

From Opportunism to Resource Management: Adaptation and the Emergence of Environmental Conservation among Indigenous Swidden Cultivators on Mindoro Island, Philippines

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Abstract: *This article presents the results of a long-term study of adaptive processes among Buhid swidden communities on Mindoro Island in the Philippines. Departing from a discussion of regional variations in adaptive systems, it describes the ongoing technological and institutional transformation of the resource use system in response to increasing scarcity resulting from unsustainable practices under conditions of a virtually open access to resources. Through a process of redefining and specifying resource ownership and use rights, the emerging system has come to rest on a distinction between individually and communally owned resources. The introduction of new cropping systems and the simultaneous individualisation of swidden land ownership led to a more intensive and sustainable land use. While some interior communities have eventually also developed resource management regimes for common property resources, Buhid communities closer to the lowlands are still grappling with the difficulties of establishing and enforcing common property regimes in a context of resource competition with the more powerful migrant settler society. Thus, the article will on the one hand identify conditions for and factors at play in the successful institutional and technological transformation found in some communities, and on the other hand it will point at the underlying causes of the prevailing difficulties to maintain common property management, as they are found in other communities.*

Keywords: swidden farming, privatisation, common property resources, land rights, ancestral domain

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INTRODUCTION

THIRTY-EIGHT YEARS AGO, Garret Hardin's article 'The Tragedy of the Commons' triggered a still ongoing debate on the nature of common property resource management. Hardin basically claimed that due to the logic of individual profit-maximising underlying human behaviour, any group of resource users is trapped in a dilemma that inevitably leads to the degradation, the 'tragedy' of the commons. He concludes his article by stating: '...the commons, if justifiable at all, is justifiable only under conditions of low-population density. As the human population has increased, the commons has had to be abandoned in one aspect after another' (Hardin 1968: 1248). Coercive measures enforced by the state or, where possible (like with real estates and other material goods) by privatisation, are presented as the only solutions (ibid.). As Dietz et al. (2003: 1907) have pointed out, Hardin's work has since been proven to be an oversimplification. They write: 'He missed the point that many social groups ... have struggled successfully against threats of resource degradation by developing and maintaining self-governing institutions.... Although these institutions have not always succeeded, neither have Hardin's preferred alternatives of private or state ownership'.

This article is about such a struggle. It examines how indigenous swidden farming communities in the uplands of Mindoro coped with increasing resource scarcity brought about by unsustainable land and resource use—a situation that appears to have resulted from an open access situation much like in Hardin's fictive example. Unlike Hardin's conclusion, I argue that the Buhid communities managed to bring about institutional changes necessary for a more sustainable land use that did not rest on comprehensive privatisation. Though these changes did include the privatisation of swidden land, other resources, such as forests, have become subject to common property management regimes. While the article will identify conditions for and factors at play in this successful institutional and technological transformation, it will also point at the prevailing difficulties among other Buhid communities' attempts to maintain their commons.

The Buhid of the Upper Fay Valley in Mindoro

The Buhid are one of the six indigenous ethno-linguistic groups of Mindoro island that are generally referred to by the generic term 'Mangyan'.¹ The Buhid are an egalitarian segmentary society with small kinship-based communities of only a few (in the research area of the interior an average of nine) who traditionally live in small hamlets or single households dispersed over their mountainous territories. A community refers to its territory as *banwánan* (the place where one resides) whose boundaries today are fairly well defined. There are 116 such communities with a total population of about 12,000 people (IPEX/Anthrowatch 2005: 16). The territory delineated as the Ancestral

Domain of the Buhid covers 94,000 ha in 13 municipalities of both provinces of the island, i.e. Oriental and Occidental Mindoro (Inter-Peoples' (IPEX)/ Anthropology Watch (Anthrowatch) 2005: 16).²

The Upper Fay Valley, where this study was conducted, is located in the centre of the Buhid territory at an elevation between 450 and 1200 m above sea level. The Fay creek³ is a tributary of the Hayakyán River, which drains west into the Bisánga river. Due to its location close to the watershed separating eastern and western Mindoro, the Upper Fay Valley lies climatically in a transitory area between the marked seasonal climate of Western Mindoro with its 5 to 6 month long dry season and the almost permanently moist climate of Oriental Mindoro.

The study was done during three months in 1985, nine months in 1989 and shorter visits in 1992, 1994, 1996, 2000, 2002 and 2004. The main research was conducted among nine communities in the Upper Fay Valley. In 1989, they had a total population of 282 persons. Regular visits were made to neighbouring valleys and several weeks were spent during repeated visits to Fanuban community in the Siyángi area in the eastern foothills, to which many families at the Fay have kinship relationships and which is important as an entry point to lowland markets and traders.

Fields and Forests: The Environment

The Fay Valley has been continuously settled for at least 170 years.⁴ More than seven generations of Buhid swidden cultivators have transformed the natural vegetation, which originally consisted of moist upland evergreen forest on the higher and the semi-deciduous forest on the lower reaches of the Fay. Today, primary forests are confined to the headwaters of the Fay and its northern tributaries while the Upper Fay Valley is covered by a mosaic of mostly anthropogenic vegetation, including fields, agroforests, young fallow, secondary forest, patches of residual mature forest, and *Miscanthus* (*M. sinensis*) and *Imperata* grasslands.

The Buhid distinguish conceptually between entirely man-made vegetation, i.e. a new swidden field (called *námay*) consisting mainly of domesticated annual plants, and vegetation where human control is less and wild or perennial plants dominate. The latter is generally referred to as *tálun*. The *námay* is only a short-lived, transitory stage in a process of plant succession induced and channeled by humans. As soon as the cereal crop in a new swidden is harvested and the field is dominated by root crops and other cultigens, it is already classified as *tálun*.⁵ All subsequent stages including fallow vegetation up to that of an old, mature secondary forest are classified as *tálun*. It conceptually marks the onset of the gradual takeover of the plot by natural vegetation. But *tálun* cannot be simply equated with 'forest' as reported from other indigenous groups in the region (Novellino 1999). Since recent times, *tálun* are often also not stages in a largely natural plant succession but are much

more heavily manipulated and, through intensive planting of perennial domesticates, turned into agroforests.⁶ Primary forests are not referred to as *tálun*, but as *furu háyo* (*furu* = forest, *háyo* = wood).⁷

Once the transformation of the original vegetation has occurred, the respective area will be referred to as *tálun* even after decades of fallow when the secondary forest has become mature and bears no sign of human interference anymore. For an outsider such a forest may be hardly distinguishable from a primary forest. However, *tálun* rarely reach that stage and are generally characterised by a number of plants introduced by humans. Their share in the total biomass and the number of domesticated species found on the plot decreases with increasing age of the vegetation, except for when human intervention continues and a community of plants is established which is dominated by domesticates. The term applied is accordingly more specific. The Buhid may for example speak of a *tálun sulian* when plantains dominate. *Tálun* at all stages is an important source of food and other resources.

Regional Patterns of Adaptation: Variations of a Basic Theme

The Buhid practise a form of agriculture commonly called swidden cultivation, shifting cultivation, or slash-and-burn agriculture. The former derives from the Old English term 'swidden', meaning 'burnt clearing' (IFAD et al. 2001: 24). Swidden and shifting cultivation are far more neutral terms than slash-and-burn agriculture which, while originally rather descriptive, has now become value-laden, reflecting the widespread prejudicial view that it is a destructive and wasteful form of agriculture. Throughout this article, this term is therefore avoided.

It has been estimated that globally up to one billion people practise swidden cultivation. They live in tropical and subtropical countries and belong to at least 3000 different ethnic groups (ibid. 24ff). The concrete manifestations of swidden cultivation are as diverse as the people who practise it. In simple terms it can be described as a form of agricultural which is characterised by:

1. An alternation between a short span of cultivation and a comparatively long span of fallow (mostly bush or forest fallow),
2. The regular, in most cases cyclical shifting of fields, and
3. The removal of the natural vegetation, normally – though not in all cases – by use of fire.

Like all swidden systems, the agricultural system of the Buhid is characterised by the succession of a comparably short period of cultivation with a long fallow. The Buhid of the Upper Fay Valley usually cut two new swidden each year. In 1989, the total land area cut annually averaged 0.30 ha per household. The two field sites were chosen for their suitability for specific crops. Wherever access to land permits, the Buhid tend to cut a swidden on locations with

red clay soil suitable for rice (*daga urúngan*, meaning ‘true, genuine soil’) more commonly found on the southern banks and the lower reaches of the Fay creek, and a swidden in dark and rather stony soils (*baras daga* = gravel soil) found on the steeper slopes to the North of the Fay. These soils are considered better for sweet potatoes and other root crops.

With continuing intercropping and phased cropping a field may be under seasonal crops like sweet potatoes and other tubers for up to three, in some cases even four years. The Buhid usually maintain several plots of new and old fields with different levels of labour investment. As mentioned earlier, fallow vegetation is also used in various ways. Certain food crops like plantains, bananas and fruit trees or the more hardy and enduring root crops like *tania* (*Xanthosoma* spp.) or yam can be harvested for an extended period after the field has been left fallow. In the Upper Fay Valley the average fallow period in the late 1980s and early 1990s was five years. This is counted from the day when weeding in the narrow sense ceases. Some occasional clearing for ensuring or enhancing the growth of plantains, fruit trees, yam, etc., may be continued for a few more months or even years, with labour investment in the *tálun* more quickly or slowly petering out according to the number and type of cultigens present.

Patterns of labour investment and the composition and value of the *tálun* vary with the different swidden patterns or, more generally, adaptive strategies that can be found in the different regions of the Buhid territory. Although considerable variations between communities or even between households exist, regional patterns of adaptive strategies have evolved in response to climatic variations, the dominant vegetation, availability of wild resources, access to markets and consumption preferences. Similar to what Pennoyer (1981) described for the neighbouring Taubuid, the Buhid switch with ease between them when they change residence.

The regional strategies can be characterised by the crop or set of crops that determine the cropping pattern characteristic of a particular form of swidden farming. Harrison (1976) has termed this the ‘criterion crop’. Among the Buhid it is usually not one, but a set of crops which are at the core of the swidden strategy encountered. They are basically a variation of the combination of a cereal (preferably rice) with root crops, providing the bulk of starch, which Conklin (1957) has also observed for the Hanunóo Mangyan. However, while rice is an indispensable component for the Hanunóo Mangyan, which finds its expression in an elaborate ritual complex revolving around rice cultivation, the cultural attachment to rice is less pronounced among the Buhid. This makes them more flexible in the sense that they often meet their requirements for rice (which are also indispensable for ritual purposes and feasts) by obtaining rice either through barter or, today more commonly, from lowland markets.

In the nineteen-seventies, the communities living in the Siyángi area in the eastern foothills, for example, have almost completely abandoned rice cultiva-

tion for the production of maize for cash. The proximity to lowland traders and the national highway connecting the coastal towns allowed easy access to markets and enabled favourable terms of trade, and it became thus more profitable to produce maize and buy rice and 'town goods' more readily accessible there. A large share of their food requirements was however still met directly from the swidden fields, with root crops and plantains covering most of the caloric needs. During the past two decades, coffee and fruit trees have increasingly been planted for cash. They are also combined with inter-planted perennials for consumption and other purposes. However, in response to a sharp fall in the price of maize in the mid-nineties and that of coffee at the end of the decade, many families in the Siyángi area again started rice cultivation in their newly cut swidden fields.

In the seasonally dry west with its good rice soils, the swidden strategy resembles the one practised by the Hanunóo Mangyan of the 1950s as described by Conklin (1957). Rice and root crops stand at the centre of the swidden strategy, with plantains contributing additional starchy food. Rice lasts seldom longer than a few months, and due to long and pronounced drought the production period of domesticated root crops (especially sweet potato and taro) is only short. Therefore, the collection and processing of wild yam (*Dioscorea* spp.) called *namô* is an integrated part of the seasonal cycle, providing the bulk of starch during the lean season, which can last several months until the rice harvest in October or November.

In the central mountain regions rice and maize are of limited relevance to the crop choice of the Buhid swidden cultivators. Rice is only occasionally cultivated since climatic conditions are not very favourable, and maize is cultivated only on a small scale for immediate (i.e. fresh) consumption. Sweet potatoes are favourable as they are highly productive due to year-round precipitation and the continuing expansion into *furu háyo* (see Note 17) with fertile soils.

In the transitory area of the Upper Fay Valley, a pattern has evolved which combines traditional swidden farming with agroforests of various species providing food and other resources. This is similar to the pattern found in the eastern foothills, but differs in the greater importance of the agroforests for the subsistence sector. The present adaptive strategy departs considerably from the one practised only two or three generations ago. It not only signifies a move towards more complex cropping patterns and a more elaborate management of land resources, but also triggered far-reaching institutional changes whose form and extent are still in the process of being negotiated and shaped. All these changes reflect more encompassing processes of adaptation to a changing natural and social environment.

The Ways of the Ancestors

A comparison of the satellite imageries of Mindoro taken since the 1970s with maps from the earlier part of the last century reveals the enormous loss of for-

ests the island has experienced in recent decades. Logging, the conversion of the coastal plains into paddy fields by migrant settlers and their expansion into the foothills areas have completely erased the once magnificent lowland forests of the eastern Buhid area. Much of the uplands has also been logged or turned by the Buhid swidden cultivators into secondary forest. Still, there is a conspicuous boundary between the foothill areas used by lowland migrant settlers and those used by the Buhid. While the former areas, except for fruit trees and coconut palms, are almost completely denuded of woody vegetation, the latter are a mosaic of fields, agroforests, secondary forests of different ages, and residual mature forests along creeks.

To the west of the Buhid territory, we find extensive *Imperata* grasslands, some extending far into the interior, almost up to the watershed between eastern and western Mindoro. A look at older maps reveals that these grasslands have existed for many decades, and some, as reports of early travellers indicate, for hundreds of years (Merritt 1908). They have apparently only slowly expanded further over the past decades. Several areas of grassland (*Mikania* on higher and *Imperata* on lower altitudes) are found in the Fay Valley as well, the largest being on the Yanawi hill on the southern banks of the Fay. It measured about 80 ha in 1989.

When asked how the grassland of the Yanawi hill came about, the Buhid gave answers like: 'Because our ancestors have not planted any bananas (plantains) and jackfruits and were only after rice and sweet potatoes'. One informant elaborated further and added that their forefathers 'always moved from one place to another' and hadn't been very diligent planters, that they hadn't looked well after their fields and preferred to stay in the forest, and that there are still 'a few old men in the Fay Valley who prefer roaming around the forest to working in the fields'. That's why, the informant added, there was often shortage of field crops in the old days and people often went hungry. On the other hand, people were eating wild pigs and other game more often than today. In many respects, such descriptions resemble the way of life which some of the remotest Buhid communities, like those at the headwaters tributaries of the Hayakyán River, still adhere to.

Observations by missionaries, foresters and travellers in the early nineteenth century (Gardner 1905; Merritt 1908; Duval in Postma 1985) or more recent descriptions of the livelihood patterns of the Taubuid living to the north of the Buhid (Callo 1983) lend support to the accounts on the way of life which the Buhid in the Fay Valley have practised two generations ago. Julian Duval wrote in 1920 on the Hanunóo-Mangyan near Bulalacao:

'I also noticed that these people are very fond of hunting deer, wild pigs, monkeys and wild chicken during the dry season, and for that reason almost all the houses take the trouble to have dogs.' During the rainy season as well, they catch a good number of animals by means of traps, that are called balatik, set up at the spots frequented by animals. I also noticed, that during

the dry season, from January till April, they usually are not staying in their houses during the day, but spend their time in the forest, under the trees where a water source can be found, to escape the heat of the sun, while the women are looking for nami and wild root crops, of which there are plenty, and they gather them as provisions for the time of scarcity whereas the men are hunting deer and pigs, and at the same time gather honey and beewax; of which there are plenty in the mountains of Bulalacao' (Postma 1985: 85).

The reconstruction of the ways of the old with elder informants and supporting evidence for such accounts allow us to assess the extent of changes that have occurred over the past few decades.

Although the Buhid have primarily been swidden agriculturalists, wild resources, and especially game, have played a crucial role in the adaptive system of the past. Today field crops provide the bulk of food throughout the year, even in the foothill areas where cash crops are more common. In the past however there used to be a recurrent seasonal lapse—although in the Upper Fay Valley reportedly shorter than the one still observable in the seasonally dryer west—during which the Buhid relied often almost entirely on wild plants for carbohydrates. These were mainly derived from wild yam⁸ and the *daráyaw* palm.⁹ Like today, hunting and gathering has contributed crucial non-starch food, especially proteins, throughout the year. But hunting has been much more profitable and reliable, having provided meat quite regularly, so that due to the norm of generalised reciprocity within the community and among close relatives, meat was eaten at least every couple of days.¹⁰

The adaptive pattern of those days was characterised by a seasonal switch from heavy reliance on field crops to heavy reliance on wild resources. Missionaries and community development workers have usually considered the seasonal reliance on wild yam as an indicator of extreme scarcity. For lowland Filipinos, even the seasonal absence of rice and consumption of domesticated root crops is seen as a sign of utmost poverty. Due to the drastic reduction of game and other wild resources in the dry west of the Buhid territory, the still prevailing seasonal reliance on wild resource indeed implies an impoverished diet. Even the young Buhid generation links the seasonal reliance on wild starchy food with hunger. Under conditions of abundant game and other wild resources, however, the seasonal switch to a hunting-and-gathering strategy was as much out of choice as out of scarcity. It was an integral part of the overall adaptive strategy people have developed in response to seasonally changing climatic conditions and the concomitant comparative advantages that the two spheres—agriculture and foraging—offered. The complementary nature of foraging and farming in the past is expressed in a statement of a Taubuid (the northern neighbors of the Buhid) quoted in a report of the Development Academy of the Philippines (1976: 84):

'Only now are we planting wild yam and other crops. In the past there were many wild fruits, honeybees and roots, only rice did we have to plant'
(translation from Tagalog C.E.)

Nevertheless, the Buhid have always seen themselves in the first place as swidden cultivators. This is also clearly reflected in their mythology. It is what Conklin (1957: 2) calls an 'integral system' of swidden farming, which involves relationships which 'stem from a more traditional, year-round, community-wide, largely self-contained, and ritually-sanctioned way of life'. Both in the Fay and Siangi regions being swidden cultivators is an essential part of Buhid identity, one of the key characteristics that sets them apart from the dominant Christian wet-rice farmers in the lowlands.

Customary Land Rights and Land Use Patterns: 'Optimal Foraging' in Swidden Farming

Today, a household usually cuts its new fields within the *banwánan* of its community. The term *fanagamásan*—'the place where one cuts a swidden'—was in the past used rather generally, to identify a place where a household has its fields. Although households tended to have their fields within the territories of their communities, the right to make a swidden was granted anywhere to anyone, also to members of other communities. Contrary to Gibson's interpretation of his data gathered among one of the dialectical subgroups of the Buhid in the East (Gibson 1986), all Buhid communities I worked with were composed of households with close consanguineous kinship ties. Bilateral kinship is the key organisational principle in Buhid society, a system in which any individual is situated in a wide network of near and distant relatives who have the moral obligation to help and share goods and labour. Thus, even though in the past land was allegedly accessible to anybody anywhere, the analysis of post-marital residence patterns reveal that de-facto access was in most cases gained through kinship relations. Any community can trace the use and occupation of its *banwánan* by their ancestors through several generations, and they have a strong emotional attachment to their *banwánan*. However, before the individualisation of land rights the boundaries between the *banwánan* were only vaguely defined and a particular plot of swidden land may thus have been used by members of more than one community. Customary law however made it mandatory to consult the person who has previously used the same plot, or his or her relatives, in order to identify fruit trees or other perennials over which they would maintain ownership rights. In general, ownership was confined to cultivated plants. Individual use right over a piece of land ceased as soon as no more cultigens were to be found. Within a community members were well aware of who had used which plot of land and where they had planted perennials, and they informed each other in an informal way about where they planned to cut a new field in the coming season.

People from a community planning to have a field in or near the *banwánan* of another community however had to consult its members in order to be informed about intentions to use the same plot, to avoid cutting a field in areas inhabited by spirits or where perennials had been planted. Such consultations took place in a rather informal manner. Only if the case became somewhat more complicated, i.e. in areas with overlapping use histories and competing claims by individuals, would a more formal meeting of all people involved or affected, a so-called *túltulan*, the traditional public discussion and conflict resolution meeting take place. In a *túltulan* experienced and respected individuals act as mediators, but they do not have the authority to impose their own view or any decision.¹¹ Such cases were however rare and according to elder informants, conflicts over land were unknown to the Buhid in the past. Land was apparently not a scarce resource and the existing customary law and institutions regulated access sufficiently. The consultations and negotiations among members of different communities represented a de-facto recognition of the prior, communal right of a community over their *banwánan*. However, it has to be emphasised that—at least temporary—the use of land to non-members of a community could not be denied. Prior use right could be established by virtue of membership of a community only over the use of a particular plot at a particular point of time, i.e. in cases where a member and a non-member had the intention to cut a field in the same plot. Genuinely free access existed however with respect to old growth forest.

Since a certain degree of individual control over land could be indirectly established via the customary ownership right of plants, the planting of perennials by outsiders was not allowed. This helped maintain prior use rights over a community's *banwánan*. Ready access to resources, including swidden land was a precondition for the high mobility characteristic for the Buhid in the past. High mobility has evolved partially in response to a social environment that the Buhid came to perceive as extremely threatening. For almost three centuries, until the last quarter of the nineteenth century, all indigenous peoples of Mindoro suffered from regular slave raids by Muslims from Mindanao and the Sulu archipelago, from the war between these and the Spanish colonisers, and later from encroachment on their land by Christian settlers. What Pennoyer (1981) observed among the Taubuid has been and in the remoter areas is still characteristic of the Buhid as well: an extremely pronounced fear and mistrust of outsiders.

Even today, the Buhid still shift their residence quite frequently. The reason may be post-marital change of residence (the Buhid of the Fay marry on average two to three times), the decision to move at least for some time to the partner's place of origin, conflicts, better market access or, although today less often, better hunting. Change of residence due to declining resources (above all game) seems to have been quite common in the past. Although residence was and still is in most cases taken among relatives—with the bilateral kinship system offering a wide range of possibilities—any Buhid, even a

stranger was allowed to set up a household and cut his or her field in a particular area.

A *banwánan* is and has always been clearly identified with a specific community, and this association remains even after some or all of its members have moved elsewhere. But unlike today, the boundary of a *banwánan* was not very precisely defined. As a result of abundant land and the prevalence of a customary law that provided for at least temporary use rights to swidden land for everybody—which came close to an open access regime—some swidden areas have been used regularly by two or more adjacent communities.

The almost free access to land allowed a household to choose the site for a new swidden according to individual preferences. Aside from factors like proximity to the present settlement, these preferences were and are in the first place determined by the specific needs of the crop that is given the highest priority at that particular time. Although the Buhid plant a large number of cultigens, it is usually one, the dominant or criterion crop which determines the site selection. Rice has always been the favourite crop, an appreciation not proportional to its contribution to the total annual calorie intake in some regions. The cultural significance of rice is also reflected in the classification of soils: it is the red and yellow clay soils suitable for rice cultivation that are called *daga uríngan*, ‘genuine soil’. Consequently, since these soils are mostly found on hill tops and moderate slopes, the preference for rice has—in areas suitable for its cultivation—resulted in a patchy pattern of land use.

Statistically relevant data to confirm the hypothesis does not exist, but there are strong indicators suggesting that the pattern of land use in the past conformed largely to a strategy described by the patch-use model for foraging behaviour that was developed by evolutionary ecologists, and was later applied in human ecological research among foragers (Winterhalder and Smith 1981). In short, the model suggests that in an environment with patchy distribution of resources, only those patches are used whose productivity (in terms of output/input) is equal or above the average of all the patches, and that a certain patch is used until productivity drops below that average.

Löffler has described such behaviour among swidden cultivators in the Chittagong Hill Tracts of Bangladesh. The observation was introduced in connection with the discussion on the carrying capacity of swidden farming. He wrote:

‘An analysis of the factors included in the calculation [of the carrying capacity], and the current swidden methods in the Chittagong Hill Tracts shows that the figures resulting from the simple equation annual need times fallow period do not correspond to the [actual] carrying capacity because it is based on the assumption of an average soil quality and an even utilisation of the land. Contrary to this, one finds that good land are used more

frequently and are rotated faster [in the swidden cycle] than bad land' (Löffler 1963: 181).

More frequent use and shorter rotation cycles however result in degradation of soil fertility of the respective patches. This continues, as the optimal foraging model suggests, until the productivity of the respective plot of land drops below the average level, or, in other words, to the level of more marginal land.

Although the optimal foraging model may be somewhat oversimplified as it does not account for factors in decision making other than productivity, the predictions made on the basis of this model and observations elsewhere in Southeast Asia correspond very much to the observable changes in vegetation cover as a result of swidden farming in the Fay Valley. Ironically, precisely the best 'patches' of swidden rice land of the Fay Valley and surrounding areas have been turned into *Imperata*-dominated grasslands unusable for swidden cultivation.

In the early nineties, the population density in the Upper Fay Valley was 28 persons per km². At present, the overall population density for the area inhabited by the Buhid is about 13 persons per km².¹² It is possible that population densities have in the past been as high, at times maybe even higher than today. But according to oral history and historical documents—mostly accounts of missionaries—local populations suffered periodic declines as a result of epidemics. A cholera epidemic was recorded in 1889/90 and a smallpox outbreak as late as 1949/50 (Thiel 1953). Another indicator for periodic fluctuations of the Buhid population are oral histories referring to certain locations now covered by old-growth forest that have been occupied by large communities several generations ago. It is however safe to assume that at least during the decades following the Second World War, population densities have been considerably lower than today. In light of the still comparably low population density in the interior of the Buhid territory and the high probability that it was even lower a few generations ago, one may wonder why the final degradation was not prevented. Why was no fallow management developed that ensured the regeneration of the preferred swidden land? Why, above all, was the establishment of secondary forest on *Imperata*-infested fallow land not actively supported, for example simply through prevention of fire?

As mentioned earlier, the largest *Imperata*-dominated grassland area in the Upper Fay Valley is found on the Yanawi hill. It is said to have been prime rice land used by several communities living adjacent to it. The boundaries of the *banwánan* of these communities were not clearly delineated in the past, and today, as the process of identifying individual land holdings has proceeded far in the Fay Valley, conflicts between communities exist precisely because of overlapping claims to land on the Yanawi hill. Due to the traditional right to cut a swidden more or less anywhere one wished, a de-facto open access situation prevailed. It was in nobody's power to prevent the use

of a specific plot by others, and it was therefore also not possible to prevent a certain plot to be overused, and ultimately degraded. In addition, setting grass- and scrub-land on fire was until very recently common practice. It was done for the maintenance of paths, for securing good quality thatch, or when communal fire hunts were organised. Often, the reason was simply negligence, i.e. the absence of preventive measures when burning a newly cut swidden.

The latter is, in fact, still the main cause for fire at the headwaters of the Hayakyán River where new swidden fields are steadily encroaching on primary forests while extensive grasslands dominated by *Imperata* and *Miscanthus* are left behind. There is a striking absence of any measures to prevent fallow vegetation from catching fire when burning a new swidden.

The clue to understanding this behaviour lies in the prevailing crop preference and cropping pattern, combined with a particular perception of the environment. As briefly mentioned above, the criterion crop for this region is sweet potato. Perennials like plantains, fruit trees or tania, so common in the Fay Valley or the eastern foothills, are planted to a very limited extent near settlements. Therefore, the fallow vegetation is virtually devoid of any enduring cultigens that warrant its protection from fire. This alone does not entirely explain the absence of preventive measures, since, as most evident among swidden cultivators with a rotational system, fallow vegetation is valued for a variety of functions. However, to communities in pioneer areas like those at the headwaters of the Hayakyán River, the immediate availability of primary forest with its good weed-free sweet potato soils implies a discount in the relative value of fallow vegetation with its delayed benefit—restored soil fertility and weed control. Furthermore and most importantly, access to these forests is free and there is little awareness that these forests are a limited resource. A similar attitude has been attributed to the ancestors of the Buhid further west, as in the Fay Valley. The difference was mainly the preference for rice and, consequently, a more patchy land use.

Evidence suggests that the degradation of swidden land over large areas in the western part of Buhid ancestral land occurred as a result of the interaction of various social, cultural and environmental factors: a de-facto open access to swidden land, highly flexible and mobile residence patterns, specific crop preferences, the perception of forests as an inexhaustible resource, climatic conditions with a long and pronounced dry season conducive to the spread of *Imperata* grass and the occurrence and spread of fire.

A patchy vegetation of grasslands and forest, however, was not necessarily undesirable. *Imperata* grass has its value as thatch, and the opening of forest and the creation of an open and diverse landscape has been beneficial to deer and wild cattle.¹³ In some areas in the west, however, grasslands have since many decades covered very large areas. With only little forest left for traditional swidden farming, these areas are thinly settled and are only sporadically visited by people from other communities during hunting expeditions. In the

late fifties and early sixties, however, these grasslands became attractive to outsiders. Entrepreneurs and politicians based in provincial or national capitals obtained 25 years' lease agreements for cattle ranching from the Bureau of Forest Department (BFD, the forerunner of the present Department of Environment and Natural Resource). By the early 1980s all of the land traditionally inhabited by the Buhid in the west and large parts of the east, including forest land, was taken by cattle ranch leaseholders. With the establishment of cattle ranches, grasslands expanded rapidly—as they were burned regularly to stimulate the growth of young, nutritious grass. Fallow land, secondary forest and, in the seasonally very dry west, even mature forest has been destroyed on a large scale by eager farmers.

Transformations: From Swidden Farming to Agroforestry

The land use pattern found in the Upper Fay Valley today is quite different from what has been practised only two generations earlier. Now the people rely to a large extent on products from agroforests, both for their immediate consumption and for cash needs. A survey conducted in Buswak in 1989 revealed that already in 26% of the meals, the staple crop consumed was plantain, in 27% it was tania (*Xanthosoma* spp.) which are often inter-cropped in agroforests or in later stages of the cropping cycle on fallow fields. The traditional swidden crop sweet potato accounted for 31%, taro (*Colocasia* spp.) 4%, yam 6%, corn 6% and rice only 1%. Before the seventies, tania and plantain were unknown on the Upper Fay, since the late 1980s they provide over 50% of the carbohydrates. Even though the share of carbohydrates derived from agroforests may have even somewhat increased since then, the Buhid like variation in their diet, relish the traditional swidden crops and continue to plant them. A mixed strategy with partial reliance on these crops also makes sense in light of the recurrent tropical storms wreaking havoc to plantains and bananas. Due to the large share of carbohydrates derived from agroforests and the extended cropping period as a result of the introduction of perennials in later stages of the swidden cycle only a small area is cut annually for new swidden fields. In the late eighties and early nineties the average area cleared annually was about 0.30 ha.

Another survey in 1989 revealed a similar importance of agroforests for cash income. 31% of the total income of all households came from coffee, even though many households had planted coffee not long before and therefore could not harvest much (Erni 1995). By the late nineties, coffee became the main source of cash for almost all households in Buswak. However, due to the drastic fall in coffee prices just before the turn of the millennium, most people did not even bother to harvest their coffee. Until the coffee price somewhat recovered in 2003 the little cash income they made was mainly derived from the sale of dried chillies, an occasional goat or the fruits of the

daráyaw palm (*Arenga saccharifera* Labill) growing in primary and secondary forests.¹⁴

Although agroforests in the narrow sense play an increasingly important role in the economy of Buhid households of the Fay Valley, shifting cultivation remains the pivot around which life and work of the Buhid communities revolve. For the sake of clarity and to highlight the transformations of the land use system in the recent past, the term ‘agroforests’ is used. But shifting cultivation and agroforests are so intrinsically connected that making a strict distinction between them does not accurately capture the nature of land use in these communities. What is called ‘agroforest’ here is to the Buhid conceptually not different from old fields and fallow. They are all *tálun*. It is merely a variation of the plant community resulting from human transformation and manipulation in the swidden cycle. It has evolved within the same logical framework and does not constitute a radical departure from traditional patterns of land use.

As mentioned earlier, *tálun* are ‘man-made forests’ in different stages of plant succession and with different levels of human interference in the form of weeding, clearing and planting. *Tálun* are more intensively manipulated in the early stages, when the field is regularly weeded and new plants are continuously intercropped. As the fallow vegetation grows older, labour investment decreases and human intervention may be confined to an occasional clearing of competing plants to enhance the growth of a fruit tree or to maintain a banana or plantain patch. Agroforests are simply patches of *tálun* which, due to the nature of the plant community their owners have created, are for a long period not cleared and turned into a *námay* any more. Some or all of it may however some day be cut for a new swidden field again. Buhid agriculture in the Fay Valley and in Siyángi in the eastern foothills appears to develop into a land use system similar to the Indonesian *kebun-talun* system in which small patches of swidden fields are regularly cut in predominantly anthropogenic forest-like plant communities (Soemarwoto and Soemarwoto 1984; Christanty et al. 1986).¹⁵ In the Siyángi area, where the intensive planting of perennials has started a number of years earlier than in the Fay Valley, large areas are now covered by ‘agroforest *tálun*’. Two generations of Buhid swidden cultivators have transformed natural forests into dense man-made forests consisting of a large number of domesticated and useful wild perennials.

The Privatisation of Swidden Land

Today, all the swidden land in the Upper Fay Valley is divided into individual swidden farms called *fangamásan* (literally ‘the place where the swidden fields are’). Every grown up owns his or her own swidden farm within which the swidden fields are usually cut. Upon request, the right to make a swidden in one’s *fangamásan* may be granted to others, and many people actually

maintain a field in another person's—usually a close relative's—*fangamásan*. Today, such rights are however granted only temporarily and, in respect of the still generally valid primacy of ownership right only to cultivated plants does usually not comprise the right to plant perennials. Individual land ownership appears to be quite firmly established in the Fay Valley.

The transformation of customary land right concepts towards the recognition of individual land ownership has not been without conflict. In its transformation phase it has added considerably to the already existing conflicts caused by scarcity of land. By the time of the first field work in 1985, the new concept was already well established, even though conflicts over boundary delineations and competing claims based on different interpretations of land use rights occurred and were dealt with in the *túltulan* until the nineties.

The transformation to individual land ownership evolved parallel to the increasing reliance on perennials, and the two are undoubtedly causally linked.¹⁶ With the increasing number of perennials planted in swidden fields, a de facto permanent control over land was established on the basis of the ancient individual ownership right over planted domesticates. Consequently, the cutting of new swidden did not signify merely a temporary association between the cultivator and the land anymore, but potentially implied a lasting claim over the respective plot of land. In the process, the meaning of *fangamásan* changed, became more specified and individualised. The *túltulan* was the venue in which the crucial discussions took place, where conflicts were taken up and solutions based on consensus were found.

The rapid transformation of a rather weakly defined communal to individual land ownership within the span of a single generation was supported by the prevalence of pronounced individualistic values alongside the general communitarian ethic in Buhid society. Individual economic self-sufficiency is a core value in Buhid society. The children are encouraged to plant their own swidden at a very early age, adolescent boys and girls are capable of and often do provide for themselves, and old people have their own field and run their own household as long as they can. Some couples continue to have separate fields even after marriage. They help each other, share goods and jointly consume their products just like any other couple, but they prefer to retain, at least nominally, their individual self-sufficiency. On the other hand, much of their public life revolves around the exchange of labour and goods, expressing and reinforcing communal and kinship solidarity. Sharing of certain kinds of food is mandatory among spouses and close kin, enforced by the threat of supernatural sanctions. However, the contribution of outside labour and goods to the domestic economy of any household is, with the exception of those of the very old and frail, who entirely depend on it, fairly small. The bulk of work in agricultural production is covered with the labour pool of a single household, be it that of a married couple or an individual.

The wide acceptance of individual land ownership rights has provided a legal framework for a more intensive and more efficient management of agri-

cultural land. Furthermore, agroforests are a highly sustainable form of land use on the partially very steep slopes of the Fay Valley, and the privatisation of land rights encouraged long-term investment in the form of planting perennials, in spite of the Buhid's still frequent change of residence. Permanent land rights ensure that upon his or her return the owner or his or her children or other relatives will benefit from any investment of labour made. Individual ownership also had a positive impact on fallow management of swidden land. With primary rights to land being confined to one's *fangamásan*, a more conservative approach to land use emerged. In some cases, this has reached the point where even the still strongly felt moral obligation of granting temporary access to swidden land to others was reconsidered when signs of land degradation in the form of *Imperata* invasion occurred. The planting of perennials on swidden fields at a later stage of their cropping period is now also seen as a measure to prevent the spread of *Imperata* grass and to encourage the establishing of woody fallow species. However, better care is taken to prevent fires on fallow land, both to protect perennials and to ensure the regeneration of forest. In the late nineties, the communities of the Upper Fay Valley agreed, which to prevent the escape of swidden fires and to observe the ban on burning grassland (both *Miscanthus* and *Imperata*). As we shall see below, concern for their crops or the fallow vegetation is not the only reason behind this.

Towards Managing the Commons

While the technological and institutional transformation towards individual land ownership described above have led to a more intensive management—and arguably a more sustainable use—of agricultural land among the Buhid of the Upper Fay Valley, the exploitation of other natural resources—such as game, fish or other aquatic resources—remains virtually uncontrolled. Under low population densities and with simple traditional hunting and harvesting technologies over-exploitation has never been more than a local and temporary problem. Nowadays, however, over-hunting by lowlanders using firearms and explosive baits, habitat disturbance in the wake of establishing cattle ranches and the general population increase have made hunting increasingly unprofitable in large parts of the Buhid territory. In areas closer to the lowlands, deer and even wild pigs are almost extinct. In these areas, even aquatic resources like fish and crustaceans are now hard to get. Years of over-exploitation, again mainly by lowland settlers who use unrestrained and destructive harvesting techniques (like electric shocks produced from car-batteries or chemical poison) have severely depleted the more accessible rivers and creeks. The Buhid in these regions are increasingly adopting such techniques and equipments, and due to regular interaction with Buhid settlements in these regions, such methods are also slowly making inroads into resource use practices in interior areas. What can be observed in hunting and fishing in many Buhid areas is the classical case of Hardin's 'tragedy of the

commons' resulting from the combination of an open-access situation and, with respect to the much more efficient technology available, a relatively high population density.

People have become aware of the long-term impact of these harvesting technologies, however, and some communities, like those in the Fay Valley, agreed to ban the use of electricity and chemical poison for harvesting aquatic resources. There are also signs that the populations of wild pigs and deer have recovered in the areas formerly occupied and now abandoned by cattle ranchers after members of the New People's Army, the communist guerrilla, regularly killed cattle for their provisions. Traditional communal hunts with fire, the *sunogon*, have again been occasionally organised in the Fay Valley since the early nineties, but there are no rules yet in place for hunting.

Conservation measures were however agreed upon with respect to other resources that have been under an open-access regime. As mentioned above, it was agreed by the communities of the Upper Fay Valley to prevent fires in grassland and fallow vegetation. This initiative came about mainly as a consequence of the increasing planting of perennials. However, fire on larger *Imperata*-dominated grasslands not used for cultivation still occurred regularly until the late eighties, preventing the re-growth of forest. Since these grasslands have been part of their environment and had some economic value, the communities did not feel the need to prevent or avoid starting such fires. Only recently did this attitude change, mainly triggered by developments in the social environment: The NPA guerilleros, whose presence in the interior has led to the abandonment of most cattle ranches by the late eighties, had been absent for many years until the turn of the millennium. In spite of the Certificate of Ancestral Domain Claim (CADC) for the Buhid territory, rumours were spreading in the late nineties that former cattle ranchers were attempting to reclaim their ranches. The Buhid obviously didn't feel that their land was sufficiently protected from encroachment by the CADC and therefore were trying to prevent the return of the cattle ranchers simply by making their land unattractive to them by turning it into brush and forest land. This was a conscious decision made at the cost of increasing scarcity of good quality *Imperata* thatch. Only through regular burning can good thatch be maintained in the long run.

A similar transformation from an open access to a common property regime of resource use has taken place in the past few years with respect to *furu háyo*, the old-growth forests.¹⁷ Today, in all the Buhid territory such forests are confined to the headwaters of the major rivers and their tributaries, 1000 m above sea level. The largest old-growth forest track of the Buhid territory is found east and southeast of the Fay Creek, extending to the Hayakyán, Tuwága and Inundúngan rivers. According to estimates based on forest cover maps of the nineteen-eighties and field visits in the nineteen-nineties, these forests cover less than 80 km².

Old-growth forests have always been under an open-access regime both with respect to swidden farming, hunting or the extraction of other forest products. In the recent past, however, a shift in the perception of, and conflicting views on the use rights over these forests have emerged.

In 1998, the Philippine government's Department of Environment and Natural Resources (DENR) issued the CADC, recognising the Buhid's claim and granting qualified exclusive use rights over the 94,000-hectare large Buhid territory spanning the Oriental and Occidental Mindoro provinces. The Buhid CADC is the second largest that was issued by the government before the Indigenous Peoples Rights Act (IPRA) of 1997 became operational in 1998. According to the IPRA, the existing CADCs will be transferred into genuine communal land titles for indigenous communities, the so-called Certificates of Ancestral Domain Title (CADT). The conversion of the Buhid-CADC is however still pending.

In connection with the application process for the CADC done on behalf of the Buhid, the Sadik Habanan Buhid (SHB) and the Kalipunan Buhid Inc. (KBI)—the two regional organisations of the Buhid in Oriental and Occidental Mindoro respectively—held extensive meetings with all communities in which an Ancestral Domain Management Plan (ADMP) was drawn up. Drawing up an Ancestral Domain Management Plan was part of the requirements for the issuing of a CADC. According to DENR's Rules and Regulations for Identification, Delineation and Recognition of Ancestral Land and Domain Claims the claimants have the responsibility, among others, to 'Restore, preserve and maintain a balanced ecology in the ancestral domain by protecting flora, fauna, watershed areas, and other forest and mineral reserves' and to 'Protect and conserve forest trees and other vegetation naturally growing on the land specially along rivers, streams and channels' (Article VII, Paragraph B.). Consequently, the leaders of the SHB and KBI tried to convince the Buhid communities to declare old-growth forests as communal forests and as protected, with the aim to conserve bio-diversity, and above all to ensure the continuing availability of vital resources traditionally collected in these forests.

The ADMP submitted to the DENR contains, among others, provisions on the management and conservation of forests.¹⁸ According to the plan, the communities have the right and duty to use, manage and protect these forests (Sadik Habanan Buhid et al. 1998). All forests not yet delineated and excluded from swidden land have to undergo this process, which means: they have to be identified as protected communal forests. Swidden farming is banned in these forests, and so is the felling of large trees for commercial purposes or the peeling of the bark of large trees used for walls in traditional houses. The Buhid are however allowed to cut trees for domestic use (like house building) provided they consult the office bearers of their community or the leaders of either of the two peoples' organisations who are the official CADC holders. The harvesting of minor forest products is free as long as it is done according to 'customary Buhid practices' and conducted in a sustainable

manner (Sadik Habanan Buhid et al. 1998). Leaders of the two peoples' organisations and local office bearers are entitled to impose fines on trespassers as detailed in the plan.

Many Buhid communities have adopted these rules and accordingly delineated old growth forests and declared them as protected. Other communities however, like those of the Baháyaw and Alyánon creeks refused to do this. They ignore the ADMP and continue to expand their fields into old-growth forests. In Buswak on the Upper Fay some community members also refused to have all of the remaining old-growth forest delineated since they wanted to keep a part as land reserve for swidden farming. A compromise was eventually achieved by recognising some individual claims while declaring other parts of the forest as communal forest and off-limit for swidden farming and commercial logging.¹⁹ The final agreement was reached by the people of Buswak and neighbouring communities in the Fay Valley without the intervention or mediation of the CADC-holding peoples' organisations. Still, the awareness-raising campaign in connection with the delineation and management planning for the CADC application was crucial to set the process of specifying the communal forest areas in motion. In line with the ADMP, swidden farming and the cutting of trees for sale are now banned in these forests, while hunting, felling timber for domestic use and the collection of non-timber forest products are unrestricted, i.e. like in the past even allowed for members of other communities. What is new is the recognition of individual claims over natural rattan groves by community members.

As mentioned above, the Buhid communities in the Upper Fay Valley were able to reach comprehensive agreements on the utilisation and conservation of communal resources, and they appear to be able to sufficiently enforce these new laws.²⁰ The present state of the vegetation cover proves that this is the case at least with respect to grasslands and fire management since secondary forests are spreading fast in these areas. The agreements were reached in spite of the absence of a socio-political structure integrating the small, egalitarian communities of the Fay Valley. They are the result of a series of *túltulan* held over a period of several months.²¹

Not all communities, however, are as successful. In other regions attempts to protect old-growth forests are facing serious difficulties. The concluding section of this article will thus try to identify external and internal factors at play that are conducive to or are hindering the establishment of common property management regimes among Buhid communities.

From Opportunism to Resource Management: The Struggle for Transformations

Over the past centuries, the Buhid have shown considerable flexibility and resilience in their adaptation to varying and changing environmental conditions. Regional adaptive patterns have evolved, and the Buhid have easily switched

between them when they changed residence. High mobility and a de-facto open access to critical resources were the core elements constituting their adaptive resilience in the past.

Under conditions of the low overall population density prevailing over centuries, high mobility and virtually free access to resources, the Buhid way of ensuring the continuing availability of critical resources was through what Becker and Ostrom (1995: 126) called 'opportunistic substitution'. Opportunistic substitution, they write, 'would be sustainable at low densities, so until the resources were scarce, one would predict little in the way of restraint on use.'

As shown above, increasing scarcity of swidden land and other resources among the Buhid has triggered adaptive responses comprising technological change towards a more intensive form of land use by developing an integrated system of swidden farming and agroforestry, and the concomitant institutional change: the emergence of private property over swidden land and common property regimes for old-growth forests and grasslands.

Netting suggests that '...in the absence of decisive legal or military controls from the larger society, the system of property rights in the peasant community will be directly related to the manner in which resources are exploited, the competition for their use, and the nature of the products—more specifically, land use by and large determines land tenure' (Netting 1976: 137). Introducing data from his research among Swiss alpine peasants, he concludes that individual land tenure is found in regimes of land use characterised by high value of production per area unit, high frequency of and dependence on use, the possibility of intensification, a comparably small area needed for effective use, and a small size of the group investing labour and capital in its use (in Ostrom 1987: 256). The recent intensification of land use and the concomitant individualisation of rights over swidden land among the Buhid obviously conforms to the pattern.

Privatisation of resource use rights or ownership is however not the only, nor is it the best management solution for all resource types. Extensively used resources like pastures, forests or water bodies are often used commonly, and, as Ostrom (1987: 251f) concludes, common property regimes have proven to be 'optimal institutional arrangements for some types of common-resource problems'. Like the Swiss alpine peasants described by Netting and other farming communities all over the world, the Buhid have specified resource use rights according to the intensity of use and the nature of the resource and now distinguish between individual and common property rights. While privatisation of swidden land is already far advanced among the Buhid, the specification of common property regimes is however still in the making. As mentioned above, experiences thus far vary between the regions, and in many areas success is still far from certain. And some resources, like game and minor forest products, still remain under an open access regime.

Several conditions have been identified as conducive to the evolution of institutional arrangements for the sustainable management of common property resources. Ostrom has suggested that, 'Small-scale communities are more likely to have the formal conditions required for successful and enduring collective management of the commons' (c.f. McCay and Acheson 1987: 23). She mentions concretely:

1. The visibility of common resources and behaviour toward them
2. Feedback on the effects of regulation
3. Widespread understanding and acceptance of rules and their rationales
4. The values expressed in these rules (that is, equitable treatment of all and protection of the environment)
5. The backing of values by socialisation, standards, and strict enforcement

An analysis of several decades of experiences with the so-called 'joint forest management' in India has led to similar conclusions. There, it has been shown, collective action for the protection of forests has been more successful in so-called 'tribal' communities (Society for Promotion of Wasteland Development 1992; Poffenberger et al. 1996a, Poffenberger et al. 1996b). Some of the main features identified by these authors for these communities are:

1. Size of the community: Collaboration is easier in small villages.
2. Closeness to the resource and topography: In the uplands the common land is visible from most of the dwellings so that unauthorised use cannot escape notice.
3. Remoteness from roads and markets: On the one hand, poaching by outsiders is more difficult, on the other hand it is more likely that traditional social solidarity and authority structures remain intact, as mutual dependency is stronger, which make deference less likely and social control more effective.
4. Social homogeneity: So-called 'tribal' communities are less hierarchical and thus more homogenous than for example those of the Hindu caste society. Social homogeneity has been found to be conducive to the successful enforcement of conservation rules since manipulation or outright ignoring of established norms by more powerful individuals is less likely.
5. General dependence on forest resources: Collaboration is likely to succeed if all the families, including the rich, are highly dependent on forests. The personal interests of the village elite in the management of the commons is crucial.
6. Tradition of assertive collective action: In many tribal areas in India there is a strong tradition and long history of assertive, at times armed collective action, against dispossession of agricultural and forest lands by outsiders.

Most of the factors identified here as conducive to the evolution of common property management systems are indeed present among the Buhid communities in the research area. Virtually everybody is still very much dependent on forest resources, at least for construction material. Minor forest products play a very important role in the interior. The idea to protect old-growth forest as promoted by the SHB and the KBI was therefore readily accepted by many communities. Fields and agroforests are often located close to the headwaters so that monitoring of who accesses the forests for what purpose is constantly taking place.

Even the communities in the Siyángi area in the eastern foothills, which are larger and more nucleated than those of the interior, are small, consisting at most of a few dozen households.²² People know each other well and interact on a daily basis. They are homogenous communities with pronounced egalitarian values. In the foothill areas, socio-economic differentiation is emerging in the wake of integration into the market economy but remains still fairly limited. In the interior, not much has changed. Relationships characterised by reciprocity, frequent exchange of goods and (at least in the interior) labour. Commonly accepted rules and mutual trust found in these small, close-knit, mostly kinship-based communities represent what has been called by other authors 'social capital'. Social capital, as Pretty (2003: 1913) puts it, 'lowers the transaction costs of working together, it facilitates cooperation'.²³

The *túltulan*, the public meetings, are part of the Buhid's 'social capital'. They are an efficient means by which, for example, leaders of the CADC-holding organisations can promote the understanding of conservation ideas, and the consensus-based decision-making during *túltulan* ensures a generally wide acceptance of the rules once an agreement has been reached. The main problem the Buhid are confronted with, however, is enforcement of the agreements reached.

Like all human societies, the Buhid have to deal with the problem of individual deviation which tends to become more acute during a transition period, when new rules have been introduced but are yet to be recognised by everybody. Among the Buhid, the transition to individual land rights, for example, has been very difficult in areas with competing claims, and encroachment was recurrent. Individuals not agreeing with the new concept—and usually with the concomitant concrete delineation of individual land holdings suggested—often simply refused to participate in the *túltulan* and ignored any decision taken. In the absence of any coercive means and because compliance relied entirely on the pressure of public opinion, such cases remained unresolved even after months or years of negotiations. In the long run, however, public opinion and social pressure lead to the firm establishment of the new concept as parts of customary law.

Similar problems in establishing new rules can be observed in connection with the Ancestral Domain wide ban on swidden farming in old-growth forest. This is especially the case among the pioneer-swidden farming communities

at the headwaters of the Hayakyán river. There it is not just a matter of individual non-compliance. Whole communities have obviously refused to accept the new rule and continue to cut fields in old-growth forest. The two CADC-holding organisations, the only existing structures above the community level have no means to enforce the rules.²⁴

Enforcement by the State, be it through the Department of Environment and Natural Resources or the Local Government Units, as we shall see below, is not an option since it is virtually absent in the interior of Mindoro. The example of the communities of the Upper Fay Valley shows that conservation rules for common property resources did gain sufficient acceptance to make the concept of common property work and that the traditional institution of the *túltulan* is sufficiently strong to ensure enforcement. This leads to the conclusion that the ADMP of the SHB and KBI—in spite of being a result of an agreement reached by local leaders on the pan-Buhid level—will succeed as an instrument for ensuring sustainable resource within the ancestral domain only when similar processes of developing locally agreed-upon rules based on local institutions are initiated among non-complying communities.

A more serious problem for the successful establishment of common property management regimes than non-compliance by community members or communities is poaching by outsiders in the areas more accessible from the lowland plains. An example is the Fanuban community in the Siyángi region in the Eastern foothills. While the ban on swidden farming in the remaining old-growth forest could be quite successfully enforced among its members, small-scale illegal logging by lowland settlers is still rampant. And Buhid men are increasingly getting involved. They sometimes provide raw logs, or help in hauling felled logs with their buffalos down to the lowlanders' settlements where they are sawn with chainsaws into marketable boards. For young Buhid men this is one of the few possibilities to earn cash.

In the process of and after the delineation and the recognition of the Buhid's claim over their Ancestral Domain by the DENR, lowland settlers have become well aware of the rights the Buhid are now supposed to hold over their land and resources. However, these rights are in many cases either ignored or not recognised. Some settlers explicitly stated that they do not recognise the Buhid's exclusive rights since the CADC was not a true title.

Although a CADC is not a title, it does impart the right of use and management to specific user groups, and therefore the right of exclusion. In the absence of enforcement, however, this remains empty rhetoric. The municipal level offices of the DENR, the Community Environment and Natural Resource Offices (CENRO), are responsible for enforcement of the rules laid out in the CADC agreement, which implies intervention in cases of transgression by outsiders. The Buhid of the Siyángi area did report cases of illegal logging to the CENRO, but no action was taken. Illegal logging and processing of logs goes on in broad daylight. Local politicians such as the *barrio kapitans* of adjacent lowland villages are allegedly directly involved. And as representatives

of a government agency, the CENRO staff does not dare to venture into the interior anymore in fear of being attacked by the NPA guerilleros. The NPA on their part are not interested in stopping illegal logging either since they allegedly demand and get a tax from those engaged in the illicit activity. In a recent human rights documentation sheet of the SHB, the ongoing environmental degradation in the Buhid area has been described as a result of 'a power vacuum where the government cannot enforce the law in the area or uses the presence of rebels as an excuse not to enforce the law' (2004: 1).

Unlike the tribal communities in India referred to by Poffenberger et al. (1996b), the Buhid have no history of violent affirmative action. In fact, any form of physical aggression is utterly despised in Buhid society. Both in cases of conflicts between individuals and with respect to intruders, the Buhid have preferred temporary or, if necessary, permanent withdrawal. This strategy has allowed them to retain their autonomy as long as no one was seriously interested in land and resources of Mindoro's rugged interior. As shown above, the situation has however dramatically changed in the recent past. Many Buhid communities responded with resignation. Scared by the guns of the illegal loggers, the 'environment guards' appointed by some communities also do not dare to interfere. The uncontrollable illegal logging by lowland migrants now undermines attempts to enforce rules and regulations for communal resource conservation among the Buhid themselves. More and more Buhid are getting engaged in illegal logging themselves, their argument being an all too familiar one: since they cannot stop lowlanders cutting their forests, they say, they may as well do it and reap the benefits themselves.

The right to exclude outsiders is perhaps the most important precondition for establishing effective common property management systems. Communities of resource users can deal with the problem of outside encroachment themselves if they are given the right to exclude and to take affirmative action. Although, as we have seen, the Buhid as CADC holders have this right, they have difficulties asserting it, and they do not have any support from the authorities. However, increasing pressure by outsiders on their resources appears to bring about attitudinal changes. An example are the communities along the Tuwaga river that have succeeded in stopping illegal logging in a collective effort of a group of men confronting illegal loggers and threatening to confiscate the chainsaws. However, since illegal loggers often carry guns, and may have the protection of the NPA and as long as the general situation of virtual lawlessness in the interior of Mindoro prevails, prospects for a replication elsewhere remain rather weak.

The SHB and KBI have applied for the conversion of the Certificate of Ancestral Domain Claim (CADC) into a Certificate of Ancestral Domain Title (CADT), a genuine, collective title as provided for in the Indigenous Peoples Rights Act of 1997. It is hoped that this title will bring about more respect by outsiders on one hand, and an encouragement for more assertive action among the Buhid on the other.

Other developments are however threatening the development of the capacity for assertive collective action to defend whatever rights the Buhid have been or will be granted by the State. Assimilation pressure is increasing among the communities living in close proximity to the lowland settlers, and aggressive proselytising of various, bitterly competing Christian churches are adding to the erosion of values and institutions integrating Buhid communities, or creating divisions within communities. Furthermore, resignation and disinterest on the issue of Ancestral Domain rights is spreading among the younger generation in areas where the encroachment by settlers is on the increase again. Buhid leaders active within the SHB are fearing not only the disintegration of the unity achieved in the long process of Ancestral Domain delineation and CADC application, but are also worried about the lack of young leaders willing to continue their work. Increasing economic pressure makes the younger generation loose interest. In 1986, Gibson wrote on the communities of the Ugun Liguma in the east:

It is this "mixed economy" [cash crop and subsistence farming, C.E.] which allows the Buid, for the time being, to have the best of two worlds. On the one hand, they remain relatively immune to most environmental disasters such as typhoons, which have less impact on root crops than on grain crops. On the other hand, they are now able to purchase a wide variety of lowland goods in addition to maintaining their consumption of rice by purchasing it from the lowlands'. (1986: 50)

At the turn of the millennium, many of the domestic economies of the communities in the eastern foothill areas have completed the transformation from petty commodity production described by Gibson to full market integration. The former self-sufficiency in basic food crops that ensured sufficient resilience in times of crisis is not present anymore. Dependence on cash income to meet basic needs coupled with the drastic drop of farm-gate prices for their agricultural products in recent years has led to widespread poverty, forcing people to grab any opportunity—like illegal logging or charcoal burning—to earn money. At the same time, the population size of the Buhid and encroachment by lowland settlers are rapidly increasing in the foothill areas. Under such circumstances, the Buhid communities face an even more formidable challenge in establishing and maintaining communal resource management and conservation regimes. The outcome of their endeavours remains highly unpredictable.

Notes

1. The Buhid are the northern neighbours of the Hanunó Mangyan among whom Harold Conklin has conducted his path-breaking research some thirty years earlier. 'Buhid' means 'upriver'. It is both the autonym and the term used by the Hanunó Mangyan to whom the Buhid in turn refer to as 'Mangyan Patag', meaning 'flatland/lowland Mangyan'.

2. The Ancestral Domain has been delineated for the application for a Certificate of Ancestral Domain Claim. More on this further below.
3. Throughout the text and wherever applicable I am giving the geographical names in Buhid. The official designation is often a tagalogized version of the local names. Thus the Fay is officially known as Upay, the Hayakyán river as Kayakyán, the Bisánga as Buswánga, etc.
4. This estimate is based on genealogies reaching back to the alleged first settler whose descendants live in the Fay valley today. There are however indications that the area has been settled already much earlier. According to legends these settlements have however been wiped out by an epidemic disease whose description reminds very much of the symptoms known for cholera.
5. A new root crop field right after the rice or maize harvest is usually called *éyab*. It is however often also referred to by the more general term *tálan*, sometimes with a specification added pointing at the dominant crop. For example, when it is dominated by sweet potatoes (*kamote*) it can be called *tálan kamotéhan*.
6. Agroforestry is here understood as a form of land use in which several domesticated or wild, but predominantly perennial plants are grown together in various patterns and cycles.
7. The term *furu* is also used in connection with other attributes (like a specific place name, or dominant tree species), or in *furuan* (literally, 'place of [thick] forest' but meaning 'burial ground/cemetery').
8. *Dioscorea* spp. In Buhid called *namó*. Wild yam has to be detoxified by slicing and soaking it in a basket in the fast running water of a creek.
9. *Arenga sacharifera* Labill. The starch is being extracted from the pith like with sago.
10. Hunting methods varied seasonally. During the rainy season traps were laid and wild pigs stalked and speared by individual hunters. In the dry season, traps were removed as people ventured more often into the forests in search of honey or for hunting. It was the time when active hunting was more intensive. The prevalent techniques were the chase with dogs in small groups of two or three hunters, and large communal hunts with fire.
11. A *túltulan* can be organized in a community spontaneously as the need arises and held instantly. Larger *túltulan*, however, and those involving people from far-away places are prepared well in advance. Anybody can attend and actively participate. Although it is mostly the men who speak, women sometimes do play an active role.
12. This estimate is based on the area surveyed for the application for a Certificate of Ancestral Domain Claim (CADC) for the Buhid, which is 94,000 ha. The total Buhid population is 12,000 people. (Inter-Peoples' Exchange (IPEX)/Anthropology Watch (Anthrowath) 2005: 16).
13. There is a species of wild bovine endemic to Mindoro, the Tamarau (*Anoa mindorensis*), a kind of dwarf buffalo which the Buhid call *únwang*.
14. The fruits of the *daráyaw* are used in *halu-halo*, the popular Filipino sweet dish. Traditionally its tender shoot was eaten raw or cooked, and the starch of its mark was extracted in lean seasons. Today they are often preserved and protected from fire when burning a swidden and have become an additional component in agroforests.
15. Interesting to note is also that the terms used for the anthropogenic or 'agroforests' are identical. As mentioned above, the Buhid call all anthropogenic vegetation resulting from swidden farming after the harvest of cereals *tálan*. Soemarwoto and Soemarwoto write: 'The talun itself is planted with a mixture of perennials and annuals, giving it a structure familiar to a forest. [It] originates from the forest by selection of the forest species and introduction of new ones' (1984: 274).
16. The influence of land rights concepts of Christian lowland society (i.e. the national law) cannot be entirely ruled out. However, in light of the remoteness of the Fay Valley and the absence of any pressure to conform with lowland laws and customs it is not very likely that it was of any significance.

17. I use the term 'old-growth forest' instead of primary or virgin forest because according to legends there were settlements in some of these forests in the distant past.
18. The management plan also regulates the use of grasslands (ban on fire), water bodies (prohibition to use poison), mineral resources and agricultural land.
19. With the privatisation of swidden land and the general population increase in the Fay Valley, a change of perceptions and conflicting views of the use rights of old-growth forests for swidden land emerged already a few years before in the community of Buswak, whose population temporarily more than tripled in the wake of the bombings of two Buhid settlements in the Inundungan river area by the army in their mislead anti-insurgents operations in 1988. By forming a nucleated large settlement instead of their widely dispersed small hamlets they hoped to be more easily detected and recognized by the army as civilian settlement, and not be confused with NPA camps. Since their *fangamásan* lie at considerable distances from their new place of residence, some families asked the members of the original community for temporary use rights. Others began to cut a field at the fringe of the old-growth forest. This triggered a lengthy debate on the use rights over these areas. Some of the elders of the original community claimed ownership over *fangamásan* extending far into the old-growth forest. It was partially out of frustration over the ensuing conflicts and the inability to find a compromise that some of the newcomers left the settlement soon after it became clear that no more military operations were taking place in the interior of Mindoro.
20. In the Fay Valley, the fine imposed on trespassers is a pig, half a sack of rice and 100 Pesos, considerably below that of the Ancestral Domain Management Plan (1000 Pesos, a pig worth 2000 Pesos and one sack of rice).
21. In these meetings decisions are taken based on consensus. The process is facilitated by experienced and respected male elders, often acting as mediators. In traditional Buhid society leadership is weakly institutionalized. In fact, the socially ascribed status of 'leaders' has come about in the context of adaptation to and adoption of the political-administrative system of lowland society. In traditional Buhid society, there is no term for 'leader' or 'headman'. Leadership is an acquired status and its role exerted mainly in the context of *túltulan*. Some individuals gain respect for their knowledge of customary law, their sense of justice and their skills as mediators and their help is sometimes sought even from distant communities. Their position and role however remain informal. While some of them today tend to be elected as holders of 'official' positions identical to those found in lowland society, like '*barrio kapitan*' (village head) or '*konsehal*' (village council member), others refuse to assume such roles. Local people's organizations (called *samahán*) analogous to those found among the lowland people have also been promoted among the Buhid by NGOs since decades. The idea had reached the Fay Valley already in the mid-1980s. Just like the copying of a lowland style politico-administrative structure this *samahán*, founded by politically ambitious young men, have however remained very weak. They exist only in name, and their role in bringing about the conservation agreements has been negligent.
22. The exception is Batangan numbering several hundred people. It is the only Buhid settlement that has barangay status (the lowest administrative unit of the Philippine State). All other Buhid settlements are part of settler-dominated lowland barangays.
23. As Novellino points out, although the concept of social capital is still in evolution, it is not an entirely new discovery. Many of its underlying ideas have been discussed elsewhere within anthropology and sociology (1997: 6). At its core stands the rather simple idea that 'social bonds and norms are important for people and communities' (Pretty 2003: 1913).
24. As mentioned, the establishment of common property and conservation regimes are still in the making. The CADC has been issued in 1998 and the two regional Buhid organizations, SHB and KBI, are still struggling to bring about a wider acceptance of the management plan. As explained above, the highly egalitarian nature of Buhid society makes enforcement of any new rules difficult. The intricacies of these processes and the prevailing discrepancies between the management plan and local understandings and practices need to be studied further.

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