

### To Sudan, East Africa!

Sudan was a country which I had wanted to visit for a long time, having worked in West Africa and the Middle East. Many migrant workers from Sudan were in the Gulf States, therefore I had opportunities to mingle with many Sudanese through work and social life. The impression I got about Sudanese through meeting them outside of their countries was that they were generally soft and trust worthy. This time, I finally could visit Sudan. As we have already introduced the country in past AAINews, in this issue I would like to focus on Kassala and introduce Sudanese characteristics and what we experienced in Kassala.



When you hear Sudan, you may worry about safety in the country. In the south, there is South Sudan, a newly independent country which separated from Sudan. In the east, there is Eritrea, and domestically Darfur still remains to be a problem in the country. Although there are travel restrictions to the Darfur province and same provinces boarding South Sudan, the capital city Khartoum and my destination Kassala are very quiet and safe. I felt secure walking alone at night with nothing like mugging attempts on the way. The Japan Overseas Cooperation Volunteers, JICA are also active in these areas, contributing to the country in their respective fields, with no movement restrictions in the area.

Before work starts, we have to have breakfast. Across the country, their eating habits are focused around breakfast. It is more like what we call brunch. At around 11:30, people go out to eat leaving their work. This breakfast is rather heavy. The most popular dish is fowl, which is a broad bean dish cooked in a big pan (see the left photo below), and it is served with bread and salad. Occasionally, people may go a bit extravagant and order fried river fish (see the right photo below) or grilled or fried meat dishes. At the end, they drink tea to end breakfast. Dinner is small and during our usual breakfast



hours in Japan (ie. 7-8 am), they have tea and biscuits.

As for work, my duty this time was related to onion processing. Onions were purchased from local farmers. In Kassala, local farmers are generally land owners. Those who are actually doing physical work on farms are sharecroppers. Remuneration for sharecroppers is based on actual work rather than daily or monthly payments. They are paid based on the area they plow and the amount of harvests with total utilitarianism. My duty was to support a local NGO in dry onion production. In front of a drying machine brought from Japan, I worked every day with the Sudanese technicians who belong to the NGO, peeling and slicing onions, drying and packaging them.

I realized through my living and work in Kassala that the Sudanese in Sudan are the same as the Sudanese I met outside their country. They have a wave frequency that fits me well. Their kindness is very genuine. I think other Japanese would feel the same way. In Sudan, biscuit pots called jiel (see photo) are placed all over towns. Sudan is very hot and everywhere people need water. From jiel, anybody can obtain drinking water for free. I asked about the origin of this system and learned that the idea came from Sudanese themselves. What an attentive and caring gesture! There are water supply points for livestock too.



Sudan still is under US trade sanctions and the impacts are visible. Maybe because of this, we cannot withdraw money from, or send money to, Japan. This is an obvious impediment to business exchanges. I hope there will be increased exchanges between Japan and Sudan especially in agriculture which is the main industry of Sudan. Probably, in Africa, Sudanese are most similar in character to the Japanese and they are very trustworthy.

(By Zaitso, May, 2016)



Tricycle taxi in the capital



Colleagues in Kassala

## Improvement of vegetable cultivation course: AAI's effort to link abroad experience and training in Japan <Part 4>

### Irrigation technology extension, and data collection and application methods for extension

Following the previous part on crop production and irrigation, today we will introduce training focusing on irrigation technology extension and data collection and application methods for extension.

#### Training on irrigation technology extension

In this training, we focused on the effects of irrigation on crop production, problems irrigation may cause, and the necessity of water saving. We also provided lectures and practices, introducing a case study from our water saving irrigation technical cooperation project in Syria, and effective planning and implementation methods for extension activities.

In Syria's technical cooperation project, we established a system to directly link training and extension to combine extension worker training and actual extension activities. This provided extension workers opportunities to apply what they learn in training in their own extension work. For conducting extension work, we emphasized the importance of good preparation. In the training we introduced a series of preparation tasks including preparation of an activity summary, timetable for the extension day, tools and materials that will be used during extension activities and farmer training materials, as well as questionnaires for participating farmers to evaluate the extension training sessions.

#### Training on data collection and application methods for extension

In order to implement extension activities effectively, it is necessary to fully understand target areas, and the issues local farmers face. To do this, sorting and analysis of existing information and collected data is an effective method. In this training course, we delivered lectures and practices related to application of basic agricultural data obtained from agricultural statistics and various data obtained from local surveys, as well as development of the questionnaires for data collection.

#### Methods for understanding target areas

There are many sources of data that can be used in data analysis. In our training, the aim was to see analysis of existing and collected data as a method for improved understanding of characteristics of target areas.

Using the Excel chart creation function, we visualized precipitation, crop production, irrigation area, production cost and issues farmers face. Then participants tried to understand what can be read from the graphs and charts. In addition, by using the Excel filtering function, we taught how to extract data from agricultural statistics data based on a set of conditions, and visualize it in a graph for further analysis.

#### Farm surveys and data collection

In addition to the use of existing data such as agricultural statistics, we could also use information that

is collected through farm surveys. There are different survey strategies. Some surveys would collect a wide range of comprehensive information, and other surveys focused on a smaller number of survey items.

In this training, we employed the latter method, narrowing down targets, finding out the situations surrounding target farmers and identifying their challenges, so that these findings can form the basis for extension activities to follow. For example, we worked on devising measures against scab (*Streptomyces* spp.), one of the diseases that affects potatoes. In a group, participants discussed what type of surveys would be necessary to understand the situation, in order to identify survey items and develop a survey questionnaire. We include in our survey items, target farmers' knowledge and action related to some recommended measures to mitigate outbreak of scab, such as use of high quality seed potatoes, introduction of rotation cropping and controlling of soil pH.

#### Farm survey results and extension activity planning

After the above farm surveys, we conducted extension activities as a follow-up action for solving identified problems. Farm survey results revealed the actual situation of the scab outbreak and measures that are being taken. Based on the information, the extension target is set. Such targets could include: percentage increase in the number of farmers using high quality seed potatoes; increase in hectare areas with rotation cropping; and reduction in the percentage of scab occurrence. After conducting extension activities, we repeat farm surveys to ascertain and evaluate impacts of the extension activities. By going through a cycle of farm surveys to understand situations, implementation of extension activities to take counter-measures for identified problems, evaluation of extension activities and then further extension activities, we can achieve increased effectiveness of extension work.



Participants discussing farm survey methods

## Market-oriented agriculture in Palestine <Part 4>

### Production and use of compost

Soil in the Jordan River Rift Valley is deficient in organic matters due to the high temperature and dry conditions. This makes it especially important to ensure effective utilization of crop residue and livestock manure as part of resource management and material recycling. In this project, we established a compost production center aiming to promote compost production using locally obtainable materials, as joint activities of farmer's groups. In addition, we implemented activities to examine and improve the quality of produced compost, and the farm experimentations related to compost application.

Considering the difficulties farmers face in obtaining raw materials and farmer groups' interests, the project established three compost production centers in the target areas. At each center, farmer groups were given the responsibility to construct a building and establish electricity and water supply so as to nurture a sense of ownership. The project provided compost making machinery, as well as harvesters, trollies and crushers that are used for collection and transportation of crop residue and livestock manure.



Compost production center

To improve farmer groups' technical capacity to produce high quality compost, we conducted technical training targeting stakeholders such as cooperative members and extension workers. Main purposes of the training were for the participants to: (1) understand importance of compost production; (2) attain basic knowledge and technologies related to compost; and (3) obtain compost production techniques. Furthermore, to evaluate the quality of compost produced at each center, we sampled and analyzed the compost with positive results indicating good quality. However, it became apparent that there were some major differences between analysis results of various testing organizations. Therefore, the project facilitated standardization of analytical methods and developed a standard format to indicate results within an acceptable range. This made it easier to understand the characteristics of produced compost and points for improvement in the production process.

Although use of compost is increasing among farmers, it is still limited. There are some reasons why many farmers are reluctant to use compost. One such reason is that many farmers do not understand the importance of



Collection of compost samples

compost. Another reason is that there is no guidance on the optimal amount of compost for different crops and soil types. Hence the project attempted to generate information on advantages of compost over other organic materials and reasonable amounts to use, through various cultivation experimentations. The results were as follows.

- With eggplant cultivation, plots with compost (livestock manure and crop residue) had a larger yield than the plot with chicken manure sold from shops.
- With green pepper cultivation, plots with chicken manure from shops had a higher yield than the plot with compost and the plot with livestock manure.
- With tomato cultivation, the yield was highest in the plot with 25 bags/1,000 m<sup>2</sup> (1 bag = 25 liters) compost. In the plot with 100 bags/1,000 m<sup>2</sup> compost, the soil salinity tends to become high.

Although we could not obtain conclusive results on the superiority of compost and right amount for application, we have been able to obtain a variety of new knowledge that will be useful for effective implementation of future verification experiments.



Field experiments on the effects of compost application

Compost has soil improvement effect and accompanying increase in yield through long-term use. There is a lot of valuable works the compost production centers can do to grow and nurture a better future by running the centers with a long-term view.

## Onion drying project in arid regions - Joint work between AAI and the drying machine maker Taikisangyo Co., Ltd- <Part 1>

### End of technical cooperation project and development challenges

The technical cooperation project of JICA in Kassala, Sudan, has supported capacity building of extension workers through a number of pilot activities for four years since 2011. The pilot activities ranged from horticulture to mechanized agriculture, and from irrigation agriculture to traditional rain-fed agriculture. The project has also supported livelihood improvement of women in farming villages. The project has come to an end, having yielded a good level of positive impact, achieving set targets.

However, a project end does not mean an end of development challenges which countries and regions face. Sometimes, one solution may generate a new development challenge. Therefore, we had a frank discussion with Sudanese counterparts on what the needs are in the next stage of support based on the achievements and milestones of the technical cooperation project. These discussions started from 6 months before the end of the project, and a range of development cooperation ideas were suggested. Among them, support for value addition of horticultural crops and promotion of export were found to be important for improving farmers' livelihood. Therefore, we decided to explore possible continued support through different means from JICA project support. We suggested our key counterparts to establish the NGO National Organization for Technology Assimilation (NOTA) and collect local information.

old plant was constructed with financial support from the former Soviet Union (Russia). Dry onions were exported to European countries such as the Netherlands, Belgium and Germany. However, the large size of the facility meant there were a lot of management and maintenance problems with high costs for operation. Given this, we decided to examine the feasibility of establishing several small-scale drying and processing bases, and to revive the plant in a much simpler way. To establish a stable production system for exporting dry onions, and to minimize the running cost, we examined the possibility of introducing electric drying machines on a pilot basis. We concluded that we would first verify the suitability of electronic drying machines by trying them locally.



Collecting information from a farmer in an onion field



Interviewing farmers



Large scale onion drying and processing plant



Extension workers introducing a small electric dryer to farmers



Surface basin irrigation in an onion field



Harvesting onions

In the horticultural zones of Kassala, there used to be a major onion drying business and dry onions were important export items. However, when a large plant stopped its business around 10 years ago, the price of fresh onions sharply dropped. Stabilization of onion prices at a reasonable level and stable amounts of shipments have become a major task. After continuous discussions with NOTA, it was decided to focus our attention on the issue of agricultural produce processing among many other development challenges. The target is to revive the onion drying and processing plant. The

In April, 2015, as soon as I returned from Kassala, Sudan after the project ended, I went to visit Taikisangyo Co., Ltd, a drying machine manufacturer in Okayama Prefecture, Japan, to discuss potential collaboration. I never dreamed that we could introduce electric driers to Kassala, Sudan so quickly. However, soon after that, our collaboration concept was selected for a feasibility survey for a new project under JICA's partnership with Japanese private sector framework. With Taikisangyo Co., Ltd, the electric drying machine introduction project commenced. In this mini-series, we will report on the overview and progress of the onion drying project as the feasibility survey.