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The state of supporting sugarcane farming in Yaeyama Islands

Yaeyama Islands are an archipelago in the southwest of Okinawa Prefecture, Japan. There are 12 inhabited islands, five of which produce sugarcane as the main industry. In sugarcane production in the Yaeyama Islands, they usually rely on a labor force from outside the islands as support farming in the harvesting season from January to March. It has become difficult to have enough supporting labor force in recent years, and I had an opportunity to visit the islands to investigate the situation.

Brown sugar of Iriomote Island is considered rich and sweet among the Yaeyama Islands and it is also used by a long-established traditional Japanese sweetshop known for its "yokan". A total of around 80 laborers are needed each year at production farms and sugar factories. These people are recruited by individual farmers, not collectively through producers' co-operatives and working conditions such as accommodation facilities and wages are not standardized. Initially we thought it would be better to recruit from a wide candidate pool, but actually the recruitment gives priority to experienced people (repeaters). It seems farmers prefer to employ as many experienced workers as possible, rather than teaching unfamiliar ones from scratch every year.

Sugarcane harvesting by supporting workers

Sugarcane collected in a sugar factory

Because it was a great opportunity for me, I asked a farmer who owned the guest house where I was staying if I could experience sugarcane harvesting. The harvesting has become a little easier by using a machine called a "barikan (clipper)", that cuts from the cane base. But in parts of the fields such as the edges where the machine cannot reach cane must still be cut by hand. It was hard working in a crouching position to find intertwined roots and to cut sugarcane by hand. After that I removed leaves from sugarcanes using a hatchet, which was more hard work. It took me a long time and the results of my efforts were not completely satisfactory! I was exhausted in just half a day, but the concentrated work was refreshing. During the break, I talked to three seasonal workers who used to help another farmer before, but they settled to work with the present farmer because of the good character of the farmer and better facilities such as rooms and meals. The facilities and environment to stay differ depending on the farmers, and some of the rooms are just renovated warehouses and meals are self-catering. It seemed that the difference in such working conditions affected whether people repeated the temporary farming work or not.

Iriomote brown sugar sold at a local supermarket

Enjoying eco-tours such as waterfall trekking in half a day

Iriomote Island is rich in natural resources, and is aiming to be registered as a World Heritage Site along with northern Amami-Okinawa. You can enjoy a variety of sightseeing such as mangrove forest, waterfall trekking, and buffalo cart rides in half a day. We would like to seek ways to revitalize the sugarcane industry, which is a main stay of the island's economy by making use of such local resources, as well as through efforts to connect urban and rural areas including development of farm stays /or migration facilitation.

(April 2018, by Yoshikura)

How to compose study tour for training <Part 5>

Case study: Study tour of counterpart training in Japan

This issue introduces examples of training for counterparts (C/Ps) in technical cooperation projects. Previous issues such as AAI News No. 46 and No. 57 have already described the C/P training, and its strengths and weaknesses are considered as follows; First of all, one strength is that it is rather easy to formulate custom-made training plans which meet C/Ps' abilities and training needs, since they closely work with Japanese experts in conducting day-to-day project activities. Furthermore, follow-up after the training is also effectively performed through carrying out project activities together even after the training.

On the other hand, one of the weak points that has become apparent is that the training period tends to be relatively short, generally several weeks. Major contents of training are lectures and study visits, and practical training might be not enough in some cases given the limited time constraints. It is necessary to pay close attention to these weak points in order to optimize the usefulness of the training for project activities. The basic concept of training plan formulation is almost the same as other training. The following two examples are given as case studies.

In the training of "Water saving in irrigation and agri-culture extension" for Syrian C/Ps, contents of the project activities varied widely including irrigation research, agriculture extension and training, and their coordination was very important. Contents of the training were carefully examined considering the relevancy of each training element. Table 1 shows arrangements of lectures and study visits for the C/P training. These lectures and visits were connected with each other, for example, by visiting an extension center after a lecture on the Japanese agriculture extension system. Furthermore, in the wrap-up to this training, the C/Ps and Japanese project members discussed about how to utilize training contents in future project activities, by looking back on the entire training.

Table 1. "Saving water in irrigation and agriculture extension"

Subject of Training	Lectures and Study Visits
Current status of agricultural research and extension and their collaboration	Lecture on Japanese agriculture extension system, and Visiting Ibaraki Agricultural Center
Activities of agricultural cooperatives, and marketing of agricultural products	Lectures on agricultural cooperatives in Japan, visiting JA Iwai and farmer's market
Field visits to irrigation projects and irrigation beneficiary areas	Kasumigaura irrigation project, pump station and beneficiary farmers
Capacity building and training of extension workers	Tsukuba Training Center-MAFF, Ibaraki Agricultural Collage

In the training of "Mangrove ecosystem management" for Omani C/Ps, major contents of the training were conservation and management of mangrove forests and their ecosystem, and environmental education for public awareness. For the part related to mangrove forest, lectures and field training in Okinawa and Iriomote Island were arranged so as to make it more practical. Regarding the environmental education, various related organizations in Japan were visited including the natural observation center, to collect information and experience exhibition methods and environmental education programs.

Table 2. "Mangrove ecosystem management"

Subject of Training	Lectures and Study Visits
Conservation and management of mangrove forests	Lecture on conservation, management, restoration techniques, Observation of mangrove forests
Monitoring techniques of mangrove ecosystem	Lectures and practices on monitoring techniques, method of fauna survey, water quality analysis
Environment education and public awareness	Natural observation center, Aqua marine Fukushima, Whole earth nature school, Ground work Mishima

It is also important for Japanese project members to accompany the C/P training and share the contents of training so as to make use of the contents and experiences in succeeding project activities. Finally, it should be noted that if those participating C/Ps are able to understand Japanese people and culture even to some extent through training in Japan as well as acquiring technical knowledge and skills, it would be very meaningful. Such understanding could be useful for effective implementation of project activities.

Toward sustainable forest conservation <Part 5>

Restoration of *Satoyama* with the cooperation of local residents in Mali

As a field staff of NPO "*Sahel-no-Mori* (Sahel Forest)", I have been working on *Satoyama* (villager's common woodlands) restoration in the Republic of Mali. Regarding the current situation of "forests" in Mali, they have very few of them of significant height and volume except for protected forests. Most forests have been deforested and become devastated areas comprised of scrub, bushes and wastelands. The challenge is how to restore and reformulate *Satoyama* as a sustainable forest paradigm.

1. Cooperation with local villagers

We have no connection with the Mali government in conducting our activities. We have been distributing seedlings of fruit trees and useful woods to villagers directly, trying to spread the afforestation movement. Villagers can realize the effectiveness of trees which they planted by themselves through being able to use and sell their produce. We visited 77 places including villages and schools in 2017, and provided over 21,000 seedlings. We deliver technical training to motivated villagers who would work as leaders in *Satoyama* restoration. Those trainees are now able to exchange information with the lecturer/ seedling producers after the training, when necessary.

2. Steps and appropriate technologies for *Satoyama* restoration

After a period of trial and error, villagers have become able to grow trees with success. Vegetable gardens are also effective for growing tree seedlings because surrounding fences are now well established. By increasing this type of base for afforestation in villages, production of useful woods and fruit trees will be encouraged. In addition, we are considering measures so that villagers will concern themselves with the restoration of abandoned farmlands, scrub and bush around their farms.

Conditions of the land to be planted are various such as hardened silty soil or weathered soft rock, and many places other than farmlands are degraded lands. We are establishing demonstration by applying appropriate technologies at degraded plantation sites and rented farmland so that villagers can learn when continuing to promote afforestation by themselves in future. This includes afforestation trials on anthills, use of spiny hedges, and pruning of fruit trees. Anthills offer underground space where roots of seedlings can be placed. We are experimenting with the planting of Acacia Senegal on anthills.

Afforestation trial at an anthill

Planting a natural fence

3. Towards sustainability of the activities

- Utilizing useful species linked to income and benefit creation from sound natural resource management

Being useful to villagers is the driving force of the activity. Shea butter has been relatively often left in the fields as it serves as an oil crop. *Eucalyptus* is popular because it adapts even in wastelands, grows faster, is easy to use with its straight wood, and regenerates by coppicing. Neem and dry mahogany are used as green shade trees.

- Value-addition by processing raw materials

Generally, most fruits are harvested during a short period, and large amounts of products are sold in markets at one time, so fresh fruits are usually cheap. Therefore, processing is important to adding value. Proper facilities for processing should be prepared since the work is done during the rainy season and sanitation is an issue.

- Promotion of agro-forestry types of cultivation

Combined cultivation has already been carried out by villagers growing sorghum/millet (cereal) and shea butter (tree) together, and other combinations could be explored such as vegetables and fruit trees in farmlands. For example, three-dimensional use of farmlands will be examined, by arranging fruit and useful trees at the upper part to provide adequate shading to vegetables and hedges. It would be possible to generate income if they grow fruit and/or useful trees in the vegetable gardens. There are several issues to be considered such as securing water during the dry season, marketing of the products to urban consumers, and coexistence with livestock.

4. Conclusion

It is a definite sign of progress if villagers start their own activities with simple techniques and methods that can be used by themselves in a sustainable manner. this will support livelihoods yielding income, however small, and we hope this cycle will further grow and spread. It always takes a long time before full restoration of *Satoyama* can be achieved.

(March 2018, By Mr. Mitsuo Sakaba, *Sahel-no-Mori*)

Onion drying project in arid regions -Joint work between AAI and the drying machine maker Taikisangyo Co., Ltd.- <part 4>

Summary, recent activities, and the way forward

This mini-series has introduced the onion drying project three times, which is a collaboration work with Taikisangyo Co., Ltd. and NOTA (National Organization for Technology Assimilation), a local NGO in Sudan. We have already reported in a detailed story about the start-up process of the small-scale production system, followed by the field work in JICA's needs survey and feasibility study implemented for about a year from 2015, as well as reporting on the local response to the introduced electric dryer.

Peeling by village women

It has already been a year and a half since the project started, and NOTA has been conducting steady efforts in the field. Meanwhile, the electric dryers of Taikisangyo were adopted by a grant project, Economic and Social Development Plan of the Japanese Ministry of Foreign Affairs, and more than 20 electric dryers have been exported to be deployed additionally in Kassala and River Nile states. In addition, field work including training for farmers and rural women's unions will be resumed from this autumn through a verification survey for disseminating technologies by JICA.

In this way, this project will continue in various forms from now on while expanding the channels of activities. As mentioned in the first issue, this project started with supporting NOTA, which was originally involved in field work of a technical cooperation project.

We have realized the necessity of electric dryers through serious discussion with NOTA members on restoration of the abandoned onion dry factory in Kassala with a small-scale union system. The source of the idea was the *Shiitake* mushroom dryer which I used to see in a farmer's warehouse, when I lived in a mountain village in Oita Prefecture.

Visiting the onion drying factory by the then Japanese ambassador in Sudan

Based on that experience and discussions with NOTA, I got a specific picture that it would be worthwhile to try in Sudan. We had the confidence to put the plan into practice, since local needs had already been examined in various ways with them.

By the way, as mentioned earlier, it was decided to apply for the JICA's verification survey under the scheme of supporting small private sectors in overseas business expansion. Different from technical cooperation and/or development surveys, it was fun to design and propose a project based on our own idea without following operation instructions. The role of the consultant, who is defined as an external human resource in the survey, is to coordinate the company (in this case, Taikisangyo) with the country of Sudan. It was fortunate for us to be able to meet a trusted product and company. Concerning the implementation of field work in Sudan, it was carried out relatively easily because we were familiar with the circumstances in Sudan. There would not be only one correct answer in the coordination method. However, we believe that starting from careful consideration of local needs could be a reliable way to move forward avoiding unnecessary mistakes in supporting small private sectors in overseas business. We would like to meet the challenge of the second and third supporting projects based on these experiences.

A dinner party with high-level government officers of Sudan and Mr. Yasuhara, the president of Taikisangyo