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Gathering in a neighboring country, remote work for Sudan

On April 11, 2019, a coup d'etat in Sudan deposed President Bashir, who had been in power for 30 years. Since December of the previous year, demonstrations had been mounting in various parts of the country as public protests were staged against soaring prices of bread and fuel. Political change finally occurred when the military detained the top of the administration claiming to reflect the will of the people. At that time, we were working on a technical cooperation project "Capacity Development Project for Irrigation Scheme Management in River Nile State in the Republic of the Sudan" and were staying in the local city of Damar. Given the circumstances we were forced to evacuate. It took several days to get back to Japan but on my way from Damar to the capital city of Khartoum, and then to the airport, I saw things in the country seemed calm and in all honesty I felt no real sense of alarm.We had to return to Japan temporarily, but we were hoping that the situation would soon settle down and we would be able to resume project activities in Sudan.

Two months later, as things continued to deteriorate, we began to lose hope. In early June, when we were still waiting in Japan for the situation to stabilize, a large number of people were killed or injured during a crackdown on a demonstration by elements in the military. The danger information level issued by the Ministry of Foreign Affairs in Japan was raised from 2 to 3, which means that JICA's experts or Japanese officials can no longer travel to Sudan. The above-mentioned project was approaching the end of its fourth year, and it was an important time to summarize, but due to the suspension of travel, we were forced to tie things up and supervise project conclusion from a country very far from the field.

Fortunately, the direction of activities and issues was fully shared with the Sudanese counterparts (CP) and national staff (NS). After discussions with the JICA side, it was decided to carry out three remote operations in neighboring Ethiopia on business trips each lasting about two weeks from mid-August to November. Given the circumstances, we stayed at a hotel in the Ethiopian capital, Addis Ababa, and joined 10 Sudanese CP/NS, and started collaborative work with 5 Japanese nationals. The main task was to ascertain status of on-site work following the coup d'etat departure of Japanese staff, prepare project conclusion results, advisories, technical manuals and ensure that the project would remain self sustaining and succesful. CP/NS are divided into two teams, irrigation and agriculture, but as we were confined in a hotel room together for several days we had ample time to discuss things and find common ground and work together. Meeting face to face was useful.

Some CP/NS colleagues coming from the heat of Sudan found the cold of Ethiopia's highland environment initially difficult and got sick but despite this the productivity and efficiency of our meetings went far beyound expectations. The unfinished leftover part became 'homework' until the next trip, and our collaborative work was promoted with a feeling of face-to-face intimacy.

Intensive meeting held in the cool climate conditions of Addis Ababa with Sudanese

September, saw the danger travel advisories come down so it became possible to return to Sudan and made a return visit to Ethiopia unecessary. The final seminar was held in Khartoum with the participation of Japanese staff. It must have been good to say direct thanks to the many people who took care of us in Sudan, including farmers and rural women, at the finalization of the project. However, our two-time 'distant gatherings' with Sudanese in exotic Ethiopia was a valuable opportunity to discover a fresh side of CP/NS.

(February 2020, Koga)

Ingenuity of demonstration fields <Part 6>

What is the ingenuity of demonstration fields?

In this series, we have introduced some cases illustrating the ingenuity of the demonstration fields that AAI has worked on so far. In this final part, we would like to look back and mull over points of interest and results.

In Part 1, we stated that “the technology itself must be useful and applicable to target farmers” as one of the key points to consider when setting up a demonstration field. However, ‘useful technology’ means different things to different farmers, and changes according to their farming levels and social situations. We introduced the case of Palestine in Part 2 ‘Evolutionary Demonstration’ that gradually changed in terms of the technology introduced in the demonstration fields over a seven-year project period. This was possible because we did not overlook the fact that the technology to be disseminated, that is, the technology required in the field, will evolve as a result of two-way communications and feedback with farmers.

In the case of "Demonstration field with a story" in River Nile State, Sudan, which was taken up in Part 4, we introduced not only the cultivation technologies but also the subsequent oil extraction and marketing flow for the dissemination of oil crop products. It can be said that this is a method that was reached because we were particular about focusing on "extension and promotion" rather than just "introducing" oil crops technology. When a farmer introduces a new crop, "how to sell" is an important concern as well as "how to cultivate". This method was able to capture interest by providing a concrete example in the case of the farmers incorporating the oil crops into their farming plans, and it was able to obtain a greater extension effect than the demonstration field, which merely showed the field where the crops were planted.

One of the typical failures of the demonstration fields mentioned in Part 1 is the "special" demonstration fields created by investing external resources in the leading farms in the region. In these "special" demonstration fields, only selected farmers benefit, and the technology does not extend to other inhabitants which creates jealousy. When setting up a demonstration field, it is necessary to have a clear idea of how the intended technology will be transmitted to target farmers through the demonstration field. In the case of "Demonstration farm model of farmers’ participation and cost sharing" in Kassala State, Sudan, which was mentioned in Part 3, we introduced a method to have interested farmers bear a part of the cost of the demonstration field. This method, in which farmers voluntarily engage with new technologies despite having to bear some financial burden, suppresses any sense of unfairness among local people and positively extends the technology to motivated farmers.

In Part 1, it was mentioned that a demonstration plot’s main role is as a technology transmission and knowledge transfer site, as well as being an environment for "technique verification" and "awareness raising". The case of northern Uganda introduced in Part 5 exemplified the success of this approach. The farmer group learned practically about the cultivation technologies, fund preparation, and the farm planning in the demonstration field. At the same time, it can be said that they then independently "verified" whether the farming styles recommended by the project were useful for them. In addition, there were community members around among them who were observing them closely even if they were not participating themselves. Some of these observers subsequently asked active group members to teach them their newly acquired technologies. It can be said that this demonstration field also functioned as a tool for "verification" and "promotion".

Demonstration fields are an excellent extension tool. However, farmers can't learn enough by just looking at them, and it is impossible that the technology will extend naturally among farmers by just setting up a demonstration field. When setting up a demonstration field, you must think "how to show" and "how to convey" considering the nature and applicability of technologies, the social situation of the farmers and so on. Only if you think carefully about these points will demonstration fields work as an excellent dissemination tool.

Field day in a demonstration field [Northern Uganda]. This is an ingenious way to extend techniques by providing opportunities for group members to introduce the techniques learned in the demonstration field to other community members.

Explore the world of beekeeping <Part 6>

Conventional Apiculture in Qeshm Island, Iran

The Iranian island of Qeshm in the Strait of Hormuz, is registered as a UNESCO Geopark due to its scenic natural resources including Hala which is recognized as the largest mangrove forest in the Persian Gulf. The JICA Project for Community-Based Sustainable Development Master Plan of Qeshm Island towards "Eco- Island" was carried out and a preliminary survey for pilot project formulation aiming to create a producer's association of mangrove honey was implemented in 2016. In this article, we report on the native primitive honeybee and its conventional apiculture on the island.

The Europian honeybee (*Apis spp.*) adopted for modern apiculture on the Iranian mainland can not be found on Qeshm which sometimes records air temperatures of over 50 ° C. Instead, dwarf honeybees (*Apis florea*) that have acclimatized to the hot and arid climate are commonly observed here (Hepburn et.al., 2005). *A. florea* is spread throughout the Asian Continent, and the Persian Gulf area marks the west end of its distribution (Takahashi, 2006).

According to the inter-species phylogenetic tree analysis for existing honeybees (Takahashi, 2005), *A. flora* comprises the subgenus Micrapis, which first appeared about 3,500 to 4,000 years ago inSouth and Southeast agia, and is recognized as one of the most ancient strains of honeybee. Among the extant members of Apis, the more primitive species, including *A. flora*, make exposed single combs, while the more recently evolved species, including *A. melifera*, build nests with multiple combs in cavities and enclosed spaces – a trait which has greatly facilitated their domestication. Domestication of dwarf honeybees using modern portable beehives has not seen success, due to the primitive single exposed comb nesting method (Yoshida, 2000). On the Iranian mainland *A. melifera* is commonly raised using technologies developed from traditional bee hive boxes. However A.flora have been farmed using no consistently conventional methods.

The typical way of apiculture that this author observed on the island is as follows; beekeepers build small sheds of cement-brick called "honey houses" each divided into several chambers by bricks and plastic waterproof sheets. Each chamber has a small entrance in the cement-brick wall, and the comb removed from the original colony is suspended near the windows with strings and PVC pipes. Tin cans filled with oil are attached to the base of hanging strings for the purpose of detering ants.

Upper part of the comb was pinched with PVC pipes, and suspended from ceiling beam

In addition to the mangrove (*Phizophora mucronata*), Lotus tree (*Zizyphus lotus*) a species from the Mediterranean related to the date (*Z. jujube*), and Acacia trees (*Acacia spp.*) are recognized as the key honey plants on the island. Traditional Herbal Medicine pharmacies in Qeshm city sell mangrove honey for IRR 3,000,000 to 4,000,000 per bottle (750cc), compared to the Lotus honey for IRR 1,500,000 (as of July 2016: IRR 30,000/ US$ 1). However local people prefer Lotus honey because mangrove honey often tastes slightly salty, depending on the original distribution of honey plants.

The period of collecting honey lasts roughly 4 months between the Iranian New Year in the middle of March and the end of June, and is totally dependant on the sucessful flowering of honey plants. Beekeepers can harvest about 1kg of honey from a comb after 1 month through a process of splitting beehives, rebuilding comb and final extraction. They said it was a good enough result if 20 kg of honey was yielded within a season.

The Pilot project formulation did not ultimately come to fruition, but the preliminary survey did yield interesting observations and knowledge regarding the local honey bee and the methods of apiculture that are practised on the island.

Reservation in advance required to buy mangrove honey in Qeshm city

Typhoon damage and reconstruction assistance

Experience of volunteer participation at the bee farm

On October 12, 2019, Typhoon No. 19 'Hagibis' swept from eastern Japan to the north and caused great damage. Earlier that year, in June, I had visited The Ishizuka Bee farm, located in Marumori Town, Miyagi Prefecture which was in Hagibis's path. I watched the typhoon's progress on media and saw the pelting rain, the flooding of the Abukuma river, landslides and other catastrophes and I contacted my friends at the bee farm as soon as I could. Nobody had died or been physically injured, which was a relief, but the beekeeper told me most of the hives had been damaged. I wanted to help with the reconstruction and decided to go there for five days as a volunteer.

On October 21, nine days after the typhoon had passed, I was finally able to make it through to the site. Flood water pools had largely receded but I could observe driftwood and other debris as well as day to day necessities still scattered in the paddy fields. Traces of landslides were still visible. The Self-Defense Force officials were organizing traffic on the road along the Abukuma River. The sediments were actually being removed as I drove through on the mountainside towards the bee farm. There were many places where the road had collapsed and been cracked in half. Even in such a disastrous situation, warning signs, road cones, and sandbags had been placed here and there so that people could safely pass through the dangerous areas and the collapsed areas. This was largely due to the efforts of local youth and fire brigade members who went around the road one by one the day after the disaster and exchanged information. As a result, residents could share the status of the route with each town, along with information about hazards, and this proved useful when it came to bringing in supplies.

At Ishizuka Bee farm, about 400 bee hives were washed away. One cause of the widespread damage was that the hives were placed near the river, because October is the honey season for wildflowers that grow on the riverbank. In addition, the hives to rent for pollination to strawberry farmers, which is one of the farm's main income sources, were scheduled to be sent in late October, had been assembled, then damaged. As a result, the beekeepers were unable to accommodate the strawberry farmers they had already contracted with. They had to bring hives from a bee colony from their beekeeper friends, put these in their own hives, and then send them to the strawberry farmers. Due to these emergency measures, normal work such as honey extraction from undamaged hives was being delayed.


Replacing pollinated bees to their own hive

The bee farm was working hard to catch up with the delays in the work. I was engaged in beekeeping work under the direction of beekeeper, Mr. Yoshizawa. My first task was to divide the water-soaked combs into those which had more than 80% of the honey remaining, those with less than half, and those with almost no honey at all. These combs were then placed in an undamaged hive. The honey stored in the comb becomes food, and the empty comb is cleaned and regenerated by the bees themselves. I felt the profound nature of beekeeping in this process - it was the bees themselves repairing the comb damaged by the natural disasters. In addition, as a measure against the cold, I installed animal feed bags in hives, and also helped with other urgent chores such as collecting comb with honey frames from hives, and extracted honey using a centrifuge. It took patience for each task. However, in five days, I could feel that the accumulation of these tasks would lead to reconstruction.

During the volunteer period, I had the opportunity to eat with Mr. Ishizuka, the representative of the bee farm, Mr. Yoshizawa, a staff member, and the coordinator of the community. Despite the great damage, the three of them were always positive. They were discussing concrete ideas about what to do next to brighten the area and bring it back. I felt that the basis for this positivity was the constant connections these people had within the community.

This article was first written in January 2020. It is now more than a year and a half since the disaster. The other day, I had the opportunity to meet a beekeeper from those days. Marumori Town is gradually recovering.

We would like to express our deepest sympathies to those affected by this disaster and pray for the earliest possible reconstruction!