

Rural use of rattan in two Iban communities
- Strategies to overcome decline in resource

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Abstract

*The changes in Malaysian society do to economic development and introduction to the world market has changed the forest-people interaction. The importance of rattan and the strategy to overcome possible decline in the resource is investigated in he two Iban longhouses, Sebangki and Telaus located in the Lemanak area, (Sarawakian part of Borneo). The two longhouses have been affected in different ways by an oil palm- and a resettlement scheme and the survey is based on a theory stating that the process of changes in society will have an impact on forest utilisation and management. The methodology is based on the concept of Participatory Rural Appraisal (PRA) and the methods are mainly participatory. The results revealed that rattan is of great importance to the people living in the area as it is a multipurpose material and the two longhouses use different strategies to cope with the change in resources. The people from Telaus travel by longboat upriver to collect rattan in their old area where there are plenty of resources. The people from Sebangki lost some land and rattan collection areas doing implementation of a resttlemment scheme in their area. In Sebangki planting of Wi sega balau (*Calamus optimus*) wildlings from the lost area was conducted in one of their rubberstands and illegal collection of rattan in a government reserved area is another way they solve the problem of resource scarcity. In Sebangki there is restrictions on harvest of rattan and the planted areas are divided into private lots. Investigations made it obvious that rattan also play an important role socially as well as cultural even though the role in these contexts may be decreasing due to change in Iban lifestyle. Few locally produced rattan products enter the market trade, as they can not compete with cheap Indonesian products sold on the markets.*

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1 Introduction

Rural villagers in Sarawak have been using rattan since time immemorial. This is due to rattans great durability, strength, flexibility and uniformity, thus making the canes a truly multipurpose material (Beer and McDermott, 1996). As well as meeting subsistence needs rattan is an important market commodity. In Southeast Asia, rattan is commercially the second most important forest product after timber. The total value of traded rattan is approximately around US\$ 66 million *per anum*. Malaysia is today the largest exporter in the world contributing 19.5 % of the total trade (Abdullah and Lay Chau Jian, 1997). Specific production data on Rattan extraction in Sarawak is imprecise, as no royalties is collected in Sarawak. The fact that Sarawak posses 47, 5 percent of the total stock of commercial rattan species in Malaysia indicates the importance of rattan in the Sarawakian economy (Yong, 1994).

The dynamic process of changes in society will in most cases have an impact on forest utilisation and management. Such changes may involve a number of factors, which is categorised as (Wiersum, 1997; Beer and McDermott, 1996):

- Ecological, such as resource depletion or land degradation
- Technological progress.
- Economic, such as development of new markets or access to them, commercialisation, new off-farm possibilities, price changes
- Socio-political, such as population growth, migration, tenure, privatisation or nationalisation of forests.
- Cultural, shift in cultural- attitudes and importance.

These changes have often lead to resource degradation, but in other cases farmers have reacted and changed their management accordingly (Wiersum, 1997). In the case of rattan the great value of a few commercial species (out of 106 species found in Sarawak) has locally threatened the rattan resource (Abdullah and Lay Chau Jian, 1997; Beer and McDermott, 1996).

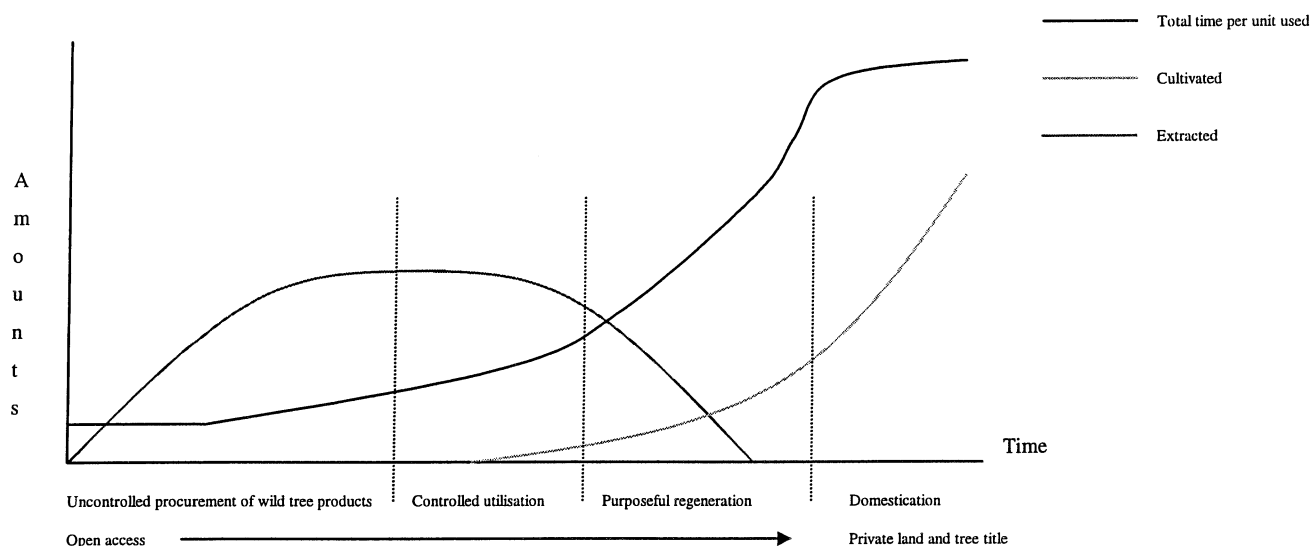


Figure 1.1: *The evolutionary continuum in forest-people interactions, based on Homma (1996) and Wiersum (1997)*

The forest resource exploitation and management activities can be arranged along a gradient of increasing input per unit land. Wiersum (1997) identifies the 4 phases in the path of intensified management of the forest resource (see figure 1.1): (i) uncontrolled use of wild products, where products is collected; (ii) controlled utilisation of wild products, with more systematic collection and protective tending of valuable species; (iii) purposeful regeneration of wild trees by selective cultivation by transplanting wildlings and/or dispersal of seeds in the forest environment; and (iv) domestication, with cultivation of domesticated species in agroforestry systems. Along with the intensified human input into the management system, observed in figure 1.1, the level of control of tenure increases along the evolutionary path from open access to domesticated private land and tree title; both as a consequence of the increased input and as a measurement in itself to absorb the previously mentioned changes.

To understand the forest-people interaction is important when planning and implementing new natural resource management strategies. The increasing market and decreasing rattan

resources world wide may render such strategies necessary. Thus this paper will investigate the following hypotheses:

(i) the resettlement and changes in land use described in the introduction have influenced the long-term strategy of rattan as a good of livelihood, (ii) the different longhouses investigated have different strategies to deal with domestic demand for fibre products. The changes may have a degrading impact upon the resource of rattan, which could indicate a need for change in management, and (iii) rattan is an important part of the livelihood strategy of the Sebangki and Telaus longhouses in the Lemanak area, as this is a prerequisite for the relevance of this survey.

Telaus and Sebangki longhouses were selected for the research as they represents two communities effected in different ways by the oil palm- and resettlement schemes.

The research questions are subdivided into 3 subgroups: (i) social, (ii) ecological and (iii) economical aspects. All these aspects are perceived as vital, inasmuch as a holistic understanding of the rattan utilisation and management in the study area is crucial to the understanding of the ongoing changes in rattan management and use.

Social aspects

The social aspects of rattan use are investigated to understand the subsistence use of rattan that is; not only as a commodity but also as carrier of tradition and culture.

- What is the religious, cultural and social importance of rattan?
- In what way is the resource managed?

Ecological aspects

To investigate the impact of exploitation and possible management an inventory of the resource is necessary. Thus providing information on the needs and/or possibilities for new management strategies.

- What is the state of the current rattan resource and their botanical habitat?
- What is the impact upon rattan resource in relation to past and present local

management strategies?

- Does the local population use rattan as an integrated part of the fallow in shifting cultivation and if not why?

Economy

The great value of rattan commercially has locally threatened the rattan resource (Abdullah and Jian, 1996). And most cases of overharvesting is seen if the rattan is commercially traded. Thus, the economy is important to understand.

- What is the economic importance of rattan within the household economy?
- What impact have the commercial trade of rattan on the local management and use of rattan?

2 Project design – methods used

2.1 Methodology

The methodology used in the fieldwork has been based on the concept of participatory rural appraisal (PRA) as can be viewed from the methods mentioned below. The PRA is very popular nowadays and according to Chambers (1994): “ *Evidence to date shows high validity and reliability of information shared by local people through PRA compared with methods from more traditional methods*”. The complexity of rattan utilisation and the suitability for rural investigations rendered PRA suitable for this project.

2.1 Methods used

Many methods have been used in this study, inasmuch as one of the main objectives of the field course was hands-on method training. Brief explanations on the different methods are elaborated.

In Sebangki a matrix was made regarding time allocation of different activities conducted in the forest. The different activities were explained by the informants and the time spend on the

activities and their relative importance were ranked (1-5, highest) in the matrix. In Telaus a similar matrix was made but concerning the activities done in their old areas upriver as this is their only forest resource. The time spend was ranked 1-7 and the economic values of the activities were written in the matrix.

The information revealed the importance of rattan collection compared with other forest based activities. If rattan collection was not mentioned in the matrixes it would not have been important to the rural people and in that case our field study would be less interesting.

Participatory Mapping

A participatory mapping (Mikkelsen, 1995) of the rattan collection areas was conducted including the areas where the rural people collected in the past, this had different perspectives

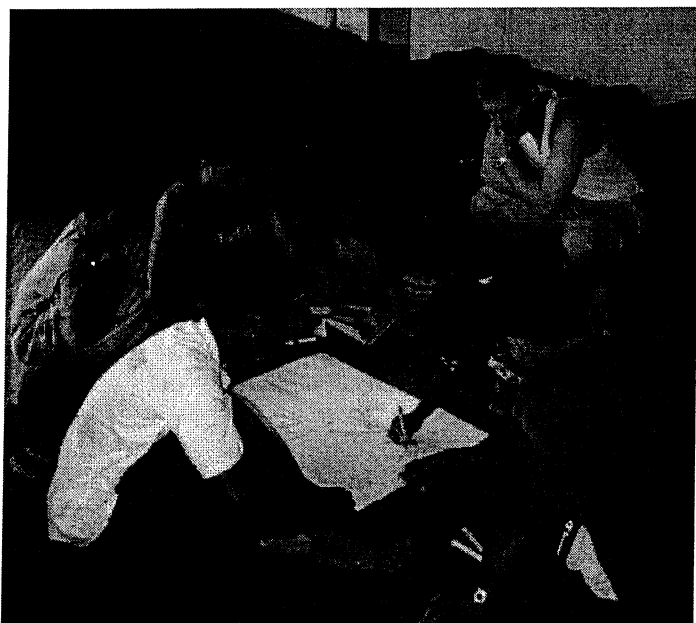


Figure 2.1: Participatory mapping in Telaus longhouse

(figure 2.1): (i) visualisation of the rattan collection areas, (ii) reveal location of the areas best suited for the botanical investigations, and (iii) to be used as reference for interviews and other surveys. In the Telaus longhouse this turned out to be a detailed map (see map 1 in appendix A) of the Batang Ai River system hence they went there to collect rattan. The map made in the Sebangki Longhouse

(see map 2 in appendix A) is showing the area around the longhouse including fields, plantations and forests, as it was here they collected their rattan.

Participatory Ranking

In Telaus- as well as in Sebangki longhouse the informants made two participatory rankings (Mikkelsen, 1995) on the map. In Telaus they ranked two questions regarding how often they

went to the collection areas and which areas that were best in amount. The ranking was conducted with pearls (1-5 high). The ranking was used to investigate if the areas with the lowest amount of rattan corresponded with the areas where they often collected and to reveal the locations of the areas in relation to their longhouse upriver.

In Sebangki the same ranking range (1-5) was used and the questions used in the ranking concerned how often they went to collect rattan in the areas nowadays and in the past but also which areas were best in amount of rattan. In Sebangki the ranking was used to investigate the same issues as in Telaus but also to see if there had been a change in collection areas, after the resettlement scheme was implemented in the area, as there had been a change in land tenure ship due to the scheme.

Botanical research

Rattan inventories were only conducted in the Telaus area due to time limitations. Two collection-areas were selected for the inventories, one where the people from Telaus often collected (Se transect 2, Map 1, Appendix A) , located near the longhouse and another a bit further away (Se transect 1, Map 1, Appendix A), which they visited less often. The areas were chosen according to level of ranking, other specific conditions including distance from longhouse and were pointed out on the map. The inventories were conducted as rapid participatory inventories with local key informants identifying the rattans by local name. Altitude, compass direction, slope and geographical point of measurement were noted. The general state of the vegetation was recorded.

In the first area a plot of 800 m² (see figure 2.2, area A and B) was measured and the location, name as well as approximate height of rattan species plus other used fibre species were recorded. In the first (area A) 10x20 m. all species, independent of size, were recorded but the ones smaller than approximately 1.5 m. were listed in the category "small". Only species taller than approximately 1.5m were recorded in the remaining part of the transect. In the second collection area an all most identical transect was completed, but with the measures 10x40 m. (see figure 2.2 area C) and only species taller than app. 1.5m were recorded.

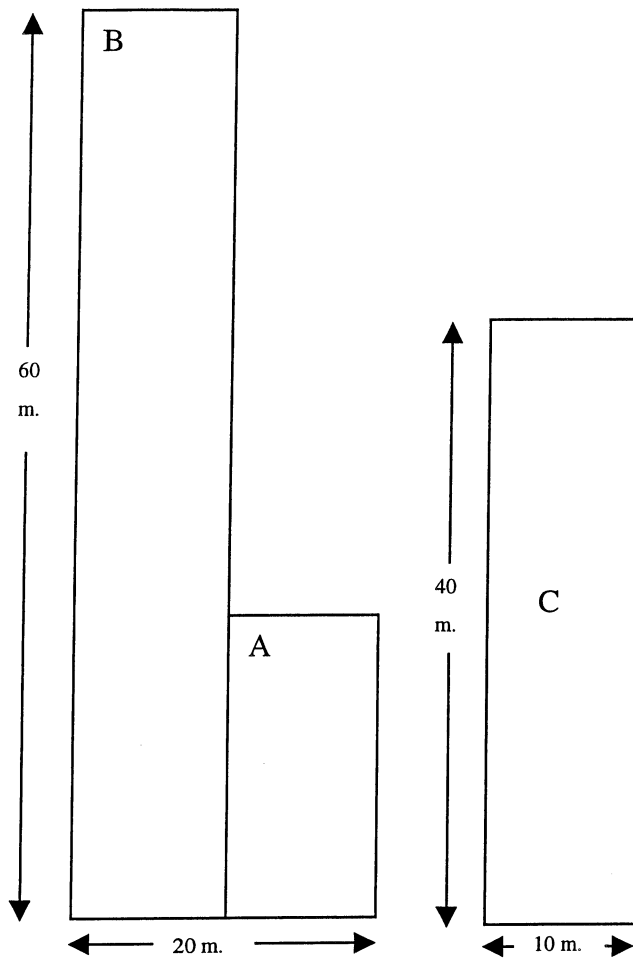


Figure 2.2: The outlay of the plots

Three different rattan species were collected and dried as herbarium specimens but due to lack of export licence, they were left in Sarawak. The Latin names of the rattan and other fibre species have been identified by using a Ph.D. dissemination (Christensen, 1997).

Direct observation

Near the areas of the rattan inventories and longhouses, we arranged observation trips with informants to observe the different fibre products and the way rattan was harvested.

Matrixes on suitability of species for different uses

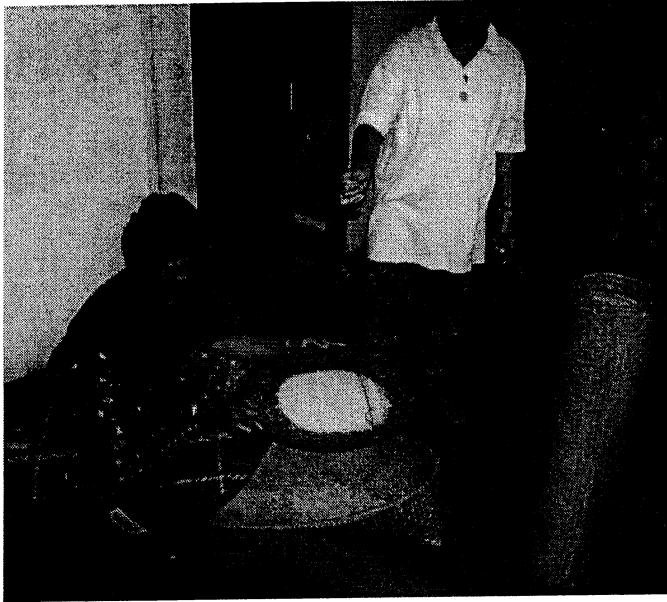
To rank the preferences between different species and their suitability for different products, a participatory matrix (Mikkelsen, 1995) of all species and products were constructed. The vast numbers of species and products rendered the matrix unsuitable for a ranking. As a consequence the layout of the matrix was converted to a questionnaire regarding what species could be used for specific products.

Identification of products uses

After conducting the questionnaire it was possible to investigate the different uses of different products. By asking to see the different products it was possible to visualise the complex uses

of many products (see figure 2.3).

Photo documentation



While a few women from Telaus longhouse informed us about different uses of the rattan products, photo documentation was made. This was done to make sure the different items could be identified when working with the results, and to make an ethnobotanic documentation of the Iban use of different fibre products.

Figure 2.3: Identification of products uses

Map of longhouse

A map of the households in Telaus was elaborated with the help of informants and various information were noted on the map, like possession of land in Ulu Telaus and ownership of cars, longboats etc. Thus revealing if there were big economic inequalities between the households and which of the households would be suitable informants for the quantitative interview. The visual mapping (Chambers, 1992) was performed because it was fast and informative compared with a conventional questionnaire

Household questionnaire

Four different questions were asked, to ten and seven households in Sebangki and Telaus respectively, regarding amount of rattan products made, bought, given away and how many products the household owned altogether. This was done in order to decide if rattan was of great importance and to get an indication of the quantity, size of rattan trade and production.

Market investigations

To understand the possible impact on sustainability of the resources by a market introduction the market chain was to be identified. The market in Lubok Antu, the nearby town, was visited and questions concerning prices, species used, place of origin, etc. was asked. Market chain, regarding handicraftsmen, number of links and other aspects were examined. The same aspects were investigated in the bigger town Sri Aman, which is located two hours drive north- west of Lemanak.

3 Results

3.1 Use and management of resources

Telaus longhouse has rattan containing forest areas upriver where they used to live and it is these areas they use for collecting rattan as their new land in the resettled area does not have any forest cover or rattan resources. Sebangki longhouse has not been resettled but due to implementation of a resettlement scheme in the area they lost some rattan collection areas. The government alienated some land belonging to the people from Sebangki and gave it to one of the resettled longhouses.

To meet possible future scarcity in the rattan resource the people from Sebangki moved some Wi sega balau (*Calamus optimus*) wildlings from the alienated area to one of their old rubber stands. The reason for moving Wi sega balau, instead of other rattan species, because this species can be used for a lot of different products and is spreading easily with multiple stems. They do not practise any kind of management to the planted rattan but the area is divided into private lots where each owner is allowed to collect as much as he/she wants. In the other areas everybody, from the longhouse, is allowed to collect rattan in decent amounts. There is an unwritten law stating that nobody from the longhouse can sell rattan and if anyone sell or harvest too much, the committee will impose a fine on the person in question. Due to the limitations in forest areas they now utilise a government-reserved area for NTFP related activities. The legal status of the acclaimed government-reserved area is not known, but the people claim that the law do not allow them to use the area. Sometimes the households buy fibre products from Indonesians coming to the longhouse by bus this is mainly because of the cheap prices compared with the time consuming effort of subsistence production.

From the time allocation matrix 1 (see appendix B) it can be viewed that the Sebangki people spend most time, in the forest, on the following three activities: Woodcutting for construction wood, collection of pepper straps (used for tying pepper plants to pillars) and collection of vegetables. This corresponds well with the ranked importance of the three activities as they are the three most important. The time spend on collection of rattan is ranked as the fourth highest, together with fishing, regarding time allocation and the importance equals the importance of the four other activities not included in the top three.

Time allocation matrix 2 (see appendix B) reveals that the activity, on which the Telaus people spend most time upriver, is hunting followed by fishing and paddy farming respectively. This corresponds with the fact that they are the three most important activities but paddy farming is the most important even though only ranked third highest regarding time allocation. The time spend on rattan collection is ranked fourth highest and it is the fifth most important activity.

When making a independence test (Appendix F, test 1) on the correlation between how often the rattan areas in Ulu Telaus are visited and which areas contain most, a statistic significance is found (on 95 % confidence interval).

The rattan collection areas Sebangki longhouse lost due the resettlement scheme used to be the most important according to table in appendix A (ranking on map) and some of the other areas have changed significantly in importance stated by increasing number of visits in recent time. The independence test (Appendix F, test 2) does not show significant correlation between how often they collect in the areas and how much the areas contain and this may be due to difference in distance from the longhouse, species suitability or other factors.

There are large differences between the species and their suitability for different products (see table 3.1), thus Wi jerenang (*Daemonorops didymophylla*) and Wi lemba (*Calamus pogonacanthus*) can be used for 17 and 18 different products respectively while the species in

average can be used for 7.6 different products.

*Table 3.1: Usability of different species
for number of products*

Species	Products
Wi tunggal	2
Wi seruk	10
Wi semut	14
Wi Cit	1
Wi sega	11
Wi lemba	18
Danan	6
Wi mukup	13
Wi Bayau	13
Wi Jerenang	17
Wi matar	2
Batang Laleh	6
Kerupuk	5
Bemban ai	2
Bemban batu	9
Senggang	7
nylon	7
Wi semambu	6
Wi bulu	7
Akar rarak	1
Kayo tekalong	2

The local Iban communities investigated do not use rattan as an integrated part of their shifting cultivation system. Telaus have abundant rattan resources for their own use and as they have not located any intermediaries, there is no need for incorporating rattan in their cultivation systems.

3.2 State of resource

In transect 1 (area A and B) 0,061 rattan plants higher than approximately 1.5 m were found per square meter and in transect 2 (area C) only 0,043 plants per square meter were found. This could indicate that less plants are to be found in the area (transect 2-area) located near the longhouse. Making a stastitic test (χ^2 test) reveals that the difference is not statistically significant (see appendix F). Many seedlings were found in transect 1 (only registered in area A), Although no seedlings were registered in transect area 2, it was obvious that much less seedlings was to be found here.

3.2 Socio-cultural importance of rattan

From the results in the two allocation matrixes (see appendix B) it is obvious that rattan collection is an important activity although not among the most important.

Both women and men collect the rattan canes and mainly the women do the processing while only the men collect the big species, because it takes a lot of strength to pull them down. The reason why they mainly use rattan for the different fibre products is because it is a very good quality compared with other plants such as bamboo. Rattan does not play a role in religious ceremonies, as the only fibre product with religious importance is the basket called "Pedara" that is made of bamboo.

Anyone can make rattan products when they want to and there are no restrictions regarding the use of colours. Pattern on rattan products can often tell where they are made, but do not have a specific meaning, as goes for the Ibans "trademark" the flower pattern as well. The knowledge of making beautiful handicrafts is very important because it gives a high status and beautiful products like mats, blankets ect. show visitors that the local people are good handicraftsmen. It is important to keep the rattan products in good shape, so one can show what the ancestors made and how impressive handicraftsmen they were. The knowledge of making the handicrafts may become extinct since the young Iban people are not interested in learning it and the key informant was worried that no one would know the handicraft when the old people died. The old people make a lot of rattan items for their children so they have enough for many years.

The vast numbers of rattan products (see matrix in appendix D) and their uses (see appendix D) observed in Telaus longhouse confirm the important role of rattan in the local livelihood strategy. The products are used in relation to almost any activity including field work, fishing, hunting, cooking, firewood collection etc. Refer to appendix D for photo documentation of the various products.

As can be seen from household questionnaire 2 in Appendix E each household have a lot of rattan items, in average 76 per household. It is worth noting that the questionnaire does not tell which material the products are made from and only very few of the products are bought, in average 2 per household. Many products are made within the last year, in average 14 products per household which equals a total of 154 out of 837 products. A total of 41 products have been given away, which is 26,6 per cent of the products made each year and it is almost

twice the number of products bought all together. It shows that buying rattan products is not an important part of their rattan supply strategy. It is interesting that the headmans household owns more products (163) than the average households (76). This is probably because the headman is the person that most often receives visitors and has a high status, shown by beautiful products, compared with the average inhabitant of the longhouse.

3.3 Commercial trade of rattan

On the local markets investigated, both in Lubok Antu and Sri Aman, the rattan products sold were almost exclusively Indonesian. Thus no local marketing of rattan seems to take place and the market structure is unclear as vendors from Indonesia crosses the border and sell the products them self.

4 Discussion

4.1 Validity of study

One of the most obvious weaknesses of the study was the lack of objectivity. The committees of the longhouses pointed out the key informants used and they were chosen because they had an in-depth knowledge of the issues regarding rattan, but other factors may have been taken into consideration, like gender, status, education etc.

The key informants were making maps, identification of species and the same key informants were used for the rankings but this could make the results biased compared with the general opinions of the society. In general, to make a more valid survey, more people should participate and more opinions should have been heard. This could be achieved by using stratification and crosschecking by triangulation (Mikkelsen, 1995).

There is also a contradiction between the application of PRA and the demand for quick results (Mikkelsen, 1995), and the survey was indeed conducted under time pressure. One serious problem that was faced during the survey, was the filtering of information's through the interpreters, who also functioned as colleagues, as the information's may be changed a little bit and even further when processed by us.

Sometimes the impatience to obtain information and results lead to a situation where the investigations were very controlled not leaving much room for the participants to direct the survey, a situation Mikkelsen (1995) announces: “ Backsliding” to traditional methods.

4.2 Use and management of resources

According to the ranking on the map (see appendix A) the areas Sebangki longhouse lost were the most important rattan areas in the past but this could be biased because they feel the land was taken from them. Opposite Telaus longhouse there is no significant correlation between how often the Sebangki people visit the rattan areas and which there are best in amount. This could be due to considerably difference in distance from the longhouse or other things like suitability of species. The results from the two longhouses are contradictory and it may be that there is no correlation of the two questions ranked if all the areas were inventoried. It could also be argued that the vast amount of rattan and areas in Ulu Telaus made it difficult or even impossible for the informants to make a reliable ranking of the areas.

From table 3.1 it can be viewed that some species can be used for many products and other species only for few. There could be a potential in planting the species, which are good for many uses, but the results do not inform if the species are especially good for making the products. It may be that the species with few product options are the best regarding the production of specific products and therefore are more desirable to the people. There are without doubt big differences in the species management suitability and this would have to be investigated before planning or recommending any planting strategies. Another important aspect, which need be considered, is a possible contradiction between the species being high valued by the local people and the species giving a good price on the market.

The alienated of land in relation to the resettlement scheme, has forced the Sebangki longhouse to adapt several new strategies to fulfil fibre product demand: (I) the rattan species *Wie sega balau* have been planted in large numbers in rubber plantations; (II) government

reserved areas, not part of the longhouses property is being utilised illegally; (III) rattan areas are divided into household plots and (IV) over-harvesting is controlled by unwritten rules and penalty measurements.

This study support the concept provided by Wiersum (1997), that is: that forest and people interacts and that indigenous forest management is adaptive and allocated on an evolutionary path. In Sebangki management of the resource is highly developed. With past and current changes in society the Sebangki community adapted new measures to secure supply. If the resource would be exploited further possible domestication or planting of rattan will be the next step.

As Telaus has vast rattan containing secondary forest areas upriver, no resource scarcity can be observed. Thus Telaus is allocated in between the first and second step of the model developed by Wiersum (1997). No management or protective procurement of the resource is executed other then restricting outsiders possibilities to use the area.

Discussion of Methods

The primary goal of the initial “suitability of species” matrix was to reveal if there was specific species that was of great demand, thus being potentially overexploited. The suitability of the performed questionnaire can be doubted, as the information wanted was not obtained. The time consuming effort of performing pair-wise ranking (Mikkelsen, 1995) of different species could have provided better information regarding which species would be of great demand because they were preferred for different products. The disadvantage would have been the limited time for other investigations. Mikkelsen (1995) emphasis the need to crosscheck your methods before they are applied. A thorough appraisal on products and uses of rattan would have made us able to re-divert the efforts to other methods that could unveil more information.

The participatory mapping was the method with which we had most success because whenever we made interviews regarding rattan collection, hunting and tenure rights etc. we could use the map to visualise where the places in question were located. e.c. it was much

easier to see the approximate size of the government-reserved area, used for collection, when looking at the map. Mikkelsen (1995) and Chambers (1992) support participatory mapping, inasmuch as the focus has shifted from verbal to visual methods and the visualisation facilitates the raising of new questions. The informants often used the maps on their own initiative, when explaining something. It would in fact have been very difficult to imagine the areas they referred to without the maps. Furthermore participatory mapping is a tool to empower local inhabitants in planning of natural resources. Having a map of collection areas gives them knowledge of their own rights (Lynch, 1995). When planning the places to conduct our botanical transects they were very helpful as well.

4.3 State of resource

The transects gave us some indications of a correlation between the proximity of the collection areas and the rate of exploitation. If the sample of inventoried areas had been bigger the indications may have shown a statistically significance. As there was nothing indicating overexploitation or resource scarcity in Ulu Telaus it would be more interesting to make these inventories in the Sebangki area or in the rattan collection areas (if any) of some of the other resettled longhouses.

Many small seedlings were found in area A, and this could be explained by the fact that the crown cover of the vegetation was relative open as it was a fifteen years old fallow. Although no seedlings were registered in transect area 2, it was obvious that much less seedlings was to be found here, probably because the forest was rather old and the crown cover quite dense.

The biological transects performed may indicate a correlation between the proximity of collection areas and rate of collection. Thus a decline in areas located closely to the longhouse may occur but this is not a problem as there is still plenty of rattan in the moderately exploited areas. Unfortunately not all the resettled longhouses in the Lemanak area have collection-areas upriver; time scarcity has not allowed us to investigate their strategies to cope with the loss of resources.

Discussion of Methods

The botanical transects were without doubt a good method to investigate the amount of rattan present in the areas but we also had to face a serious time limit. The transects were very time consuming and it was obvious that to make a representative, proper statistical botanical transect you need more than one and a half day, which were the time set aside. Even though choosing a fast way of making the transects, with the local key-informants identifying the species and collecting only a few species. Another problem we came across was that there were so many seedlings that we could not include them in the survey.

4.4 Socio-cultural importance of rattan

The young Iban generations have limited interest in learning the handicraft of fibre products. Modern culture limits their interest and possibilities to engage in the time consuming production of these traditional handicrafts. The very detailed and beautiful mats and baskets are however still prestigious items to the elder generation, especially when guests are received in the longhouse. Rattan is only used in ceremonies, as any other house equipment so there was no religious importance of it.

The processes of change in the two Iban communities investigated have had an effect on the utilisation of the rattan resource. This paper supports the theoretical foundation claiming that the changes are not static and linear, but simultaneous and dynamic. In this study, the larger interaction with the wider community in terms of economical freedom hence less need for subsistence production and cultural change have decreased the interest for rattan, nevertheless the pressure on the resource have increased as the areas available for collection have decreased. And finally the opening of the Indonesian border have imposed new local market regimes. Hence no clear cause effect relationship between change and the current management can be given.

Discussion of methods

Our experience with direct observation (Casley and Kumar, 1988) was that it was not very fruitful. We did not get much information, which could not be obtained by interviews. Given the short time to conduct our survey it was not worth spending too much time on the direct observation when we could obtain the information needed much faster by using other methods. It probably could give a good insight in the actual way the locals carry out their work if you spend some time observing, but it is more suitable for studies with a longer time span.

Our experience with the household questionnaire was positive as it provided information within short time and the results could be used in the decision of where to focus further research. Given the short time it may have been fruitful to make more and bigger questionnaires to obtain more information. The disadvantage would be that we would not get in-depth knowledge of the locals and more detailed information regarding less exact questions may be difficult to obtain this way.

4.4 Commercial trade of rattan

Market investigations

The minimal time set aside for identifying the market chain limited the possible outcome. The identification of market agents simply by visiting the market was impossible. The willingness to answer questions among traders was modest, hence reducing the information collected, and our colleagues from UNIMAS seemed a bit uneasy asking some of the questions. Rattans part of the market trade in Lubok Antu and Sri Aman turned out to be smaller than expected, making our investigation less informative and the bigger town (Sri Aman) was not visited on a Sunday when the big weekly market takes place. Observations from the markets in Sri Aman and Lubok Antu reveals that locally produced rattan products is uncompetitive in relation to cheap products from Indonesia. The sale of Indonesian products controls the exploitation of rattan in the areas located on the Malaysian side of the border, however if the products were exclusively locally produced in the Lemanak area, the small size of the market would not lead

to overexploitation.

5 Conclusion

It can be concluded that there have been big differences concerning the suitability of the methods and thereby the validity of the results obtained. In investigating the natural resource management the participatory mapping has been eminent and the household questionnaire turned out to be very informative and quick. The biotranssect is an important investigation but rendered inappropriate for the field study. Many of the other methods were time consuming when compared with the output obtained.

Rattan is without doubt important to the rural people in their daily life as it is used for various practical and social purposes. The two longhouses investigated use different strategies to cope with the change in resource accessibility. The longhouses have reacted on the external changed and adapted their management accordingly. When resources have become increasingly scarce new management and cultivation strategies have been imposed. The expected over-exploitation in the study area due to external factors is not profound. Resettlement had some obvious impacts while the changes due to market trade are less serious. The decreasing social and cultural importance and dependency on subsistence production have had the opposite impact, compared with loss of resource accessibility, on the exploitation of rattan. This results in degradation of the resource being less critical.

6 Perspectives

The full effects of the reduction in rattan resources may not be fully observed yet as good quality products have very long durability and can last for as long as 30-50 years. The products are passed to the following generations and the old generations still produce fibre products for their children.

As the people in Telaus longhouse have land upriver, they will probably have no problem with

the rattan resources in near future. Other resettled longhouses that do not, like Telaus, have land upriver may have problems with scarcity in rattan resources and a planting scheme could be appropriate but this will have to be investigated.

The Sebangki longhouse could face a problem in the future if they lost access to the government reserved area where rattan is collected and to be dependent on an area where can not collect legally may be precarious. The fact that they have restrictions on the rattan resources indicates that they do not have abundant resources. They have already planted *Wi sega balau* and *Bemban ai* (see appendix C for Latin names) and there could easily be a need for planting of more rattan in the future including other species too. A planting program and information regarding cultivation of different rattan species could be very useful to the people of Sebangki longhouse. They also buy some fibre products from time to time when Indonesians stop by the longhouse to sell and that could be one of the ways to cope with future scarcity in resources.

There probably is a potential for an income from rattan products but the rural people have to identify an intermediary who can be the link to the export market. The people from Telaus longhouse would like to make rattan products for selling if they knew of people who would buy it. If a stable market trade were established new management strategies could be necessary like integrating rattan into their shifting cultivation system.

Literature

- Abdullah, T. and Lay Chau Jian (1997):** Rattans of Sarawak, Malaysia, In: Rattan - taxonomy, ecology, silviculture, conservation, genetic improvement and bio-technology, Proceedings of training courses *Cum* workshop, 14-16 April 1996, Sarawak, Sabah, EPGRI-APO, Sedang, Malaysia, pp. 93-98
- Beer, J. and M.McDermott (1996):** The Economic Value of Non-Timber Forest products in Southeast Asia, IUCN, Netherlands, pp. 197
- Casley, D. and K.Kumar (1988):** The collection, Analysis, and Use of Monitoring and Evaluation Data, World Bank, The Johns Hopkins Univeristy Press, UK, 174 p.
- Chambers, R. (1992):** Rural Appraisal: Rapid, Relaxed and Participatory, IDS Discussion Paper 311, IDS, Sussex
- Chamber, R. (1994):** Participatory Rural Appraisal (PRA): Analysis of experience, *World development* 22 (9): 1253-1268
- Christensen, H. (1997):** An ethnobotanical survey of flora used by two longhouse communities in Sarawak and an evaluation of their agronomic potential for agroforestry based farming systems, PhD thesis, Institute of Biological Sciences, University of Aarhus, Denmark
- Homma, A.K.O. (1996):** Modernisation and Technological Dualism in Extractive economy in Amazonia, *In* Current issues in Non-Timber forest product research, Pérez, M.R. and J.E.M. Arnold (eds.), CIFOR and UDA, Bogor, Indonesia, pp. 59-81
- Lynch, O. J. (1995):** Involving local people in management and harvesting of non-wood forest products, *In* Beyond Timber: social, economic and cultural dimensions of non-wood forest products in Asia and pacific, *RAP publications* 1995(13): 37-46

Mikkelsen, B. (1995): Methods for Development Work and Research – A Guide for Practitioners, Sage publications, New Delhi, India, 296 p.

Wiersum, K.F. (1997): Indigenous exploitation and management of tropical forest resources: an evolutionary continuum in forest-people interaction, *Agr., Ecosystems and Environment* 63 (1997): 1-15.

Yong, P. L (1994): Malaysia, *In Non-Wood forest products in Asia*, Durst P.B, W. Ulrich and M. Kashio (eds.), *RAPA publication* 1994(28): 55-72.