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AAINews

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Encounter with a New Frontier – Traveling through East Timor

Like extremely cold high latitude polar regions and alpine areas, arid regions are one of our planet's last frontiers. These areas have a highly limited cropping potential, and traditionally they could only support low intensity livestock farming. The livestock farming that evolved in these marginal areas is not only a development target sector for poverty alleviation and livelihood improvement but also I feel that it provides more positive and important suggestions regarding our concerns over the future of global food production. Livestock farming in arid or alpine regions has a function to convert grass resources that we cannot consume, into food using the ability of livestock. From this viewpoint, in a time when there is increasingly serious competition between human and livestock over food crops, livestock farming development in arid regions is likely to receive renewed attention as a means of securing sustainable and stable future food production. This has a relevance to the current situation of farming and mountain villages in Japan, where there is rapid depopulation and increasing abandonment of farming plots due to the aging population and young people leaving villages. In this mountainous country Japan, how should we reuse mountain slopes where people can no longer live? Use of marginal lands is one of the important themes of our work.


Bustling market


Rising smoke from slash and burn farming

Incidentally, I have been "immersed in" arid regions outside Japan throughout my career, and livestock farming in the tropics was something which was alien to me. As a student, I majored in grass in cold temperate regions, and my work has been concentrating on livestock farming in arid regions mainly in the Middle East. Therefore, there had been no opportunity to deal with grass in warm areas in the tropics and sub-tropics. I only listened to stories, with envy, of close seniors who were specializing in tropical livestock farming as part of international cooperation. However, I finally had the opportunity to visit East Timor twice to conduct an investigation, which led me into the world of livestock farming in the tropics.


Bathing a cattle herd

Despite its recent independence, the political and economic situation in East Timor still remains unstable. Although there is still a lot of work to be done, one cannot help feeling for the East Timorese who are trying to advance themselves despite their short history as an independent country. Most of all, the first sight of tropical nature was vividly imprinted in my mind as a world full of attractions and beyond my imagination. The climatic condition that repeats the dry season and rainy season, fierce rainfalls, the red soil which had lost the top soil, slash and burn shifting agriculture, bustling fishing markets in the streets and at ports surrounded by turquoise water, and a variety of tropical fruits and palm spirits – all these will stick in my memory. People are living traditionally, keeping their simple ways of living in mountain areas.

Looking at the livestock farming sector, one notices that the livestock in East Timor is raised for use at ceremonial occasions and as assets, as the term 'livestock' literally means. Cattle are a status symbol of the rich, and small stock such as goats and pigs are used as sacrifices at traditional ceremonies. Livestock is a precious protein source and is also important as a cashable property. Moreover, for people, livestock is an insurance to diffuse the risks of crop failures of the slash and burn crop production that they practice under conditions characterized by unstable rainfall and droughts. On the other hand, grass species growing on the poor soil tend to become rough and hard during the dry season. Chronic livestock diseases caused by low nutrition and associated mortality will be identified as points that require improvement. In addition, invasive and harmful weeds that spread over rangelands have become troublesome as they cover and kill useful grass species. Although my visits were short, the tropical and mountainous country of East Timor, with its clear dry and rainy seasons, has surely become my new frontier. (By Koga, May 2008)

Are Japan's cultivation techniques and the wisdom of creative Japanese farmers applicable?
– Case study of training activities at Tsukuba International Center -

Part 2: Introduction of grafting techniques to prevent soil borne disease of tomatoes

In the first part of the series, we introduced basic efforts of training courses at the JICA Tsukuba International Center (TBIC) and approaches to teaching Japan's cultivation techniques to trainees from different countries each with their own unique problems. In the next few volumes, we are going to introduce Japanese techniques which we actually picked up during training courses. In this part, let us introduce an example of a training course in 2007 provided by a trainee from the Philippines, which focused on grafting techniques.

Grafting exercise at TBIC

This trainee was working as an agricultural technologist. Her job was to provide guidance to vegetable and fruit farmers on the introduction of appropriate varieties that are suitable for the local environment, basic cultivation methods, and the introduction of environmentally friendly methods, using biological control or plant extracts, for preventing crop damage by blight and insects. According to the trainee, in the Philippines, although farmers use a large amount of pesticides, the yields remain low. In particular, it was found out that tomatoes were suffering severely from soil borne diseases and measures against wilt diseases were urgently needed. Therefore the following Japanese techniques as countermeasures were introduced and their applicability in the Philippines was investigated.

Observing grafting at a farm

a) Introduction of crop rotation for lowering density of bacteria
b) Introduction of disease resistant breeds
c) Improvement of fertilizer application techniques to move away from over application of nitrogen
d) Grafting using disease resistant stock
e) Disinfection of farming plots

Grafted sapling

As a result of research, it was concluded that the grafting is a useful technique that can be extended to farmers in the Philippines. It was decided that grafting using disease resistant stock plants become the theme of individual experimentations and that confirmation of specific effects and issues for extensions will be sought.

First of all, we tried to make the trainees master Japanese grafting techniques for tomatoes using special grafting clips and tubes which are commonly used in Japan. Then, we introduced how farmers had used to use Japanese paper or thin lead plates (fishing rod weights) before specialized materials were developed, so that the trainees could be provided with information for extension activities after going back to their country and so that they could learn that, with a little bit of innovation, it is possible to work with grafting without specialized materials in the Philippines. We spent time making people understand some key points and tips for grafting. For instance, it is important to adjust seeding timing in order to make the scion and stock plants compatible sizes. It is also important to do the work quickly under shade so that evaporation from the young seedling will be minimized. Efforts were also made to provide the trainees with experience and sound comprehension on how important it is to retain humid environment and adjust temperature during the first 3-4 days from the day of grafting, as well as to adjust lights from the early stage to promote growth. In addition, we ensured that the trainees mastered grafting techniques through seeding, grafting and injection of bacteria with an aim to evaluate stock plants of eggplants and tomatoes which are used to avoid soil borne diseases that are causing an increasing number of problems in the Philippines. Simultaneously, these experiments and exercises were useful for the trainees to confirm the effectiveness of disease control.

The challenges that grafting technique extension work in the Philippines face include how to avoid stocks that have negative influence on fruit quality and harvest volume. This issue involves the question of compatibility between the stocks and scions. Another challenge is to secure suppliers of well performing eggplant stocks. In addition, investigation into the financial burden of grafting and the establishment of technical training methods for grafting and naturalization are also important tasks that need to be tackled. Taking these challenges into consideration, trainees developed an action plan for conducting follow-up experimentations in the Philippines - a project which is also envisaged to serve as a demonstration. Considering local application after returning to home countries, a comparative analysis of the "tube grafting" method which was used in individual experimentation sessions, and the "yobitsugi grafting" method would be required. We are planning to continue to provide information on these techniques as part of our follow up activities.

Japan's agriculture and AAI

Part 2: Report from producers – What we can see from the home delivery system of organic vegetables

In recent years, we often see and hear the term "food safety and security." There is a trend that more and more farmers are producing organic vegetables, aiming for safe and secure food. However, organic vegetable cultivation naturally requires a substantial amount of work and labour. This limits the size of cultivation areas and generally pushes up the prices compared with to the cost of ordinary vegetables. Despite the growing need for food safety and security, the production and distribution volume of organic vegetables remains extremely low. The small size of the organic vegetable market indicates the difficulty associated with organic vegetable production.

This time, we visited our former colleague Mr. K in Hitachi-ohta City in Ibaraki Prefecture, who is working on organic vegetable production. We also had an opportunity to meet with other residents in the area and exchange information and opinions. The participants in the meeting were involved in farming in many different ways. There were farmers - organic farmers, livestock farmers and part-time farmers. There was also agricultural cooperative and municipality office staff, as well as representatives of non-profit organizations (NPOs). Through this exchange meeting, we could meet an organic farming group, hear many interesting stories and even had a chance to work on their plots. Their organic farming group members are relatively young including members in their 20s, compared with the average age of surrounding farmers which is over 70. Instead of chemical fertilizers and insecticides, they use dung from livestock and chickens that is provided by neighboring dairy farmers. In many cases, they rent farming plots that are abandoned due to a lack of labor force, therefore farming plots tend to be scattered around, and their soil conditions differ. Many plots are small and therefore it is difficult to use machines. The products are directly delivered to customers found through private networks and also directly to their homes. Although the distribution volume is still quite small, it is steadily expanding (refer to the next page).

The producers are growing organic vegetables with high motivation, feeling a sense of crisis over Japan's troubled agriculture sector with problems such as safety of produce and a lack of successors in farming communities. However, they also face many problems. One of these is that their income from organic farming is not yet financially sufficient to sustain themselves and their families. In addition, perhaps due to the fact that many producers do not have prior farming experiences, there is room for improvement in cultivation techniques. Moreover, they have not sufficiently developed relationships with local administrations and agricultural cooperatives, due to their lack of local information. The AAI has accumulated a variety of experiences in agriculture and rural development projects through our support in developing countries. We wonder if it may be possible to make use of our experiences in supporting various programs overseas such as cultivation technique improvement for local farmers, livelihood enhancement programs, and training and extension activities, for the future of Japan's agriculture.

With this exchange as a trigger, we would like to continue exchange activities in different ways. Some of the possible activities are information exchanges through group mailing, promoting exchanges between city dwellers and farmers in collaboration with local NPOs, organization of events to introduce activities in developing countries, and participation in monthly meetings of organic farming groups. A more direct exchange could be to purchase their organic vegetables. There are also farmers nearby who are trying to produce vegetables with reduced levels of chemical fertilizers and insecticides aiming for safe products. We should also exchange information in order to develop a sustainable agricultural system based on resource circulation in the future. We think it is also important to work on the effective utilization of local resources through building groups and networks among neighboring farmers.

Farming areas and mountains in Hitachi-ohta City

Transplanting organic leeks

Dairy livestock that provides manure for organic farming

Mini Series: – Visiting a project of a Former Colleague

Part 1 – Friends and colleagues who aim to make a living by organic farming

A scene from the exchange event

Introducing AAI activities

The former colleague, who was with the AAI for four years, left our company to focus on practicing farming. After leaving the company, he learned "duck farming" in Fukuoka with a view to creating a symbiotic relationship between rice and ducks. Then he started farming in Niigata. Currently, he is seriously pursuing organic farming in Ibaraki. His work area is located in the mountains. There is an organic farmers group in his area and we had an opportunity to exchange information and opinions with this group. In order to understand the wider farming situations in the area, we also invited representatives from agricultural cooperatives and the municipality office. The participants included new farmers and active discussions and exchanges took place. There were farmers who offer training and guidance to young people who are hoping to work in international cooperation in the agricultural field. Our venue for the event was an old abandoned farm house. This house was managed by a local NPO and used for various purposes, including events aiming to promote exchange between local residents and people from cities through for instance soba (buckwheat) noodle making sessions and music concerts. Participants were having discussions in a hall with an earth floor and were seated around a hearth. It was a very friendly atmosphere. At the beginning, we introduced activities of the AAI and received people's feedback and responded to their questions. We heard from other participants about their farming issues, and requested brief introductions on support activities for farmers by agricultural cooperatives and the municipal office, as well as on their projects. After the initial introductions, we had a free discussion session, debating a variety of issues and problems related to farming in the area.

Most of the participating farmers are aiming to become 100% organic. There were farmers who are practicing no-till farming. Their main crop is vegetables. They produce and sell various vegetables in their natural seasons. Some farmers produce 50-60 varieties in a year. Much of the fertilizer is animal dung provided by beef and dairy livestock farmers in the area. In addition they are trying to increase soil fertility through bokashi composting and using fallen leaves from the surrounding mountains. At the same time, many farmers are facing damages caused by wildlife such as wild boar, civet cats and bulbuls, which are unique to farms in mountain areas. Another common problem is small and scattered farming plots and an enormous amount of weeding work. These issues pose great challenges for the future expansion of farming areas. The organic farmers develop individual networks of customers, and products are shipped directly to individual customers, including home delivery. The sales have expanded from Ibaraki to Tokyo and Kanagawa, however there has been no joint development of clients by the organic farming group. For livestock farmers, the recent increase in animal food prices has posed great difficulties, when they were trying to expand their businesses in order to secure stable income. Dairy farmers said that they were concerned about whether they could even continue farming, given that the increase of producer prices of dairy products is strictly limited by the Government. Moreover, the disposal of animal excrement has become a major problem for all the livestock farmers whether breeding or raising cattle.

The recently increasing rate of abandonment of farming plots was mentioned as an important issue by representatives from agricultural cooperatives and local government. As farmers age, many farms are no longer worked on. There has been an attempt to inform farmers about these abandoned plots, and to support farmers, however it has not stopped the increase in abandoned plots. It was also reported that as part of a farming support program, support was provided for marketing, consolidation of outlets, and the promotion of the "chisan chisho (local production for local consumption)" movement.

Through the exchange with the farmers, we strongly felt their high consciousness for organic farming, local agriculture promotion, environmental protection and conservation, as well as cultivation through a combination of crop and livestock farming. On the other hand, this exchange made us understand the existing challenges that for realizing a fully viable organic farming business and the difficulty involved in realizing a fine balance between organic farming and making a living.