

The Management of Wild and Domesticated Forest Resources on Siberut, West Sumatra¹

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Introduction

Recently, the Indonesian Ministry of Forestry has ended the implementation of an Asian Development Bank (ADB) funded multi-million dollar project on the island of Siberut (West Sumatra) aimed at the protection of the island's biodiversity and its unique traditional culture. At the same time provincial officials are preparing proposals to convert a large part of the island into a palm oil plantation. If these plans will be implemented, it will no doubt be necessary to import a substantial workforce. This will most probably mean transmigration which, until now, has not affected the island. The newcomers from Java will soon outnumber the local population.

These two views and their corresponding plans of action are worlds apart. They represent the idea of maintaining a kind a wilderness condition—including a traditional people—versus the idea of converting unproductive forest land to a more profitable form of land use. In the latter view no detailed thoughts are given to the local people.

These contradictions cannot simply be related to the attitudes of the government versus national or international

NGOs. They refer largely to contradictions within the government itself. This is also not a new phenomenon. Over the last few decades heated debates have taken place within the bureaucracy with—in some cases—a strong support from the international environmental and tribal peoples' movement.

In talking about the government, it is mainly the provincial government of West Sumatra which has played a central role regarding Siberut. As this province is the homeland of the Minangkabau people, and the provincial government is heavily dominated by this ethnic group, it is also the Minangkabau version of centrally issued policies that has become the crucial element in addition to more locally conceived policies and decisions.

Local perspectives on forest exploitation and management differ widely from those of the government. Some people try to continue a traditional life style including a 'natural religion'. This life style is largely aimed at self sufficiency which is based on a diversified use of the forest resources. Others, however, are inclined to intensify agriculture like many peasant societies elsewhere in Southeast Asia. They move away from the diversified use of the forest and become incorporated in the market economy by cultivating permanent cash crops. Wild resources loose their meaning not only economically, but also culturally.

The forest resources on Siberut are valued for conflicting purposes. At different times different values are given priority as a result of processes in which cultural, political, economic and other motivations play a crucial role. They form a good illustration of what recently has been labelled as normative pluriformity in forest management, that is the various perceptions as to what to consider forest resources, what should be the objectives for forest management and which practices should be considered most appropriate for forest management (Wiersum 1997). In this paper these changing perspectives on forest resources by local people as well as outsiders will be described and discussed, and they will be related to events and processes that occurred on the island as well as elsewhere.

The island

Siberut is the largest of the Mentawai Islands, off the west coast of Sumatra. It is inhabited by about 23,000 Mentawaians and a small number of migrants, predominantly of Minangkabau origin. In relation to its total land mass of about 4,090 km² the island is sparsely populated. About sixty village settlements are scattered over the island though administratively there are only twenty *desa*, divided over two sub-districts or *kecamatan* (North and South Siberut).

The Mentawaians are traditionally organized in patrilineal groups of approximately 30 to 80 people living in small settlements, called *uma*, along the banks of the rivers. These groups of people were autonomous political units. Hunting, fishing and gathering provided most of the daily food. Sago

¹ This article is a revised version of the paper presented at the panel: Local Resource Management: Between 'Productivity' and 'Sustainability' at the 1st International Symposium of Journal ANTROPOLOGI INDONESIA: 'The Beginning of the 21st Century: Endorsing Regional Autonomy, Understanding Local Cultures, Strengthening National Integration', Kampus Universitas Hasanuddin, Makassar, 1-4 August 2000. This article also was published in *Journal Anthropology Indonesia* 25 (64): 68-83.

starch, obtained from the sagopalm (*Metroxylon sagu*) was and still is the staple. Stands of wild and planted sago occur in the swampy areas and along the banks of the rivers. There is also some domestication of free roaming pigs and chickens. In addition to these food resources people cultivate root crops, bananas and fruit trees. Annual crops like rice and corn are absent however. The main commercial agricultural crop is copra.

The partial division of labour was limited to specific tasks between men and women. Each family was to a large extent economically self sufficient but friends and relatives were always willing to assist in the construction of a house, a dug-out, or for clearing the forest for making new fields. The only specialist in the villages was the medicine man, the *kerei*, responsible for communication with the spirits and souls, which play a very important role in the traditional animistic religion of the Mentawaians. Differences in wealth were limited and related to differences in ability and diligence. The Mentawaians never created substantial economic differences because of the generally accepted norms for dividing and distributing possible benefits deriving from these personal qualities. The non-Mentawaiian people who live in the two main harbour villages are involved in trading and fishing, or they are employed by the government as teachers, policemen or civil servants.

The tropical rainforest on Siberut is well known for its rich endemic wildlife including four primate species. Endemic birds and other animals and plants are also relatively abundant on this island, which makes Siberut an important island in the natural heritage of Indonesia but also internationally (Walujo *et al.* 1997; World Wildlife Fund 1980).

Traditional forest exploitation

Even though large areas of Siberut were uninhabited and covered with closed canopy forest, 'empty land' did not exist on the island. The entire island was divided between the estimated 250-300 *uma* communities. As a member of one of these communities every man and woman had access to the forest resources. Apart from the intact forest the Mentawaians have classified their environment into a number of subsystems which they exploit and to some extent also purposely manage for different aims. Without going into too much detail the following subsystems can be differentiated:

- The (closed canopy) forest: this is the area which is used for hunting (primates, deer, birds, monitor lizards, squirrels and numerous smaller animals), forest fruits, medicinal plants and honey. Wood and bamboo for house construction and canoes are also taken from this area. Rattan is collected for domestic use (construction and weaving) and for commercial purposes.
- Sago swamps are usually located near the banks of the rivers or little lakes. Apart from the starch harvested from the trees, there are many other valuable products

from this tree (sago grubs, leaves for roofing material, bark for walls). Unprocessed sago is fed to chickens and pigs.

- Forest fields need to be differentiated into two types. During the first few years after clearing the forest fields, they are mainly used for crops like bananas, vegetables, cassava, peppers, and medicinal plants. But once the fruit trees start to dominate the vegetation the other crops lose their meaning.
- Part of the forest is reserved for raising pigs. The animals are kept at some distance in order to avoid damage to homegardens and crops. The pigs roam around freely and feed on anything digestible what can be found on the forest floor. They are fed additional raw sago.
- Fenced swampy fields are used for growing taro and other roots crops. An additional harvest of frogs and little fish can also be taken from this area. The living fences are made to keep the pigs out.
- Rivers and little lakes serve an important function for catching fish, shrimps, and mussels. They are used as storage room for sago.
- Mangrove forests are mainly exploited for poles for house construction.
- The small islands and the coastal zone are densely planted with coconuts, while the coral reefs and tidal flats are exploited for catching fish, turtles, shell fish and sea cucumbers.
- Finally the home gardens are full of useful fruit plants, herbs and medicinal plants while numerous chickens roam around, often chased by ever hungry dogs.

It is clear that the Mentawaians just harvest specific wild forest resources while doing little to increase productivity by means of protection. Hunting and collecting rattan from the forest can serve as an example of this kind of exploitation. The number of animals hunted or the quantity of rattan collected is determined by time availability, (literal) carrying capacity and (in case of rattan) market prices much more than ecological considerations.

In other cases protection does take place: fruit trees in the forest or good stands of bamboo in the wild are taken care of. Trees that might disturb the growth are cut down in order to increase productivity. Young shoots of fruit trees, rattan, are sometimes taken from the wild and planted in their gardens. In this way the wild resources are used for domestication. On the other hand, the way forest fields and gardens are cultivated is of a rather loose (or wild) type. The combination of crops is such that, once the system has established itself (say after 5 to 8 years) there remains little to be done than just harvesting. Weeding is not done and gradually some secondary vegetation is growing in between the fruit trees. That is why mature forest fields hardly make a domesticated impression, it looks more like a forest dominated by fruit trees. Its composition differs widely of course from a natural forest.

Maybe the most interesting aspect of the Mentawaiian way of cultivating the land is the lack of fire in transforming the forest through production fields into a forest of fruit trees. After clearing the undergrowth in the forest, the Mentawaians plant seeds and seedlings of a wide variety of trees, medicinal plants, bananas, bamboo and many other plants (but no annual crops like upland rice or corn). It is only after this planting that the big trees are being felled. This vegetation is left to rot, but it is not burned. Gradually the leaves and branches will wither while the seedlings start to grow. In this way the soil is never directly exposed to the sun or to the rain. It is always covered by vegetation in different stages of decay or growth, thereby reducing susceptibility to erosion. After some months the seedlings will rise above the layer of withering vegetation. Gradually however the fruit trees will start to dominate the vegetation cover. After some decades a complete forest of fruit trees, of which the *durian* is by far the most important, will have replaced the natural forest.

Pigs play an important role in the local mode of subsistence. To some extent the culture of Siberut could be described as a 'pig culture', with pigs as the most important animals, comparable to the 'pig cultures' of Irian Jaya and Papua New Guinea. Traditionally every family owned some pigs, which are basically semi-domesticated wild animals. A large herd is a sign of wealth and prosperity. Once or twice a day they are fed raw sago. This is also the reason why they keep coming back to the same house every day. Pigs are not only important as a source of protein; they also play an important role in the local exchange system, e.g. for bride prices and payment of fines. Under normal circumstances pigs are only slaughtered during big rituals or ceremonies.

As a result of the traditional mode of forest exploitation, the surroundings of the *uma* are heavily influenced by the human activities and the presence of pig herds. Further away parts of the original forest are turned into forest gardens. Elsewhere one can find the taro fields, sago stands or protected patches of bamboo. Still further away and with less disturbance one finds the real forest left. Needless to say that this forest can hardly be called 'primary forest' in the sense of 'untouched by human hand'. Though the environmental effects of human activities in this part of the forest has not been determined, there can be no doubt that the populations of primates, deer and numerous smaller animals are effected by the hunting activities while the intensive collecting of rattan must have had a serious impact on the forest ecosystem. Finally the large number of pigs disturb the forest floor much more than in a real 'primary' forest.

As a result of the spatial distribution of the people over the island, the forest vegetation along the banks of the major rivers is all of secondary type, regrowth and small plots of coconuts, sago palms, fruit trees and *alang-alang*.

The forest is important for the Mentawaians not only as a source of a wide variety of products, but also in relation to

their animistic religion called *sabulungan*. They do not look at the forest as a kind of wilderness. To them the forest is 'a world beyond', it is the world of their ancestors with which they have to maintain good relationship through rituals (Schefold 1997). Signs of this relationship can also be found in the forest: to memorise a deceased person a mature fruit tree is given a sign of remembrance (*kirekat*). It is also a new place for the soul of the dead person. By doing so the people hope to avoid that the soul will be wondering around and bring harm to the other members of the *uma*. This religious function of the forest however does not automatically imply a kind of sustainable use of the environment from an ecological point of view. It can also not be equated with a kind of traditional conservation etc. A spiritual harmony with the environment is of a different order and based on very different ideas.

Planned change in traditional forest exploitation

In many government documents it is stated that the agriculture on Siberut was backward, that people were too dependent on nature (e.g. Departemen Kehutanan 1992). There was little appreciation for the way the Mentawaians turn a wild forest into a domesticated forest dominated by fruit trees without the use of fire and without causing serious erosion. Over the years many efforts were made to change the mode of subsistence. These activities were either implemented through actions of the local government with a staff which is fully dominated by Minangkabau originating from the mainland of Sumatra, or through official resettlement projects as part of the nation wide programme for the 'development and civilisation of the isolated communities' (Departemen Sosial 1995). Within these resettlement villages an all-encompassing development programme is being implemented for a period of five years. The aim of this programme is to bring the tribal people back into the mainstream of Indonesian social and economic life.

An important element of this development programme is to stimulate the cultivation of rice in the swamps. This is mainly done in order to replace sago, which is thought to be an inferior kind of food, with rice. In fact there is a whole complex of ideas behind this change from sago to rice. Apart from the agricultural aspects there are also social and cultural elements involved in this change of staple food. Rice is considered as a superior food and its cultivation requires regular labour input which can not be combined with the traditional life style and religion of the Mentawaians.

Also with regard to animal husbandry the government tried to introduce changes. The way pigs were being kept was considered 'a bad habit'. Moreover pigs are considered dirty animals, that spread diseases, damage crops and are a nuisance to village people. So through various development and aid programmes new animals were introduced on the island: goats, cows, waterbuffalos, and ducks. The attitude of the local people towards these animals is rather different.

Almost all goats dispersal programmes have turned out to be a failure. They were reported to have fallen 'ill' and 'disappeared'. In fact they were all killed because of the damage done to the home gardens. What is also interesting with regard to the other animals is the way the Mentawaians have incorporated these animals into their mode of animal domestication. On the mainland of Sumatra, cows, water buffalo's are animals that are usually kept close to the settlement either in a fenced area or tied with a rope. Usually the animals are taken home at sunset. But though the Mentawaians did accept the animals they did not adopt the prescribed mode of domestication. They applied the 'pig model' of keeping animals to cows and waterbuffalo's. The animals roam around freely in the forest without fences or ropes. The animals are only caught when they need to be slaughtered for special occasions. So apart from the meat they serve no other function like hauling or ploughing.

By and large many of the initiatives of the government during the past few decades have not been very successful. Sometimes innovations, like rice cultivation, were more or less imposed upon the people by means of strong methods and coercion. Other innovations were made attractive by the flow of goods that accompanied their introduction. But as soon as the government took a more relaxed attitude or when the flow of goods was reduced, these innovations turned out not to be based on internalised motivations. Rice fields became swamps again, resettlement villages were abandoned and the animals meant for modern animal husbandry were killed or incorporated in the 'pig model' of domestication, thereby reinforcing the 'traditional' mode of subsistence.

This is not to say however that there were no changes on Siberut because of the government initiated projects, or through the activities of the missionaries. Because of the interaction with people from the mainland of Sumatra, through the exposure to education and the partial incorporation into the market economy, there is much more internal variation among the Mentawaians than there used to be. These differences are often neglected in discussions about 'the local population'. Various parts of the population holds contradictory views with regard to the appreciation of their traditions and also their projected futures are worlds apart. Against the background of decades of development efforts however it is hard to conclude that this work has been successful in its own terms. For generations of development workers and missionaries, Siberut turned out to be a hard nut to crack and this situation has not really changed.

New crops from the forest

In relation to the discussion on the management of wild and domesticated resources three new crops are of special interest. Two of them (*gaharu* and sago) are wild or semi-wild forest products of which the valuation really changed some years ago. The third is a newly introduced agricultural crop (*pacouli* or *nilam*) which rapidly spreads over the is-

land and requires new and fresh forest fields.

***Gaharu*: 'the wood of the gods'**

In 1986 a new development started on Siberut. Some traders who had come to Siberut urged local people to collect *gaharu* in exchange for which they were offering remarkable prices. This was the beginning of a real *gaharu* boom which spread like a gold rush across the island. The economic boom brought many new luxury items to Siberut, but it also had serious implications for the forest and its wildlife.

Gaharu is a fragrance that develops in the heartwood of certain species of trees as a fungal infection. The major species yielding the true *gaharu* are from the Aquilaria family. The product is mainly used for incense, medicine, perfumes and cosmetics. It is processed and used in the Middle East, Singapore, Hongkong and Japan. Though the Mentawaians were familiar with the substance, they knew nothing of its commercial value. In comparison with all other means of acquiring cash or valuable products through barter, the gathering *gaharu* proved extremely lucrative. Especially during the initial phase large quantities could be found and traded (Nurhayati 1990).

In exchange for the many kilos of *gaharu* they gathered, the Mentawaians could obtain not only the traditional trade products (bush knives, glass beads, tobacco) but now it became relatively easy to save for outboard motors, television sets, cows, and water buffalos. In addition chain saws and air rifles also became popular items of exchange. Within a few years almost every *uma* had one or more air rifles. To some degree they replaced the bow and arrow for hunting. The search for *gaharu* came to a temporary stop when the Gulf War started in early 1991. Now quantities and qualities are no longer spectacular.

As a result of this *gaharu* boom the forest of Siberut lost most of its larger Aquilaria trees. Because of the lack of experience of the Mentawaians in identifying infected trees, the only way to find out whether the heartwood contained *gaharu* or not, was to cut down the trees and search for it in the lower part of the stem. There was little if no real 'management' involved in the exploitation of *gaharu*. Another environmental consequence of the boom was increased hunting pressure not only on the primates but in particular also on smaller animals like squirrels and birds.

***Sago*: 'pig food' turned into an industrial crop**

As stated above there has always been an abundance of sago palms on the island. Due to the regenerative capacity of the sago palm numerous mature trees flower and die afterwards without being used as human or animal food. As a result of this abundance sago trees had little economic value.

Though sago has often been condemned as an inferior 'lazy man's food' to be replaced by rice as soon as possible, a few years ago a major change occurred in the general attitude towards this product. The change came about once two Chinese traders from Riau province established sago

processing factories on the island. They had heard about the abundance of good quality sago palms on Siberut and through the provincial bureaucracy they organised permits to start the processing of sago. The aim is to produce starch ready for export to some biscuits and mie factories in Sumatra and Java. At least three factories are in full operations and tons of dried sago starch are exported to Padang weekly. The factories do not own any trees and they are fully dependent on the willingness of the people to sell their trees to the factories. In the first years this has never been a problem. Big rafts of stems were floated down stream. But once the surplus of the trees was gone the supply became more problematic. People have to be persuaded to sell, and employees of the factory have to go around and collect the stems themselves or raise the prices. The government has fully stimulated this development. The district officer (*camat*) in South Siberut even became one of the factory owner. All of a sudden sago trees obtained an economic value, and a target for investment. Initially it was also part of the 'business plan' that the factories would develop their own sago plantations but so far this has not been realised.

The interesting point here is the change in valuation of a forest resource which until recently only had value for the local people. Outsiders looked down on this crop which was a symbol of the backwardness of the island and its inhabitants. Now it has become a symbol of development and economic progress and it also requires a new mode of management. This change in valuation has been brought about by enterprising individuals who have partly incorporated Siberut in a wider economic network.

***Pacouli* or *nilam*: a valuable oil from the forest**

After the collapse of the market for cloves since the early nineties due to monopolisation of the trade and after the *gaharu* boom, people on Siberut lacked an important cash crop. They were basically back to the old familiar ways to generate a cash income. Harvesting of coconuts, collecting rattan from the forest or catching fish were the main possibilities. Prices for sago trees are too small to generate the kind of income they were used to. Since a few years a new commercial crop is spreading rapidly over the island which is *pacouli* or *nilam*. From the fresh leaves of this plant a valuable oil can be obtained through a distillation process. The first harvest can be obtained after a little over six months and subsequent harvests with a few months interval. After about 2.5 years the plant is no longer productive. *Nilam* is planted in newly cleared fields on which trees and branches are not burned. The withering vegetation provides nutrients, shade, and protection against the heavy rains during the initial growth phase. *Nilam* is a plant which needs shade and a fertile soil. Replanting on the same field will not yield good results. That is also the reason why *nilam* cultivation has a strong influence on the forest: the area needed for its cultivation is rapidly expanding. Fallow fields are relatively useless for a few years (Santoso 1994).

The fact that *nilam* is an attractive crop for the Mentawaians can not only be explained by the future profits of the crop, but should also be related to the diminishing returns of other cash earning activities. At the moment people have little alternatives. Gathering rattan from the forest is an extremely laborious job. Picking cloves from the mature trees is hardly rewarding because of the low prices. *Nilam* is also attractive because it can be harvested within a relatively short time. This makes the crop popular among many people who are facing financial problems. Though people realise that this crop, just like cloves, is grown just for an outside market over which the people do not have any influence, it is one of the few alternatives they have for generating a cash income.

In all three examples mentioned above the driving force behind the change in valuation of forest resources is a penetrating outside market. By offering money and exchange items the traders succeeded in persuading the local people to harvest and grow these new crops. The decision of local people to get involved in these activities is entirely theirs. They are also the ones who profit economically from the creation of this demand. But in general it is clear that the management of the resources is not aimed at the long term productivity or their sustainability.

External valuation of forest resources: timber, biodiversity and land

Not only the forest dwelling local people have taken an interest in the forest resources on Siberut, over the years various groups of outsiders have 'discovered' the value of the island's forests. They have done so from very different perspectives, ranging from logging to biodiversity conservation. Most recently a new tendency seems to emerge: an interest not so much in the forest resources themselves but in the land on which the forest grows.

Logging

Though some commercial logging on the island started already during the 1920's the scale and impact were very limited and nothing compared to what happened since the early 1970's. In 1973 the entire island was granted to four logging companies. The concession maps on which their operations were based did not even mention the villages of the Mentawaians nor the locations where their fields were situated. In an official forestry document it is stated that the pre-1973 period was: 'the original situation: the whole of Siberut is free state forest' (Departemen Kehutanan 1992).

In 1976 a small nature reserve was established in the middle of the island, Teitei Batti Nature Reserve (6,500 ha). Some years later the reserve was extended to 56,500 ha. Logging however went on in the rest of the island and it continued until 1992 when quite unexpectedly President Suharto announced the cancellation of all logging concessions. All operations were to be terminated by mid 1994. A turbulent

chapter in the history of Siberut was closed, at least temporarily.

The impact of logging on the island's ecosystem has been enormous. During a period of twenty years logging was in full operation. Roads were constructed with powerful bulldozers, large landing stations were cleared of all vegetation. But still the impact of two decades of logging is, if compared to other areas not as big as it could have been. The combination of the climate with the type of landscape on Siberut is in fact not very favourable for modern logging operations. There is no material available on the island to construct all weather roads. And because it is raining during more than 250 days a year, the dirt roads across the hilly landscape turn muddy and slippery for long periods. These circumstances have made logging on Siberut not as rewarding as it could have been.

Another fortunate circumstance on the island is the fact that there has never been an influx of encroaching migrant farmers who turned the logged-over forest into arable land through slash and burn agriculture. Siberut has never been an attractive place for migrants who are looking for free land to occupy. Apart from the physical distance to Sumatra and the lack of infrastructure the thousands of free roaming pigs might have helped to stop them from coming. Local people would also have defended their land rights if migrant farmers would have entered the area even though they were not able to do so in opposition towards the government granting logging concessions.

So when logging operations came actually to a halt in 1994, all equipment was taken away from the island or left to rust. Logging roads were quickly overgrown with a variety of grasses and shrub vegetation. Some of them shrunk to the width of a foot path, others have been completely overgrown because the route of the logging roads do not coincide with the direction of trails taken by the local people. Another effect of the logging operations has been the movement of people towards the logging camps which were all located on the coast. Almost all former camps have now been turned into settlements. This spatial movement has been stimulated by a changing valuation of the traditional forest resources.

Biodiversity

The main efforts of the outside world to conserve at least some of the island's biodiversity are two projects, one initiated by World Wildlife Fund in the late '70s and one funded by the Asian Development Bank.

World wildlife fund: 'saving Siberut'

The logging activities during the '70s drew the attention of a number of Western scientists of various disciplines who were working on the island. Logging was a threat both for the biodiversity as well as for the local people on the island. These concerns gradually took shape and two project pro-

posals were formulated to stop the degradation of the forest.

It would take another four years before these ideas and plans were actually developed and approved. Finally in 1979 the Survival International (SI) Siberut Project, which was formulated by the anthropologist Reimar Schefold, could start (Schefold 1980). Survival International was the implementing organisation and it was based on an agreement with the Indonesian Department of Social Affairs. Shortly after the start of the SI project, WWF published *Saving Siberut: A Conservation Master Plan*. The plan was widely distributed and it was even published as a serial in one of the capital's newspapers. Siberut was going to be a test case for the Indonesian nature conservation movement. Though the Minister for the Environment, Emil Salim, had written the preface to this plan, the Department for Nature Conservation within the Ministry of Forestry was the official cooperating institution.

This plan, *Saving Siberut: a conservation master plan* (1980), announced as a 'Masterplan for a tropical paradise', was based on three main objectives:

- to promote the socio-economic development of the people;
- to maintain a functioning tropical rainforest ecosystem; and
- to utilise Siberut's unique qualities to their best advantage.

The core of the plan was a landuse proposal. It recommended a system of zones to be developed to control landuse and to reconcile the conflicting needs of conservation and exploitation. The system of zones consisted of a 50,000 ha strict nature reserve, buffered and extended by a 100,000 ha zone for traditional use. In this area no commercial logging is allowed but forest products for local use may be taken from it. No new villages should be built in this area and only fields with a limited size and on gently sloping ground may be cleared.

Two primate species, the *bilou* and *simakobu* are fully protected, but other animals may be hunted using traditional methods and respecting other limitations (no fire-arms, no traps). The project of Survival International would provide alternative sources of protein to compensate for the losses as a result of the limitations of hunting. Efforts were made to combat a number of swine diseases, to promote coastal fishing and to promote animal husbandry in general (pigs, chickens, ducks) (Persoon and Schefold 1985).

The remaining 250,000 ha constitute the development zone where logging should be carefully controlled and where agricultural development can take place, but some restrictions on landuse should also be obeyed however.

Already in 1979 before the plan was officially published, the proposal for the strict nature reserve was accepted by the Minister for Forestry. The masterplan was the first step towards a management plan for the island. One of the aims behind this plan was to have the entire island of Siberut

officially accepted within UNESCO's 'Man and the Biosphere Program' by means of which human problems could be solved through an integrated social and ecological approach (Mitchell 1982).

After the relatively short duration of the projects the organisations withdrew from Siberut. Continuation of the activities was handed over to the Indonesian authorities. For the next few years not much changed. Logging went on as usual, new resettlement villages were built, missionaries were active in the area. Incidental tourists had a hard time to find their way on the island and were accompanied by local police men 'for their own safety', though this prevented of course the real adventure and encounter with traditional people in their original setting.

However, in the second half of the eighties another new development took place, namely the booming tourist trade. Tourism changed considerably in 1987-1988 when transport services to Siberut were improved. New ships, specially equipped for passenger traffic started to operate at frequent intervals. The ships offered an attractive alternative to the small and over-loaded cargo vessels. Once this new wave of tourists started to grow the local authorities were quick to respond to this new external interest. By that time a number of policemen and civil servants who had played a repressive role towards the local people had been retired or they were replaced with more tolerant people, the situation for the tourists became less restrictive. It was no longer necessary to be accompanied by a policeman, and regulations with regard to picture taking were not being implemented. Soon all parties involved had an interest in this industry. At the moment the tourist industry is still booming. Siberut is an attractive destination for young people from the West looking for adventure travel. According to the tour organisers a trip to Siberut combines an exposure to true tropical wilderness and an encounter with people 'still living in a Stone Age culture'.

It is very difficult to assess how the international interest and actions of scientists, nature conservation agencies, tourists and other NGO's in Siberut, including letter writing campaigns to stop transmigration, resettlement and logging actually influenced the Indonesian decision makers (Tenaza 1990). Officially this is always denied but there can be little doubt that through these activities, Siberut changed from an insignificant island populated by a primitive people on the fringe of the country to a place that needed and received serious consideration.²

Ministry of forestry and Asian Development Bank: biodiversity conservation project Indonesia

As stated above in early 1992 President Suharto announced that in the near future all logging concessions on Siberut should be withdrawn. This decision came as a great

surprise to those who had closely followed the history of the island in recent times. It was further announced that about half of the island was going to be declared a National Park. In the same year the Indonesian Ministry of Forestry and the Asian Development Bank announced a multi-million dollar project for biodiversity conservation in Indonesia. As a rationale for the selection of Siberut as one of the project sites, the island's high degree of primate endemism and its unique population were mentioned. Various potential sources of income were identified to make up for the loss of revenues from the cancellation of the logging activities: commercialisation of the non-timber forest products (rattan, sago and *gaharu*), ecotourism, handicraft production, improved animal husbandry and agroforestry were mentioned (ADB 1992). In 1993 the Minister of Forestry declared a 190,500 hectare National Park, overlapping and expanding the island's previous conservation area.³

In 1995 a three volume *Siberut National Park Integrated Conservation and Development Management Plan* was published which give the core information and ideas out of all the specialists reports. Some of the general objectives are worth mentioning here:

- to generate the broadest possible local support through management of the entire island as an Integrated Conservation and Development Project (ICDP) site;
- to maintain the biological diversity of lowland tropical rainforest in the National Park;
- to transfer management responsibility from a single government agency (PHPA) to a partnership of co-management that includes local community institutions;
- to support local communities by respecting and securing customary rights to forest resources; and
- to integrate the National Park into Provincial development plans (Ministry of Forestry 1995: I/xxvii).

It is interesting to see the kind of attention that the plan pays to agroforestry and agriculture. For the first time in an official document the traditional system of forest exploitation was described in positive terms and the strategy formulated for the future was basically a strengthening on the existing system. One of the formulated strategies reads as follows: 'Endorse and strengthen traditional Mentawaiian swidden cultivation, (...) by maintaining a high degree of crop diversity, avoiding burning and retaining many mature trees in the garden plots.' (Ministry of Forestry 1995 II:140). With regard to animal husbandry the situation is different. In this case it is suggested that pigs should be totally confined and it is suggested that new animals (ducks, cows) will be introduced and kept under a modern management regime.

While the WWF project was basically a nature conservation project with some compensation measures for the local population by the SI project, the present ADB project

² Through the international interest some Indonesian NGO's got involved in this struggle for Siberut. See e.g. Voice of Nature (1990), Skephi (1992), and Barber *et al.* (1995).

³ SK Menhut No. 407/Kpts-II/93 10 August 1993.

is actually a conservation and development project. An important difference is also that the ADB project is based on a loan which will need to be paid back. That is why at least some of the project activities need to be cost effective or generate incomes in the long run.

Important activities that are planned are in the first place related to the National Park such as delineation, and ecosystem preservation. Strategies for development in the adjacent support zone are in the fields of agroforestry and agriculture, animals husbandry, handicraft production, marketing and tourism. At the same time many activities are planned for the strengthening of the local village communities which still struggle with their history of their origin. The first point of identification, and solidarity of villagers is with their *uma* and not with the entire village community. Villages were created under pressure of the government and villages are rarely more than a number of individual *uma* communities.

Overlooking the recent years little actual project implementation has taken place, but a lot of preparatory work such as the construction of offices, hiring of staff, buying of all the necessary equipment (boats, radios) is finished. For the project implementation a new contract was signed between the Ministry of Forestry and the local NGO YASUMI (Association of the Indigenous Mentawai) while some Indonesian consultants continued to be involved. By the beginning of last year the project was terminated by the Forestry Department and the ADB due to its limited success and its implementation problems.

Forest resources reduced to land

With the termination of the ADB project a new tendency in the changing valuation of forest resources on Siberut is rapidly gaining strength. Much more than in the past, some outside companies and wealthy enterprising individuals are no longer interested in trees, or non-timber forest products and the like. Their focus is now on the land. Their aim is to establish plantations of various kinds. They realise that accessible fertile land will become a scarce resource in the future, and that at present land in marginal areas like Siberut island can still be bought at comparatively low prices. Moreover ownership of land in forested areas occupied tribal people with low population densities is often not clearly defined. The local people generally lack formal titles because they have not been able to pursue their case through the legal channels. National law does not recognise communal ownership and also titles to land that is not cultivated are difficult to obtain, although this situation might change under new forestry regulations. Representatives of companies or enterprising individuals make use of this situation by offering payment in kind to people willing to sign papers for abstaining their land. A recent tendency is that local people from one or several *uma* establish a formal co-operative through which they hope to obtain legal titles to their land.

The funding for these organisations is provided by Padang based companies or individuals in exchange for the timber on the land or in exchange for the right to establish a plantation on that land. The members of the co-operative receive only a small portion of the profits made. This process creates big conflicts within the *uma* communities which use to manage their land collectively. It is very doubtful whether the people actually realise what the implications are in the long run. There is great fear that through this process companies will obtain tracks of forest land that will later be turned into plantations. At the moment some local NGO's which are working on the island, try to stop this process by assisting local *uma* communities to apply for legal titles and to make them resist the temptations of immediate benefits from these transactions. They try to make people more aware of the long term impact of their actions. The first step in this process however is to prevent local people to sell out to by-passers, who offer quick money in exchange for the most valuable resource local people have, which is their land. The lack of good maps, indicating traditional land rights contributes to the confusion that is created through these transactions. This is even more so because land rights on Siberut are already complicated in themselves.

Conclusion

Broadly speaking one could say that over the past few decades there have been various kinds of movements on Siberut with regard to the valuation and management of the forest resources, both wild and domesticated. The concept of normative pluriformity enables to review these differing values, perceptions, and suitable modes of exploitation of forest resources.

The local people have always had an interest in the exploitation of wild and semi-wild forest resources. As a result of decades of development work and coercion part of the population shows a tendency to move more and more to domesticated resources. They have moved to the coastal zone and take less interest in the island's wild resources. They become more market and cash crop oriented as part of the peasantization process. For them the forest's main function will be for timber extraction (house building, canoes) and rattan for private use. Domesticated animals and fish in particular, caught from the sea, supply the demand for animal protein. They are no longer interested in hunting wild animals which also no longer serve any symbolic function. They have embraced a new religion such as Catholicism, Protestantism and Islam. They mainly manage their private and domesticated resources.

Another part of the population still maintains this interest in wild and semi-wild resources because they hang on to a traditional life style. They continue to live in the interior; they like to go out hunting as part of their ritual cycle; collection of rattan is still their main cash earning activity and they take great pride in large herds of pigs. Still leaving

close to the forest edge, they value the forest for a wide range of economic and symbolic functions. New crops or new animals originating from a fully domesticated context and donated in an effort to stimulate this kind of domestication, are integrated in their semi-wild or semi-domesticated mode of exploiting natural resources.

Others parts of the population try to find their way in between these two extremes. They combine part of the modernising peasant attitude towards the forest with that of the ancestors. Depending on outside pressures and on opportunities offered and created, they combine elements of both worlds.

With regard to the outside world two main currents have to be distinguished which are represented by different agencies and organisations. Since a couple of decades both currents are present but at times one gains priority over the other which continue to survive as a kind of undercurrent. The first was aimed at harvesting the wild resources, in particular the timber, but also the harvesting of rattan and *gaharu* belongs to the same basis attitude. This harvesting of wild resources without paying much attention to the sustainability of the resource is now followed by efforts to turn forest land into plantations or transmigration sites. Within this view tropical rainforest does not represent much more than resources waiting to be harvested. Moreover this process opens the way for more productive land use types. This view was taken for a very long time by the Indonesian government and the private sector and seems to be gaining strength once more.

The other current has been the conservation of the wild forest resources, not for use but for biodiversity conservation as an end in itself. In the early seventies logging was booming. In reaction to these activities this idea of starting the struggle to 'save Siberut' gained substantial support towards the end of '70s and again during the early '90s. But during the early '80s conservation ideals lost this political support. This situation lasted until the island was declared a national park in 1993. All logging activities were stopped and it seemed as if the battle for Siberut's wild resources was won. At present this conclusion can no longer be justified. The ADB project has come to an end. Apart from putting the physical infrastructure in place (park headquarters, purchase of boats, radio equipment) very little has been achieved. 'Development' in Siberut turns out to be complicated, and part of this is to be attributed to social-cultural context of the island (the still largely autonomous *uma* communities and the ill-understood ideas of how Mentawaians think and act). Part of the problem was also the internal organisation of the project, and the capacities of its staff. In the present context of Indonesia's financial crisis, the political uncertainty which is unlikely to be cleared within many months to come, it is doubtful whether this situation will change. Moreover tourists are unlikely to come in big numbers under the present circumstances. It is equally unlikely that another major project in the field of nature conservation will be formulated and

funded in the near future. Who will be able to raise a powerful voice in the name of conservation and the local people in the present situation?

The push for other kinds of projects will become stronger. There will be a more favourable climate for private investments in plantation agriculture with little interest in forest resources as such. Movements within the normative pluriformity which has characterised the environmental history of Siberut in recent decades, is bound to swing once more away from an appreciation of its wild and semi-wild resources towards resourcism, that is primarily looking at resources in terms of economic potentials both by local people as well as outsiders. It is doubtful whether in the short run there will be opportunities to aim for co-management arrangements between local people and higher level institutions. Necessary conditions for these kinds of arrangements, such as trust, mutual respect, open forms of communication and the fair sharing of costs and benefits, have not been dominant characteristics in the recent history of environmental management of the island.

Acknowledgement

Research on Siberut has taken place during a number of periods and in various capacities from 1979 to the present. Here I would like to thank Reimar Schefold for his guidance and support over the years. Asak, Tengatiti, Samuel Gultom and Syahrudin have been very helpful and hospitable during my stays on the island.

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