

## 1 Introduction

In the 1990s the government of Hanoi installed traffic lights at many, but not all, of the city's busy intersections. While the new system of traffic lights was 'more modern', it was not system-wide and the city lacked sufficient traffic police to enforce it. A period of higher risk and uncertainty for urban commuters ensued as no one knew from one intersection to the next which set of rules to follow. The old system of 'continuous blending from all four directions' looked incredibly chaotic to foreigners but in fact had functioned safely and efficiently for many decades because everyone knew and obeyed the rules, such as they were.

The above story emphasises that it is often difficult to apply modern laws in those areas of Vietnamese society where customary law has long been in use. This is especially true for Vietnam's mangrove resources, which have decreased rapidly in area and quality during the on-going period of 'renovation reforms', or *Doi Moi* in Vietnamese, which started in 1986. Uncontrolled wood extraction, paddy area expansion, mining activities, construction of dykes, dams and roads, and – most importantly – commercial shrimp farming have all been factors in the rapid loss of mangrove resources. Due to the high profitability of shrimp exports, both central and local governments provided incentives to shrimp farmers, despite the knowledge that shrimp farm productivity usually declines dramatically within three or four years of pond construction.<sup>1</sup>

In such a context this article asks: how can sustainable mangrove management emerge in the Red River Delta of Vietnam? What appropriate combinations of institutional arrangements would encourage this?

## 2 Managing the Commons

According to Garrett Hardin's model of the 'tragedy of the commons' (1968), the commons are really open-access and are not owned by anyone. This, in turn, leads to overexploitation and resource depletion. He concluded that natural resources should be either privatised or controlled by central government authority to ensure sustainable use (Berkes 1989). In fact, as the case discussed in this article illustrates, the promotion of nationalisation

# Institutional Arrangements for Community- based Mangrove Forest Management in Giao Lac Village, Giao Thuy District, Nam Dinh Province, Vietnam

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and privatisation of natural resources has not solved the problem of resource degradation and over-exploitation. Furthermore, it has often deprived a large portion of the population of their livelihood (Pomeroy 1992).

I argue that the 'tragedy of the commons' continues to arise in Vietnam, not only in free access situations but also under government regulation. Though government may wish to implement state property regimes and official regulations on resource use, it lacks the necessary organisational capacity and political will to do so. Centralised control and regulation of natural resources unintentionally creates an unsustainable open access resource where limited-access common-property resources had previously existed (see Ostrom 1990).

Some believe that the only way to avoid the tragedy of the commons is to end the common-property system by creating a system of private property rights where privatisation internalises costs and benefits, reduces uncertainty, and thereby increases individual responsibility for the environment and rational use of resources (McCay and Acheson 1987; Smith 1981; Welch 1983). However, I argue that individuals, when they become the owner of the resource, try to maximise their own net return in the immediate term and therefore ignore sustainable practices, which will bring them long-term benefits.

I follow Ostrom (1990) who demonstrates that the imposition of private property does not stipulate how that bundle of rights is going to be defined, who will pay for the costs of excluding non-owners from access and how conflicts over rights will be adjudicated. Thus, privatisation is not the solution to a tragedy of the commons. In fact, it can make the situation worse.

As an alternative to state control or privatisation, community-based natural resources management (CBNRM) is based on the premises that local populations have a greater interest in the sustainable use of resources; that local communities are more cognisant of the intricacies of local ecological processes and practices; and that they are more able to manage effectively those resources through local forms of access (Tsing *et al.* 1999). CBNRM

involves self-management where the community takes responsibility for surveillance and enforcement. Since the community is involved in the formulation and implementation of management measures, a higher degree of acceptability and compliance can be expected. CBNRM strives to make maximum use of local knowledge and expertise in developing management strategies (Pomeroy 1992). The following sections ask what strategies are most appropriate for the management of the mangrove commons in Vietnam through the discussion of a particular case study.

### 3 Histories of Mangrove Management in Giao Lac Village

Giao Lac village is a largely catholic coastal community located in Giao Thuy district, Nam Dinh province, covering an area of about 744.08 ha and with a population of around 9000. It is an agricultural community, farming rice but also engaged in animal husbandry and fisheries. It is bordered to the south by the central dyke, an intertidal area and the South China Sea. The dyke is almost 3 km long. The intertidal area is more than 600 ha, of which 345 ha has been planted with the mangroves, *Kandelia candel*, *Sonneratia* and *Rhizophora*. In addition, there are five shrimp ponds in this area. Four out of the five ponds and all of the intertidal area belong to the district, which, in turn, mandates the village to manage the ponds and the mudflats.

Giao Lac village is a community with a long and rich history. Elderly individuals in the village have experienced life under three regimes: the French colonial government, the Japanese occupation and independent Vietnam. They have experienced the great famine of 1945, the war of liberation, the post-independence land reforms, the struggle in the South to unify the country and the American bombing of the North, the post-1975 period of intensive collectivisation and, more recently, the period of *Doi Moi* reform. The next sections will explore the ways in which mangrove forests have been managed through different periods of time and the relative role of different institutions, illustrating how rights of access to mangrove resources were shaped and have changed over time.

From 1858 until 1945, the French colonial administration had authority over mangrove forests, but no one was assigned to guard the forests. In 1939, the colonial administration supervised the construction of the central dyke in Nam Dinh province. There were mangrove forests along the dyke. Giao Lac is thought to have had about 100 ha of mangrove at that time. There was a profusion of bees, fish, crabs, shrimp, snails and bivalves in the mangrove forest. In order to survive, everybody went to the forest to collect birds' eggs, crabs, fish and shrimp, and honey either to eat or sell at the Dai Dong market. Local people also went to the forests to collect fuelwood, but only the dry branches, to sell at the market. Although there was no law on forest exploitation and management, and there was no guard to protect the forests, nobody cut mangrove trees down for fuelwood and nobody shot birds for food either. Local practice, therefore, amounted to effective resource conservation.

After the August 1945 revolution, the majority of landlords ran away and new organisations, such as the Farmers' Association, were formed. In 1949, the French returned and supported a Catholic-led insurrection against the Vietnamese government. Houses of Buddhist families were burnt and many relied on timber from mangrove forests to rebuild their houses when they returned. The French administration promoted the harvesting of mangrove trees for fuelwood. The heads of villages granted timber concessions to outsiders, who then hired local people to cut the forests for fuelwood. In November 1953, the Viet Minh evicted the French from Giao Lac. In 1954, the entire area was liberated and many Catholics went to the South of Vietnam.

Although mutual aid groups were established in 1955, Giao Lac Cooperative was not formed until 1972–73. During this time, the village managed the forests on behalf of the district. The local people were not allowed to go to the forests as they had before. The People's Committee put guards along the dyke to protect the forests, and as part of their job they would stop those who went illegally to the mangroves and even confiscate firewood. Thus, everybody tried his or her best to poach the forests. They even cut big mangrove trees down for fuelwood, a situation that had never occurred before. Nevertheless, they did not dare bring the

fresh trees home right away. Their survival strategy was to leave the trees in the forests for several days until they became dry, or they had to wait until it got dark and brought the trees home. Sometimes, fuelwood collectors were caught by the guards and their fuelwood was confiscated and then taken to the Village's People's Committee.

In the 1960s, in response to ocean encroachment and the reclamation policy of the district, Giao Lac opened up Bien Hoa pond, which has an area of 54 ha. In order to do this, the village mobilised its entire people to clear the forest. At that time, there were still mangroves outside the pond, but there were very few. Sea grasses were planted in former mangrove habitat and provided the material for the weaving of mats for export. In 1986–87, the habitat became more saline and the village switched to shrimp farming.

#### **4 Impacts of Economic Reform: New Institutions for Shrimp and Clam Management**

During the 1980s a household-based economy increasingly displaced the cooperative-based economy (Le and Rambo 1999). The government of Vietnam shifted responsibility for management of natural resources away from village cooperatives and into the hands of individual farm households (Nguyen 1995). During the Doi Moi period, China has become the biggest importer of Vietnam's marine products. In response, a further four shrimp ponds have been constructed by the district. Households or entrepreneurs bid publically for a lease to manage a shrimp pond. Usually, four or five or even ten households cooperate to manage a shrimp pond. Typically, each pond's owners earn at least USD10,000/year. Although the bidding process is open to everybody, only the rich, who have sufficient capital, labour and management skills are able to participate in the process. Only the older, Bien Hoa pond is managed locally, by the Giao Lac Cooperative.

In 1990, people in Giao Xuan village, Giao Lac's neighbouring village, began farming clams by putting in place a system of nets on the intertidal area. They were the first people to start the business as they had connections with Chinese traders who sold to the bivalve markets in China.

In the past, clams were so cheap that people substituted them for rice. Now clams have become a valuable commodity, about five times more valuable than in the past. One kilogram of clams currently fetches VND5,000–6,000. Both central and local governments have encouraged clam farming. National Decree 773-TTg, for example, stipulates that open coastal areas and waterfronts can be used for shrimp and crab farming. Local people have applied the same policy to clam farming.

Many people have become rich very quickly from farming clams and trading in marine produce. The collectors, on the other hand, often suffer the impacts of price fluctuations. Before this time, the mudflats were common property that everyone had access to. However, people began to acquire the right to farm clams by setting up their own nets and claiming the mudflats as their own. The village officials measured the areas that the people claimed as their farming sites, and the farmers paid the rent to the Village's People's Committee based on the area the officials measured.

This process of claiming land excluded the poor and female-headed households. These people did not have any place to go and dig clams. Consequently, a number of people, especially poor women and girls, became marginalised. They had to work on resources already owned by someone else, while the rich worked on their own resources. Some poor people had to watch shrimp ponds for the rich for no more than US\$10 a month. Some collectors were hired to collect clams, which used to be theirs, with somebody else's net, and earned 70 cents a day. Conflict between those who had the nets and those who lost the resources increased to the extent that such conflict resulted in fighting. In mid-2000, a clam farming area owner in Giao Xuan beat a pregnant woman unconscious while she was collecting clams in an open area, which, he claimed, was owned by him. The rich thus have acquired the right to appropriate the common resources, thus disenfranchising the poor. The poor do not even have the right to protect themselves when they are violently harassed.

When asked why people from Giao Xuan could come and farm clams on Giao Lac's mudflats, the answer was that whatever is situated beyond the

dyke, including the mudflats, belongs to the district, so Giao Lac does not have the right to exclude outsiders. After a year or two, people in Giao Lac learned how to farm clams from the Giao Xuan people. The intertidal area of 350 ha, to which access had been open to everybody, then became the property of those who had enough capital to invest in clam farming. The whole area was covered with nets and clam watch-houses. Thus, the poor once again were excluded. They had to go further to the ocean to collect bivalves, which is not within walking distance. So 10 or 15 people gathered together and they hired a motorboat to get there. They got up earlier and stayed longer in the intertidal mudflats. They had to spend part of the money they had earned by the end of the day on rent for the boat. Those who could not afford the boat had to stay at home, and therefore could only depend on the wet rice production, which was enough for only seven to eight months a year. This made poor people's lives more difficult.

## **5 New Property Dynamics: The Arrival of a 'Community Project'**

In 1997, the Danish Red Cross assisted Giao Lac to plant mangroves for the protection of sea dykes and other assets of coastal dwellers. The district cleared the clam farming site on the Trong Island and enclosed an area of more than 300 ha for mangrove plantation. As planned, one main household and another three supplemental households were chosen to plant five ha of mangroves each. The main household had to be a poor household with sufficient labour; the other three households were selected by the Giao Lac Red Cross and the local leaders. For each ha planted, the each group was paid about US\$26. So much for project design. In reality, very few poor households were actually selected to participate. The majority were the middle or upper-middle households, who were the hamlet heads' relatives and friends.

After the mangroves were planted and grown, the quantity of marine creatures that were caught increased, especially baby shrimp and crabs. They travel from the ocean to these mangroves for food, thus supplying larvae for shrimp- and crab-rearing households. As there are plenty of shrimp, crabs

and clams in the mangroves, local people try to poach the mangroves to catch these creatures, although they know that they are not allowed to. They were told by the guards that they might kill the mangroves while walking around looking for crabs or digging clams. In 1999, when the mangroves were two years old, the village guards who are paid more than US\$25 a month decided to sell tickets to local people who wanted to collect marine creatures in the mangroves. For entrance, each person had to pay 70 cents. The guards kept the money for themselves. This created resentment between people in the village and the guards, as the enclosure of the protected mangrove forests had transferred control over the resources to the guards. The result was highly inequitable, as the poor could not afford to buy the tickets to enter the mangrove forests to look for marine creatures.

The mangroves are currently four years old and the Danish Red Cross project will finish in 2005. However, no one knows who is going to manage the forests when the project ends. According to the village officials, the mangrove forests will be under the district's management, a system that disenfranchises Giao Lac's poor inhabitants. Many are afraid that the district will privatise the forests by granting concession to individuals with capital sources to invest in shrimp ponds to convert the forests into shrimp-farming industry areas. Nobody wants to lose the forests again.

According to the head of the Giao Lac Red Cross, the village was to draft its own rules. According to these rules, those who wanted to go to the forests to collect marine creatures, and visitors, would have to buy tickets. The money collected from ticket selling would be used to pay salaries for the guards, who would be nominated and then publicly selected by each hamlet. This idea was rejected by all residents as they said that the community was highly heterogeneous. Moreover, collectors are not engaged in the same activity when they go to the forests or the mudflats. Thus, they would not end up earning the same amount of money, so it would be impossible to sell tickets to everybody at the same price.

All inhabitants of the village want to manage their mangroves. According to the heads of the 32 households interviewed, the people would like to

draft their own rules. According to these rules, they would like to keep three guards. They all said that the forest itself could generate a much greater amount of money. When the project is over they would allow 20 people to put grape and gill nets at the edge of the forest. Each owner would have to pay for the rent. This would be spent on the guards' salaries and what was left would belong to the People's Committee, so that the money could be spent on roads or schools for the village. The guards would be nominated and then publicly selected by each hamlet. The term would rotate every year. Also, according to the rules, if somebody does not do a good job, s/he would be replaced right away. In order to make the rules effective, a Committee of Mangrove Protection would be created and the Giao Lac People's Committee and the Giao Lac's Red Cross would be members of it.

In this way, the forests would be protected, while bringing benefits to the local people, who in turn would help manage the resources in a sustainable manner, so they argued. The poor, female-headed households and marginalised groups of people would be included in the process and would also have a voice in the management decision making. In other words, the mechanism employed by the villagers would ensure social equity, productivity and sustainability.

Yet such a vision is currently unlikely. The most pressing issue facing CBNRM is tenure rights. Much uncertainty remains about the interpretation of government rules. The degree to which 'communities' have the opportunity to manage their resources in line with the vision outlined by villagers in Giao Lac is unclear. Overlapping forms of enterprise exist based on competing institutional frameworks, the product of a complex history of shifts between state control, market liberalisation and attempts at 'community'-based management.

Coping with such an uncertain environment, in which there have been fundamental, sudden and unpredictable changes in government policies, fundamental changes in resource ownership and in control over and access to the mangrove resources due to the enclosure of protected mangrove forests, and a sudden integration into the world market

after the reforms started, is a challenge to the livelihoods of Giao Lac's people.

## 6 Conclusion

The Doi Moi economic reforms, while opening up economic opportunities for many, have not benefited the whole community. In order to manage the mangroves in a sustainable manner, more equitable appropriate policies are needed at the village and district levels. These policies would necessarily take into account such factors as political power, economic heterogeneity within the village, institutional arrangements for allocating resources, the implementation of property regimes, conflict resolution, buffering of uncertainty, economic and social incentives, and cultural, historical and geographical specificity of local communities.

Local practices and conventions are not static; they evolve over time. In order to make good rules, government should understand local conventions and work to adapt them rather than imposing new rules from outside. Institutional arrangements of resource use in Giao Lac remain highly complex. Neither state control nor private sector control alone can provide a viable solution to mangrove resource degradation. Likewise, it makes no sense to propose only 'community-based resource management', as the local community itself is highly heterogeneous and outsiders also use the resources. A combination of national control, private ownership, and community-based management therefore appears to be the most suitable strategy to promote in the context of Giao Lac.

A central government agency would continue to manage the dyke system, as a breach in the dyke system can cause far-reaching damage to many communities. Households would manage individual shrimp ponds according to private sector principles. And the whole community (probably a cluster of villages) would oversee the management of the mangrove forests and be granted the right to require shrimp pond farmers to post 'environmental bonds' or otherwise pay money into a local fund that would be used to offset loss of income to other villagers as a result of mangrove habitat destruction. The community would also provide a fund to be used to reclaim abandoned shrimp farms back into mangrove or some other productive and communally owned habitat.

## Notes

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- 1. Shrimp-pond monocropping typically leads to a catastrophic accumulation of toxins and disease organisms that necessitate the long-term abandonment of the pond by year four or five. The abandoned ponds are exceedingly difficult to convert to rice, mangrove or other productive uses. The Center for Natural Resources and Environmental Studies (CRES) of Vietnam National University, Hanoi, has for this reason begun research on a more sustainable shrimp pond that retains some mangrove trees, which in turn attract roosting marine birds whose guano provides a source of shrimp food.

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