

Equatorial Biomass Society

Reports from Project Members

Oil Palm Smallholding by Longhouse Villagers in Inland Area, Sarawak <u>Yumi Kato, Ryoji Soda</u>	1
Research Work in Sarawak and Study on Oil Palm Business <u>Fumikazu Ubukata</u>	6
About Our Website	11
The List of Project Members	12

Grant-in-Aid for Scientific Research (S)

Planted Forests in Equatorial Southeast Asia:

Human-nature Interactions in High Biomass Society



Reports from Project Members

Oil Palm Smallholding by Longhouse Villagers in Inland Area, Sarawak

Yumi Kato (Waseda University Institute of Asia-Pacific Studies)

Ryoji Soda (Graduate School of Literature and Human Sciences, Osaka City University)

Introduction

The recent growth of oil palm agriculture in Sarawak, Malaysia is remarkable. In the 1990s, the area planted with oil palm was less than 200,000 hectares. In 2004, it was more than 500,000 hectares and it reached 920,000 hectares in 2010. (Fig.1)

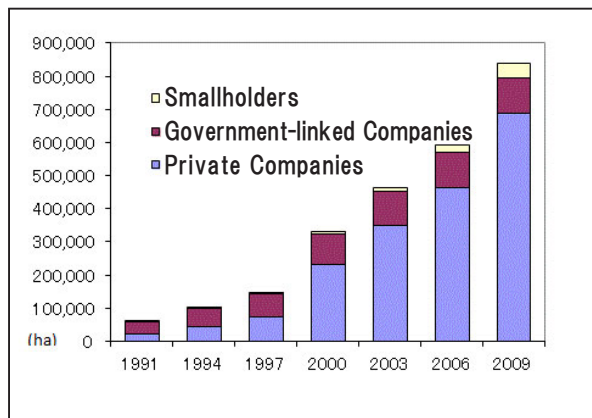


Fig.1: The expansion of the area of oil palm agriculture in Sarawak (1991-2009)(ha)

Source: Yearbook of Statistics Sarawak, Malaysian Palm Oil Statistics 2007, 2010

In general, oil palm plantations are created after clear-cutting over a wide range of existing forest including secondary forest and rubber gardens. The clear-cutting process often extends to land that is over a few thousands and tens of thousands of hectares followed by the planting of new palms. This drastic change of landscape has drawn people's attention and often they imply that this land use is the source of problems such as destruction of the natural ecology, soil loss, and river contamination triggered by the heavy use of herbicides and fertilizers.

This situation, however, has changed recently in Sarawak. A few companies have obtained RSPO

(Roundtable for Sustainable Palm Oil) certification while in some areas local people have begun to plant oil palms for their own personal gain. This change in the social situation of oil palm production is patently obvious in the numbers presented in Fig.1. The expansion of oil palm plantation by the mid-2000s was under the initiative of private companies while the rapid growth of recent years implies smallholders have been embarking on the production of oil palm. There are insufficient reports on oil palm production by smallholders in Sarawak and it is difficult to know the true situation in this area. This is the first report of our pilot study on oil palm management by smallholders that we conducted in the longhouses around the Tubau area in August 2011.

We made several visits to Sarawak over a long period of time and as recently as 5 or 6 years ago we felt that the impact of oil palm production on the local communities was negative. A handful of villagers started to grow oil palm seedlings in the early 2000s without practical knowledge and back then, there was no guarantee that they could sell their fresh fruit bunches (FFB) to the local oil mills. Things have changed in the past couple of years. Today, oil palm agriculture prevails among the local communities in rural areas where road connections have been established, and people flock to the oil palm market.



Photo1: A car packed with oil palm fresh fruit bunches. Cars with oil palm are weighed at the oil mill gates.

This sudden boom in the oil palm economy was clearly evident when we visited the oil mill of Company K, one of the oil palm plantation companies. We observed a busy stream of lorries and pickup trucks, fully loaded with FFB from neighboring longhouses. We even saw passenger cars piling up FFB in the backseat (Photo1.) By observing these situations, many questions arose. How do they grow oil palm until it is ready to harvest? What kind of systems and infrastructures do they have to harvest the FFB and to transport it to the mills? Above all, does oil palm production really pay off? We discovered that our knowledge of the oil palm business here was severely lacking to answer these basic questions.

During this research, we collected various data to answer those questions. The longhouses we visited were Rumah M and Rumah A, both situated adjacent to the plantation site of Company K, and Rumah N which was located along Bakun Road, an asphalt-paved road from Bintulu to Tubau. All the longhouses belonged to Iban. We also visited Kayan longhouse, Rumah W which is on Bakun Road near Tubau town. We collected information regarding smallholders' oil palm production with Mr. L who is one of the pioneer oil palm farmers in this area. (Fig.2)

There were some differences among the longhouses we visited regarding the timing of the introduction of oil palm, the size of the planting area, transport systems and the mills they sell to. Here we present the distinctive trends of oil palm production of each longhouse.

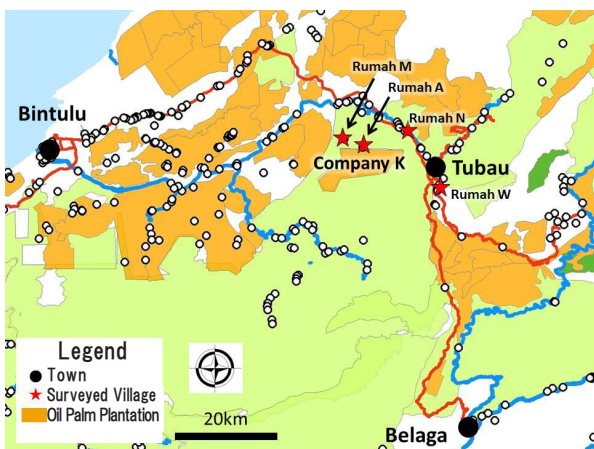


Fig.2: Overview of the research sites

Rumah M (26 households)

The people of this longhouse started to grow oil palm about 8 years ago. At that time Company K gave away the oil palm seedlings to them. The volume of oil palm seedlings planted by each household varied but it was approximately 500-1000. The village headman planted 700 seedlings at first and increased the number with time and now it has reached about 2,000. For the last couple of years, many villagers have started planting oil palm seeds purchased from MPOB :Malaysian Palm Oil Board and transplant the seedlings by themselves (Photo2). Now all the households plant oil palms.



Photo2: Oil Palm Seedlings (Rumah M)

Not all of the plant pots have seedlings; we had the impression that their care and attention to oil palm production were somewhat sporadic.

The oil palm fruit produced by the villagers is sold to Company K's oil mill. The villagers, like the headman who has 2,000 oil palms, usually harvest FFB twice a month. Each harvest produces around 6 tons, so the total monthly production is approximately 12 tons. The maximum loading capacity of a lorry is about 3 tons, so they usually transport FFB twice (approximately a one-hour drive) for each harvest to the oil mill. Daily workers are employed periodically, and even workers from outside of the village are recruited. In some cases, several households harvest together, practicing labour exchange (*bedurok*).

In this village, there are six lorry owners and they use their vehicles to transport their harvest as neces-

sary a couple of times a month. In their down time, they provide a transport service to other villagers who don't have any means of transportation. The transportation fee is MYR 30 per ton, but an additional MYR 20 is required to hire a driver. Almost all households can produce FFB now and all of the harvests are brought to Company K's mill. However, a new oil mill of SOP (Sarawak Oil Palms) is being built in the vicinity of the village and once the new plant begins its operation the villagers will have the option to sell their FFB to it.

Unlike other longhouses, Rumah M has a close relationship with Company K. The company offers the villagers of the longhouse a 10-unit training workshop as a group scheme program. Prior to this workshop, the villagers had already taken the RSPO certification program and they obtained smallholder certificates from RSPO. All households took part in the training workshop and showed their enthusiasm for oil palm production. They proudly showed off their certificates to us.



Photo3: RSPO certificate (Rumah M): displayed on the verandah of the longhouse.

Rumah A(19 households)

This Iban longhouse is also near Company K's plantation site but their oil palm production is relatively slow, compared to Rumah M; most of them started just 4-5 years ago. Many of the villagers purchase the seedlings from a nursery along the Miri-Bintulu road. The headman told us that he had never grown oil palm from seed.

In this village, some of the households had their first harvest last year. Mr. A, the headman of the village has 2,000 oil palms and just like the headman Mr. M, Mr. A's monthly harvest reaches around 12 ton. The volume of oil palms possessed by each household varies from a few hundred to six-seven hundred. What is certain is that all households in this village grow oil palms today. What impressed us was that if they can manage to produce a few tons of FFB a month, it will be sufficient for them to make a living solely from oil palm production.

There is only one lorry in this village but the villagers manage to transport all the FFB as the volume of the harvests is relatively low at this stage. In this village, only four people have a vendor license to sell FFB, but other villagers can sell their FFB using the headman's license and lorry. They pay the same transportation fee as Rumah M, MYR 30 per tons. Company K has planted oil palms in the territory of this village but it is not an issue at the moment. The company pays MYR 700 in compensation per 1 hectare of their land to control the complaints of the villagers. The situation is the same as Rumah M.

Like Rumah M, Rumah A is located in the vicinity of Company K's plantation area but the village has not received as much support as Rumah M. The village started planting oil palm slowly so the volume of the harvest is still small. Most of them have purchased seedlings from other vendors. All this indicates that the company's approach to the local communities is inconsistent. To the best of our knowledge, the company's community support activity seems concentrated on Rumah M.

Rumah N (23 households)

Rumah N is located along Bakun Road. This Iban village began to plant oil palm relatively earlier than others villages. The villagers started planting oil palms around the same time as Rumah M did in 2003 or 2004. As in other longhouses, not all of the households started planting at the same time. Some villagers are still waiting for their first harvest while



Photo4: Kato interviewing at Rumah A

most villagers already own 300 to 1,000 oil palms. The headman has 700 oil palms and 500 of them have already matured.

Each household purchases their seedlings from their own suppliers. They usually purchase seedlings from a nursery and seeds from the Department of Agriculture. They can sell their FFB to any mill, but many of them now sell their FFB to Company K since its oil mill began its operation by taking account of the distance from the village and its buying price. The headman sells his harvest twice a month at 3-6 tons each. Only the headman owns a lorry to transport FFB in this village. Ishikawa, Hoshikawa and Soda visited the village in August 2008 and the lorry was delivered to the headman on that day coincidentally. He had hoped to make some money by providing an FFB haulage service to the villagers. But his new business fell short of expectations because most villagers be-



Photo5: Soda interviewing at Rumah N

gan to transport their FFB by themselves.

Aside from the headman, the harvest amounts of the villagers are still small so they can transport their harvest with their Hilux or other compact cars. Only a few cars were there when we visited in 2008 but today the number of cars has increased to 9 which indicates the booming economy of the oil palm business. A family that doesn't have a car can ask their son in Bintulu to come and transport their FFB. The implication here is that the longhouse is based on individualistic smallholder management.

Rumah W (75 households)

The villagers started oil palm production 4-5 years ago. According to the villagers, most Kayan longhouses around this area have already planted their oil palms. In Rumah W, however, not many households have their harvests yet. Only a Penghulu and 5-6 other households have begun to sell their FFB from the last year. Most of them preferred to buy seedlings from a Chinese nursery than to sow the seeds by themselves.

The farmers who don't have any means of transport borrow a vehicle when they need to transport FFB. There are 4 Hilux (maximum loading capacity: 700kg) in the village and it usually takes MYR 80 to borrow a car to make the round trip to Company K's mill. The transportation fee of the car seems rather expensive compared to the transport cost in Rumah M or Rumah A (MYR 30 per ton) but this is because Rumah W is much further away from the mill (a round trip of approx. 15km) than Rumah M and Rumah A. Some villagers ask their Chinese son-in-laws to use the lorry.

The surge in oil palm production reached this village only recently. A young man said that he would return to the village in the near future. He has a steady job in a logging company but he thinks the areas around the village will become oil palm plantation zones in five years and he will quit his job and return to the village to engage in oil palm production once he has planted enough oil palms to make a living.

One thing that impressed us at Rumah W is that Penghulu's brother was planning to turn his land of 100 hectares into an oil palm plot. During our stay we saw about 5 hectares of reclaimed land in which the seedlings of oil palms were planted. He plans to take out a loan of a few million Ringgit from AgroBank. He has already borrowed about MYR 60,000 and is complaining about the hike in the price of fertilizers.



Photo6: An oil palm plot near Rumah W
The secondary forest behind him will be turned into his oil palm plot.

The designated land of 100 hectares is comprised of the land of Penghulu's father as well as other villagers' land. The land reclamation will be conducted mainly on the secondary forest, excluding rubber gardens. Workers are employed for clear cut logging and land-clearing while constructors take on road creation and terrace building with heavy machinery. As one example, it takes MYR 1,000 a day for the construction of a terrace by renting a digger although the actual payment depends on the workload.

This investment and development plan may seem somewhat beyond the capacity of smallholders. This grand vision of investment and development is only feasible for them because Kayan society has a class system or hierarchy, and some of the villagers are very wealthy. In this regard, the situation of this village may progress very differently from smallholders' oil palm production of neighboring Iban communities.

This is a brief summary of our interview researches at four longhouses. As we were limited as to the time

we could spend in the village, only simple interviews and observations were possible. But we believe it was a valuable opportunity to grasp the big picture of the wide variations in oil palm production by smallholders.

Many smallholders or their family members have work experience in plantation companies or have connections in the companies. Most of them start their production by following someone's example and learn planting methods and knowledge indirectly. Many of them follow the companies' recommended fertilization method or plant spacing but also use their own methods.

It seems fair to say that many people in this area are improving economically by producing oil palm and they have high expectations for future success. The purchase price of FFB during our research period was MYR 630/ton (Grade A). In the case of producers who own 2,000 oil palms and have 12 tons of monthly yield, like the headmen of Rumah M and Rumah A, they roughly earn MYR 7,500 a month. This is more than we estimated even after setting off the various costs of seeds and seedlings, fertilizers, agrochemicals, gas, and wages for workers. If they have their own land and a sufficient labor force (including employed workers), oil palm production could be a lucrative economic activity.

According to Mr. L and Mr. N, the timing and choice of oil mills to sell their harvests to are very important to make good money. Some mills pay in cash while others pay by crediting the amount into the bank account later and the price differs in each mill. Furthermore, the distribution channel from the farm land to oil mill is surprisingly complex. Some mills are eager to purchase FFB directly from smallholders while there are brokers involved in the route of circulation between the smallholder and the mills.

Although we don't mention the former agricultural crops such as rice, rubber and pepper in this article, further research is necessary in this area to determine the change in attitudes among the people to the subsistence activities. At this stage, oil palm production varies with the longhouses and each individual.

This article is reprinted from the 7th issue of Japanese newsletter of this project

Research Work in Sarawak and Study on Oil Palm Business

Fumikazu Ubukata

(Graduate School of Environmental Science,
Okayama University)

1. Non-specialist and Area Study

It always requires a certain amount of courage for an area study researcher to step into uncharted territory. Being a specialist of mainland Southeast Asia, I am not familiar with the history and geography of Malaysia and have no expertise in the language of Malay or Iban. It seems a bit strange then that such a “non-specialist” should join in an area study project outside of his field, but the project might benefit to some degree from the ideas of an outsider. I hope to make a contribution to the project with the knowledge that I have gained from my research work on the mainland. The main focus of my study in this project is the political economy of plantation industries, above all, that of the oil palm industry. Since the 19th century, many tropical crops have been cultivated in large-scale plantations in Southeast Asia. The plantation business has always been the target of scrutiny from various parties. These include the supporters and activists who advocate the living conditions and human rights of the poor in developing countries and people committed to environmental protection. The criticism from those parties, however, has not succeeded in hampering the land development at large. Today plantations are so common in tropical developing countries that they have become a part of the landscape.

In the research for this project, I therefore try to include the views of developers to reflect the realities in those tropical peripheral regions. I am going to focus on the developing process of the plantation industry and examine the possibilities and constraints under which the industry can coexist with the local communities and natural environment. We are fortunate enough to have full cooperation for this project from Company K which operates an oil palm plantation business in Sarawak. This is a progress report on my

research for this project at this stage including some impressions of Sarawak.

2. An Agricultural Society and A Biomass Society

Once one has stepped into Southeast Asia, one realizes that the difference between its insular area and the mainland is so distinctive that it seems like they belong to different worlds. The first thing that came to mind when I arrived in Sarawak for the first time was that it was not an agricultural society (or a society developed on an agricultural economy).

Magnificent natural beauty and resource-rich terrain characterize the insular part of Southeast Asia. Historically, Southeast Asia has been considered as “a small population world” and this is easy to see in Sarawak and its vicinities. In some parts of the mainland, plantations as well as commercial or semi-commercial farmers emerged in the course of land development in the nineteenth century. Later, many plantations suffered from the impact of the Great Depression and commercial farmers gradually prevailed and formed unique agricultural societies that consist of commercial peasants. This social characteristic is, to some extent, reflected in the national land and tax systems in some countries and colonial states, such as Thailand (Kitahara, 2002a, 2002b). In Sarawak, on the other hand, it seems more important to ensure the profit from the natural resources (so called rent), rather than from agriculture and peasantry, to maintain and develop the nation. In that context, “a biomass society”



Photo1: A Mill for Oil Palm

would be the right word to describe this area.

In fact, past studies of economic development theories are mainly focused on the countries with large populations with fewer resources while relatively fewer researches have been conducted in the resource-rich countries to speculate on their economic progresses. If a country is abundant in natural resources, like oil-producing countries, it is generally viewed as a great advantage for the country's economic growth. Both Canada and Australia are good examples of this economic development path. However, if we see the world from a global viewpoint, this theory doesn't necessarily hold true. Not all resource-rich countries successfully achieve a high rate of economic growth. The phrase, "resource curse" (or "paradox of plenty") was born out of the fact that the economic growth rates of resource-rich countries are statistically lower than those rates of resource-poor countries. From a macro perspective, the point of issue here is what is there between blessings of nature and resource curse.

Needless to say, this is all related to environmental issues as natural resources are certain parts of natural capital. If those natural resources are wasted, the loss undoubtedly deteriorates future economic growth and it could have certain impacts on climate change and ecosystem services at the global level. That's why today, the task of seeking paths to use limited natural resources for a long term, with an eco-conscious mind is so important for the national or social development.

3. Political Economy of Plantation Industry

There are two major natural resources in Sarawak; oil and forest products. Generally, the economic growth in Malaysia is regarded as a success story. If we view this success from the perspective of efficiency of resource use, it is doubtful that Malaysia's natural resources have been used properly. This ineffective resource-use is considered to be caused by the country's political structure, regarding how to distribute the natural resources or how to return profits to its people (Ascher, 1999). Right from the beginning of the Brooke regime in the nineteenth century, the lands

of Sarawak were government property and the government enjoyed its authority to appoint concession holders. After independence as the Federation of Malaysia, Sarawak state government maintained logging rights from the federal government. In order to maintain a stable administration, the state government had granted logging concessions to local key influential persons to get their support. As a result, the government leased its vast area of land to the private companies for logging operations at first, and for oil palm plantations in recent years.

Now I'd like to look at this process from the local perspectives at this stage. As mentioned above, Sarawak government has used concession rights as a vehicle to strengthen its political framework. But this distribution of concession rights consequently brought about social conflicts. In fact this type of movement can be seen in other places, but it tends to become a serious social issue in resource-abundant countries and societies like Sarawak.

This situation is the same in mainland Southeast Asia, but the problem seems less serious and in many cases limited both in terms of time and space. One of the reasons for this difference is, probably, that in the mainland natural resources have never played the role of crucial industrial foundation. On top of that in the mainland alternative production and marketing systems that involve small farmers as important stakeholders had been established. As mentioned before, much of the large-scale farming by plantations established in the nineteenth century declined and was replaced by small farmers. Given that fact, at the early stage of crop cultivation, plantation agriculture has more advantages than small farming. It is usually easier to fund the cost of infrastructures or get access to institutional finance with plantation farming than small farming. But this dominance dwindles sooner or later as the situations will change in favor of small farmers (Hayami, 1994).

Needless to say, the situation is dependent on the characteristics of the region and the types of crops. For instance, oil palm is considered to be suitable for

plantation farming by a company because oil palm fruit has to be pressed soon after its harvest to avoid oil degradation. Indeed in the field, our attentions tend to turn to the overwhelming scale of the plantations and their facilities. On the other hand, in Thailand, the driving force of the oil palm expansion is, in fact, smallholders. Even in both Indonesia and the Malay Peninsula, the number of smallholders who grow oil palm is increasing. And now in Sarawak, where oil palm production by smallholders has never been so popular, the residents around plantations have started oil palm production. (Fig.1)

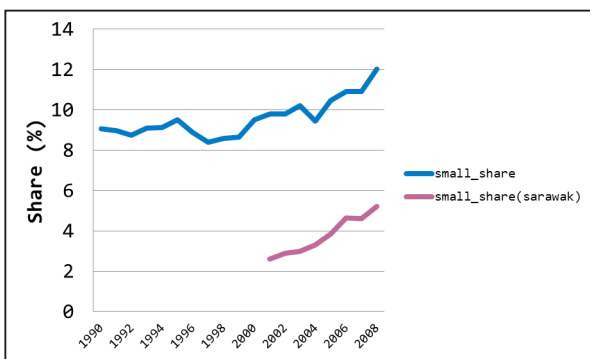


Fig.1: The ratio of smallholders' area in oil palm cultivation (whole of Malaysia and in Sarawak) Based on the information of DOA, Sarawak and Dept. of Stat., Malaysia.

Meanwhile, gradually the oil palm industry led by plantation companies has been taking measures to respond to criticism from the public that the industry causes social conflicts and environmental issues. The foundation of RSPO (Roundtable on Sustainable Palm Oil) is a prime example in this case. RSPO is a non-profit organization founded in 2004 to advocate the sustainable management of palm oil production with considerations for the environment and human rights by promoting its certification system. Through the process of obtaining the certification, the oil palm businesses inevitably have to seek ways to deal with the local communities and labor forces. As a result, this makes the businesses realize the issues surrounding them and their environment as well.

In the insular areas of Southeast Asia, plantations are predominant in the landscape. We wonder how

the changes surrounding plantation management affect Sarawak's landscape and society or its industrial structures. With those questions in mind, we started our research in Company K's plantations and smallholders in the vicinity of the plantations.

4. Plantations and smallholders

Company K's plantations are in Sarawak's Bintulu division. The company started its planting program in 1997 and today its oil palm plantation has stretched to 54,347 hectares. The plantation produces 116,000 tons of FFB (Fresh Fruit Bunch) each year. The plantation is relatively small compared to the other 37 oil palm plantations in the division. But the productivity of the plantation is relatively higher, producing approximately 26-27 tons of FFB per one hectare annually. The company has been working on upgrading its efficiency including its OER (Oil Extraction Rate). The company has an oil mill plant on its property which produces 47,000 tons of CPO (Crude Palm Oil) and 6,600 tons of PK (Palm Kernel Oil) annually. The company procures the materials for its oil production with 55% from its own plantation, 5% from the smallholders and 40% from other plantations. As the number indicates, the role of smallholders in the company's oil production is not huge at the current stage. But it is easy to see how the proportion will increase in the near future. Another point of note for Company K is that it was the first business entity to obtain RSPO certification other than foreign (or peninsula)-oriented companies in Sarawak. Through the process of certification, the company was scrutinized by a third party for its qualifications. The company was assessed from various angles: production process, quality management, working condition, labor welfare, ecological measures and its commitment to the local communities etc., and all of these materials were documented and stored by the company. According to the company staff, the biggest issue in the process of certification is the company's social responsibility to the communities. The words imply that the company began seeking a way to harmonize with its local com-

munities when applying for RSPO certification.

During this research trip we were allowed access to the vast amount of data which depicts the company's business portrait and the documents including the application form for RSPO certification. The analysis of the data and information has not yet been completed but I have a positive feeling that the research could help to clarify the overall picture for the business.

As for smallholders, I interviewed Mr. L, who lives near Company K's estate and started oil palm production at an early stage. Mr. L is an Iban and he started oil palm production from 2004 in his fallow land of shifting cultivation. Today he hires two Indonesian resident workers raising 2,800 oil palm trees. Mr. L gained his knowledge of oil palm cultivation while he was working for the plantation as a driver. By the time he started to grow oil palm trees, he had been working on other marketable crops like pepper. So he was kind of a pioneer of commercial crop production in his community. He takes his FFB to the oil mill plant and sells it to the company. On occasion, he takes other farmers' FFB to the plant as a middleman but he has no intention of making it a full time job.

Three things have become clear by making a rough estimate on the cost and its benefit of oil palm production by smallholders and plantations. First, there are certain differences between oil palm production systems of smallholders and plantations. In many cases, smallholders don't invest much in land improvement like terracing in hilly ground, and compared to plan-



Photo2: Oil Palm Plantation



Photo3: Oil Palm Cultivation by Smallholders

tations, smallholders tend to spend less money on fertilization, pesticides and labor costs. Secondly, we found a certain scale economy in oil palm plantation management. The plantation is comprised of ten management units. The cost-benefit analysis of each management unit indicates that the cost for the production of oil palm per area is gradually diminishing, though further study is indispensable because of the differences among the management units in topography and soil characteristics.

The third indicates that plantations have some scale economy but it is not always more profitable than smallholders. The plantation's productivity of oil palm was 50% higher than that of smallholders but the plantations spent more than double the money for the production of oil palms. As a result, the smallholder's operation was more cost effective than the plantation. Needless to say, this result is simply that from the case of Company K's plantation and Mr. L. But I presume it is fair to say that in oil palm production, smallholders should not be underestimated.

5. Will there be a common ground in "Dual society"?

The outcome of the research indicates that oil palm production by smallholders will be more popular in Sarawak in years to come. What will it bring about in the local society? The oil palm plantations and local societies may shift to another stage in their relationship. The attitudes inside or among the communities toward plantation companies may have differences.

The prevalence of oil palm production may serve to widen the existing economic gap. Furthermore, if the lands such as the fallow land of shifting cultivation are transformed into oil palm fields, it may affect the local natural environment. In the past, plantations have been “enclaves” in local societies but now we are witnessing some changes. We wonder how the plantations have points of contact with local communities and how this change of relationships affects the local governance. What will happen (or not happen) to the existing “biomass society” in this region? And further, how does such a resource-driven growth lead to (or not lead to) the social and economic development of the country? I’d like to continue my research and hope to answer these questions.

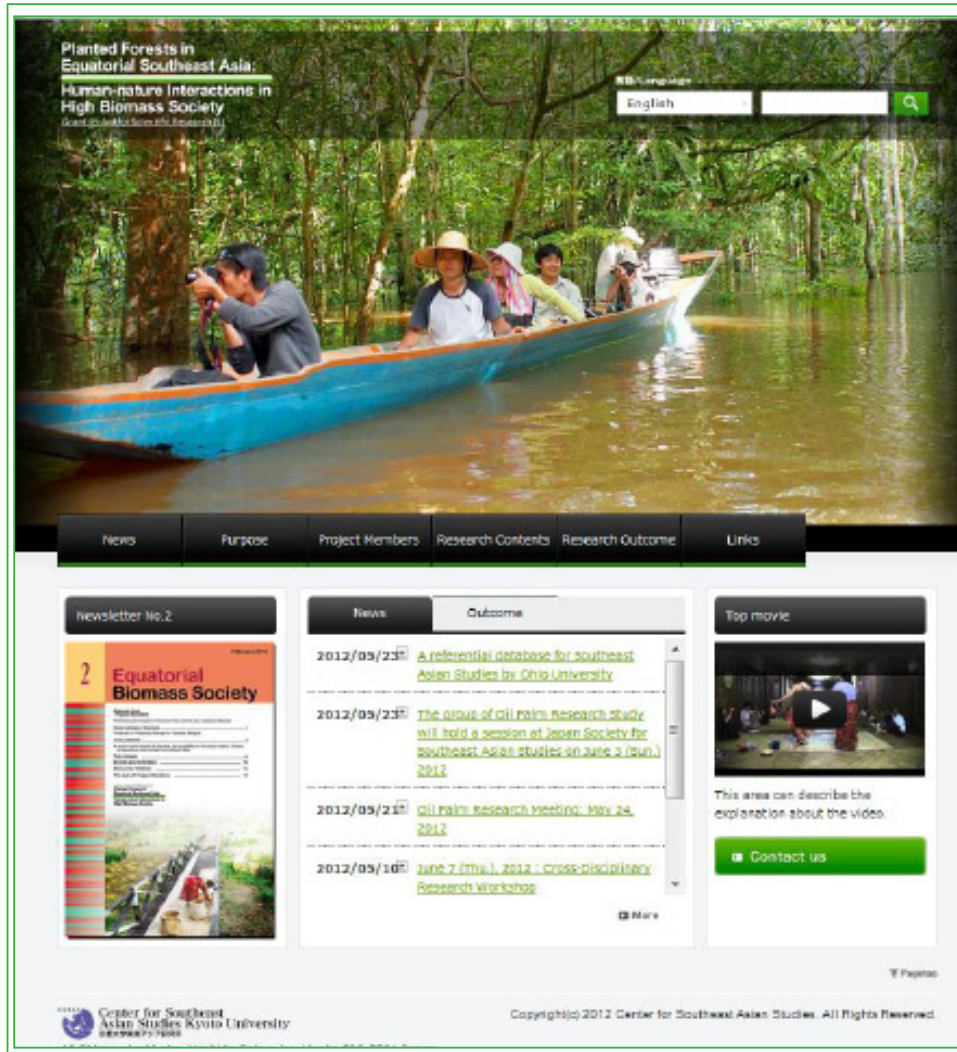
This article is reprinted from the 8th issue of Japanese newsletter of this project

References

- Ascher, W. 1999. *Why Governments Waste Natural Resources: Policy Failures in Developing Countries*, The Johns Hopkins University Press, Baltimore.
- Kitahara, A. 2002a. “Tai Kindai ni Okeru Syounou Sousyutsu Teki Tochi Seisaku e no Michi (1) (A Road to Land Policy of Peasant Creation in Modern Thailand),” *Keizai Kagaku (Economic Science)* 50(2):21-40.
- Kitahara, A. 2002b. “Tai Kindai ni Okeru Syounou Sousyutsu Teki Tochi Seisaku e no Michi (2) (A Road to Land Policy of Peasant Creation in Modern Thailand),” *Keizai Kagaku (Economic Science)* 50(3):21-40.
- Hayami, Y. 1994. “Peasant and Plantation in Asia,” In Meier, G. M. (ed.), *From Classical Economics to Development Economics*, St. Martin’s Press, New York, pp. 121-134.

Please visit our website

<http://biomassociety.org/en/>



Our project, “Planted Forests in Equatorial Southeast Asia: Human-nature Interactions in High Biomass Society” has its own website.

It covers articles, event information, videos, research outcomes newsletters and much more.

Please visit our website and keep up with our latest activities.

The List of Project Members

Noboru Ishikawa	Anthropology	Center for Southeast Asian Studies, Kyoto University
Ryoji Soda	Geography	Graduate School of Literature and Human Sciences, Osaka City University
Yasuyuki Kono	Natural Resources Management	Center for Southeast Asian Studies, Kyoto University
Kaoru Sugihara	Global History	Graduate School of Economics, The University of Tokyo
Kosuke Mizuno	Agricultural Economics	Center for Southeast Asian Studies, Kyoto University
Naoko Tokuchi	Forest Ecosystem Ecology	Field Science Education and Research Center, Kyoto University
Motomitsu Uchibori	Cultural Anthropology	Faculty of Liberal Arts, The Open University of Japan
Hikomitsu Samejima	Ecology	Center for Southeast Asian Studies, Kyoto University
Motoko Fujita	Bird Ecology	Center for Southeast Asian Studies, Kyoto University
Osamu Kozan	Hydrology	Center for Southeast Asian Studies, Kyoto University
Keitaro Fukushima	Forest Ecosystem Ecology	Field Science Education and Research Center, Kyoto University
Makoto Tsugami	Cultural Anthropology	Liberal Arts, Tohoku Gakuin University
Katsumi Okuno	Cultural Anthropology	College of Liberal Arts, J.F.Oberlin University
Masahiro Ichikawa	Southeast Asian Area Study	Faculty of Agriculture, Kochi University
Miyako Koizumi	Ecological Anthropology	Graduate School of Agriculture, Kyoto University
Fumikazu Ubukata	Natural Resource Economics	Graduate School of Environmental Science, Okayama University
Tetsu Ichikawa	Cultural Anthropology	The Asian Institute for Intellectual Collaboration, Rikkyo University
Yucho Sadamichi	Life Cycle Assessment	The National Institute of Advanced Industrial Science and Technology
Nathan Badenoch	Southeast Asian Studies	Center for Southeast Asian Studies, Kyoto University
Koji Tanaka	Southeast Asian Studies	Kyoto University Research Administration Office (KURA)
Kyoko Sakuma	Cultural Anthropology	Graduate School of Asian and African Area Studies (ASAFAS) of Kyoto University
Atsushi Kobayashi	Historical Science	Graduate School of Asian and African Area Studies (ASAFAS) of Kyoto University
Wil de Jong	Forest Governance	Center for Integrated Area Studies, Kyoto University
Daisuke Naito	Area Studies	Research Institute for Humanity and Nature
Jason HON Shung Sun	Laboratory of Ecology and Planning	Graduate School of Global Environmental Studies, Kyoto University
Yumi Kato	Cultural Anthropology	Waseda University Institute of Asia-Pacific Studies
Atsushi Ota	History of Early Modern and Modern Indonesia and the Malay World	Hiroshima University, Graduate School of Letters

Center for Southeast Asian Studies, Kyoto University
46 Shimoadachi-cho, Yoshida Sakyoku, Kyoto 606-8501
TEL/FAX: +81-75-753-7338
<http://biomassociety.org>
E-mail: nakane@cseas.kyoto-u.ac.jp
Editors: Hiromitsu Samejima, Hideki Nakane

