

Community Agroforestry as an Alternative Land use System

A Case Study of Sarawak

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Abstract

Land development schemes in Sarawak since 1970s are largely copied from Peninsular Malaysia that originated from the colonial government's concept of modern development. The effort was not successful because of failing to recognise the differences of ethnic backgrounds between the two regions within the country. Recently, the state turns to private and joint venture project to develop state land and the native customary right (NCR) land. The newly conceived land bank concept termed as '*konsep baru*' or new concept is adopted, to convert NCR land for monocrop plantation particularly oil palm. Due to lack of consultation and inappropriateness of the project, many targeted Dayak communities refuse the scheme.

With the assistance of NGOs, a number of longhouse communities begin to initiate agroforestry project that based on traditional knowledge with new scientific understanding in developing NCR land. The programme incorporates forest resource management, hill rice farming, livestock and aquaculture to meet the household needs. A preliminary study of a Dayak-Iban community shows that overall incomes of agroforestry activities are far greater than the monocrop plantation scheme. This kind of bottom-up project benefits also the larger society in terms of environmental protection and healthy food supplies.

This paper proposes that agroforestry should be considered as an alternative land use system, which is viewed by NGOs as a creative and sustainable approach.

Land development schemes and NCR land disputes

Land development schemes in Sarawak are very much a duplication of the Peninsular Malaysia that followed the colonial concept of modern development. During the regime of the White Rajah the attempt of plantation scheme failed due to the non submissiveness of the native Dayak people who refused to be ruled or managed by the wish of the coloniser.

It is the new government that inherited the economic approach of the Western World continues to pursue the plantation concept since the formation of Malaysia in 1963. This state administration has taken the model of land schemes from Peninsula Malaysia and implemented in Sarawak in 1970s and 1980s. The efforts were not successful because of failing to recognise the differences of ethnic backgrounds between the Peninsula and Sarawak. (King 1990:170-171)

The state then turns to private and joint venture project to develop the state land as well as the native customary right (NCR) land. The newly developed land bank concept termed as '*konsep baru*' or 'new concept' is developed, to incorporate NCR land for conversion into particularly oil palm plantation since 1990s.

Private companies are given temporary occupation license on state lands that overlap indigenous people's customary claims in many cases. This has led to a new round of native resistance following the protest of logging in community territories highlighted in late 1980s. This time the indigenous people are threatened with loss of territory claims while the logging industry's threats are on forest resource losses and environmental damages. The resistance is getting intense throughout the state and in the recent development of violent conflicts has caused several human lives of both the community and the company employees in Bakong and Ulu Niah of the Miri Division.

The land bank concept is being pushed hastily since 1997 in a number of areas in the north and central parts of Sarawak (Baram and Kanowit/Mukah) while communities are not well informed or properly consulted. A portion of the targeted communities refused to participate while the new phases are facing greater resistance after the targeted people learned the actual conditions from the implemented phases. (Songan 2000:252)

Large-scale land development project and environmental threats

Large-scale land development projects such as oil palm plantation and single species tree plantation (pulp and paper industry) are causing great pressures to environment. The implementations of these plantations sought to clear the landmass as well as the topsoil to construct terraces for the monocrops, which requires heavy chemical inputs. It is a common practice that biomass are burn during dry season that causes haze hazard and forest fire. These farming practices cause severe soil erosion, which contributes to flooding and river sedimentation problem. Water sources are contaminated by synthetic inputs that threats human health, especially the cancer causing nitrite solution from the fertiliser applied. These export-oriented industries gain foreign exchange on the expanse of local social and environmental costs.

Improper environmental impact assessment and lack of a regional/strategic assessment, the cumulative impact of pollution of a number of scheme in the same water catchment areas worth some attentions. For instance, a number of tree and oil palm plantations at the immediate upstream of the second largest town in Sarawak conduct individual EIA that neglect the symmetric effect of the combined impacts. The chemical discharges to the main river of Rajang that sources public water supply for over 200,000 people in Sibul, could pose serious long-term health threats.

Other spillover effect of large scale cash crop plantation including pest problem to the neighbouring small holders' farm. For instance, after more than three years of implementation, the crops of Kanowit Oil Palm Plantation started bearing fruit in late 2000. The plantation attracted multitudes of mice that cross the boarder to eat the community people's paddy. At least one longhouse next to the plantation at Machan District compliant that they have lost heavily to the damage cause by the mice. A survey shows that in Rumah Jali the 17 families loss a total of 17 tonnes or 60 percent decrease as compared with the previous year. Many of them harvest merely half of the expected produce; others get insignificant amount of harvest like 20 kg, while some lost completely to this new ecological imbalance phenomenon. (Information gathered during a field visit on 10 March, 01)

Indigenous knowledge and community based agroforestry

The longhouse communities that reject large-scale development projects begin to find ways to improved land use while seek to protect their rights over the customary lands. The idea of agroforestry introduced by local NGOs in late 1980s started to gain responses in a number of communities. As a matter of fact, traditional Dayak farming system is a type of 'agroforestry' that termed lately by some researchers. The implementation of agroforestry programme builds on traditional knowledge and cultural practices are developed further with scientific knowledge. It sorts to manage the farming activities without depleting the forest and land resources.

Community forest reserve is guarded to prevent poaching and its resources enhanced by planting trees (local timber, fruit species), rattan, and wild palm for utility and food purposes. Diversified farming practices are maintained for both domestic use and marketable farm produces, such as vegetables, food and cash crops, livestock and aqua products. Marketing information and transportation system is looked into according to each community's particular social and geographical situations. Potentials of non-timber forest products and handicraft programme are explored and promoted.

While the practice of swidden agriculture or rotation hill farming continue to provide food for the household, new experiments on non burning non tillage hill slop farming system has been carried out in some of the communities. Organic farming system with special introduction of leguminous plants has help greatly the conservation and maintenance of farm fertility and maintain ecological balance. Since such farming system benefit also the wider society – consumer and environmental health, it deserve social supports in farmers' capacity building, technical and financial as well as labour assistance, particularly during the first few years while the conservation effort yields little immediate income.

The record of the agroforestry project in Rumah Rendah on their forest and farm produces shows a steady income of the participating households. Those domestically consumed produces are converted into monetary value at the local price. The average household income between 1997 and 2000, amounted to over RM1, 600 per month. The figure excludes incomes from works outside the community. (see Appendix I - Income records of Rh. Rendah Putan Agroforestry Project) As compared with the income of those work in the plantation scheme (an average of RM 200 take home per month, found in the case of the Kanowit Oil Palm Plantation worker), Rumah Rendah obviously enjoys a much higher living standard in addition to other social and environmental qualities. (Wong 2000) Little areas of land are left for these scheme participants to do farming of their own and the community forest areas are completely wiped out.

The success of agroforestry project would shed light for an alternative land use system, which is socially adaptable, environmentally sound and economically viable. Such local initiative is considered as a capacity building process that would empower the community for genuine dialogue in the case of land use conflict.

The Case of Rumah Rendah: Putan Agroforestry Project

Background of the community

Rumah Rendah is an Iban (the largest indigenous group of Sarawak composed of about 30% of the state 2 million strong population) community located in the upper Pedanum River, about 34km from Sarikei town. Currently there are 12 doors or families in this longhouse. The 100 strong members of the community are in some way related to each other and they could be considered as one extended family.

According to their oral history, the community has live in the area for over two hundred years, or eight generations. (Tuba 1994) The Iban people were originally nomads, and practiced hunting and gathering. A person named Banyan and his people from the central part of Borneo (Kalimatan) first arrived and settled in the Second Division (now known as Sir Aman) with other people. Later, Banyan moved over land to the mouth of Kanowit River of the Third Division (now Sibu Division). From there they paddled to the upper river, entered one of its tributary called Julau. They went further upstream at Pedanum (Sarikei Division) where they found the land suitable and settled themselves in the area.

The present site of Rumah Rendah (Longhouse named after the headman Rendah) is located at a small stream called Sungai Rintong (*Rintong* is a cone shape container used for honey collection). The size of over 1000 hectares of hilly land is considered as the *menoa* or ancestor domains of the community. It includes their *temuda* (individual farmland and land on which their longhouse is located), *kampung* (community forest) where hunting and gathering occur, several streams including Sungai Rintong, sungai Wong and Sungai Bejait, water catchment areas, *lumbong* and *pendam* (cemetery). Their land also includes numerous *Tembawai* (sites of former longhouses). Some them are: Tembawai Gerungang, Tembawai Lama, Tembawai Baru, Tembawai Niur, Tembawai Tiggi, Tembawai Lumbung, Tembawai Rian, Tembawai Pemangkat, and Tmbawai Anggat. People occupied these *tembawais* for an average of twenty years except for Tembawai Anggat where they stayed for only one year because six people died there. Remains of *tembawai* are considered important evidence of their native customary rights in the domains.

A. Community Agroforestry Project

The idea of agroforestry at Rumah rendah was first conceived in 1995 after a series of awareness programmes and community land use mapping exercises. This project named as Putan (traditional blacksmith) Agroforestry Project was initiated by the community in 1996. It started with paying special attention in an area of about 150 acres of communal forest, which was threatened by intruders from other communities.

The forest is rich in biodiversity. It provides the longhouse community with valuable timber woods, medicinal herbs, rattan, fruits, vegetables, animal and other resources.

There are over 40 types of woods, which can be used for general construction, furniture and house building materials. Some examples include *kedang*, *meranti* (*Shorea* spp), *meraka kapur* (*Dipterocarp*), *kasai muring*, *sindu*, *empit*, *nyato* and many others.

Various fruit trees, either growing wild or planted in this forest includes Durians, *isu* (wild Durian), *kepayang*, *mata kucing* (wide longan), *tingkas*, *kong* and *kemayau* (wide date), *uchong* (starfruit), and *engkebang* (illipenuts). Black date (*dabai*) trees often yields a lot, sometimes up to 300 kilogram of fruit for each tree, the people get handsome incomes by selling them in market.

Local plants like the leave of *sindu* and *sabong*, fruit of *lemayong*, and the shoots of many types of palm are eaten as vegetables. Longhouse people love them very much because they are free from pesticides. Both fruits and vegetables are consumed by the community members, and sometimes sold in the market with a very good price.

Various types of mammals and birds are still living in many parts of the forest. Some of them are wild boar, deer, mouse deer, giant squirrel, monkey, barking deer, porcupine, pangolin etc. There includes also pigeon, flycatcher, kingfisher, woodpecker, crested firebird, partridge and many types of local birds, which are difficult to name. [Appendix II - Bio-resources recorded in Putan Agroforestry Project]

The objectives, expected outcomes and implementation approaches of the project are described by the community as follows:

Project Objectives

- I. To conserve our communal forest*
- ii. To defend our forest from being taken by logging companies/large plantation schemes*
- iii. To protect our natural resources and livelihood*
- iv. To protect our native Customary Land from encroachment by intruders.*
- v. To make our forest more productive by planting valuable plants.*

Outcomes

The implementation of this project will benefit the longhouse community in the following aspects:

- I. Communal forest is protected.*
- ii. Livelihood of community will be secured.*
- iii. Generating more income for the community.*
- iv. Enhance better relationship and cooperation within the community.*

Steps to achieve objectives

** carry out discussion on the implementation of the project.*

** daily or weekly jobs that includes :*

- clearing paths and streams.*
- monitoring the forest from encroachments such as illegal logging.*
- collecting or harvesting forest products.*
- recording the amount or income generated from forest produce.*
- establish nursery for useful plants.*
- planting timber trees, fruits, vegetables etc.*
- conduct educational tours for visitor or communities from other longhouse who have intention interested to start similar agroforestry project.*
- monthly evaluation on the implementation progress of the project.*
- training of forest guards / cadres.*

(Putan Agroforestry Project Proposal, 1997)

B. Project Implementation

The community forms committee to plan and implement the project. Family members are mobilised in the community actions such as community land use mapping, communal forest boundary marking (tree painting), paths and streams clearing and planting of useful timber, fruit/food plants, maintenance of old forest growth.

Elders are involved in the narration of oral history when younger educated ones record. Forest resource knowledge is imparted to the younger generation in the community learning process of identifying and recording of various bio resources.

Project committee assigns teams to take terms in monthly patrolling to safeguard the forest from being intruded. Forest resource harvests are done with community consensus in timber extraction for house construction and other purposes. Longhouse families harvest jungle fruit, nut, and edible plants seasonally and when need arises. Fishing is an important activity to supplement family food source. Hunting of game is carried out occasionally.

The project engages a local non-governmental organisation (NGO), Institute For Development and alternative Living (IDEAL) as consultant to get technical advice. The connection with NGOs helps to link up with other communities doing similar project and with outside organisations for information and support. The project managed to obtain a grant of about RM38,000 (US\$10,000) for the years 1999 and 2000. The support contributes significantly in strengthening community's capacity in their conservation efforts to enrich the forest potentials.

Workshops are conducted with the community for learning the various aspects of agroforestry and organic farming methods that include marketing, information system, knowledge sharing and technical skills etc. An exchange tour was made to visit another agroforestry project in the Baram area of northern Sarawak. This has allowed people-to-people sharing and learning.

The project also hosted a volunteer in recording community history and culture. The community offers opportunities for academic work as well. There was one local university student conducted her fieldwork in Rh. Rendah.

C. Project achievements

After 4 years of community effort, most of the project objectives have been achieved. They have successfully stopped the intruders from other communities. The intrusion had earlier threatened the sustainability of the forest resources while *adat* or customary law was not observed. The former intruders lost their own forest due to bad management or sold out their rights to logging industry. They encroachment to Rh. Rendah's forest threatened with overexploitation. Bad practices such as fish poisoning led to depletion of food resources and pollution of the stream.

The collection and harvest of forest produces for domestic and for market purposes has been increased. For example, fish and edible snail catches from the streams has increased from an insignificant amount in 1997 and 1998 to over 150 kilograms in 2000. This is an important protein source for the families. Together with their other farming activities, such as paddy planting and cash crop cultivation, the average household monthly overall income over the last four years is estimated to

over RM1600, which is significantly higher than the average traditional indigenous community in the state. It is much better than the plantation workers whose average individual monthly wages is estimated to be less than RM 300.

The project enhances community tie to allow the continuation of traditional culture. It also builds self-esteem and respect as the community begins to conceptualise their right in the national context by presenting their community map and oral history. They are given a choice of their own to continue living in harmony with nature in a healthy environment with improved management skills and farming knowledge.

The project generates 'spillover' effects that interested more than 20 other indigenous families in other communities. These families are starting similar programme in their respective areas in Sibuh Division. Many of them visited Rh. Rendah and got inspired by them. Within the same area in Pedanum, the project also contributed to the school children's environmental education as well. The members of Rh. Rendah assisted in organising the planting of over 1500 trees within the school compound in 2000.

The most important aspect of achievement is the building up of the community people's capacity. With strengthened capacity, the community would be able to deal with problems facing them, and be able to make greater contribution to the society at large.

D. Elements of success in the project

a. Exclusive right of the natural resource and land tenure security

Community people's effort in mapping and marking the boundary of the community forest/land and to safeguard the resources from intrusion of outsider is an important aspect in natural resource management. Exclusive right of a communal forest is the most important incentives for the community to defend their forest resources to ensure short and long terms benefit. In this case of the indigenous community, the customs and traditional values/knowledge serve as a key instrument to exclude the neighbouring indigenous communities from intruding and to ensure sustainable use.

For long term tenure, the community might have to obtain official recognition like to seek for gazette of their forest under the state law. However, the weaknesses of Sarawak customary land tenure are always putting the indigenous community to a disadvantage when other interest parties enter the area for other development purposes.

b. Reversible environmental damage

The damages caused formerly should not go beyond the extent that the health of the environment is not reversible or too expensive to do so. In the case, of Rh. Rendah, the communal forest was mildly disturbed before they start the Putan Agroforestry Project. Previous irresponsible ways of resource harvesting, such as extensive rattan and palm shoot collection, indiscriminate fishing by with poison had put the resource base to a stress. However, when these activities are curbed the resilience of the nature resume it capacity in a few years time. By 2000 about five year of project implementation, the community managed to enjoy sustainable resource yield and healthy environment again.

c. Information, community cooperation and participation

Sufficient information is a key element to allow the community to decide on the kind of livelihood that they wish to live. Some members of the community in Rh. Rendah were in contact with NGOs, who provided information on alternative land use systems. The community is a small homogenous

group who shares a common interest in the sustainable use of forest resources. The success of the project is attributed to the strong leadership of the community who is capable to unite the members and get things organised.

Prior to the implementation of the project, there were a series of discussion carried out among the community. A consensus was reached before plans are made. The process involved young and old, men and women, from the very beginning. Elders in the community recollect old stories of their ancestors (oral history) and indigenous knowledge on forest resources, women share specific knowledge on farming and seeds, while younger people conveyed new knowledge obtained.

The community is able to practice traditional culture and exercise communal spirit in the implementation of the project. Major works are carried out in the traditional *berdurok* or cooperatives manner, while routine maintenance or patrols are assigned to small groups who take turns to do the job.

d. Appropriate technology and traditional knowledge

The project builds on their traditional knowledge on forest resource use and management principles. Introduction of new technology is carefully considered in harmony with the local contexts of social, economic and environmental conditions. For instance the organic farming techniques introduced must be socially adaptable, economically viable and environmental friendly. In the Putan Project, the skills in farming are enhanced through the promotion of minimal chemical input and maximise the utilisation of local organic materials. In cash crop cultivation, the cultural practice of mixed cropping is encouraged with new idea of contour terracing. It is also noted that any new technology introduced would be adapted very slowly if the local conditions are not in favour of it. For example, compost making is technically viable and has many benefits to farm. However, due to its extra labour and time required to yield the benefits, few families accept the technology. The other factor is attributed to the larger area of land still available for rotation purposes, the farmers tend to take less attention in conserving a particular farm site. As the cost of chemical input is getting expensive and available land near the longhouse is becoming rare, the community is beginning to pick up the conservation approach.

e. External and social support

It is generally understood that the wellbeing of Indigenous community should not be solely dependent on external agents, be it government, NGOs or otherwise, nor should it be left to the community people themselves. In this case of Putan Agroforestry Project, NGOs had in the earlier stage serve as information provider. It was followed with training workshop in the facilitation the concept and equipping the community people with necessary skills and tools such as community organising, land use mapping. The exposure tours and people-to-people sharing programmes conducted by NGOs enable the community participants to visualise the concept and to gain confidence in the project. The members of Rh. Rendah had participated several exposure tours to government and private agroforestry projects both within the country and in Kalimantan, Indonesia. A demonstration plot on agroforestry set up at the Three Pillars Farm (an NGO run Programme) in Sibu served as an important model for community motivation.

Some initial financial, materials and technical supports were important for the community to take off the project. The continuation of Putan Agroforestry is greatly helped with a small grant for two years. Meanwhile, the prospect of self-sustaining of the project looks very promising as the community gaining better income from the forest and land they work on.

The visit of people from other interest groups or community also served as a booster to the people of Rh. Rendah who feel proud of themselves for having the agroforestry project.

E. Concluding remarks

Top down community development approach has failed in many incidences in Sarawak. The indigenous community is facing particular brink future in the light of present development of large monocropping project. This trend is unhealthy as it is reflected in the repeated disputes and conflicts between development agents and the customary landowners. There are hidden tensions in the unsurfaced cases that are expressed through urban migration and social crimes as a result of the difficulties in coping with the changes.

The experience of Rh. Rendah in the community agroforestry project has proved that there are alternatives to 'expert' managed large-scale project. The community people could base on their traditional knowledge/practices and be open to learn new knowledge to improve their livelihood within subscribing to drastic changes.

Putan Agroforestry Project has many spillover effects that could benefit the society at large. As more communities in Sarawak are starting the similar programme, the state authorities should accommodate such kind of people's initiative in their capacity building to overcome poverty and from being marginalised. 1998 Nobel Laureate for economics, Amartya Sen describes such capacity building as a kind of freedom to achieve alternative functioning combinations or the freedom to achieve various lifestyles (Sen 1999:75). With this open mindedness, perhaps, cultural diversity and biodiversity would be better secured in this new age to come. *-end*

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