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Connecting people, agriculture and the environment through appropriate technologies

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Traveling to Tajikistan beyond Generations

Engaged in a technical cooperation project in a new country for the first time in a while, I headed to Tajikistan in Central Asia at the end of July 2022.

Speaking of Central Asia, the first thing that comes to my mind are images of a historic romantic oasis, a key route for East-West trade, the ancient Silk Road, a historical world of steppes and, from an agricultural perspective, fascinating interactions between pastoral nomads and farmers from all points of the compass.

The mother tongue in Tajikistan is Tajik, related to the Persian language. The land area is approximately two thirds of that of Honshu island in Japan while the population is about 9.75 million people, smaller than Tokyo. The capital, Dushanbe, is indeed an impressive oasis city with magnificent buildings resulting from the former socialism era and distinguished by tall tree-lined avenues.

Beautiful tree lined avenue in Dushanbe

Compared to neighboring resource-rich countries, such as Kazakhstan and Uzbekistan, the economy of Tajikistan is smaller and relies mainly on primary industry and income derived from migrant labor to Russia. More than 95% of Tajikistan's land area is hilly or mountainous, with the eastern region dominated by the Pamir mountain range, which has an average altitude of over 5,000m.

In terms of agriculture, the proportion of livestock and fruit trees is relatively high in the Pamir, but the production in the flat lands and low hills of the western region is economically important. Major agriculture includes key strategic crops such as wheat and cotton, field crops such as potatoes and onions, rice cultivation, and livestock farming, as well as fruit such as apples, peaches, apricots, and grapes, and vegetables such as tomatoes and cucumbers on a commercial basis are produced, shipped, and traded.

Agriculture in Tajikistan is also characterized by a form of production that involves extended farmer family groups (from a few to more than a dozen people) called Dehkans. The state farms (Sohkhoz) and collective farms (Kolkhoz) of the socialist era have been dismantled and reformed, and are being gradually downsized. On the other hand the government is encouraging Tajikistan's citizens, not only peasant households, to produce their own food in their own backyards, which are designated “Household Plots". The crops produced in Dehkan farmland are subject to regional planting restrictions imposed by the government, often resulting in policy quotas, whereas in private gardens which are classified as ‘reserved land’, the people are free to choose crops and livestock for their own self-sufficiency.

The main target areas for this project in Tajikistan are the federal territories and the southwestern Khatlon region. The objectives include promoting the introduction and revitalization of market-oriented agriculture among farmers and strengthening the capacity of government officials as counterparts in the process. My expected role as an agricultural expert will be to select farmers at an appropriate level and identify specific activities in Dehkan farmland.

Field survey at Dehkan farmland

It is worth mentioning that for AAI, Tajikistan is a country with great ties and bonds. As a result of the vegetable production training course for country-specific program, targeting Tajikistan in JICA Tsukuba Center, some of the staff in AAI traveled to Tajikistan between 2000 and 2002. Since that time we have deepened the interactions with the trainees. We hope to use this business trip as an opportunity to further deepen exchanges between our staff and Tajikistan across generations.

(Koga, October, 2022)

‘Towards the 21st Century’ Revisited <Part 3>

Working with communities through fireflies

I have continued efforts to deepen ties with my local communities in Miyazaki prefecture after retiring from the international agricultural development work that I had engaged in for over 30 years as a consultant.

Many of my activities in developing countries were carried out on the premise of recognizing the importance of collaboration with local residents and organizations. In retrospect, while doing this I actually had less interaction with my own local community while leading my double life in Tokyo and my home town. I made some excuses such as "I have many things I have to do in Tokyo" or "I do not have enough time to do things in my hometown right now."

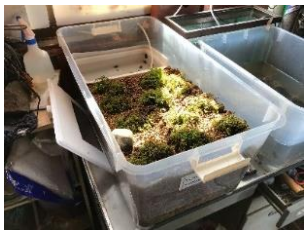
Taking my retirement as an opportunity, I returned to my hometown and began to get directly and deeply involved with the local community. In the meantime, I learned about an NPO conducting regional revitalization and environmental protection in my hometown. From my past work experience, I thought I could contribute something in the fields of agriculture and environment and that’s why I joined the NPO. They conduct activities involving breeding fireflies for the purpose of environmental protection and local community development.

Members of the NPO

Let me explain about our firefly activities. Two species of fireflies, Genji-botaru (*Luciola cruciata*) and Hime-botaru (*Hotaria parvul*a) are found in our town. The main focus of our work are the waterways favored by genji-botaru. We maintain water channels in a labor-intensive way weeding and litter picking, and breeding thiaridal snails (*Semisulcospira libertina*) as feed for fireflies, as well as planting sunshade trees at the sites. We also propagate fireflies at members’ homes and distribute firefly information on our NPO's web site during the fireflies’ season. We set a day for the field work every month, and other days are left free for other activities.

Regarding the breeding activity, adult fireflies are captured from water channels before the eggs are laid in early May. When the eggs hatch in the middle of June, we feed them on thiaridal snails to promote larval growth. Next year the larvae are released to water channels in February from where they start emerging as adults and start flying from late April. Recently we have made propagation possible by using artificially raised adults, however we can obtain only about 20 artificially hatched larvae with our inexperienced rearing skills and we are still not able to release the adult fireflies to our sites.

We hope one day we will release adult fireflies into the old moat of the ruin of the castle in town, and the site could be a soothing place for the people in town in the future. We also expect our activity to spur interest and recognition of the purpose of our NPO among the people in town.



Emergence device

Six years have passed since I returned to my hometown and while I have become familiar with the area again, however somehow it still doesn't feel comfortable. Because I had been away from my hometown for over 40 years, I feel like I cannot adapt to the strong interpersonal relationship in rural area that I took for granted before. Human relationships unique to rural areas are deeply intertwined with local economics and culture, and that forms rural communities. On the other hand, the terms "returning to the countryside" and "remote work" are often heard a lot lately and the sense of distance between the city and the countryside is decreasing. In fact, half of my domestic business was handled at my hometown for the last 10 years before leaving AAI.

I suspect that the human relationship unique to rural areas could change and the relationship between city and countryside will also change when job opportunities in rural areas are increased while people in the countryside get urban style work while staying in rural areas.

Useful plants in Sudan <Part 4>

Onion

The useful plant in the series this time is the onion. Traditionally in Sudan, onions have been used as a sauce ingredient for ‘asida’ (a sorghum flour paste), but recently onion consumption has been increasing, not only in the large market of the Khartoum metropolitan area but also in small and medium-sized markets in each state throughout the year. Over the past decade the development of infrastructure and logistics, the addition of storage facilities such as drying and refrigeration, and the expansion of interstate and intercisty distribution networks have led to activate long-distance commerce and transportation by truck. This is said to be a major reason why onions are now relatively stably supplied to the market. However, a look in detail at the distribution situation shows that onions accumulated in the Khartoum metropolitan area are often returned back and distributed to small city markets in rural areas, and that it is not always the case that onions are transported over short distances between production areas in neighboring states. It is difficult to say that local production for local consumption is being implemented in rural areas through efficient trading.

Harvesting onions in the field

Onions and other vegetables mass-produced in open fields are subject to harsh natural conditions which have a large impact on cultivation and storage management. As mentioned in AAINews No. 106, the extremely high temperature of the summer season (June-July) in Sudan is a so-called "dead season" for open field cultivation and the productivity of crops and vegetables such as onions has been limited seasonally. With this high temperature period being a constraint, onion production follows a winter cropping system with one crop per year from Autumn to Spring. This seasonal change in productivity and storability causes an imbalance between supply and demand, and it creates wild fluctuations in market prices depending on the year and season. Under such circumstances, the idea of introducing electric dryers in order to level out the distribution volume was an effective initiative. In the past article in AAINews, we showed our attempts to adjust production value addition and reduction of waste through dry processing.

As described above, onions are produced once a year but due to the vast land area of Sudan, differences in regional weather conditions among production areas will result in slight “lags in timing of cultivation”". For example, in desert climates such as River Nile State, although there is sufficient irrigation water, one of the major characteristics of the production area is that the high temperatures during the summer dead season continues uninterruptedly, i.e. there is only one high temperature peak per year. Therefore, farmers in the state have no choice but to start sowing in September. On the other hand, in Kassala State in the east, the Gash River, a seasonal river, begins to flood dramatically from June to August, when rainfall begins in the upper areas of the border with Eritrea and Ethiopia. Due to this natural phenomenon, the high summer temperatures that have been occurring since April temporarily ease in the riverside gardening area (Sawagi), making the area a little cooler. When the flowing water period ends and the Gash River returns to its original dry valley (Wadi) condition, the temperature gradually starts rising again. In other words, around Kassala, the Gash River separates the high summer temperatures into two peaks. The onion-producing areas in Kassala State take advantage of this microclimatic condition, as farmers start sowing in July when the temperature is relatively low. In this way, Kassala's “early field onions”" will have a comparative advantage in terms of price.

Gash river in winter season (left) and summer season (right)

I have focused on the regional differences in onion cropping systems that affect distribution and stable supply, but there are other interesting points of discussion regarding the characteristics of onions in Sudan, such as seed production. I would like to consider these on another occasion.

Third country visit in Egypt

To link agricultural extension and research

AAI conducted a third country visit (TCV) in Egypt with the assistance of the International Center for Agricultural Research in the Dry Areas (ICARDA) under the JICA technical cooperation project for capacity development of agricultural extension services in Balochistan (the project). The objectives of the TCV is to improve knowledge and capacity to use new techniques of water-saving irrigation, water management, and agricultural extension for project counterparts (CPs). A total of the six CPs were selected from the Directorate of Agriculture Extension (the extension) and Agricultural Research Institute (the research). They participated in technical sessions given by ICARDA lecturers and technicians from the Agricultural Research Center (ARC) in Egypt, and also visited farms and companies in and around Cairo.

The orientation was conducted before departure from Pakistan. After the orientation, discussions started on how to utilize extension officers who were trained in the project after the completion of the project, and how the research links up with their extension activities. The discussions were scheduled to take place on the last day of TCV, which surprised us at their high motivation and made us feel that the TCV would be meaningful for the members.

The TCV lecture contents on the first day were irrigated agriculture technologies, irrigation system management, and ICT-based monitoring, all of which were of strong interest to the CPs. Lecture contents of the second day were olive and cactus cultivation in Egypt. It was interesting that wild olive trees seem to be widely distributed in Balochistan, and opinions were raised that potential for olive cultivation in Balochistan may be more than that of Egypt. Cactus cultivation seemed to be a new idea, and some CPs suggested the possibility of growing cactus in areas of Balochistan with poor soil conditions such as coastal areas. Demonstration farm visits were conducted during the latter part of the TCV program and included a visit to an olive orchard with drip irrigation, a date palm seedling nursery, and an agricultural material company.

After those visits, some CPs even made personal appointments to meet with the officials from the farms and companies we visited, setting up further meetings at our hotel to exchange opinions. Their enthusiasm for obtaining knowledge and seeking possibilities of partnerships in their work in as much time allowed was remarkable. Other programs were presented by ICARDA and farm officials, explaining the public agricultural extension system in Egypt, which began to be weakened more than a decade ago. Political factors seemed to be behind the weakening and the CPs were keenly interested in the lessons learned from the transition of the country's agricultural extension system.

Group photo of visited farm

As many technology dissemination activities were presented by the ARC technicians, discussions with the lecturers of ICARDA on the last day highlighted the issue that useful knowledge and technologies from the research may not have been fully disseminated to farmers. Proposed activities to address the issue were discussed, including the utilization of ongoing JICA project for training opportunities, a review of past extension activities and actions to improve linkages with the research, as well as promoting cooperation between the extension and research in the future. In particular, it was suggested that the extension officers and university staffs to be invited to participate in the "Rabi (dry season, October-April) and Kharif (rainy season, April-September) meetings"which are regularly conducted by the research twice a year, in order to share important technical and regional issues for promoting cooperation among them. It was also one of the outcomes of the TCV that a proposal was raised to jointly share facilities and human resources between the extension and research to address field issues.

The CPs were able to communicate in English with the technicians and lectures involved in the TCV, which enabed them to have fruitful discussions in a limited time of just seven days. AAI will keep an eye on new actions of the CPs in the near future, and would like to make use of the solidarity strengthened through the TCV to further our project activities.