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Neither the Forest nor the Farm..... Livelihoods in the Forest Zone – The Role of Shifting Agriculture on Mount Cameroon

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Introduction

The Mount Cameroon Project (MCP) in South West Cameroon has as its goal the maintenance of biodiversity on and around Mount Cameroon (Watts, 1994; MCP, 1994). Central to realising this goal has been the forging of real working partnerships with forest users, the consumers of forest products, governments, and industry. These new styles of action are aimed at developing realistic strategies for the sustainable management of natural resources.

In the course of identifying sustainable management strategies with resource users, shifting cultivators have emerged as major actors within existing resource management systems. Far from being peripheral to forest use, shifting cultivation is well integrated into a multi-faceted forest resource use system. As such, shifting cultivation is an important complimentary and robust component of local household livelihood systems.

Work on identifying the relationships (social, economic and ecological) between forest, fallow, farm land and the social actors involved is ongoing. We stress the preliminary nature of our data analysis, but present here some of the key issues that have emerged during field work in two different project areas: three indigenous villages located on the upper slopes of Mount Cameroon between 650 m and 800 m – **the Upper villages,** and three plantation labour camps nestled amongst the lowland evergreen forest and oil palm plantations of the West Coast region of Mount Cameroon – **the West Coast camps**.

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In both cases shifting cultivation is showing itself to be a flexible and enduring strategy under changing and increasingly uncertain circumstances. We examine here:

- the different role of shifting agriculture in the livelihood systems in the Upper villages and the West Coast camps;
- possible reasons for the differences; and
- some implications for sustainable management of natural resources.

Mount Cameroon – The Background

The Mount Cameroon Project region covers an area of approximately 2,500 km^2, of which some 750 km^2 are forested. The region is a centre of endemism and has the only unbroken vegetation range from 200 m to 4,000 m in West and Central Africa (Watts & Akogo, 1994; Thomas & Cheek, 1992). Mount Cameroon is an active volcano, with periodic lava flows occurring at different locations on the mountain at approximately 20 year intervals. This gives rise to complicated patterns of forest disturbance and associated vegetation types (Fraser, *pers. comm*.). The communities in the towns and larger villages around the mountain have a long history of interaction with Europe, initially through Portuguese traders during the late 16th and 17th centuries, and later through colonisation by the Germans and British. Over the last century, the local economy has been dominated by plantation agriculture, currently the concern of the parastatal Cameroonian Development Corporation (CDC). CDC remains one of the largest landholders, revenue generating enterprises, and employers in the country.

In short, the environment is extremely diverse both in socio-economic and ecological terms. It has been classified as a biodiversity 'hot-spot' of unique and international importance by a number of different authors (Hepper *et al*, 1986).

There are an estimated 100,000 people living in the region (Jeanrenaud, 1991; Carter, 1992), spread over more than 60 settlements (40+ villages and 20+ plantation camps). The two areas under discussion here have distinct social and economic profiles.

Upper Villages

The Upper villages, with an estimated population of 1,200 (Tako *et al*, 1996), are mainly indigenous Bakweri, with strong economic links to Limbe, the main economic centre of the region, and Buea, the provincial and cultural capital. The forest around the upper villages is sub-montane to montane, breaking out into montane grassland. It has an interesting composition including mono-specific stands of species such as tree ferns (*Cyathea cameroonian*a), conspicuous permanent gaps dominated by herbs and grasses, and patches where past lava flows have given rise to forest stands where *Trilopaceum* spp. and *Kola laterita* often predominate (Fraser, *pers. comm.*). The tree line is characterised by species such as *Hymenostegia* spp., *Schefflera abyssinica*, and numerous fig species (*Ficus* spp.). Distinctive economically and culturally important trees include: African cherry (*Prunus africana)*, mahogany (*Entandrophragma angolense.)*, man carabot (*Coelocaryon preusii*), *Pycnanthus angolensis*, *Polyscias fulva*, Woloulay (*Kigelia africana*), and Bouma (*Ceiba pentandra*) (Tako *et al*, 1996).

For the majority of households agriculture is the main economic activity. The inherently fertile but often stony volcanic soils support mixed farming of cocoyams, plantains, yams, vegetables, bananas, with tree crops such as bush plum (*Dacryodes edulis*), guava (*Psidium guajava*), paw-paw (*Carica papaya*) and breadfruit (*Treculia africana* and *Artocarpus* spp.). Agricultural practices are a mix of short and long fallow rotations with fallow periods varying from three to eight years. Shifting cultivation is central to the overall system with fallow periods of 15 years still common. Forest use includes non-timber forest product (NTFP) collection (forest vegetables, medicinal plants, and fruits), timber extraction for sale and household use, hunting and trapping, and some product processing.

The West Coast Camps

The impact of CDC on the West Coast seaward side of the mountain can not be too greatly stressed; its activities dominate the rhythm and pattern of daily life for local communities, and have both direct and indirect impacts on the quality and constitution of the forest. The population along this coastal strip is ethnically heterogeneous and growing. Significant numbers of immigrant workers from Nigeria, Benin, and Ghana are contracted to CDC and based in plantation camps. The area is integrated into international and regional socio-economic systems through well developed transport links, such as the trading port at Idenau, a busy gateway to Nigeria, and by good quality roads to large urban markets in other parts

of Cameroon. The population of the three camps considered here is difficult to establish, but estimates are in the range of 4-5,000 people (Brocklesby, 1996).

Petty trading, coastal fishing and processing, commercial cash cropping and plantation labour are the primary economic activities in and around the camps. However, farming and the use of forest resources remains an important activity to many household and family livelihood systems.

The West Coast forest is characterised by species such as tiger wood (*Berlinia bracteosa*), milk stick (*Alstonia bonei*), kola (*Cola acuminata* and *Cola epidonta*), doussie (*Afzelia bipendensis*), opepe (*Nauclea diderrichii*), bitter kola (*Garcinia* spp.), country onion (*Afrostyrax lepidophyllus*), bush mango (*Irvingia excellsa*), *Enantia chloranta*, *Carapa procera* and *Aningeria robusta*, which are all extensively utilised by camp inhabitants as well as other local actors (Ambrose-Oji, forthcoming). Even though the collection of NTFPs is important, the domestication of forest products, in particular kola (*Cola nitidia*) and *atama* (*Heinsia crinata*), is well established. Hunting of bushmeat is carried out by a limited number of families in the camps, although the trading and processing of bushmeat – particularly as *pepe* soup, is of great significance, especially to female headed households.

Shifting Cultivation – A Working Definition

It is worth outlining the changes in perspective which led us to recognise the significance of shifting agriculture in the project area. Not only has the process helped us refine some of our fieldworking techniques, it has also provided a key to unlocking new resource use perspectives which will prove useful to developing sustainable resource use strategies with local actors.

We had, as a project, overlooked the importance of shifting agriculture, because our main focus had been on *forest* management. Within this framework agricultural practices were rarely considered, although fires 'escaping' after farm clearance had been identified as a forest management hazard many times during the course of the project's life. However, forest farming or shifting cultivation remained poorly understood, and little attention was paid to incorporating the ecological effects and socio-economic determinants into management proposals. Our continued focus on

forest resources, rather than on the social nexus of resource use, perpetuated the problem.

This situation was hardly surprising given that our attitudes reflected the dominant discourses governing not only mainstream forestry, but also agriculture in this part of Cameroon. As in many developing nations, agricultural discourse revolves around technological interventions using new or improved varieties of crops, with an early 1990s emphasis on cash crops such as cocoa and coffee, now replaced by commercial food crops such as cassava, plantains, and maize. Part of the intervention package was also an insistence on abandoning 'primitive' and 'damaging' farming methods – for which read slash-and-burn.

It is also true to say that collectively we were not aware of the body of work carried out on shifting agriculture in the African context from the mid 1980s onwards (see for example FAO, 1984; Warner, 1991). Our perception of shifting agriculture was very much based on the Latin American colonist/forest frontier experience of unplanned, non permanent and transitory, continually expanding forest clearance. Because of this misunderstanding we did not even believe that 'shifting cultivation' *per se* necessarily existed within the project area.

During a series of 'User Group Analyses' carried out in 1996 (Brocklesby, 1996; Oji,1996; Tako *et al*,1996) and socio-economic surveys conducted throughout 1996 and early 1997 (Ambrose-Oji, forthcoming), we found that the forest users included in discussions and data collection consistently did not understand the questions we asked concerning 'fallow' and 'forest'. As we pointed out earlier, being primarily a forest resource management project, our main focus was clearly on discussing 'forest' use. However, this term was interpreted by local people to mean 'black bush', a pidgin concept of dense, undisturbed high forest that is usually relatively distant and infrequently visited. In this sense we were given the impression that use of the forest was limited, both in terms of products collected and traded, and products gathered for consumption within the household. But the impressive list of plant and animal species that must have come from forested land which local communities could describe and were observed using, suggested that the 'forest' *was* important to household livelihoods. It was in trying to make sense of this apparent contradiction that we were forced to look more closely at the relationship between forest, farm, and fallow.

The way in which local people regarded the land around them depended very much on the intensity of use applied to a patch, the type and level of inputs, and on the crop type or specific resource availability. 'Black bush' is found at one end of a continuum with intensive permanent cropping at the other. 'Fallow' simply means less intensively used, neither 'laid to rest' nor 'abandoned', it is still 'managed' and utilised in different ways. It was this local understanding of 'fallow' which, although somewhat different in detail in the two areas, unexpectedly proved to be the key to uncovering the important role of shifting agriculture (Brocklesby *et al*, 1997).

The practice of shifting cultivation in the Upper villages and the West Coast is quite different. However, our definition of shifting cultivation recognises that periods of cultivation (i.e. active planting, weeding, etc.), are significantly shorter than periods of non-cultivation, and that the resting period is subject to natural forest regeneration. We also understand shifting cultivation to be one component within a land use system, rather than a system unto itself. Even though it is part of a land use continuum from farm to forest, it has multiple locations in time and space and is not necessarily situated in any kind of geographical continuum.

Distilling the nature of shifting agriculture in the two areas, we take the dynamic view of shifting cultivation as neither a static nor necessarily stable system of agriculture but 'part of an overall subsistence strategy flexibly responding to stress as the social, economic or natural environments change' (Warner, 1991:9).

Livelihoods in the Humid Forest Zone of Mount Cameroon

We understand livelihoods as 'closed' systems in which the inputs of land, labour, natural capital (i.e. 'forest' resources), money, and goods are manipulated to provide the returns which maintain the household and individual. It is the relationship between the inputs and returns that account for the ways in which different values are placed on resources, and how environmental entitlements are manipulated.

Using our improved comprehension of shifting cultivation and further questioning, and probing around the blurred distinctions between 'farm', 'fallow', and 'forest', we began to unravel the way in which rural households in the areas consider their

livelihood options. The attendant risks involved in selecting only one resource use option (e.g. farming as opposed to fishing or NTFP collection), leads inevitably to the development of a portfolio of resource use options. We agree here with the point that Chambers makes (1997:169), when he says 'enterprises and activities are connected and sequenced so that they are mutually supporting ... this applies especially with gardening, cultivation and livestock, and farming systems generally'.

Furthermore, how the resource use options are connected is inextricably linked to the social relationships which influence the household and individual. The 'multiple realities' (Long & Long, 1992) and roles governing the lives of people in the West Coast and Upper villages, result in different degrees of freedom for maintaining their livelihoods. In other words, the constraints and opportunities open to people depend on their skills and knowledge, the extent of their social networks, as well as the natural capital available to them.

People in the forest zone around the mountain are generally concerned with the 'use value' of resources and not necessarily with spatial patterns of land use. This means that for most households the links between the forest, the farm, and the home, are social and economic rather than biological and technical. Our field level focus on 'resources-as-products' then began to make more sense as we untangled the diverse social practices of the various stockholders. At the same time, we began to recognise whole sets of different household, individual, or group relationships, because resources were revealed as not only products, but also the basis of many layers and types of social action and interest. In this context the role of shifting agriculture and the reasons why it has maintained its prominence in livelihood systems in both areas, start to become clearer.

Livelihoods in the West Coast Camps

The occupants of the West Coast camps are plantation workers and their dependants. Three broad categories of worker can be identified, namely: permanent CDC workers with some employment rights and benefits; more or less permanent contract workers with few if any company benefits; and subcontractors who are mainly unregistered and newly arrived immigrants with no rights. It is the first two types of individual and their families that are under consideration in this discussion.

It is noteworthy that many of these workers are relatively long term residents rather than transient opportunists as was previously thought. Our data suggest that, regardless of ethnicity, around 25% of households have been based in the same camp for upwards of 25 years. Obviously the ability and willingness to invest in any form of productive enterprise is therefore strong.

Most important, in the West Coast context, is the size of the household and its component groups; this largely determines the available labour force that can be called upon to realise the various livelihood options open to the household. The broad mix of workers and their diverse ethnic origins, gives rise to an interesting array of household types. This includes large households (of up to 30 or more members) of extended families, polygamous households or those based on other broad kinship groups, and smaller households (one to ten) of workers simply sharing accommodation grouped often by ethnicity, age or social status.

Each of these households is in turn a collection of different operating units, with overlapping functions or roles. The concept of the household as a mix of productive unit, consumption unit, budgetary unit, or 'pot'/food sharing unit suggested by, for example Binet & Winter (in Guyer, 1984), is certainly in evidence amongst the households which took part in our survey work. Different members of the households may belong to one or more of the overlapping units, and each one has at its disposal a differing suite of available inputs to contribute to the overall livelihood system.

Nigerian families tend to maintain relationships across national frontiers, so much so that many households return to their home villages for three to four months a year. Equally, relatives move across borders into Cameroon to provide extra labour at times of greatest labour demand. In this way there is a net transfer and exchange of livelihood resources, or inputs and outputs, which extend beyond the region over a far wider milieu than that of the camps. This in itself makes it more than usually difficult to capture the detailed nature of household dynamics for this group of people.

The various livelihood options open to the households in the camps, besides plantation labour, include: intensive subsistence or food cropping in home gardens, on farmland allocated by CDC, or on land rented from indigenous landlords based

in adjacent Bakweri villages; permanent and intensive cash mono-cropping of mainly maize and cassava on rented land; or shifting agriculture. Shifting agriculture takes place covertly on CDC leasehold land (i.e. forest land which CDC expects to exploit some time in the future), because CDC has a strict policy of prohibiting resource use in its zone of operation. This reflects the relative insecurity of land-holding in this part of the project area.

The geographical location of the West Coast and the peculiar local climate allow three successive harvesting seasons, the first one of which affords a high price premium coming as it does before production in most other parts of Cameroon. This is particularly true of early corn (maize), which gives significant cash returns to those who manage to grow a sufficient quantity for sale to a network of commercial wholesalers.

Shifting agricultural plots are cultivated for one to three years, and continue to be utilised in some form for up to ten years before they return to another cultivation cycle. Initially they tend to be planted with cassava and plantains. Older or larger useful trees are retained. The regenerating forest and plot edges provide spices, vegetables and medicines, the most important of which are: the climber bush *pepe* (*Piper guineensis*), the fruits of which are used as a spice; kernels from the *njansanga* tree (*Ricinodendron heudelotii*) used to make soup and to spice fish; *tondo* (*Aframomum hanburyi*) and alligator *pepe* (*Afromomum melegueta*), spices with medicinal uses; bush mango (*Irvingia gabonensis*) fruits used as a thickening agent; kola nuts (*Cola* spp.), culturally important stimulants; *atama* (*Heinsia crinata*) and *aritan* (*Lasianthera africana*), both forest vegetables which are used as a substitute for *eru* (*Gnetum* spp.), probably the most important regional dish and in significant demand from markets in Nigeria. Some bushmeat species, notably porcupines (*Atherurus africanus*) and monkeys are also trapped around the shifting plots.

Livelihoods in the Upper Villages

Population dynamics in the Upper villages are markedly different to the West Coast camps. Assessment of the number of inhabitants in the villages is confused by the residents' tendency to include non-residents in their estimates of the population. In one village for example, the actual population of about 650 is contested by residents who maintain the population is nearer to 1,000 (Tako *et al*, 1996). The relationship between resident and non-resident members of the village population is one that has

to date been poorly considered by the project. However, evidence from wealth rankings conducted during a stakeholder analysis suggests that for some households resource inflows from non-residents are an important part of the livelihood system (MCP, 1996). The number of well maintained but unoccupied houses and marked out building plots, also suggests that non-residents maintain close ties to their birth village.

In contrast to the camps, over 90% of the population of the Upper villages are of Bakweri origin; it is marriage that accounts for the presence of other ethnic groups, rather than the in-migration of 'strangers'. Traditionally the villages act as autonomous units, although intermarriage between the villages is common and there are economic as well as social ties. After marriage and removal to her husband's village, a woman will, for example, maintain user rights to farming plots in her village of origin. It is notable that the population in all three villages consists mainly of young primary school age children and older men and women. Young men are conspicuous by their absence in two of the villages, and in one, younger women are also not present in the numbers one would expect. Many move to Buea, Limbe or other larger population centres to seek employment or educational opportunities. The lack of amenities, schools, roads, electricity, as well as a regular water supply, has resulted in a degree of isolation not experienced in the camps. Moreover, the skewing of the population, which results in the limited number of able-bodied men and women in the labour pool, highlights the relatively few livelihood options available within these villages for many household members.

Household types and composition reflect both the homogeneity and the relatively low population of the villages. The average household size is five to six people, the majority being headed by a male. The number of female headed households ranges from 9% to 11%; the vast majority being elderly widows (Tako *et al*, 1995; MCP, 1996). However, the concept of a household is fluid. Some men have more than one wife with dependants spread over more than one household. There are also seasonal changes in household composition as children and young adults return home from school. Our data from the Upper villages is less rigorous than for the West Coast, but from observation and rapid appraisal, Binet & Winter's model also holds true.

The various other livelihood options open to households besides farming are related to gender. Men are hunters, timber exploiters and, in one village, collectors of *Prunus africana* bark (exploited for its medicinal value and a major source of

income). Women and children are the main collectors of fuelwood and NTFPs. Of particular importance in this respect are a wide variety of forest vegetables; wrapping leaves (*Marantanceae* spp.); spices such as *tondo*, alligator *pepe* and bush *pepe*; the spice *esekeseke* (*Tetrapleura tetraptera*); cashu nuts *(Tetracarpidium conophorum)*; the fruits and medicinal parts of the *wekeku* tree (*Myrianthus arboreus* and *M. preusii*); and *wokaka* (*Trichilia rubescens*). The distribution and density of most of these species depends on forest disturbance, and are commonly tied to shifting plots. Bush meat is generally sold by men commercially whilst women are responsible for the marketing of food crops in the surrounding village markets and the main markets of Buea and Limbe.

In the context of the Upper villages, the smaller labour force on which to draw and a more obvious gender division in task allocation, are very important factors in determining the ways in which the various livelihood options open to the household are organised. Unlike in the West Coast camps, land availability is relatively unrestricted, since the villagers, as traditional owners of the land, have unlimited access to the surrounding forests. This security of tenure has resulted in a very different pattern of land use.

Each adult male has the usufruct rights of parcels of land during his lifetime which he may extend to female relatives; he may also stake claims to new land by opening up parts of the forest hitherto unused. On the basis of ancestral claims, the number of shifting agricultural plots available per household has been calculated at around 100 (CDS, 1997). Plot in this instance refers to: old fallow land; reopened forest land; newly cut forest land; and land in continuous production. In the latter case, it is usual to observe the rotation of subplots on the one continuous piece of land. Recent data indicates that existing fallow plots are found on land much higher up the slopes than previously recognised (Ndam, 1996). This suggests that the number of plots available to households may be even greater than estimated.

In the Upper villages shifting cultivation is an efficient form of farming. This is because the relatively low labour demand allows for greater flexibility, thus circumventing the problem of labour shortage. More importantly, because uncultivated forest species are utilised as ‘crops’ and the main plantings of cocoyam, plantains and yam endure over the fallow period, the available range of products stretches the possible subsistence and income-generating opportunities without imposing further labour burdens.

The role of shifting agriculture in the livelihood systems

For us, one of the most helpful ways of understanding the role shifting cultivation plays in the livelihood systems of the two areas, is the notion of performance as suggested by Richards (1993). He reflects that the outcome of an agricultural system 'is not a predetermined design but a result' (p67). What matters at a particular point in time and space is what the farmer can call upon to orchestrate his or her endeavours. Household members continue to practise shifting cultivation because it is the least demanding in time and labour of all their available activities and continues to pay dividends. As such, shifting cultivators within a household harmonise their portfolio of livelihood options to ensure household survival.

We need to understand the coping skills of household members which permit them to continue to produce, process, trade and pursue other activities in an environment which is not wholly predictable. Seasonal changes, for example, can never be entirely foreseen. In fact it is the impact of seasonal effects – both biological and economic – on the opportunity costs of labour and the conduct of markets, that affects how households in the Upper villages and West Coast manipulate the mix of livelihood options in time and space.

In years of high rainfall, labour demand for weeding and tending food crop plots (Upper villages) or commercial mono-crop plots (West Coast) is high, thus raising the opportunity costs of labour. Crop yields are never assured, however, and increased rainfall might, for example, lead to a greater incidence of disease so that yields are reduced. Shifting plots act as a buffer or a form of insurance against this type of circumstance for relatively little investment, particularly as the labour available for diverting into any other livelihood activities is either reduced or non existent. Apart from the enduring food crops that can be harvested from the shifting fallow, in both areas under consideration the majority of the utilised tree crops and herbaceous species are available during the period between the main bursts of agricultural activity. At the same time farmers can engage in opportunistic collection of non-cultivated species on their way to and from farmed plots. Shifting cultivators are thus capitalising on the relatively high value of low bulk products in a way that fits in with labour demands.

Conversely, in seasons when labour demands are lower and the opportunity costs of labour fall, shifting cultivators may diversify their activities to take advantage of the space created. New shifting plots might be opened, or a new cultivation cycle

initiated. In both areas men might spend more time hunting, or trapping farm pests. Women in the Upper villages might visit markets more often to sell produce, socialise, or take part in indigenous credit and savings schemes. An important fact that recently came to light in the Upper villages, is that when farmers have the time, they engage in experimentation and substitution of food crops, particularly those that replace the problematic cocoyam. They might also find new shifting plots on which to cultivate cocoyam in the hope that the land is free of root rot disease.

In the West Coast, the way individuals are tied to plantation labour is particularly important. The busiest period for palm tending and harvesting falls at the same time as cropping of commercial maize and of food crops, so shifting plots can potentially provide a stream of resources in the way described earlier. At other times of the year, the method CDC use to pay their workers, by piece work calculated on a block rate – effectively the price for an allotted task in an allotted time – has the additional effect of promoting strategic decision-making regarding the location of a shifting plot and whether an individual chooses to visit it. If a plot is wisely situated, for example, a shifting cultivator may be able to earn CDC wages for particular tasks, as well as harvesting products or hunting and gathering on and around the shifting plot.

The insecure tenure situation in the West Coast is another important factor in determining people's livelihood options. The high rents and stringent conditions placed on land around the camps by the Bakweri villages, call for careful calculations by the household in two respects. The household will be anxious to covertly open a plot away from the eyes of the Bakweri landlords, and at the same time assess the relative value of the crops planted on rented land against the cheaper but potentially lower volume from shifting plots. This is a particularly subtle assessment that is linked to changes in market prices, which are not always the same in all markets. The West Coast camps have access to good quality market information which is carried by CDC delivery drivers as they travel between the main urban centres. This transport link provides the chance to respond quickly to changes in demand and prices across the region, which in turn affect household decisions about which crop to plant on which parcel of land, the number of shifting plots to maintain, and the harvesting period to capitalise on.

There is a marked increase in the fishing population around the camps that coincides with the quieter period of the agricultural and plantation cycle. The

fisherfolk operating along the coast of Cameroon work all along the West African seaboard and follow the fish as they migrate and reproduce, bringing with them a demand for fuelwood for fish drying, spices for fish curing and flavouring (e.g. *najansang*), and cassava as the traditional accompaniment. An important market effect emerges through the seasonal variations in the market demands for products and the prices different crops from different plots can command across the region. In effect households on the West Coast can ensure the highest return to their labour by switching from one type of farming to another at appropriate times. Their high investment intensive plots produce early season maize and cassava which command high prices in Limbe and Douala, while their shifting cultivation plots enable them to respond to the demand for forest products and cassava engendered by the arrival of the coastal fishing community.

Implications for Natural Resource Management

The adaptability and flexibility of shifting agriculture suggests that it is unlikely that local people will seek out, or be responsive to alternatives. If the project is to succeed in engaging key actors in partnerships for natural resource management, it must develop strategies which embrace and incorporate shifting cultivators in determining sustainable resource use. We present here some of the social, ecological, and technical implications of following this route. Given that our findings are not yet substantive we draw no conclusions but highlight issues which will require further consideration.

1) Understanding vegetation types

One of the ongoing problems within the project is the classification of vegetation types as they occur over the project area. Letouzey's (1985) classification has provided project botanists and foresters with an adequate description of the most important plant associations. For the purposes of forest management, however, the resolution of detail is too coarse, and more account needs to be taken of the finer patterns of vegetation change. Until the forest and grassland around the mountain is classified in this way, it will be difficult to make substantive recommendations about appropriate land use zonation and concomitant management regimes.

Until now climate and volcanic influences were thought to have been the most important forms of forest disturbance. Anthropogenic disturbance has not figured

in interpretations of forest structure and composition. Unless shifting agriculture is understood in such ecological terms, false assumptions will be made about the relative value or merits of particular vegetation types. In this light, the project's perceptions of undisturbed and disturbed forest, and therefore of areas with greater or lesser biodiversity conservation value, require some refinement. A case in point is the misunderstanding about the forest vegetation around the Upper villages; many of the interesting features described earlier (e.g. the mono-specific stands of tree ferns, or even the distribution of *Prunus africana* which has quite critical gap-related requirements for regeneration) are almost certainly attributable to shifting agriculture, and are not 'natural' features.

2) Land use zonation

A working assumption of the project and one on which many interventions have hitherto been based, is the belief that the forest is valuable, and it is by increasing the value of standing forest to local actors that different forest areas and thus biodiversity will be maintained. In fact it is not the forest, but the land which it occupies which is valued – both in terms of ownership and, more importantly, in terms of its use value to local actors (CDS, 1997; Ambrose-Oji, forthcoming).

We do not mean to suggest by this that forest clearance for different land use options is inevitable. Linking shifting agriculture to livelihoods in the Upper villages and on the West Coast has demonstrated that different kinds of vegetation have different kinds of value to different people. It has been the case in the past, for example, that we overlooked the use value of fallow land and the way it is situated within the forest complex. An essential characteristic of forest farming in the two areas is that, while it is part of a farm-forest continuum, shifting agricultural plots cannot easily be located in one geographical locale. It becomes difficult to set static perimeters, apart from areas where topography and geology are obvious barriers to intensive land use. It makes more sense to think of extant land use patterns as a fluid mosaic in which land use boundaries remain dynamic, reflecting the changing social and economic choices of the actors involved.

It has emphasised for us the importance of addressing the social, ecological and technical components of natural resource management concurrently, as the project begins developing land use strategies with local actors. Buffer zones and other land zoning policies which seek to replace existing land use patterns with more rigid limits are recognised as being unsuitably crude mechanisms. The challenge will be

to identify with local actors land use strategies which accommodate shifting cultivation.

3) Responses to external pressures

We have emphasised throughout that the enduring nature of shifting cultivation lies in the system's inherent adaptability to changing circumstances. Nevertheless there are indications that external pressures will affect the position of shifting agriculture in the livelihood systems in both the West Coast camps and the Upper villages. It is too early to make any realistic assessment of what the effects might be. We highlight two particular issues that we consider will need close monitoring by the project.

The West Coast area has since colonial times been a frontier zone and shifting agriculture has evolved to accommodate this dynamic environment. In recent years the process of domestication of forest products has advanced as one response to both the demands of the market and the increasingly uncertain position of forest users and populations in the area. The close ties to Nigerian markets and the imminent privatisation and expansion of CDC are bound to create even greater forces pushing towards this kind of spontaneous adjustment. The 'wildcard' in the West Coast area is the influx of new immigrants who have little or no social status, limited access to resources and concomitant livelihood insecurity. It is hard to predict what impact these people are likely to have on the forest, and how they will affect shifting agriculture as we understand it now. CDC expansion and rumours of further expansion have already led to camp dwellers staking claims to farm land further in the forest and thereby heralding changes in the land use pattern in geographic terms.

For the Upper villages, where communities continue to open up new shifting plots and farmland further into the forest, it seems that indigenous methods of managing the forest fallow will endure. However, population increases in Buea and its larger satellite villages have led to both forest clearances and increased pressure on resources. The opening up of new farmland, the intensifying of some NTFP collection and the extensive felling of forest to feed a growing demand for building and carpentry timber are all contributing to changes in land use patterns and resource availability. In these circumstances shifting plots may no longer be a realistic option and villagers may intensify production on short fallow rotation plots to compensate for losses incurred. It is still too early to predict any radical changes,

but we consider that the ongoing project monitoring of the changes in range and location and concomitant effects of anthropogenic disturbance (new farmplots, timber exploitation, intensive NTFP collection etc.) is essential.

4) Cameroonian forestry law and restrictions on agricultural use of forest land

A key element of the project's work is to develop legally prescribed forest management options with stakeholders in general, and in particular, community forestry with forest adjacent settlements. Important actors in this process are, and will be, shifting cultivators. However, an obstacle to involving shifting cultivators in any meaningful way is the legal interpretation of 'forest'. Under Cameroonian Forestry Law a forest is understood as 'any land covered by vegetation with a predominance of trees, shrubs and other species capable of providing products other than agricultural products' (Forestry, Wildlife and Fisheries Regulations – Law N^{o} 94/01 of 20 January 1994). This definition has its roots in a common policy dichotomy, found throughout the world, between agriculture and forestry. Whilst this may support large plantations and production forests, it ignores the farm/forest interface as described in the Mount Cameroon area. Previously we assumed that ways could be found to overcome what was considered to be a minor problem of delineating forest boundaries to exclude farming areas.

The drawing of forest boundaries to describe a community forest will undoubtedly be complicated by land use patterns which blur the edges between farm and forest. Whilst this blurring is easily accommodated locally, it remains to be seen whether the law is sufficiently flexible to do the same. Moreover, legally agreed management plans (which form the basis upon which a community can establish a community forest) cannot by law include regulations governing shifting agriculture plots and fallow use, since these practices are not recognised. Should extant land use patterns continue within community forest boundaries, the integrity of the forest in legal terms is violated, thereby giving the state grounds to reclaim the forest for its own purposes.

In the light of our work on shifting cultivation, community forest management cannot simply be reduced to a matter of negotiating boundaries, it is also a question of recognising forest management and shifting agriculture as mutually dependant processes. Given the way livelihood options are played out in both the West Coast and the Upper villages, it does not seem likely that the law as it stands will facilitate

long term changes in land use patterns. Our hope is that our ongoing work on Mount Cameroon and similar studies elsewhere in the country will contribute to the process of policy change in Cameroon.

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