

## A NOTE ON SHIFTING CULTIVATION AND SETTLEMENT

by

Douglas Miles

*Tribal Research Centre, Chiangmai*

Shifting cultivation is a prevalent form of agriculture in the hills of northern Thailand and the highlands of neighbouring countries. This method of rice growing entails use of 'impermanent clearings' which are cropped 'for shorter periods in years than they are left fallowed.'<sup>1</sup> It is frequently associated with dispersed and temporary settlement which hinders effective implementation of administrative, educational and health policies.

One proposed solution to this problem in Thailand has aimed at concentrating scattered populations of shifting cultivators in large, permanent villages. It is therefore relevant to examine conditions favorable to nucleated settlement in other parts of Southeast Asia where people depend on the slash-and-burn technique for their staple.

This paper discusses the Upper Mentayan subdistrict of Central Kalimantan, one of the four provinces of Indonesian Borneo.<sup>2</sup> There are fifty-six local communities with a total population of 12,332. Over one third of the shifting cultivators live in seven villages where they have invested capital in the purchase or construction of durable dwellings standing together on the river bank. I call these settlements market centres; they have been occupied throughout the last seventy years; they have the highest *per capita* rice output in the subdistrict. The following comparison of a market centre with another community has two aims: to highlight factors encouraging shifting cultivators to live permanently in the nucleus of a settlement and to explain their agricultural success under these circumstances. I suggest that farmers depending on the slash-and-burn technique will voluntarily maintain

- 1) Conklin, H.C., 'The Study of Shifting Cultivation' *Current Anthropology* Feb 1961 p. 1.
- 2) I spent twenty-six months in the province during two fieldwork periods in 1959-60 and 1961-63. For other information on the Upper Mentaya see: Miles, D.J., *Oceania* vol 35 no 3, vol 35 no 5, vol 36 no 2 and vol 37 no 1.

such residence patterns only under conditions which promote their rice productivity.

Fundamental to the following discussion is the simple distinction between places of work and abode, also the fact that it may not be necessary for man to have his home in each place where he works. Typically, the Upper Mentayan community consists of two elements: a single nucleus or core where dwellings have a predominantly domestic function, and hamlets of huts near swiddens in the surrounding jungle. Each household has a hut abandoned as regularly as the unit moves to a new farming site. For some, this temporary dwelling is their home; but for others it is merely a camp shelter. The latter have an additional dwelling in the nucleus where they keep their furniture and other valued belongings and where elders and children may live throughout the whole year. The comparison of the two communities of Tumbang Gagu and Kuala Karis explains why some people have dwellings in the nucleus while others do not.

All commercial transport is riverine. Tumbang Gagu is upstream from rapids which are often impassable to cargo boats. The difficulties of communication with metropolitan centres on Borneo's southern coast prevent traders either establishing residence in the community or visiting it frequently. The only non-agricultural employment available to the people is jungle produce collecting and rattan cutting; when prices for these are low they have no other source of income.

Kuala Karis like each of the market centres is downstream from the rapids; several traders live there. They purchase local produce (such as rattan, rubber, timbers, resins and oil nuts) which they export to the town of Sampit in the Mentayan delta. The traders have become the focus of a complex network of occupational relationships. They offer opportunities to farmers for part-time wage labour in stevedoring and treating jungle produce. They sign contracts with timber millers who are usually carpenters and builders as well. Other occupations include blacksmiths who work for the traders, teachers, government officials, professional hunters and fishermen. Most of these people have rice swiddens.

The farmers in Kuala Karis have an incentive to live near the trade store in the nucleus. Profits from employment enable them buy the materials and hire the carpenters to build a durable house. In contrast, most people in Tumbang Gagu reside in their farm huts continuously. Not only is the construction of a permanent dwelling an unprofitable investment but they have fewer means of acquiring the necessary capital.

Differences in the commercial development of the two communities have had a marked effect on their recent histories. The original inhabitants of Tumbang Gagu built a longhouse which still stands in a dilapidated state. More than half of those who have inherited rights to the apartments never exercise them because there is no incentive counteracting the inconvenience of travelling back and forth between the longhouse and their farms. The dispersal of the Tumbang Gagu community fits in with standard theories of shifting cultivation which emphasise that the inevitable siting of swiddens at distances from a residential nucleus gives rise to fission.<sup>3</sup>

But around Kuala Karis the opposite process has been in operation. When traders opened stores in the village there were two communities called Tumbang Sapiri and Tasik Brahim respectively situated downstream and upstream. Farms of people living in these settlements were further from the market centre than their nuclei. In the last fifty years these distances have increased threefold. The core of Tasik Brahim has disappeared leaving graves only; the nucleus of Tumbang Sapiri has reduced from about thirty to five houses.

This phenomenon is *not* a result of emigration to swiddens. In fact most of the people have abandoned their rights in the nuclei of their own communities to establish similar rights in Kuala Karis. In other words they have migrated in the *opposite* direction from that in which their swiddens are located. The availability of work in the market centre has a stronger influence on where they live than convenience to their farms.

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3) See for example: Geddes, W.R., *The Land Dayaks of Sarawak* London, Her Majesty's Stationery Office; Gourou, P., *The Tropical World* Transl. by E.D. Laborde, London, Longman, Green and Co.

Residence at distances from swiddens does not necessarily interfere with agricultural success. Kuala Karis has a higher *per capita* rice output than Tumbang Gagau. Some comments on the Upper Mentayan cultivation calendar and the organisation of labour shall explain this fact.

Rice growing entails periods of intense production followed by intervals when little work need be done in the swiddens. There are three main phases: clearing, burning-planting and harvesting. Late September to early October is critical. The weather is dry in early September and wet in late October; planting must be completed within about ten days of burning or weeds sprouting in the fertile ash will choke the rice shoots. The farmer needs to exploit both dry and wet weather and to exercise skill in selecting the appropriate time to fire the swidden. If he burns and plants it too far in advance of the rain the seedlings will die, and if he postpones firing too long the rubbish will be too wet to burn. Hence the clearing must be timed accurately as well. A farmer working primary jungle must finish by May or June if the logs are to be dry by September. In secondary jungle timber is lighter and the work may be left another month. Harvesting takes place as soon as the padi is ripe to prevent loss from disease, birds and other animals. The season extends from January to April depending on the variety of seed planted. Thus seasonal, botanical and pestilence factors determine when various jobs are done.

The table summarising the above comments indicates the months farmers are free from the jobs just discussed. It shows that main phase production entails a maximum of seven months per year—assuming that each of the jobs continues throughout the whole of the month in which they take place. In fact, the variables just mentioned and size of labour force may shorten this time considerably. To what extent does cultivation require work in the intermediary periods?

In 1962 two Kuala Karis neighbours prepared swiddens of approximately the same size. One followed up the felling of timber with the work of breaking up tree trunks and the distribution of timber;

# CALENDAR OF THE MAIN PHASES OF CULTIVATION

Primary Jungle

Secondary Jungle

MONTH	Primary Jungle				Secondary Jungle			
	Quick Crop		Slow Crop		Quick Crop		Slow Crop	
	Minimum Activity	Maximum Activity	Minimum Activity	Maximum Activity	Minimum Activity	Maximum Activity	Minimum Activity	Maximum Activity
January	Harvest	Harvest	—	—	Harvest	Harvest	—	—
February	—	Harvest	—	Harvest	—	Harvest	—	Harvest
March	—	—	Harvest	Harvest	—	—	Harvest	Harvest
April	—	—	—	Harvest	—	—	—	Harvest
May	Clearing	Clearing	Clearing	Clearing	—	—	—	—
June	Clearing	Clearing	Clearing	Clearing	—	—	—	—
July	—	—	—	—	Clearing	Clearing	Clearing	Clearing
August	—	—	—	—	—	—	—	—
September	Burning & Planting	Burning & Planting	Burning & Planting	Burning & Planting	Burning & Planting	Burning & Planting	Burning & Planting	Burning & Planting
October	—	Burning & Planting	—	Burning & Planting	—	Burning & Planting	Burning & Planting	Burning & Planting
November	—	—	—	—	—	—	—	—
December	—	—	—	—	—	—	—	—
Total number of months in which work is carried out	4	6	4	7	3	5	4	6

the other did not. The firing of the first farm was considered very successful. But the second was still strewn with partially burnt logs not only reducing the area but also creating difficulties for planters. The result was that a small group planted the former in one day whereas the latter took two days even after the engagement of nearly twice as many helpers. I stress that the benefits of this intermediary work entailed only short periods of irregular labour.

Most farmers like to have a hut ready before planting begins but as building must be delayed till after burning, the job of construction must be done quickly. Another task completed at leisure is the erection of fences to keep out wild pig and deer. Weeding is necessary only in swiddens located in recently regenerated secondary jungle. When land has lain fallow for a long time only the weeds which sprout when the rice seedlings are young need removal.

In sum, people are free from all but intermittent tasks for at least five months but can extend this by accurate timing and careful selection of land and seed. Differences in the extent to which farmers make profits in non-agricultural labour may not only further reduce the time they spend in swiddens but also enable them to increase their rice output.

Agricultural production is bound up with the number of people engaged during the clearing, planting and harvesting of a swidden. Some households exchange man-days with their neighbours in the hamlets; but such arrangements are strictly reciprocal so participants never receive more days of help than they work themselves.

Other households exceed the physical limits of their own membership by paying for additional help which they do not have to reciprocate. Their output depends largely on the amount of capital they can devote to this purpose.

The Kuala Karis farmer with the biggest harvest in 1961 spent only eighteen days in his swidden which was one of the furthest from the nucleus. He used profits from a prosperous sawmill in the village core (where he worked most of the year) to engage more than three hundred hands on some of these occasions. He borrowed a large motor-powered canoe from the captain of a trading vessel and ran a

shuttle service between the core and the farm. His family never slept on the swidden but commuted on each day of work.

Earnings from part-time labour enable Kuala Karis farmers to clear larger areas, plant more seed and suffer less crop loss than their Tumbang Gagu counterparts all of whom exchange man-days. The difficulties of communication obstruct the establishment of trade stores above the rapids and reduce the opportunity to use intervals in the cultivation cycle to enhance intensity of rice production. The dependence on man-day exchanges necessitates longer periods of time in the swiddens.

We may conclude, then, that shifting cultivation and sedentary residence are compatible under conditions favorable to commercial development. The presence of traders in a community provides both the incentive and the opportunity for people to build durable dwellings of value; at the same time it facilitates accumulation of capital which can be devoted to agricultural purposes. It is to be stressed that a highly nucleated settlement of shifting cultivators has little chance of surviving as a self-sufficient economic entity where difficulties of communication prevent market employment openings.

