies to sites for other types of traps in the Khone Falls (Roberts and Baird 1995).[10]

There is also the matter of protected areas for fish, or fish sanctuaries, which are established in particular areas and subject to varying kinds of restriction, either as a result of long-standing spiritual beliefs, from natural resource management concerns, or as a result of other more recently introduced fisheries management arrangements. In Laos, protected areas for fish have existed for as long as anyone can remember, and have unwritten local rules and norms attached that either ban fishing year round, disallow fishing at certain times of the year, or prohibit particular types of fishing (Baird 2006). Resources cannot be considered 'open access' if either formally or informally protected areas are located within them.

Let us consider what 'open access' commonly really means in the Laotian context, and the discourses associated with the concept. In my experience, usually fishing is open to outsiders, but is almost always restricted. Typically, outsiders are expected to follow particular local rules and norms, which if not respected lead to various forms of protest, like the enforcement of customary rights or use of social pressures. Thus it is apparent even at this level that access is not 'open'; outsiders may be allowed to fish in a village's fishing grounds, but they should do so in ways similar to the villagers. If locals use small-meshed gillnets, outsiders would probably not be prohibited from doing so. However, were outsiders to try using gears that locals never use, or substantially larger or more efficient versions of the gears in use, then the villagers would likely no longer consider their fishing areas to be 'open access'. For example, if the smallest mesh size for gillnets used in a village is 2.5 cm, it is unlikely that they would countenance outsiders using a 2-cm mesh size.

In other words, access is open only if outsiders follow particular norms. However, the discourse of villagers may not always make that clear from the outset, hence the misunderstanding of the situation by outsiders, and therefore the crucial importance of detailed and careful field examination of each fishery.

That villagers frequently describe their fisheries as being 'open access', when they really are not stems from the relationship between rural people and officialdom. Typically, full 'open access' is constrained by local rules or norms that the state regards as informal. Such rules and norms are neither promoted nor sanctioned by government. Rather, they are community approved, which can be important, even if the rules are not legally binding. However, when the state is not explicitly involved, local people commonly describe their resources as 'open access', even when they are governed through complex common property regimes. Essentially, villagers use the term 'open access' to mean that the state

[10]However, this sort of system is not in place for most locations where fishing in the Khone Falls is possible. Only particularly important fishing spots have become privately owned.

does not restrict people, even if the villagers might do so. Considering that at present there is no fisheries law in Laos,[11] and that the state generally leaves local fisheries management to fishers,[12] local rules and norms remain fundamentally important.

Another important aspect of tenure relates to migratory species. Although local resources might not be openly accessed by everyone, Mollot et al. (2007: 61) argue that migratory fish are essentially 'open access' because they move among various independently managed areas:

> In riverine fisheries, the approaches to community-based capture fisheries management may also support access rights of a host village to the exclusion of other neighboring villages, but the fish stocks themselves may be moving between villages across large geographical areas as part of seasonal fish migration cycles. This essentially creates an open access fishery in the rivers that support some of the most important and productive fisheries in the Mekong Basin.

However, it can be argued that even such fish stocks are not 'open access' because access is still restricted in the individual management areas. Two different issues are involved, so using the same term to describe both is confusing and misleading. Fish mobility undoubtedly complicates management. However, that is not related to a resource being 'open access'; it is about a resource being mobile and passing through different management areas, thereby creating management problems that cannot be solved by individual management areas alone.

That fisheries are frequently characterized as 'open access' is related to state and institutional power. Important here is Foucault's concept of 'governmentality', which helps explain why, despite overwhelming evidence to the contrary, bureaucrats and their allies commonly define complex tenure arrangements as 'open access' situations. Most importantly, state discourses are often simplifications of reality that help make management systems more visible and thus controllable by the state (Scott 1998). However, specifically related to Foucault's ideas, state and aid agency intervention in local resource management is often justified by portraying already existing management systems as 'open access', and thus fundamentally flawed and in urgent need of state intervention. In other words, the discourses promoted by bureaucrats tend to make state interventions, whether useful or not, seem like the responsible thing to do, rather than an unwarranted interference in local affairs. Outsider intervention is justified to prevent the tragedy of the commons. As Foucault (1991) points out, it is crucial to consider how state discourses are created and deployed, and how they contribute to maintaining state power and influence. The use of the concept of 'open access' provides a prime example of how the

[11]Although attempts are being made to pass fisheries legislation in Laos, those involved hope to be able to support legislation that facilitates and supports local management efforts, rather than restricting local people from improving their management of fisheries resources. The legislation is expected to be passed in 2010.

[12]This differs from Cambodia, where fisheries are generally more valuable, and where the state is reliant on revenues from them.

deployment of a particular discursive framework can justify the use and misuse of state or other institutional power.

3.4 Conclusions

Some observers have described fisheries in Laos as being historically 'open access'. However, reality has long been more complex, with elements of private ownership frequently being introduced when deemed useful.

In this chapter I have described three important fishery tenure systems from southern Laos, involving fence-filter and wing traps at the Khone Falls and in streams, and pit-trap fishing in the Khet Beung area, and have illustrated how they have long been managed as common properties. None is a product of efforts by outsiders to improve fisheries management, although historically they would have been influenced by the state in various ways. Crucially, private ownership has long been recognized by 'first claims' to good fishing spots, as well as through fishers' labor inputs to ensure successful fishing.

In addition, these examples of complex tenure arrangements demonstrate that even common fishing activities involving the use of nets and hook-and-line are not 'open access', as typically portrayed both by outside observers and the fishers themselves. I have proposed that villagers often miscommunicate information about these tenure arrangements because they distinguish state-sanctioned rules from locally made unwritten rules and norms, with the latter not being considered in some kinds of public discourse. I have also demonstrated that state powers and other outsiders sometimes have a vested interest in falsely characterizing common property systems as 'open access', thus enabling them to justify external intervention to forestall what they perceive as an otherwise inevitable 'tragedy of the commons'.

I do not attempt to argue that all local people manage aquatic resources sustainably, since the various changes associated with human population increase, changes in fishing and post-harvest technologies, and the increased importance of markets have had an impact on the ways people use and manage fisheries resources. Also, as pointed out by Mollot et al. (2007), these changes are compounded because many fish in the Mekong River Basin are highly migratory, thus making it difficult for individual fishing communities to determine how particular fish stocks are or should be managed (see, for example, Baird and Flaherty 2004; Hogan et al. 2007; Baird et al. 2003). Regardless of intent, limited information about other places where fish spend parts of their life cycles makes it difficult for individual communities to determine the future condition of their fisheries, and therefore the strategies for basing management decisions.

In addition, many other serious threats to their fisheries are beyond the control of fishing communities. These include industrial pollution, domestic wastes, land use on critical floodplains, and especially the construction and operation of large hydropower dams in both the Mekong River and its tributaries. However, a balanced perspective is important, and it should be understood that fishing communities

can improve their fisheries by implementing local rules, including those for the establishment and management of fish sanctuaries, as has been widely demonstrated (see Baird et al. 2001b; Baird and Flaherty 2005; Baird 2006).

Many serious challenges confront the Mekong River Basin and its inhabitants. On the one hand the region has been blessed with some of the world's most biodiverse and productive freshwater fisheries. On the other, the heavy dependence on these capture fisheries for food and livelihood, especially by the poor, also reveals a potential danger for present and future generations if they are not managed sustainably. Collapse of these fisheries could leave many people without an important safety net, and a resource that people turn to when agriculture fails in the absence of alternative livelihoods. Without a doubt a more sustained vision is needed to ensure that fisheries in the Mekong River Basin are better managed in the future than they are at present.

Finally, I have stressed the importance of considering different scales of management. It is not enough to encourage people simply to improve their management of local fisheries, although that is an important part of what is required. Nor is it enough to analyze just regional concerns, although ignoring these issues would also be foolish. The point of this chapter is that although the future of capture fisheries in Laos and the Mekong River Basin are in jeopardy, inaccurately labeling fisheries there as being simply 'open access' will not make various complex issues easier to address. In fact, such labeling would suggest that there has been no serious effort to understand fully the nature of each fishery. This needs to be rectified quickly, because only when one's gaze is focused and sustained, and power relationships are understood, does the full nature of what one is looking at become evident.

Acknowledgements I thank Somphong Bounphasy and Kaikeo Oudomxay from the Global Association for People and the Environment (GAPE) for adding to my knowledge about pit-trap fisheries operation and management in Pathoumphone District, Champasak Province. I am also grateful for comments provided on an earlier draft by Roger Mollot and Kenneth Ruddle. Responsibility for any remaining shortcomings is mine alone.

References

ADB (Asian Development Bank). (1997). *Asian Development Bank policy on fisheries*. Manila: ADB.

Andelson, R. V. (1991). *Commons without tragedy*. Savage, MD/London: Barnes and Noble Books/Shepheard-Walwyn Ltd.

Azar, O. H. (2003). The social norm of tipping: a review. http://129.3.20.41/eps/othr/papers/0309/0309006.pdf. Accessed 18 Dec 2009.

Baird, I. G. (2001). Aquatic biodiversity in the Siphandone wetlands. In G. Daconto (Ed.), *Siphandone Wetlands. Environmental protection and community development in Siphandone Wetland Project* (pp. 61–74). Bergamo: CESVI.

Baird, I. G. (2006). Strength in diversity: Fish sanctuaries and deep-water pools in Laos. *Fisheries Management and Ecology, 13*(1), 1–8.

Baird, I. G. (2007). Local ecological knowledge and small-scale freshwater fisheries management in the Mekong River in southern Laos. In N. Haggan, B. Neis, & I. G. Baird (Eds.), *Fishers' knowledge in fisheries science and management* (pp. 246–266). Paris: UNESCO.

Baird, I. G. (2009). *Dipterocarpus wood resin tenure, management and trade: practices of the Brao in Northeast Cambodia*. Saarbrücken: Verlag Dr. Müller.

Baird, I. G., & Bounphasy, S. (2005). Non-timber forest product management in southern Laos: The necessity of considering complex tenure arrangements. In Anon (Ed.), *Resource book on enhancing the poor's access to land and other common property resources*. Quezon City: Asian NGO Coalition for Agrarian Reform and Rural Development and the International Land Coalition. Paper 22.

Baird, I. G., & Dearden, P. (2003). Biodiversity conservation and resource tenure regimes – A case study from northeast Cambodia. *Environmental Management, 32*(5), 541–550.

Baird, I. G., & Flaherty, M. S. (2004). Beyond national borders: Important Mekong River medium sized migratory carps (Cyprinidae) and fisheries in Laos and Cambodia. *Asian Fisheries Science, 17*(3–4), 279–298.

Baird, I. G., & Flaherty, M. S. (2005). Mekong River fish conservation zones in southern Laos: Assessing effectiveness using local ecological knowledge. *Environmental Management, 36*(3), 439–454.

Baird, I. G., Flaherty, M. S., & Phylavanh, B. (2003). Rhythms of the river: Lunar phases and migrations of small carps (Cyprinidae) in the Mekong River. *Natural History Bulletin of the Siam Society, 51*(1), 5–36.

Baird, I. G., Flaherty, M. S., & Phylavanh, B. (2004). Mekong River Pangasiidae catfish migrations and the Khone Falls wing trap fishery in southern Laos. *Natural History Bulletin of the Siam Society, 52*(1), 81–109.

Baird, I. G., Hogan, Z., Phylavanh, B., & Moyle, P. (2001). A communal fishery for the migratory catfish *Pangasius macronema* in the Mekong River. *Asian Fisheries Science, 14*, 25–41.

Baird, I. G., Phylavanh, B., Vongsenesouk, B., & Xaiyamanivong, K. (2001). The ecology and conservation of the Smallscale Croaker *Boesemania microlepis* (Bleeker 1858–59) in the mainstream Mekong River, southern Laos. *Natural History Bulletin of the Siam Society, 49*, 161–176.

Baran, E., Baird, I. G., & Cans, G. (2005). *Fisheries bioecology in the Khone Falls area (Mekong River, Southern Laos)*. Penang: WorldFish Center.

Baran, E., Jantunen, T., & Chong, C. K. (2007). *Values of inland fisheries in the Mekong River Basin*. Phnom Penh: The WorldFish Center.

Baran, E., Starr, P., & Kura, Y. (2007a). *Influence of built structures on Tonle Sap fisheries*. Phnom Penh/Penang: Cambodia National Mekong Committee/The WorldFish Center.

Bravo, G., & Marelli, B. (2008). Irrigation systems as common-pool resources: Examples from Northern Italy. *Revue de Geographie Alpine, 96*(3), 5–25.

Bush, S. R., & Hirsch, P. (2005). Framing fishery decline. *Aquatic Resources, Culture and Development, 1*(2), 79–90.

Choulamany, X. (2000). *Fisheries survey, Luangprabang Province, Lao PDR*. LARREC Research Report No. 0001, Vientiane: Living Aquatic Resources Research Centre.

Claridge, G. (compiler) (1996). *An inventory of wetlands of the Lao PDR*. Vientiane: Wetlands Programme, IUCN – The World Conservation Union.

Claridge, G. F., Sorangkhoun, T., & Baird, I. G. (1997). *Community fisheries in Lao PDR: A survey of techniques and issues*. Vientiane: IUCN – The World Conservation Union.

Daconto, G. (Ed.). (2001). *Siphandone Wetlands. Environmental projection and community development in the Siphandone Wetland Project*. Bergamo: CESVI.

Foucault, M. (1991). Governmentality. In G. Burchell, C. Gordon, & P. Miller (Eds.), *The Foucault effect: Studies in governmentality* (pp. 87–104). Chicago: University of Chicago Press.

Fujita, Y., & Phanvilay, K. (2008). Land and forest allocation in Lao People's Democratic Republic: Comparison of case studies from community-based natural resource management research. *Society and Natural Resources, 21*(2), 120–133.

Hardin, G. (1968). The tragedy of the commons. *Science, 162*, 1243–1248.

Hogan, Z., Baird, I. G., Radtke, R., & Vander Zanden, J. (2007). Long distance migration and marine habitation in the Asian catfish, *Pangasius krempfi*. *Journal of Fish Biology, 71*, 818–832.

International Rivers. (2008). *Power surge: The impacts of rapid dam development in Laos*. Berkeley, CA: International Rivers.

Lorenzen, K., Garaway, C. J., Chamsingh, B., & Warren, T. J. (1998). Effects of access restrictions and stocking on small water body fisheries in Laos. *Journal of Fish Biology, 53*(Supplement A), 345–357.

Mollot, R., Chamsingh, B., & Noraseng, P. (2007). From traditional management to fisheries co-management – A review of benefit sharing in community-based fisheries management in Lao PDR. In Anon (Ed.), *A fair share? Experiences in benefit sharing from community-managed resources in Asia* (pp. 51–66). Bangkok and Hanoi: RECOFTC, WWF and SNV Netherlands Development Agency.

Mollot, R., Xainyavi, B. & Sysombath, D. (2005). Local ecological knowledge and customary resource tenure for a *Macrobrachium* fishery on the Nam Khan. In Anon. (Eds.), *Proceedings of 7th Technical Symposium on Mekong Fisheries Ubon Ratchathani, Thailand, 15–17 November 2000* (pp. 321–324). Phnom Penh: Mekong River Commission.

Ostrom, E. (1990). *Governing the commons: The evolution of institutions for collective action*. Cambridge: Cambridge University Press.

MRCS (Mekong River Commission Secretariat). (2001). *Sustainable management of the Nam Ngum Reservoir fishery*. MRCS Environment Training Program Case Studies. Phnom Penh: MRCS.

MRC (Mekong River Commission). (2006). *Livelihoods approaches and fisheries management in the Lower Mekong Basin.* Mekong Fisheries Management Recommendation #5. Vientiane: The Technical Advisory Body for Fisheries (TAB), Mekong River Commission.

Raffles, H. (2002). Intimate knowledge. *International Journal of Social Sciences, 173*, 325–335.

Roberts, T. R., & Baird, I. G. (1995). Traditional fisheries and fish ecology on the Mekong River at Khone Waterfalls in Southern Laos. *Natural History Bulletin of the Siam Society, 43*, 219–262.

Scott, J. C. (1998). *Seeing like a State. How certain schemes to improve the human condition have failed*. New Haven: Yale University Press.

Steins, N. A., Edwards, V. M., & Roling, N. (2000). Re-designed principles for CPR Theory. *The Common Property Resource Digest, 53*, 1–5.

Tanner, A. (2007). On understanding too quickly: Colonial and postcolonial misrepresentation of indigenous Fijian land tenure. *Human Organization, 66*(1), 69–77.

Tubtim, N., & Hirsch, P. (2005). Common property as enclosure: A case study of a backswamp in southern Laos. *Society and Natural Resources, 18*, 41–60.

Van Zalinge, N. P. (2002). Update on the status of the Cambodian inland capture fisheries sector with special reference to the Tonle Sap Great Lake. *Mekong Fish Catch and Culture, 8*(2), 1–9.

Viner, K., Ahmed, M., Bjørndal, T., & Lorenzen, K. (2006). *Development of fisheries co-management in Cambodia: A case study and its implications*. Discussion Series, No. 2. Penang: WorldFish Center.

Wagner, J., & Talakai, M. (2007). Customs, commons, property, and ecology: Case studies from Oceania. *Human Organization, 66*(1), 1–10.