Changes in Economic Life of the Hunters and Gatherers: the Kelay Punan in East Kalimantan

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Abstract: The Punan people in Borneo island had traded forest products for the necessities of life with the Dayak people, who traded them with the brokers. At present, the Kelay Punan people in East Kalimantan trade directly with the brokers and merchants, who control the trade of the forest products from the region. They are degraded to debtors now and still carrying out hunting and gathering to pay back the debt. Besides, the introduction of swidden cultivation is one of the most important factors to affect their life style. Their swidden system might not be so sustainable, since they were not traditional swidden cultivators like the Kenyah Dayak people.

Key Words: East Kalimantan / Punan / swidden cultivation / trade

The "Punan" is a generic term for hunters and gatherers living in Borneo island. The Punan people have the same physical characteristics as the Dayaks practicing swidden cultivation, since the Punans are also the protó-Malayan people. The bodies of the Punans, however, are generally better-built than those of the Dayaks.

According to Hoffman (1983), Bock's description of the Punan (Bock, 1881) is one of the earliest to appear in print. Bock described the Punan as "wild people of the woods" who were almost entirely isolated from all communication with the rest of the world, which has remained the basis of popular conception of the Punan ever since. According to Sellato (1988) and Brosius (1988), however, scientists had reported the importance of trade in the life of the Punan.

Traditionally the Punan people have met their subsistence needs by hunting wild game such as wild pigs, deers, and monkeys with blowpipes and spears, and by gathering wild sago, fruits, and honey. They form groups consisting of a few households and wander over the forest area. In fact, none of the groups has been fully economically self-sufficient (Hoffman, 1983). The Punan people have lived in symbiosis with the Dayaks through the trade relationship. The Punans bartered tusks and furs of wild pigs, leopards and bears; antlers of deers; rattan; and rattan mats for salt, tobacco, iron products, and cotton textiles which were possessed by the Dayaks. And the Dayaks traded with the Chinese and Malayan merchants. Especially, the ruling classes of the Kenyah Dayak people kept their authority or influence by means of monopolizing the right of such trade with the Punan (Uchibori, 1987). Anyway, aloewood, hornbill ivories, bird nests, camphors, bees wax, rhinoceros horns, bezoar stones, etc. collected by the Punans entered Asian trade network controlled mainly by
Chinese merchants, through the hands of the Dayaks (Ave & King, 1986).

After Hoffman's survey in 1980, however, the Punan people in Indonesian Borneo seems to have undergone drastic changes with the infiltration of monetary economy and introduction of swidden cultivation. In this paper, present economic life of the Kelay-Punan people will be described.

**METHODOLOGY**

*Selection of the research sites*
We designed to carry out comparative studies on two villages of different economic stages: a hunting and gathering stage and a swidden stage. Almost all the Punan people, however, have already introduced swidden cultivation in East Kalimantan (Whittier, 1974). Therefore, Kelay district (Kecamatan Kelay) in Berau regency (Kabupaten Berau), which adjoins Kayan Hilir district (Kecamatan Kayan Hilir) in Bulungan regency (Kabupaten Bulungan) to the west and Muara Wahau district (Kecamatan Muara Wahau) in Kutai regency (Kabupaten Kutai) to the south, seemed to be the only suitable region as a research site because the Punan people who were still hunters and gatherers might have lived there.

Although Guerreiro (1985) described the outline of the area, his data seems to have been collected not at the village but at the district office. This might be because the access to the villages was very difficult. There were no passengers boats from Tanjung Redeb, the seat of the regency office, to Kelay district, nor airstrips. The district seems to be one of the regions to which people need the longest time to have access in East Kalimantan.

The district had thirteen villages (Figure 1) with a population of 2,416 in August, 1989. The population density was 0.36 persons/km². Thirty two percent of the population were of the Kelay-Punan tribe, which had formed six villages. Two villages were selected to be surveyed. One of them was a colony named Nahas Sebanung in Long Sului village located at the uppermost part of the Kelay river, where the people made their living by hunting and gathering. The other was a colony named Long Melay in Long Duhung village, where the people had been practicing swidden cultivation for more than 10 years.

*Field data collection*
The field survey was conducted from the beginning of August to the end of September, 1989. Items covered by the field survey were the land tenure system; land utilization patterns including the rotation systems, the techniques of swidden agriculture, work organization, the labor force, and labor and land productivities; the infiltration of the monetary economy including effects on the household economy and the mutual aid system in daily life; and the economic relationships with the other regions.

To clarify these items, interviews with the inhabitants of the villages were undertaken. In Nahas Sebanung, we interviewed ten heads of households; and all the twelve heads of the Punan households in Long Melay. We also measured the area of the swiddens in Long Melay in order to get as accurate data as possible.

**OUTLINE OF THE COLONIES**

*Nahas Sebanung*
Nahas Sebanung is the name of a colony belonging to Long Sului village (Desa Long Sului). It takes six days up to Nahas Sebanung from Samarinda. There is an air line with everyday...
Changes in Economic Life of Punan

Fig. 1. Map of Kelay District showing the field sites.

Service from Samarinda, the capital city of East Kalimantan province, to Tanjung Redeb, the seat of the regency office. It takes one and a half hours to get to Tanjung Redeb by air from Samarinda. At Tanjung Redeb, a small boat with an outboard motor should be chartered to go up the Kelay river. And the boat might be changed a few times to Nahas Sebanung by way of Merasa, Troyana Camp, Muara Lesan, Long Melay and other Punan villages.
The village is zoned with an annual rainfall of 3000-3500 mm and situated at about 270 m above the sea level. According to the land classification by the government, the forest near the river is classified as limited production forest; the forest far from the river is classified as protection forest. The forest, however, has not been logged commercially yet.

The colony named Long Sului had existed for a long time. It was, however, usually almost uninhabited because the Punan people did not return to the colony while they went into the forest. Before the independence of Indonesia, the Punan people in the region was ruled by the Berau dynasty. The Punan people sometimes brought such kinds of forest products as aloewood and rattan to the palace located at Sambaliung by canoes. It took more than a month to make a round trip between Long Sului and Sambaliung adjacent to Tanjung Redeb.

After the independence, some brokers began to come to the village to barter the necessities of life for the forest products such as aloewood and rattan. The monetary economy was introduced as an Arabian merchant began to trade with them in the middle of the 1960s. Now he monopolizes the trade at Long Sului village and has an enormous influence over the inhabitants. He constructed several temporary houses for the inhabitants in March, 1989 at the place called Nahas Sebanung, located a little more down part of the stream from Long Sului, which dangerous rapids hinder men from getting to. As a result, now, all of the inhabitants do not come to Long Sului but to Nahas Sebanung after collecting aloewood and rattan in the forest. The inhabitants go out from the forest four times a year, for the merchant visits the colony at that interval. And after getting the necessities of life, they "return" (not "go") to the forest.

In August, 1989, 253 people or 54 households were regarded to be the inhabitants of Nahas Sebanung. A missionary of KINGMI (Kemah Injil Gereja Masehi Indonesia), a Protestant denomination, went into the Long Sului in 1986. All the inhabitants are now nominal Protestants. They, however, do not have services and there are no church buildings now. There are no public facilities such as schools, clinics and shops at all.

Fortunately when we got to the colony, there are some Punan people just coming out from the forest to trade with the merchant. Then we could interview ten households, all of which were nuclear families each consisting of four members.

**Long Melay**

Long Melay is the name of a colony belonging to Long Duhung village (Desa Long Duhung). The legal chief of Long Duhung village lives at Long Melay. It takes four days from Samarinda to Long Melay by air and boat.

The village is zoned with an annual rainfall of 2500-3000 mm and situated at about 140 m above the sea level. The forest around the village is classified as limited production forest, which has not been logged commercially yet.

The inhabitants once formed a colony at a different site. In 1980, they moved to Long Gie where the Isolated Communities Development Project (1) was just begun.

Almost all the forests around the project site, however, were former swiddens used by the Kenyah Dayak people. And rice production was not enough. Then they migrated to Long Melay in 1984, where a lot of virgin forests still existed. In September, 1989, 72 people in thirteen households lived at Long Melay; twelve out of the households were of the Kelay Punan people and the rest, a pastor, was of the Kerayan Dayak people.

There are no public facilities such as schools, shops and clinics in Long Melay, too. A
missionary of KINGMI, a Protestant denomination, went into Long Duhung in 1972. Even now the people have a worship service at the church every morning. However, the worship is limited to the period of working at swiddens. After finishing each operation at the swiddens, they go into the forest to seek aloewood and rattan. But the village chief does not go into the forest because he has to take care of his wife who suffers from tuberculous. A secretary also stays at the village to help the chief. Of course the pastor does not go into the forest.

**POLITICAL ORGANIZATION**

The Punan people did not develop their administrative institution traditionally because they wandered in the forest. Although a nominal chief of a colony called "Tekhong Adat" was selected, he did not have strong authority. This situation still exists in Nahas Sebanung. On the contrary, in accordance with the government instruction, there are a village chief (Kepala Desa), a secretary (Sekretaris), and heads of five sections (KAUR), for example the head of administration (KAUR Pemerintahan), a head of development (KAUR Pembangunan), and the head of general affairs (KAUR Umum) in Long Melay.

**SWIDDEN CULTIVATION**

*Land tenure system*

The land tenure did not make sense for the Punan people because they were hunters and gatherers. Even now in Long Melay where the people make swidden every year, they consider that all the land, even a former swidden, can be used by anybody.

*Swidden cultivation in Nahas Sebanung*

They first tried to make swidden in 1981. Until now most of the households made swidden four times in these nine years. The yield of production was only a little. They seemed not to be necessary to make swidden because their staple food was starch of sago palm. The interview revealed that they liked the starch of sago palm as much as rice. But it is also true that they began to buy rice from the Arabian merchant before 1980. They began to make swidden because the government instructed them to make swidden and because they wanted to reduce expenditure for rice. Then why did they make swidden only four times in nine years? It was because they were very busy to collect aloewood (Gaharu) and rattan (Rotan) to pay back debt to the Arabian merchant. Even now they have a lot of debt because almost all of them bought fifteen-horsepower or twenty-five-horsepower longboat engines for Rp. 1,800,000 or Rp. 2,500,000 respectively on deferred payment basis. Moreover, such powerful engines consume quantities of fuel. They are debtors even though they live, wander, and hunt wild pigs and deers in the forest as they used to.

They learned the technique of swidden cultivation from the Kenyah who dwelled the Apo Kayan region which was a plateau neighboring Sarawak of Malaysia and then moved to the lower reaches of the Kelay river by way of the Punan's area. The Punan people form some temporary groups, each of which consists of two to eight households, before beginning to make swidden each time. All the households of the village work cooperatively at all the swiddens, as in the "Pulun" system which is a cooperative work system characterized by indirect reciprocity seen in some Kenyah's villages (Inoue, 1990). The rice harvested was possessed by each group. All the members of the group may consume the harvest freely. Anyway both the technique of swidden cultivation and work organization have not been well
Swidden cultivation in Long Melay

The people began making swidden every year since 1973 after the government instructed them to practice it. They acquired the knowledge of swidden cultivation such as rotation system and the swidden technique from the Kenyah people and the government. In their language, the virgin forest is called “Naq Kuang” ; the swidden is called “Moq” ; and the former swidden is called “Ungon Moq”. When the diameter of the trees at “Ungon Moq” becomes as big as the human arm, they may cut the forest and make swiddens again. This standard is not as same as the Kenyah’s. Our research (Inoue, 1990; Inoue & Lahjie, 1990) and other reports (Colfer, 1983; Hadi et al., 1985; Kartawinata & Vayda, 1984; Kartawinata et al., 1984; Vayda et al., 1980; Vayda 1981) show that the Kenyah’s rotation system involves a longer fallow period.

After migrating to Long Melay, they made swidden five times. Until 1988 they made swiddens from the virgin forest every year. But in 1989, some people made swiddens from “Ungon Moq”, the former swidden. The average fallow period was only three years and the recovering degree of the secondary vegetation during the fallow period was far less than that in the Kenyah’s rotation system (Inoue, 1990). The fact indicates that the Punan’s swidden system at Long Melay is less susstainable than the Kenyah’s swidden systems.

The swidden cultivation includes the following sequence of operations with the farming tools given below. The timing of the operations in 1988/89 is also mentioned.

a) “Lemmilik”; cutting small trees and vegetation with “Agai” or a short sword.

b) “Uang”; felling big trees with “Kanpak” or an ax.

c) “Saw”; chopping branches of fallen trees with “Kanpak”.

These three operations were carried out in the end of May - middle of July. They cut all the trees at a height of 0.5 - 1 meter from the ground. Then a lot of stumps standing close together remained after cutting.

d) “Pelyau Uang”; drying trees in the sun.

e) “Tong”; burning trees, in the middle of August.

f) “Pesu-ung”; burning again when there are some trees left unburned. A half of the households in the colony carried out the reburning.

g) “Kul”; poking with “Kul” or a dibble, and sowing paddy, in the end of August - beginning of September.

h) “Naq Law”; weeding; the inhabitants here do not conduct it.

i) “Tam”; harvesting ripe ears of paddy with “Kepan” or Ani-ani in Java which is a small rude knife-blade mounted in a wooden handle along its whole length.

j) “Minyir”; threshing paddy with foot, usually on “Geminyir”, as same as “Laga” in the Kenyah villages, or small platform for threshing.

A household use two or three varieties of paddy. One of them is glutinous rice called Patah; others are Batu Bulan, Mempat, Lapa, Kasar, etc. Besides paddy, they crop cucumber, maize, cassava, sugar cane, banana, pumpkin, etc. around the huts. But they do not plant fruit trees.

In the village, besides individual family labour system, there is only a system called “Peldau”, a cooperative work system characterized by indirect reciprocity, where the
Table 1: Work organization at Long Melay (%)

<table>
<thead>
<tr>
<th>Operations</th>
<th>Individual Family Labour</th>
<th>Peldau</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cutting</td>
<td>8</td>
<td>92</td>
<td>100</td>
</tr>
<tr>
<td>Burning</td>
<td>100</td>
<td>0</td>
<td>100</td>
</tr>
<tr>
<td>Sowing</td>
<td>0</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Harvesting</td>
<td>9</td>
<td>91</td>
<td>100</td>
</tr>
</tbody>
</table>

* They do not weed swiddens.

amounts of labour exchanged between any two households are not taken into consideration.

Table 1 shows the shares of the amounts of labour per hectare organized in individual family labour system and in "Peldau" system for each operation. Basically they work cooperatively and only burning is carried out individually.

By measuring the area of former swiddens, it was revealed that the average swidden area per household was 0.8 ha and land productivity was 1,489 kg/ha in dry weight of unhusked rice. Total amount of labour input per household were 193 man-day. Fifty one percent of the total amount of labour per hectare was allocated for cutting; 1% for burning; 17% for sowing; 31% for harvesting. Average labour productivity in dry weight of unhusked rice was 5.3 kg/man-day.

**MUTUAL AID SYSTEM IN DAILY LIFE**

In Nahas Sebanung, people have the following two mutual aid systems.

a) "Nah Kat" : When a household obtains wild pigs, sago palm to make starch, etc., he shares them with other households.

b) "Koi Kau" : When a man asks another for some necessities of life such as salt ("Seje"), the latter give them to him free of charge.

In Long Melay, the following systems exist.

1) "Pegai" : When a household obtains wild pigs, sago palm, etc., he shares them with other households.

2) "Hai Aleh" : This means to give the necessities of life to other persons free of charge.

3) "Peli" : A man who is in need of necessities gets them through barter. But the barter is unequal in the way that he is advantageous.

4) "Wak Mai" : A man borrows the necessities such as rice from another. And he gives back the same amount of rice to the latter after harvesting paddy.

5) "Pelha Lun" : All the inhabitants cooperate to cope with situations where fires occur, someone is drowned, or someone is injured in a swidden or forest.

The systems from 2) to 5), however, are rarely used.

It is obvious that the social structure like work organization and mutual aid system in Long Melay is better developed as a result of introducing agriculture.

**HOUSEHOLD ECONOMY**

In the case of Nahas Sebanung, the inhabitants were unable to give us information about the household economy, which, however, could be assessed based on the information from the Arabian merchant.

In 1988/89 the average annual cash income per household was Rp. 1,304,444 which
consisted of rattan (75%), aloewood (23%), and gold (2%). However, the rate of aloewood now is much higher than before because the merchant stopped buying rattan in May, 1989. The average annual cash expenditure per household except for buying the longboat engines was Rp. 467,640, which consisted of fuel for longboat's engine (43%), rice (28%), food other than rice (14%), tobacco (9%), clothes (4%), and others including lamp oil (2%). An exchange rate was US $ 1 = Rp. 1,786 in September, 1989.

The difference between income and expenditure is paid for debt mainly generated from buying the longboat engines which almost all the households purchased. Some of them threw away the engines even with some minor trouble, for they could not repair them. And they bought engines again, to increase their debt.

In Long Melay we got information about household economy by interviewing the head of each family. The average annual cash income per household was Rp. 614,409 which consisted of aloewood (31%), rattan (26%), wage from the government (25%), making boats (11%), and the others (7%) including selling rice, chickens, bananas, rattan basket, etc. The average rate of self supply of rice was 146%. The average annual cash expenditure per household was Rp. 553,148 which consisted of food except rice (42%), fuel for small boat's engine (31%), clothes (14%), lamp oil (9%), and the others (4%) including buying rice, etc. Before they go into the forest, they buy the necessities of life from brokers on deferred payment basis. An average amount of debt per household to the brokers was Rp. 167,500 in September, 1989, which is probably much smaller than the debt in Nahas Sebanung, even though we could not get information there.

In Long Melay all the eleven households surveyed raise chickens; ten keep dogs. On an average a household has 7.5 chickens and 2.5 dogs. Concerning consumer durables, 36% of the households have radio cassette recorders; 18% have kerosene lamps; 82% have small boats and engines for them. One of the households has a powerful longboat engine although not having a longboat.

CIRCULATION

At Nahas Sebanung, the Arabian merchant monopolizes the trade as already mentioned. The Arabian merchant controls many brokers to collect rattan, bird nests, aloewood from all the possible area in Berau regency. He sells rattan and bird nests for soup to Surabaya; aloewood to Banjarmasin, Jakarta, and Samarinda. He buys aloewood from the Punan people for Rp. 500,000-600,000/Kg (quality No. 1 super), Rp. 100,000/Kg (quality No. 1), Rp. 15,000-30,000/Kg (quality No. 2), Rp. 5,000-6,000/Kg (quality No. 3), and Rp. 1,000/Kg (quality No. 4); sells for Rp. 800,000/Kg (quality No. 1 Super) and Rp. 150,000/Kg (quality No. 2).

The trade at Long Melay is monopolized by a group of the Berau brokers. A half of the aloewood and rattan collected by the group is sold to that Arabian merchant; the other half is sold to a Chinese merchant who lives also at Tanjung Redeb. At Long Melay, raw rattan is traded. The inhabitants of Long Melay sell rattan to the brokers for Rp. 800-1,000/Kg, while the brokers sell them to the merchants for Rp. 1,400/Kg; the merchants sell them to rattan factories at Surabaya, the second largest city in Indonesia, for Rp. 2,100/Kg without drying, with the treatment of sulfurizing and classifying, Rp. 2,500/Kg (quality No. 1), Rp. 1,300/Kg (quality No. 2), and Rp. 600-900/Kg (quality No. 3).
CONCLUSION

Traditionally the Punan people have traded with the Dayak people who have played the role of middlemen between the Punan people and Chinese and Malayan merchants. At present, however, the Punan people in the Kelay district trade directly with the merchants. As they get the conveniences of modern life, they are degraded to debtors and compelled to be hunters and gatherers. They do not trade on their free will as they used to, but they trade to settle their debt. Their gathering practice itself is concentrated in a few commodities which are profitable for the merchants depending on the condition of world economy. This is the reality of them still being hunters and gatherers in Nahas Sebanung.

The Punan people, as the hunters and gatherers, have harmonized themselves with the environment or the forests for long time. After introducing swidden cultivation, however, they do not seem to be forest conservators any more, because their fallow period is too short even though there seems to be no serious deterioration around the village for the present. It may result from that they are not traditional swidden cultivators whose farming systems were very sustainable because of taking very long fallow period like the Kenyah people.

It might be inevitable process for the Punan people to be incorporated into modern life style. But it is true that they do not want to migrate more downstream because they like living in or near the forests. Therefore, they should find out suitable strategy to live in the present place as long as they can, without deforestation which is the destruction of their environment. The government could instruct them sound farming system and could take measures to secure their economic status not to produce debtors.

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NOTE

(1) This is a project to settle isolated and scattered tribes to the new settlements. The objective is to provide better facilities in the development of their cultures, traditions, and their way of life (Departemen Sosial RI, 1986). The regional office of the Department of Social Affairs is fully responsible for the management of this programme. In the first year, the government prepares land and builds houses for tribal people; 1. 5 ha for agricultural land and 0. 5 ha for housing lot per household. After that, tribal people migrate to the new settlement. They are provided with some food for a year, such as rice, dehydrated fishes, sugar, salt, tea, etc., and the farming tools. In the second year, the government begins to train them to produce rattan and bamboo, and to make furniture of them. Moreover, they are taught the meaning of Pancasila or the five principles of the Republic of Indonesia, religion, conception of health and nutrition, how to make neighboring group (RT), etc. In the fifth year, the location is evaluated. The contents are: 1) whether standard of living raise, 2) whether they stop swidden agriculture, 3) whether relation to surrounding village is good, 4) whether they construct RT, and 5) whether they know the name of president, the national flag, Pancasila, etc. After evaluation, the responsibility for the management of the village is transferred to the local government. Contrary to the initial objectives, the project is not considered to be successful because of the shortage of budget, difference of the standard between the value
judgment of the tribal people and the government, insufficiency of training for the field workers, etc.

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井上 真, LUGAN, IGIN Bilung 狩猟採集民の経済生活の変貌—東カリマンタンのKelay Punanの場合

プナの人々は狩猟採集によって生計を維持してきたポルネオ島の先住民である。彼らはさまざまな森林産物の交易を通して、廃棄民であるダヤクの人々と直接的な共生関係を結ぶと同時に、華僑が支配するアジアの交易網に組み込まれていた。しかし、近年インドネシア領に居住するプナの人々の生活は、貨幣経済の浸透と焼畑耕作の導入にともなって急速に変化しつつある。

その現状を明らかにするために東カリマンタン州ブロウ州クレイ郡にある2つの集落（ナハス・セバンンNahas Sebanungとロンゴ・メライLong Melay）にて、クレイ・プナKelay Punanの人々の経済生活に関する調査を実施した。

クレイ川下流に位置するナハス・セバン集落の人々は森林内で狩猟採集を営み、年に4回だけ集落に出てきてアイラブ系商人に森林産物を販売している。従って、集落は1年のうちほとんどが無人である。そもそも、この集落では商人が森林産物の集荷の便を考えて新しく建てた数戸の仮設住宅しかない。これに対してもプナの集落としてはクレイ川の再下流に位置するロンゴ・メライ集落の人々は1973年に焼畑耕作を導入して以来、焼畑耕作のある時期は集落に戻り、作業を終了すると森林へ入るという生活パターンをとっている。

ロンゴ・メライ集落の人々は、これまで毎年原生林を利用して焼畑耕作を行なっていたが、1989年に初めて焼畑跡地の二次林を利用した。しかしその休閒期間はわずか3年であり、休閒期間における植物の回復度合いは、クニー・ダヤク（カリャKalinya）の々々による焼畑の場合と比較してはるかに劣っている。これは伝統的焼畑民族ではないクレイ・プナの人々が森林保全と調和した焼畑用地の循環システムを持たないのが原因と考えられる。

ロンゴ・メライ集落での焼き畑作業においては、伝統的焼き畑民族であるクニー・ダヤクの集落のような労働組織の分化は見られない。しかし、自家労働で行なわれているのは火入れ作業のみであり、伐採・播種・収穫の各作業は主に“Peldau”と呼ばれている労働組織により実施されている。これは数世帯間での等価労働交換と違い、集落全員による共同労働のことである。

日常生活における相互扶助制度も、クニー・ダヤクの集落ほど発達していない。基本的な相互扶助としてはローギッやゴヨヤなどが得た場合に皆で分け合う“Nah Kat”（ナハス・セバン集落、あるいは“Pegal”（ロンゴ・メライ集落）と、塩などの必需品を無償で提供する“Koi Kau”（ナハス・セバン集落）、あるいは“Hai Aleh”（ロンゴ・メライ集落））がある。焼畑耕作を行ない、定住性が比較的高まったロンゴ・メライ集落では、重要性は低いものの、これら2つ以外にもいくつかの相互扶助形態が存在する。

ナハス・セバン集落の人々の現金所得源は75％が苗（ラタン）、23％が沈香、2％が砂金の販売である。支出内訳は43％がロングボートのモーター用燃料の購入、28％が米の購入となっている。さらにアイラブ系商人からモーターを購入したのが大きく響いて、恒常的な債務権となっている、森林産物の採集を余儀なくされている。

ロンゴ・メライ集落では現金所得のうち31％が沈香、26％が苗の販売収入である。支出の42％が米を含む食費、31％がロングボートのモーター用燃料費にあたられている。住民達は商人に対してある程度の負債を抱えているが、調査不可能であったナハス・セバン集落での負債額よりもずっと少額であることは確かである。

アイラブ系商人はナハス・セバンでの森林産物の交易を独占しており、それより下流域の集落においてはブロウ人の商人と競合している。彼ら商人は何人も仲介人を支配下において、ブロウ州全域から蕨、燕の巣、沈香を集荷している。これらの森林産物はスラバヤやジャカルタ経由で輸出される。

以上、急速に市場経済の末端に組み込まれて、負債を抱えながら森林産物の採集を続け、一方
で焼き畑仕業の導入によって安定性を高めつつも、自らの居住環境（森林）を劣化させる可能性の高いクレイ・ブランの人々の実態を鑑みに、彼らの生活の安定化と森林の保全とを両立させるための対策が必要と考える。