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AAINews

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## Return to Senegal - after a quarter of a century: What 25 years have done

I have had an opportunity to re-visit Senegal after many years since I participated in the experimental study on pasture cultivation and soil survey in Richard Toll along the Senegal River 25 years ago. Richard Toll is arid and has only a small amount of precipitation. The study therefore was for irrigation agriculture bringing water from the Senegal River. This time, our target study area was Kaolack.

Kaolack is about 4-hour drive south east from the capital Dakar. The saline Saloum River flows nearby and the precipitation is around 700 mm per year, enabling some rain-fed cultivation. Maize and vegetables are grown in the area, however, it is really the center of groundnut production located in the "groundnut valley". In the surrounding area, many groundnut fields are spread. Groundnut cultivation is done in organized plantations which were developed during the colonial era. Senegal's groundnut export accounts for 30 percent of the world's exports, and is the largest national industry. There are large oil extraction factories in Kaolack and mountains of groundnuts are seen in the vicinity of the factories. Groundnut is a highly useful commodity. Nuts are used for food and oil and husks are used for power generation and as soil improvement materials. Moreover, the plant residue after oil extraction provides precious resources as nutritious food for livestock. However, due to continuous cropping over many years, soil quality is deteriorating posing important challenges for the government to counter the trend.

Incidentally, among the Japanese, Kaolack is famous for one more thing. It is renowned as "garbage town". Kaolack is located at an important transport hub and a large number of trucks, buses and taxis pass through. And somehow garbage is left as mounds in many parts of the town. If you ask Japanese people who know the town very well, they would say this is much better than it used to be. When I visited Kaolack, it was during the rainy season. Water in the Saloum River was black and murky with garbage and household effluent, and was releasing unpleasant odors. Water puddles that form in many parts of the town were also black and murky, and we had to be careful to avoid them when walking outside. When the dry season comes, dust of powdery garbage flies in the air, making us want a face mask. We try not to walk around when the situation is like this.

After 25 years, Kaolack still has many donkey and horse cart taxies in town. Of course, there are also many vehicles and motor bike taxis too. People would take time negotiating the price of vegetables at the market and take these taxis to go home. Tarmac on the roads is crumbling in many places. "Not much has changed over the 25 years" is what we tend to feel.

In our work, the use of PCs has become the norm. Means of communication have changed from fax and letters to emails. In the meantime, the tempo of life in Kaolack remains very slow. This gap may be the difference between those who have kept up with time and those who have been late to get on the time train. We check emails every day where we are around the world. Wherever we are, we are chased by the business of our company or other projects and respond to the emails. While we cannot do much about this situation, it is a little strange that business progresses without anybody discussing issues face to face. I felt conversation with farmers which starts with a cup of tea in Senegal is something which is in complete contrast.

(By Zaitsu, December 2011)

Truck with a mountain of groundnuts residue for livestock food

Wind selection of groundnuts

# From assistance to business-from support to collaboration <Part 4>

## Japan's agriculture and cooperative work

As reported in the past issues of the AAINews, AAI has been exploring ways for supporting farming and training and nurturing of farming successors in Ushimado in Okayama Prefecture. In this issue, we would like to envisage models for regional revitalization based on the experiences in Ushimado.

Aging of farmers, a shortage of successors and an increase in abandoned farm lands have been pointed out to be the major challenges facing Japan's agriculture. It has also been long said that farming needs to incorporate a business perspective and management sense. It has almost become a cliché to suggest that marketing is important rather than farmers simply producing farming products.

The core of regional development is human capital, and this is the most important element. In order to nurture human capital, we need to employ methodologies that make the most of local resources to nurture future farmers and revitalize the communities. One such example is to establish a "Farmers' School" which aims to share technology, knowledge and wisdom inviting local farmers as lecturers, as part of training programs aiming to help upcoming farmers to establish his/her farming foundation.

The following can be considered as a training plan;

1) Agriculture beginners course (introductory course targeting people who have entered farming recently)
2) Agriculture intermediate course (intermediate course targeting new farmers and young farmers)
3) Agriculture trial course (targeting students and the general public)
4) Home gardening course (targeting people who would like to enjoy home vegetable growing)

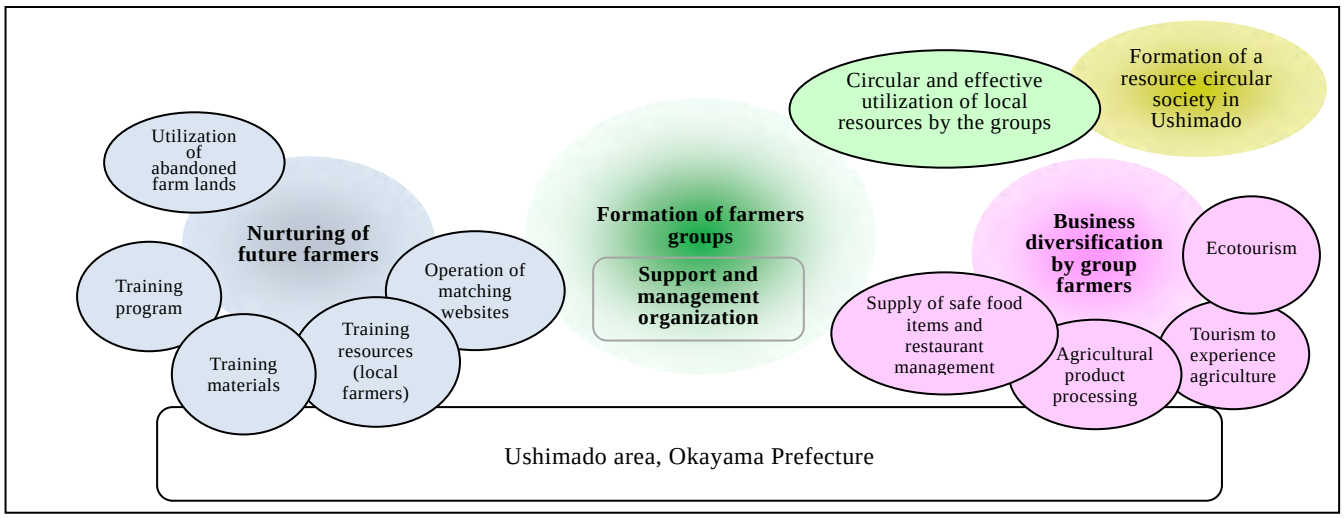
Also, one could run a matching site on the internet to connect those who would like to start farming and those who need successors for, and helpers on, their farms.

As a measure to support agriculture business diversification, support is provided for establishing agricultural business groups to achieve diversification and multiple commercialization initiatives in order to increase their income and stabilize their business. Some concrete examples include supply of safe foodstuff to consumers, restaurant business that utilize local food items and value addition through agricultural product processing. They can also include tourism ventures that link tourism with experiencing farming and development of ecotourism products. Multiple business development is quite difficult and may entail high risk for individual farmers. Therefore by forming a group, the idea is to reduce the risks.

Through the project to nurture successors and through the process of diversifying business by group farming business management, our support aims to form regional farmers groups. There is a need for a consultant to support the group formation and their activities and manage the whole program, and this may be a potential role for AAI. Furthermore, the existence of the farmers' groups is expected to be a firm support structure for agriculture business of member farmers. This will also lead to circular utilization of local resources and help Ushimado achieve a "resource circular society" in future.

Farming is basically a means of livelihood. Although it is necessary to establish an economic foundation to be able to continue farming, there should be work which has inherent value rather than simply pursuing profits. Farming that is founded on value should be possible, rather than farming merely to grow money.

According to a survey, 75% of the respondents answered that they would like to live in cities after retirement. Aiming to create attractive communities in which one would like to live, this is what is being sought in current aging societies such as Japan.



# Agriculture and farmers in Kurdish region <Part 4>

## Fruits production in Iraq

The Kurdish region is located in the northern part of Iraq. Using the arid and cool climate, fruit production is a main agricultural activity. Fruit is cultivated mainly on slopes in the mountain areas.

The most commonly grown fruit is apple, however walnut, apricot, pomegranate, peach and grapes are also widely cultivated. According to the farmers interviewed, apple and peach are for eating, apricot and grapes are for dried products, and pomegranate is used for juice. There is a variety of nuts sold in town markets.

Although I am not a fruit farming expert, the orchards looked as if they were relatively well looked after. Pruning, branches training, fruits thinning, weeding and application of agro chemicals are all commonly practiced. Fruits seem to be a comparatively lucrative crop. However, in the Kurdish region, fruits are largely grown in the northern part on the slopes. This makes large scale commercialization difficult. Under this circumstance, the farmers in the mountainous areas, where it is not possible to own a large piece of land, are trying to increase their income by switching to fruit cultivation from wheat cultivation. In other words, fruit farming provides promising income opportunities in the mountainous areas.

However, fruit farming in the Kurdish region has been severely affected by long years of fighting. In particular, the mountain areas are where fighting was especially severe, and farmers fled to Iraq and neighboring areas leaving their farms unattended. In the walnuts production area in Dohuk near the Turkish border, many people fled the area from fighting from 1975 until the early 1990s. During these years, their farms were unattended. I heard that people still cannot come back to their villages, and they live in nearby villages and come to their own villages just for harvesting the nuts. It is hard to live only with farming income. People are sustaining their livelihoods with supplemental income from pensions and temporary labor in the army.

In this situation, I visited an area where the Kurdistan Regional Government is providing support for expanding and extending fruit production. In the northern part of Dohuk, 10 apple cultivation project sites have been established, providing training for 250 farmers. In the neighboring area, apples introduced from Spain were provided to farmers for performance test. Farmers in the outskirts of the capital were growing apples and pomegranate for juice, while conducting experimentation of apples on part of their farms. Moreover, at the Ain Kawa Research Center in Erbil, experimentation is continuing targeting some 180 introduced varieties of apples and grapes.

Fruit cultivation takes a long time from introduction to harvest. It also requires management throughout the year. As for apple cultivation, the extent of pruning and fruits thinning differed from farmer to farmer. Agro chemicals were used everywhere. Compost and chemical fertilizers were commonly applied after flowering. Irrigation is used between March and November, and in most cases well water is used in Erbil. In mountainous areas in Dohuk, there were some old irrigation channels along the steep slopes, however most of them are not maintained.

One of the challenges of fruit farming, like vegetable cultivation, is marketing. Generally, in the Kurdish region, fruit production areas are in the northern and western mountain areas far away from the consumers. Yet, transport of products is mostly done by farmers themselves. I never heard of any cases where a middleman was used for distribution. Farmers have to transport their products to consumer areas and sell them in the markets by themselves. Many small scale farmers do not have their own means of transport, and it is a huge burden for them to have to sell their own product. In addition, high quality import fruits also pose serious threats. The Kurdish fruit industry will not grow unless the quality of fruits improves to the level that is competitive with imported products, and unless solutions are found for improving the product distribution system. The area has the right environmental conditions for fruit cultivation. Therefore, if done properly, there is a good possibility for future growth of the industry.

Fruit farm in a mountainous area

Apple experimentation for introducing a new variety

# Facts about dry land vegetation <Part 3>

In this third part of the series, I would like to introduce the wild watermelon (*Citrullus colocynthis*) that commonly occurs on dunes in the Arabian Peninsula.

It was in the book "Desert - Remaining Arid World" written by Professor Iwao Kobori where I first got to know *Citrullus colocynthis*. I was impressed by the fact that many interesting plants occur in deserts, having evolved to be drought tolerant. The first time I actually saw the plant was in the eastern part of the Rub' al khali desert, when I was walking in the dunes that span the inland area of the UAE. Sands were forming a small mound just like a baseball mound and I saw the vine like plant that covered the sands. Examining closely, I saw many tennis ball size fruits, which looked just like watermelons with vertical stripes. I immediately remembered thinking. "Hurray, this is *Citrullus colocynthis*!"

Then I observed many similar mounds around me. The patches that are covered by the vines attract shifting sands little by little, and eventually form a mound. States of fruits varied from green fruits with clear stripes to totally dry up yellow fruits. The dried fruit husks were just skin and seeds and when one shook them, they made a pleasant sound like a musical instrument. They reminded me of baby toys made of celluloid.

The desert was a habitat for a number of small animals such as fox, hare and mouse. And nomadic pastoralists passed with camels, goats and sheep. I was wondering why the wild watermelon is not eaten by these animals, and found that there was plant's wisdom behind this. It is extremely bitter. They say camels that eat it squint and grimace. I tried it myself and it was indeed very bitter.

After shaking dried up this wild watermelon, creating a rattling sound, opening the skin brings many seeds out. Some brought back these seeds to Japan to breed drought resistant watermelon, however I heard that it was just impossible to conquer the bitter taste.

After the first encounter with *Citrullus colocynthis*, I had an unexpected second encounter. It was at the pharmacy in the old souk in the capital Damascus, Syria. It was a very different kind of pharmacy. A variety of leaves, roots and fruits, as well as dried lizards and other dubious items were crammed together on display. Customers explain their complaints to the shop owner and he then mixes different materials and explains quantity and frequency of use. This pharmacy must have been dispensing effective medicines as whenever I visited the pharmacy it was full of customers. I was taken there by a counterpart when I was suffering from diarrhea. Some three plants were mixed and dispensed, which indeed worked well. When I saw *Citrullus colocynthis* on the counter of the pharmacy I felt as if I had met an old friend. The plant is actually grown in different parts of Europe as a medicinal plant, and the fruit is known to have purging effect. The plant is also mentioned in the Bible.

Recently we sometimes hear the name 'Kalahari watermelon'. This plant is also a wild watermelon that occurs in the Kalahari Desert. The compound called citrulline is attracting the attention of many companies as there is a potential for the compound to be useful for cosmetic and pharmaceutical products. Nara Prefecture is promoting the revival of traditional Japanese vegetables. Kalahari watermelon is also used as part of agriculture, commerce and industry collaboration activities to revitalize towns. Inspired by this idea, I would like to explore the use of *Citrullus colocynthis* for revitalizing town and rural areas in arid regions.