

Relaxed but stimulating trip to Kalimantan, Indonesia

Over the last ten years, I have worked only in the Middle East and Africa, and I did not have any opportunity to visit Asian countries. Despite hoping to visit various countries extensively all over the world, I have been involved in specific countries such as Syria and Palestine for 5-6 years, and Sudan for 7 years (ongoing), under long-term project schemes.

In 2017, however, I had a chance to go to Indonesia on a short trip of nine days, from September 15 to 23. We conducted a field survey in Kalimantan (Borneo island) focusing on the usage of *Tengkawang* oil tree (*Dipterocarpaceae*) and sales and marketing methods of its value-added product, which was a project of JIFPRO (Japan International Forestry Promotion and Cooperation Center).



Visiting a *Tengkawang* village Exploration of *Tengkawang* trees

Indonesia was a new country for me to experience. The preparatory period for the trip was just less than a month, but I felt somewhat fresh and began to study the Indonesian language with excitement. I took great pleasure in touching the landscapes and flora/fauna of a wet environment; very different from the dry lands that have become so familiar to me. I opened books related to tropical rainforests for the first time since my university days.

The survey team included three other members who were experienced in the field of forest resources and Indonesia, so conversation in the car during the trip was pleasant despite our tough and tight schedule. I noticed something new every day. It was a meaningful expedition and I constantly learned new things.

The purpose of this survey was to explore the possibility of utilization and commercialization of *Tengkawang* oil as a forest resource to substitute oil palm and as a source of cash income for local people. Through interviews and observations on the Dayak people, those who live in a forest environment, we were able to get basic information such as various types of livelihood activities including pepper and rubber manufacture, shifting cultivation and livestock breeding; the relationship between villages and *Tengkawang* forests; the significance of *Tengkawang* for residents; construction of an oil extraction plant by Dutch experts and other projects; and the relationship between oil palm plantation and topography. In particular, the preceding efforts of a Dutch-supporting NPO were very informative. The visions and challenges involved in utilization and commercialization of *Tengkawang* oil became clearly apparent.



A forest of oil palm

Seeds of oil palm



Huge trees of *Tengkawang*

Seeds of *Tengkawang*

Further progress is expected in the future regarding the utilization and commercialization of *Tengkawang* oil, and discussions are developing in more concrete and specific directions, from general theory to every detail. For me, this Indonesian visit was a valuable opportunity to acquire new findings and perspectives of the tropical rainforest, although I only participated as a temporary member of the team. I would like to keep my eyes on trends in tropical rainforests that are so different from the arid lands in which I have spent so many years.

(By Koga, November 2017)

How to compose study tour for training <Part 3>

Case study

Study tour in the vegetable course

The curriculum of the vegetable cultivation technology of JICA Tsukuba course (hereinafter referred to as "vegetable course") consists of about 60% practical training, 25% of lectures and 15% of field visits. Although the percentage of field visits is relatively low, the purpose of the training can be covered by combining several tours and day trips, because it is a rather long-term training course of nine months. Even during the training period, it is possible to flexibly arrange visiting destinations according to the demands and necessities of the participants, which is another advantage of the course.

We often visit farmers on a study tour. We can learn not only practical aspects of cultivation techniques, but also hear interesting stories from the farmers on topics such as cropping patterns, farming planning, farm management and risk management. During the visits, generally participants ask questions to the farmer, and he/she answers the questions accordingly, so it is effective to encourage participants to prepare adequate questions for the farmer in advance. We often ask for cooperation from agricultural cooperatives or extension offices, in order to find a reliable farmer in the area to be visited.

Many diverse ways of farm management have evolved in recent years. There are multi-product cultivation farmers with small outputs who deal with direct sales shops. There are organic farmers. And corporate type of farming is also common these days. It is quite meaningful for participants to learn such various styles of farming. On the other hand, it is important to share with target farmers and participants about the purpose of the visit more concretely before the visit. This could be cultivation technology, the concept of marketing or farming, or the process that has led to current farming styles. It is rather difficult to find desirable farmers to meet the purpose through agricultural cooperatives or extension offices, so it is necessary to gather information individually by the organizer of a study tour.

Since most participants in the vegetable course are researchers or extension workers in their own country, it is a valuable experience to visit Japanese research centers and extension offices and learn their roles and specific activities. In addition, collaboration between research centers and extension offices is highly evaluated as a good example of "how our country can replicate" methods in fields such as how needs of farmers can be utilized for experimental research.

Agricultural cooperatives are an important destination to learn about agriculture in Japan. The system of Japanese agricultural cooperatives and designated-production areas is highly developed and is expected to be useful for participants to imagine future shapes/systems and activities that they can aim for in their own countries. Furthermore, in the vegetable course, participants have an opportunity to listen from a veteran officer at a cooperative farming center about the history of the formation of agricultural cooperatives and production areas. The story told by the veteran, who was a farmer's son, was very attractive and empathic to participants. His story started like this; a broker came directly to a farmer's garden and bought vegetables at a cheap price. In later years the father borrowed a truck with a fellow farmer and transported products directly to the market. When the son started to work at a cooperative office, he calculated profit sharing of collective selling with handwritten slips and an abacus until late every day. This and others like it are all true stories behind the development of agricultural cooperatives, and they attract participants' interest.

In addition to the above, we have newly developed various fascinating visiting sites, such as an agricultural sales corporation that connects direct sales shops with its own network, an administrative system responsible for ensuring safety of agricultural products, a women's group dealing with traditional vegetables production/ so-called sextiary sector development (diversified development of primary sector)/ agro-tourism, and JGAP farms. While new visiting sites could bring fresh knowledge to the course, required findings may not always be obtained as expected. In such cases, we always try to identify the cause in order to make use of the experience for the next time.

In this way, the vegetable course maintains relations with visiting sites carefully for many years, but the sites are reviewed each year based on the purpose of the training course and needs/requirements of the participants. We think that such trial and error is necessary to compose a better study tour.



Visiting a tomato farmer: participants asking about farming policy after observing procedures in the field.

Toward sustainable forest conservation <Part 3>

Achieving both "Forest conservation" and "Livelihood improvement"

This issue discusses the titled topic based on the author's experience engaged as a long-term expert in "Participatory Forest Management Project in Belete-Gera Regional Forest Priority Area Phase 2" (2006-2009), which is the predecessor of the on-going project in Ethiopia. The project organized a forest management association, called *WaBuB* for each sub-village, and aimed to create a forest management framework by exchanging forest management agreements including forest boundary maps and management rules. In the case of the Belete-Gera forest, there were issues such as "low literacy rate of residents", "no experience of group activities", and "rapid deforestation due to agricultural land expansion". Therefore, the project considered that it was appropriate to strengthen capacity necessary for collaborative planning carefully by applying a social barrier to prevent excessive forest utilization by signing an agreement (see the figure below).

Since *WaBuB* was already organized in the 2 pilot sub-villages during Phase 1, it was required in Phase 2 to develop a mechanism to expand *WaBuB* to all 124 sub-villages in the Belete-Gera forest area, and to achieve both "forest conservation" and "livelihood improvement". It was expected that livelihood improvement activities were not only to provide incentives for participation in forest conservation, but also to reduce the burden of forest usage by obtaining new income sources. In addition, it was deemed desirable to have a strategy capable of accumulating various experiences by the group, in order to strengthen the forest management capacity of *WaBuB*. Therefore, as a measure to improve livelihoods that could be offered to all villages, the project introduced a method of Farmer Field Schools (FFS) developed by FAO to strengthen farming skills and group activities. An agricultural extension worker conducted a session once a week for one year and practiced methods of cultivating horticultural crops and seedlings. In the

following year, trained farmer facilitators conducted FFS sessions to other groups. Many of the farmer facilitators were young people and women who could read and write. By acquiring confidence and trust in the villages through FFS, it was observed they became actively involved in forest management activities by supporting village heads.

In addition, most of the Belete-Gera forest region has coffee trees growing naturally, and many residents are obtaining cash income by harvesting forest coffee traditionally. Focusing on this point, measures were proposed to produce value-added coffee from "environmentally conscious forests", and to achieve forest conservation simultaneously. It became possible to sell the product with premium payment, through acquiring certification such as "Rainforest Alliance". On the other hand, when spreading these activities throughout the Belete-Gera area, it was beyond the scope of the Oromia Forestry Enterprise, the counterpart organization, and the project itself had to inevitably lead the activities. All 124 *WaBuB* were established by the end of the project completion in 2012, but the framework set-up was incompletely handed over to the Ethiopian side, which was responsible for "forest monitoring" and "formulation of management plans" based on the signed agreement. The successor project focusing on forest coffee is underway. In addition, since 2017, activities targeting highland areas have been added, where is no forest coffee and deforestation is in progress, and where AAI is involved in.

Looking at the situation after about 8 years, there has been little support for *WaBuB* by the Ethiopian government side. Without that, awareness of monitoring and rule compliance might diminish. However, in the forest coffee area where the project is continued, monitoring by cooperative internal audit is carried out, which leads to strengthening organizational capability contributing to forest management. It is said that it takes time to achieve results in a forest-related project, but it is considered that strengthening organization cannot be realized in a short time. Improving individual ability and consciousness also takes time. This is not only brought up by forest conservation activities, but it is accumulation of various experiences of collaboration within the community, and available funds and support would be important factors to provide such opportunities continuously.

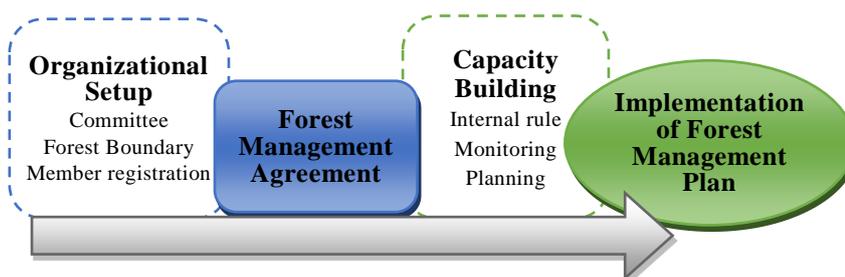


Fig. The Schematic Flow of *WaBuB* Establishment and Implementation of Forest Management Plan

Let's think about seed quality <Part 3>

Efforts to maintain varieties in the Rice Promotion Project in Uganda

Since rice is a self-pollinated plant, it is relatively easy to maintain genetic purity of seeds, and it is said that there is no problem if seeds are renewed once every three years in ordinary cultivation. Therefore, 1 kg of seeds of the recommended variety are distributed to participant farmers training under the Promotion of Rice Development Project in Uganda, and each farmer obtains the necessary amount of seeds by in-house seed production.

Maintaining genetic purity of the seeds distributed to farmers is an important issue, because it is assumed that farmers will produce and use in-house seeds. The project has been working on improvement of seed production techniques such as breeder's seeds and foundation seeds at the National Crop Resources Research Institute. Particularly, in breeder's seeds cultivation, we keep the purity of the variety not only by removing off-type plants from the field, but also by conducting line cultivation.

In line cultivation, several average plants retaining characters of the variety are selected, and seeds derived from one plant are taken as one line and cultivated in one section. One section has about 100 plants, and 20 to 50 lines (sections) are arranged side by side in the field. If the selected plants are genetically pure as expected, all 100 plants will be exactly the same as the parent plant. But, if some plants become "off-type" showing characters different from the parent plant, it can be judged that the selected parent plant was not genetically pure. In such a case, all 100 plants in the section will be abandoned as well as the off-type plants. Because, if the parent individual is not genetically pure, there may be more mixed plants that are not genetically pure despite showing the same appearance as the original plant type. By managing lines in this way, it is possible to prevent genetic variation from being transmitted to the next generation, which is difficult to judge by appearance alone.

In addition, even if it is uniform within the line of one section, differences may be observed among sections. Even with small differences in plant height which are difficult to distinguish with only one individual plant, it becomes possible to detect the difference clearly by observing individual plants in a group of 100 in one section. When we started the line cultivation in the project, we were able to observe some of these minor differences. For example, while the original plant type shows leaf blades that are angled somewhat inwardly

around the midrib, we found two different lines out of 42 which had leaf blades that were not angled but flat. These small differences we managed to find out only by using the line cultivation system, and it seemed that it was rather easy to be overlooked in removal of off-types by normal seed cultivation.



Procedure of line cultivation -1- Harvest average individuals from the field planted one by one.



Procedure of line cultivation -2- Keep the harvested individuals with ears in an envelope one by one.



Procedure of line cultivation -3- Store seeds from one individual in an envelope written with line ID.



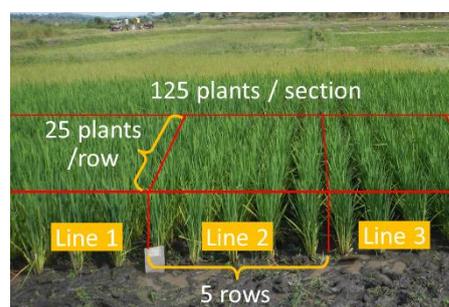
Procedure of line cultivation -4- Raise seedlings by sowing seeds in a container for each selected line.



Procedure of line cultivation -5- Transplant seedlings one by one



Procedure of line cultivation -7- Original NERICA 4 line (left) Different line with slightly lower plant height (right)



Procedure of line cultivation -6- Transplant one line one section, in this case, 125 plants (5 rows x 25 plants) are transplanted in one section.

Seed production by line cultivation is an important activity that serves as a foundation of the maintenance of variety and the seed production business as a whole, but for researchers, it tends to be considered as an invisible and even boring activity. However, in Uganda, it is an exciting job full of discovery, which results in the uniform appearance of rice plants.