



Subsistence or cash: strategies for change in shifting cultivation

Ole Mertz, Andreas Egelund Christensen, Peter Højskov & Torben Birch-Thomsen

Abstract

General problems related to the perception of shifting cultivation and intensification scenarios are discussed. In farming systems labelled "shifting cultivation", various types of permanent farming and off-farm activities are often more important economically than the traditional subsistence production. Based on a case study in Sarawak, the livelihood strategies of a shifting cultivation community are analysed in the context of unsuccessful Government subsidised cash crop schemes. It is concluded that the activities of the individual households mostly reflect long term strategies aimed at conserving their traditional practices and improving their livelihoods through income generating off-farm activities. Labour is identified as a key constraint to the success of cash crop production from which resource poor households are unlikely to benefit. By contrast, upland rice cultivation is not only a production system but a social and religious institution which is not likely to disappear. Research and development projects should focus on the intensification of this practice and on the economic use of forest and fallow. Increased output from these subsistence activities would provide a better foundation for house-

holds and individuals to choose appropriate income generating activities. Generally, in order not to counteract local strategies and waste financial resources, development programmes should be preceded by studies insuring an understanding of the livelihood strategies within target communities.

Keywords

Cash crop schemes, development aid, livelihood strategies, Malaysia, off-farm activities, Sarawak, upland rice.

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Shifting cultivation systems and livelihood strategies

"Shifting cultivation is not only a backward type of agriculture. It is also a backward stage of culture in general" (FAO Staff 1957). This classic statement epitomised the views of many Government planners who considered shifting cultivation wasteful of resources, unproductive, and disinclined to change. Today, the notion still persists of shifting cultivation as an undesirable land use system in countries with growing economies where forests are either targeted for high output commercial exploitation or conservation of biodiversity. Several scholars have fought to change these stereotyped views by presenting very detailed accounts on the system and counterbalancing official derogation. Statements such as "research has shown swidden agriculture to be an eminently rational, elegant and suc-

cessful technique for exploiting difficult environments" (Dove 1981) and Geertz' (Geertz 1963) appealing suggestion that traditional shifting cultivation with its diversity of crops and short cultivation period is a sustainable imitation of the rain forest environment at low population densities are examples of these.

However meaningless in an academic debate, the issue of whether shifting cultivation is good or bad remains relevant in the context of decision making on land use planning and rural development issues in much of Southeast Asia. The hidden agenda of many development programmes has been the eradication of shifting cultivation, and in this paper we will examine how unfortunate perceptions of shifting cultivation and lack of consideration of local livelihood strategies may lead to unsuccessful development efforts in shifting cultivation communities. And

we will attempt to show that alternative pathways seeking to develop traditional practices will be more advantageous to communities as well as to the donor.

The term shifting cultivation is used for many different types of systems, and, as noted by Brookfield et al. (1995), "is among the least satisfactory of all descriptors for a set of farming systems in which almost the only common factor is reliance on natural regeneration of capability under fallow as a major element in management". The result is that every statement of what is good and rational or bad and destructive probably relates to one or more farming systems which are not easily compared and to which no sufficiently descriptive definition can be applied globally. The early definition by Pelzer (1945) that "shifting cultivation can be defined by the rotation of fields rather than crops, a short cropping period (1-3 years) succeeded by a long fallow period (5-20 years), and clearing by means of slash and burn" describes the essence of the traditional farming practices in shifting cultivation in South-east Asia and has been adopted by many authors (Chin 1985b; Christianty 1986; Jensen 1966; Spencer 1966).

However, applying this or any other definition to farming systems where shifting cultivation practices appear to be dominant causes problems for at least two reasons. Firstly, the very nature of classification builds on a hierarchical understanding of a system and its sub-systems (Reenberg 1998). In the academical way of classification various criteria may be set-up to separate different systems (intensity of rotation, population density, labour input, technology, degree of transformation of the natural ecosystem etc.) based on the purpose of the classification (Ruthenberg 1980). But since 'the system' often constitutes a number of sub-systems the diversity seems to vanish by giving it a single label, such as "shifting cultivation". A recently proposed working classification of shifting cultivation based on a review of 136 cases provides much more detail for separating various systems (Fujisaka et al. 1996), but fails to accommodate systems which contain many different elements. In Borneo, for example, conversion of swiddens into agroforests, perennial plantation crops, and natural secondary growth can be found in almost every shifting cultivation system whereas Fujisaka et al. (1996) use these elements to separate systems. Secondly, farming systems are rarely static, and farmers are often engaged in multi-enterprise systems (Hunt 1991) pursuing multi-use strategies (Toledo 1990). Parts of a production system may predominantly serve as subsistence whereas others are

income generating. The different production strategies exist within the same unit as parallel sub-systems, but their mutual importance to the producer may vary over time.

We would argue that shifting cultivation in its "pure" form as the major source of subsistence is becoming increasingly rare, and that permanent farming of annual crops, tree crops, and other perennial species today are economically more important elements of most systems (Brookfield et al. 1995; Padoch et al. 1998). Moreover, off-farm activities may also have overtaken farming in terms of income generation in many communities today, and may therefore be highly influential on the choice of farming practices. These changes are partly driven by the desire to diversify production and thus counterbalance the risks associated with upland rice cultivation. The risks are accentuated by population increases, and the subsequent lack of land which may cause fallow periods to be reduced and, possibly, yields to decline, forms the classical scenario of intensification driven by population pressure (Boserup 1965). There are, however, other factors that are equally or, perhaps, more important than the population factor and the farmers' risk assessments.

First of all, it should be noted that net population increases in shifting cultivation areas are much talked about but often not well documented and may be relatively low due to urban migration; in fact, some areas of the Bornean interior are being depopulated as economic and educational opportunities are limited (Christensen 1997; Inoue & Lahije 1990; Jessup 1981). Secondly, Government initiatives encouraging cash crop production through subsidies provide incentives for diversifying out of upland rice. Governments also discourage the moving of homesteads thereby forcing farmers to use the available land more intensively. Thus, population pressure may arise in restricted areas because expansion and migration into "virgin" land are no longer allowed. Finally, in the South-east Asian economies, which have developed rapidly until the recent economic crisis, most rural populations do not content themselves with mere subsistence economies and ways to earn cash from farming or off-farm activities are actively pursued no matter how much land is available for upland rice. It is therefore essential to understand the dynamics of the whole spectrum of livelihood strategies governing the choice and rejection of activities within a given society if, for example, external aid is to be effective.

The concept of livelihood strategies may be used as an analytical tool in determining communities', households',

and individuals' allocation of resources such as time and labour to these activities (Birch-Thomsen et al. 1996; Chambers & Conway 1992; Preston 1992). Dietz et al. (1992) focus primarily on the household and its members whose resource base is essential for their ability to be flexible and adapt to internal as well as external changes. They point out that the three major objectives for the household in strategic livelihood terms are to preserve and/or improve its productive and reproductive capacity and to maintain its desired status and conserve its social network.

The authors classify different types of strategies according to the time perspective which can be short term or long term, and the goal of the strategic actions which can be preservative or improving. Four types of livelihood strategies are identified: *recovery strategies* are preserving and short term aimed at recovering and adapting to sudden changes. *Conservation strategies* are also preserving, but long term strategies aimed at preventing stress and threats and to maintain the households' room of manoeuvre. *Opportunistic strategies* have a short term time perspective but with an improving goal and are characteristic for households seizing sudden, non-permanent opportunities. Finally, *structural improvement strategies* have long term time perspectives and are improving through accumulation of resources and improvement of social networks (Dietz et al. 1992). It is important to emphasise that the four types of strategies are not mutually exclusive as a given activity can have several different goals over different time perspectives.

Methodology and case study area

In the following case study from Sarawak, Malaysia, participatory methods were employed to explore livelihood strategies in the small Iban community of Nanga Sumpa. The findings are based on a long term study during the period from February 1995 to July 1997 (a total of 14 visits of 2-14 days each), and a one week study in January 1998 analysing the diversification of off-farm activities in relation to the resource base of selected households. The former included a wide spectrum of approaches including structured and semi-structured household interviews, participant observation, and physical registration, while the latter was based on a focussed group interview, semi-structured interviews with a sample of nine household pur-

posely selected to obtain a broad spectrum of resource bases, and participatory ranking of activities (Augustinus et al. 1998; Mertz 1997).

Setting

The village of Nanga Sumpa is located at the Delok river in the Sri Aman Division above the Batang Ai Hydroelectric Dam, see Figure 1, next page. The majority of the 28 households live under one roof in a long house, which is composed of small "apartments" occupied by each household, and two common verandas (Photo 1). The village has 150-200 inhabitants depending on whether persons on temporary or more permanent migration are included. The population has been fairly stable since 1992.

The completion of the Batang Ai Dam in 1985 and the ensuing lake flooding about 8000 ha of land had serious impact on the region as 26 long house communities were resettled downstream in Oil Palm schemes operated by the Sarawak Land Consolidation and Rehabilitation Authority (SALCRA) (King & Jawan 1992). Although originally targeted for resettlement, the people of Nanga Sumpa chose to remain in the area as the village is at the uppermost perimeter of the lake only during high floods. The Dam has reduced travel time from the nearest road to Nanga Sumpa and several other communities from 1-1½ days to 1-2 hours, and notably the younger people consider the Dam to be very beneficial in this respect. The area is very hilly with steep slopes along rivers and only few, small riverine plains. The natural vegetation is mixed hill dipterocarp rain forest but the area is today dominated by secondary forest at various stages and farm land (Photo 2).



Photo 1: The long house of Nanga Sumpa (Photo by Ole Mertz).

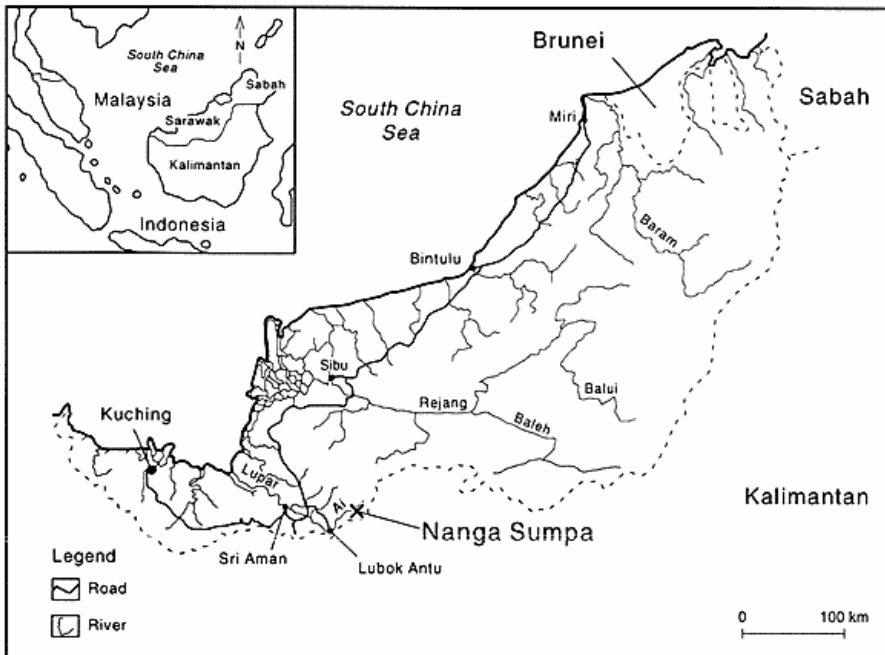


Figure 1: Location of Nanga Sumpa in Sarawak, Malaysia.

Average annual rainfall is 3450 mm (DID 1996). Management of natural resources in the village has been examined closely in two studies focusing on the use and cultivation potential of wild plants (Christensen 1997; Mertz 1997).

Farming practices and off-farm activities

Shifting cultivation of upland rice and permanent farming of rubber, pepper, and cocoa are the main agricultural activities. The cultivation practices of upland rice resembles the systems described by several authors in Borneo and is a typical conservation strategy as the goal is predominantly preserving of traditions and subsistence production with a long term perspective (Chin 1985a; Dove 1985; Jensen 1966; Padoch 1982). Rice is not only a food crop, but also the focus of most social and religious activities. Life evolves around the annual cultivation cycle and the spiritual power of rice governs a large number of religious as well as practical prescriptions for the community. Fields are generally only farmed one year before fallowing for an average of 6 years and rice yields are very variable, but rarely sufficient for subsistence. Intercropping with vegetables and other crops such as cassava, pumpkin, bananas is always practised, and modern implements such as chain saws for felling trees and various agro-chemicals are increasingly used (Mertz & Christensen 1997). Wet rice is

only cultivated on very small patches of land due to topography.

Rubber has been cultivated for at least 50 years and probably longer but tapping has been very irregular during the past ten years due to low prices (Photo 3). A recent Government scheme has supplied 450 grafted seedlings of a new high yielding clone to all households most of whom have transplanted the plants to terraces. Cocoa was introduced in 1990-91 and most households planted from 200-1000 trees according to guidelines of the Department of



Photo 2: Typical shifting cultivation landscape, with upland rice and patches of secondary forest. (Photo by Ole Mertz).



Photo 3: Tapping of rubber, one of the cash crops in Nanga Sumpa (Photo by Ole Mertz).



Photo 4: Fishing is, like hunting and gathering, an important supplementary activity to farming (Photo by Torben Birch-Thomsen).

Agriculture (DoA). Today, all cocoa gardens are abandoned, mainly because maintenance was not considered worthwhile due to pest and disease infestation. Pepper is an old crop but was reintroduced in a scheme in 1992-93, and is as yet the most successful cash crop although the gardens of several households are not properly maintained and suffer from disease attacks. Agro-chemicals are still subsidised for pepper, but cultivation is quite likely to cease if these have to be bought at cost price. Rubber, cocoa and pepper are cultivated with a long term perspective, and the income from the sale of these crops is generally aimed at capital accumulation and improvement of the welfare of the household. Their cultivation is therefore considered as a structural improvement strategy. Finally, a scheme has promoted intensive home gardening with subsidised seeds and agro-chemicals but the gardens were abandoned after only two years due to pest problems and the need for high labour input.

Despite the problems with cash crops, agriculture is generally perceived as a safe investment, but changing internal and external conditions have increased the importance of off-farm activities. During the past ten years Nanga Sumpa has been under an increasing influence of the market economy partly due to tourism and increased market access. These conditions have influenced how the people in Nanga Sumpa are involved in off-farm activities.

Hunting, fishing, and gathering of wild plant products are very important activities for subsistence and larger game such as wild boar and deer provide good income when sold in the nearest town close to the Dam. Common for hunting, fishing and gathering is that they are generally

practiced with a preserving goal and a long term perspective, i.e. conservation strategies. However, fishing and gathering are also practiced with a short term perspective but still with a preserving goal, for instance due to a sudden lack of food or other daily needs (Photo 4). Fishing and gathering could therefore also be considered as part of recovery strategies. Furthermore, hunting is often practiced when opportunities arise and as the game is often sold, hunting could also be considered an opportunistic strategy.

Making handicrafts such as baskets, blankets, and woodcuts is also an important off-farm activity whether for own use or for sale. The sale is closely linked to a tourist lodge run by a travel agent from Kuching in collaboration with the long house tourist committee. Boat construction is primarily for own use, but also for transportation of tourists as well as locals. Common for these activities is that they both have preservative and improving goals with primarily long term perspective and, consequently, they are part of conservation and structural improvement strategies.

The number of tourists coming to Nanga Sumpa varies, but has been increasing in the past 5-6 years despite the recent slump due to the haze problems in Borneo. Income gained from activities related to tourism, e.g. as boat driver, co-driver, guide, porter and cook, is considered "good money", but risky because it depends on the number of tourists. These activities are considered as part of structural improvement strategies as the structured, egalitarian approach of dividing the work load and income between all households is assured by the tourist committee and have a long term perspective.

Migrant work is another important activity and most men

in the community migrate a certain period of their life partly due to Iban traditions and partly due to improvement of the households welfare through capital accumulation. Migrant work can be considered a structural improvement strategy if the need for income is part of a conscious capital accumulation, whereas short term migration can be associated with opportunistic or recovery strategies depending on the urgency of the income needed.

The educational level in Nanga Sumpa varies a lot between men and women and between young and old people. The younger adult men often have about six years of education, while only few adult women have been to school. Today primary school is compulsory for children. Education is seen as an investment for the future and, therefore, primarily an improving strategy with a long term time perspective and part of a structural improvement strategy.

Livelihood Strategies in Nanga Sumpa

In order to examine the mechanisms behind the choice of activities it is essential to define the resource base of the household. We have used five major parameters for this purpose: agriculture (land and crops), labour, education, social relations, and capital in the form of cash and goods. These parameters are interlinked and together very important for the flexibility and room of manoeuvre of households.

The households in Nanga Sumpa are engaged in roughly the same activities and seem to have very similar lives. Only a few households have specific activities that nobody else practise. This makes the society appear quite homogenous although there are great differences in how the households weight each activity. This is due to the different resource bases of each household and to the fact that decisions are made by individuals in the households thereby making them all unique. The sample of nine households can be divided into three different groups according to their involvement in activities and their resource bases, but it must be emphasised that none of the households are devoted to only one type of livelihood strategy.

Five of the households can be characterised as average because they allocate relatively equal amounts of time and resources to activities that have both improving and preserving goals. They are engaged primarily in activities with long term perspective including subsistence related activities such as cultivation of upland rice, production of

handicrafts and tools for own use, and gathering. Furthermore, this group of households has a quite extensive involvement in tourism activities, production of handicrafts for sale, and migrant work. Based on their weighting of activities we argue that these five households are primarily engaged in structural improvement strategies, but also have a strong focus on conservation strategies.

The two most resource rich households seem both to be primarily committed to structural improvement strategies, because they allocate most time and resources to activities with long term perspectives and improving goals such as business related activities and tourism. These activities are primarily capital accumulating and by that improving the livelihood of the household.

The two most resource poor households allocate most resources to subsistence oriented activities like cultivation of upland rice, gathering, fishing, and reproductive work. Insufficient labour availability and the urgent need to maintain subsistence production reduce the possibility to engage in income generating activities. Most time and resources are therefore allocated to long term strategies with preserving goals, and, consequently, the households primarily follow conservation strategies. The occasional sale of old, inherited artifacts, however, indicate that due to the poor resource base, these households may periodically be forced into situations where cash for recovery is needed.

The involvement in different income generating off-farm activities seems to be of paramount importance to the welfare of Nanga Sumpa, on community as well as household level. These activities give opportunities for capital accumulation, and most people see a great potential for further involvement in activities such as tourism. They explicitly stated a wish to be able to allocate more time and resources on activities related to tourism based on the assumption that a stable number of tourist would continue to come to the village. However, they also emphasised the importance of maintaining their traditional and more subsistence oriented activities as well as consolidating their farming system, and that they did not wish to focus exclusively on off-farm activities. The major limitation to a free choice between activities was usually mentioned to be labour which is often allocated to the culturally important rice production as a first priority (Photo 5).



Photo 5: Planting of upland rice on steep slopes is a laborious task (Photo by Ole Mertz).

Approaches to change

Most households in Nanga Sumpa have livelihood strategies that aim at maintaining existing farming, social, and religious practices while supplementing with various income generating activities. Government subsidies and aid programmes in Sarawak have primarily been focusing on increased cash-crop production which is considered an ideal way to develop shifting cultivation communities while at the same time providing substantial income to the State. However, the experiences from Nanga Sumpa suggest that the success rate of agricultural development programmes subsidised by the Government is rather low. Ngidang (1995) also points to top-down approaches of the Sarawak Government characterised by development programmes implemented with extension agents as promoters of Government policies rather than facilitators of local empowerment. He argues that increased productivity of cash crops within the system does not necessarily lead to poverty alleviation as fluctuating World Market prices, unstable environments, and internal factors such as ruthless middlemen, poor infrastructure, land tenure disputes, and illiteracy may jeopardise the assumed benefits.

This situation may easily be applicable to other areas where various political agendas influence the degree and type of development activities implemented. However, rather than being a result of political unwillingness to effectively deal with problems of rural populations, Government policies have often been based on the assumption that shifting cultivation is a destructive, unproductive, and inflexible system which at any cost should be replaced by permanent farming systems. This view has been proven

false by several studies (Chin 1987; Dove 1985), and the reductionist perception by Governments could be, to some extent, caused by undifferentiated classification in which the diversity of activities within systems dominated by shifting cultivation is not clearly described. There is much evidence that if farmers find it economically and socially feasible they will engage in permanent farming of cash crops, wet rice, as well as in off-farm activities while maintaining small scale shifting cultivation for traditional, religious, and other reasons (Mertz & Christensen 1997; Padoch et al. 1998).

In Nanga Sumpa shifting cultivation of upland rice is the foundation of all social, cultural, and religious activities but no longer the main supplier of food. This seems to be not so much a function of population pressure as of restrictions on mobility encouraged by the State through permanent, labour intensive cash cropping schemes. Forced resettlement has also affected the area but mainly other communities during the border conflict with Indonesia in 1965 and the construction of the Batang Ai Dam in 1985. The concept of intensification through cash cropping is not wrong, but the intensification process must be seen in the context of livelihood strategies in general: off-farm activities like handicraft production, migration, hunting, and other activities related to tourism and business are usually considered more attractive for obtaining cash income, whereas farming is seen as essential for subsistence. The proportion of cash earned from cash crops in Nanga Sumpa is mostly perceived as insignificant in relationship to the labour and capital invested and can therefore not be considered to contribute significantly to the welfare of the community. There are, of course, large differences between communities depending, e.g. on the access to forests for hunting and gathering and on the tourism potential of an area, but, generally, the diversification of activities has reduced shifting cultivation of upland rice in Borneo to a way of life rather than a way of subsistence.

This development could be interpreted as a successful result of past Government policies aimed at eradicating shifting cultivation (DoA 1978). The cash cropping schemes of pepper, cocoa, rubber, oil palm, vegetables, etc. are introduced to alleviate poverty but also to divert the shifting cultivators' attention from upland rice. However, success stories of, for example, pepper and wet rice cultivation seem to be more concentrated in areas such as the Saribas where local initiative rather than Government subsidies was the driving factor (Cramb 1993). In Nanga

Sumpa, the same is the case with tourism, migration and other off-farm activities all of which are independent of Government aid.

We believe that the cocoa and vegetable garden schemes and, to some extent, the pepper scheme have shown poor results in Nanga Sumpa because they were designed without assessing the needs and strategies of the community. There seems to have been no involvement of the local community on what type of agricultural scheme would be appropriate for the area. One problem is that labour aspects were not taken seriously into account, perhaps because this parameter is very difficult to measure and also very changeable. Labour requirements in shifting cultivation are low when considering the total input, but are known to be a serious bottleneck during certain periods of the upland rice cycle (Dove 1985; Padoch 1985). In line with these observations, it is a common complaint in Nanga Sumpa that there are too many activities and that particularly pepper cultivation requires substantial and continuous inputs of labour which are not always compatible with the upland rice cycle. Moreover, the schemes are not likely to be sustainable if subsidies are withdrawn as the necessary agro-chemicals are very costly.

Based on the Nanga Sumpa case, the most appropriate aid to communities would focus on activities which do not add to an already considerable workload and which may provide an incentive for younger people to stay in the village. Although education and exposure to the outside world during migrant work may entice young men to migrate permanently from the village, there seems to be consensus that returning is desirable as long as there are sufficiently attractive activities, for income as well as leisure. Moreover, the strong cultural and religious ties draw people back. Therefore, if depopulation of rural communities is to be avoided, it is very important to support the social relations and cultural and religious ties on which communities are founded.

Improvement of traditional shifting cultivation through increased yields of upland rice and improved fallows, and valorisation of wild plant and animal resources would be necessary to achieve this. Moreover, these are the main activities of resource poor households which would be the most obvious target group for aid programmes. They typically follow conservation livelihood strategies and strengthening the output of upland rice and wild resources would reduce their immediate reliance on cash income. In other words, whatever income is generated from non-sub-

sistence activities could be used for "buying cake rather than rice". Moreover, being a social and religious institution, upland rice cultivation is going to remain important under any circumstances and may as well regain its role as a major food supplier. Cash cropping could still be an important part of the system, but it should be driven by private initiative as resource poor households are not likely to benefit from labour intensive production forms. These households may find income generating off-farm activities more attractive as they are considered to have relatively high returns on labour input.

The problem pertains as to how the subsistence activities are most appropriately intensified. Despite recommendations to promote the use of organic or inorganic fertilisers and improved varieties (Greenland 1975), relatively little work has been carried out on improvement of upland rice productivity under traditional shifting cultivation practices. The major constraints for improving upland rice farming in shifting cultivation are related to the environment characterised by infertile soils, steep topography, and weed infestation which are hard to overcome with economically and environmentally acceptable solutions (Allen 1993). Considerably more research is needed to aid communities in this respect as the commonly recommended shift to wet rice cultivation is often not possible due to topography and poor soils.

On the other hand, there is a wealth of studies on potentials for overall systems improvement, mostly focused on various agroforestry options, including fallow improvement (Kunstadter 1978; Montagnini & Mendelsohn 1997; Raintree 1986; Sanchez 1976). These approaches need to be tested in various environments and with relevant species chosen in collaboration with local communities. In this context the use of indigenous species already known to the population and adapted to the specific ecology of the region may be appropriate, and further studies on indigenous use of wild plant resources are important in order to document and stress the significant economic benefits these species may represent (Christensen 1997; Colfer & Soedjito 1996; De Foresta & Michon 1993; Lawrence 1996).

Finally, it must be underlined that while many income generating off-farm activities seem to take off without assistance from Government agencies, education is mentioned by almost all households in Nanga Sumpa as the first priority for improving the livelihood. This was also observed by Ngidang (1995), and investment in rural education and improved access to further education is an

obvious indirect pathway for increased welfare in long house communities in Sarawak.

Conclusion

Shifting cultivation communities must be understood in a livelihood context, and intensification of farming practices cannot be considered in an isolated manner. Income generation from permanent farming and off-farm activities is often the most important economic elements of many systems, whereas the traditional subsistence production remains essential for cultural reasons. Development aid should not be a choice between subsistence or cash, but rather support local livelihood strategies and improve the households' possibilities for making appropriate choices.

Government development programmes need to respond to demands from local communities in order to succeed and thereby produce acceptable returns to the investment in the form of increased economic and social welfare. It is our view that this development can be achieved in the framework of the political and economic strategies of Sarawak, and that there need not be a contradiction between indigenous and government land use strategies if development programmes are planned using participatory approaches with involvement of all stakeholders.

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obvious indirect pathway for increased welfare in long house communities in Sarawak.

Conclusion

Shifting cultivation communities must be understood in a livelihood context, and intensification of farming practices cannot be considered in an isolated manner. Income generation from permanent farming and off-farm activities is often the most important economic elements of many systems, whereas the traditional subsistence production remains essential for cultural reasons. Development aid should not be a choice between subsistence or cash, but rather support local livelihood strategies and improve the households' possibilities for making appropriate choices.

Government development programmes need to respond to demands from local communities in order to succeed and thereby produce acceptable returns to the investment in the form of increased economic and social welfare. It is our view that this development can be achieved in the framework of the political and economic strategies of Sarawak, and that there need not be a contradiction between indigenous and government land use strategies if development programmes are planned using participatory approaches with involvement of all stakeholders.

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