

AAINews

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On participation in the Promotion, Development, and Dissemination of NERICA Rice Varieties in Uganda

I had a chance to stay in Uganda for three months as a short-term expert for the Promotion, Development and Dissemination of NERICA Rice Varieties (rice breeding). Uganda's capital city, Kampala is on the Equator. However, as it lies at an altitude of 1,300 m, the city is green and the climate is quite pleasant with an annual mean temperature of between 21 and 25 degrees and with an annual rainfall of around 1,200 mm.

Uganda's staple food is cooking banana, maize and cassava. Of these, the most popular is the cooking banana which is called "Matoke" in the local language. In town markets, one can see heaps of green Matoke as in the photo, and one can immediately see that the Ugandans consume a large quantity of Matoke. Cooked Matoke is like a sticky mashed potato, and tastes slightly sour rather than sweet (see the photo on the right with a plate). Rice consumption, comparatively speaking, is much lower than Matoke, but it does not mean that Ugandans do not like rice. Rather, they see rice as a special feast for celebration occasions. In particular, for the farmers in rural areas, rice is a dream food they could only eat a small number of times per year.

In recent years, rice consumption is on the increase in Uganda, and I could even have rice at restaurants in small towns. Over a half of rice consumed, or 80,000 to 100,000 tons of rice, is imported, and increasing domestic rice production is an important issue in Uganda's agricultural development. Irrigated lowland rice cultivation in eastern Uganda which has many wetlands is expected to be strengthened. At the same time, there is a growing expectation for the introduction of NERICA cultivation in order to increase domestic rice production. NERICA is an upland variety and can be grown without irrigation and therefore the potential for application in Uganda is high. Since 2004, JICA has been providing assistance to NERICA cultivation by sending long-term experts. As a result, NERICA cultivation has grown from zero to in excess of 18,000 ha.

My assignment this time was mainly to provide training for variety characteristic investigation within the agricultural experimentation center, and I did not have many opportunities to visit farmers. However, I could at least witness farming areas to learn that farmers in Uganda cultivate a variety of crops such as banana, maize, cassava and pulses rather than depending heavily on one crop. For eyes used to seeing rice cultivation in paddy fields in Asia, the scenery with the upland NERICA being cultivated as part of a field with various crops looked very fresh. Compound cultivation is effective as a means of spreading risks at the time of disasters such as drought. In addition, by rotating crops, the negative impact of continuous cropping can be avoided. In the traditional agricultural system, NERICA cultivation seems to be incorporated in a natural way. I felt that this naturalness is a major factor for the smooth expansion of NERICA cultivation in Uganda.



Typical meal in Uganda – the yellow paste with arrow is Matoke



Typical farms – pulse and maize at the front and NERICA, maize and bananas at the rear



Morning at a Kampala market

(Kojima, July 2007)

Coordination between Technical Cooperation and Training Activities

Part 5 – Compound Program Type

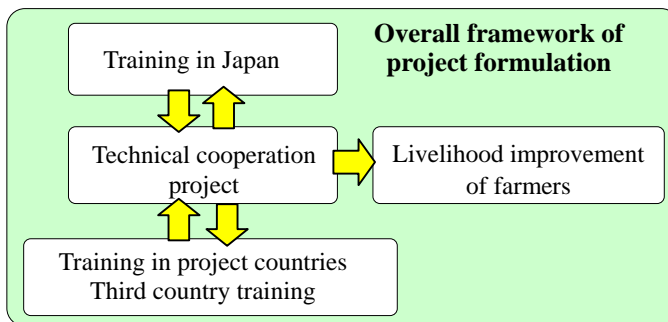
Examples we have introduced so far in this series, such as follow-up type coordination, coordination with technical cooperation project and third country training, are based on the improvement or combination of existing schemes. However, in practice, it is recommendable to promote project development based on local needs. Such project development should not be constrained by existing schemes and should promote a comprehensive approach encompassing various types of technical assistance and training activities. In the past, development studies and counterpart trainings as part of technical cooperation projects were add-on activities with a separate budget. In recent years, these activities are programmed from the on-set as part of planned projects. It proves that the importance of coordination between technical cooperation and training activities are increasingly being recognized.

Here, we would like to propose a form of compound program type cooperation, which is a technical cooperation project which integrates training activities in its plan from the project formulation stage. As a case study, I would like to look at a livelihood improvement program through improved fruit cultivation techniques in Central Asia. According to the report from the Agricultural and Rural Development, Training Needs Assessment for Tajikistan and Uzbekistan, fruit cultivation is suggested as one of the possible appropriate training courses for these areas. Under the climatic conditions in Central Asia, there is indeed good potential for production of high quality fruits. Grapes produced in Tajikistan fetch higher prices than the average grapes, and saplings of deciduous fruit trees are exported to neighbouring countries. Therefore, it is extremely important for the area's agricultural development to increase productivity and stabilize production of fruits by improving cultivation techniques through identifying limiting factors in fruit cultivation.

With this background, implementation of a program in Central Asia is considered to be highly promising, aiming to improve livelihood of fruit producers through improving product quality and stabilizing production. This would be possible by promoting appropriate soil management for fruit production and achieving sound quality management through introduction of pest control, pruning and thinning out of fruits. In this case, during the project formulation stage, a situation analysis would be undertaken and a cooperation field would be confirmed. For implementation, consideration should be given to the possibility of integrating training activities aimed at acquiring basic techniques of fruit cultivation into the technical cooperation project. By promoting various schemes efficiently and holistically, more effective cooperation programs can be implemented. In addition, when promoting this kind of integrated program, the following considerations should be born in mind.

- Efforts should be made to identify training needs during the project formulation stage;
- Position of training and its role should be clarified in project implementation;
- A clear demarcation should be made between training activities in Japan and in the project countries;
- What is expected of training activities in Japan should be clarified and a necessary system should be set up to be able to offer what is needed.

In short, during the project formulation phase, one should not only conduct fruit cultivation situation and needs analysis, but also should explore a concrete development plan, in collaboration with relevant government institutions in project countries, which would play a central role in improving fruit cultivation techniques in the country concerned. Moreover, there is a need to investigate a human resource development plan which would be necessary for implementing a development plan. Then, after a full examination of what types of technical training targeting which fruits can yield desired results, a cooperation program for achieving these results should be suggested and agreed upon. The program design would place a technical cooperation project and training activities in Japan and in third countries as required. In particular, in implementation of training courses in Japan, we would explore the possibility of running a “Fruit cultivation course for the Central Asia Region”. For this, cooperation needs to be consolidated for organic collaboration between various institutions such as the JICA training centers, universities and fruits experimentation center.



Greenhouse fruit cultivation (Tajikistan)

Reconsideration of Support Activities for Agriculture and Farmers – Comparison between Syria and Japan

Part 5 Two types of water users' associations and Japan: Traditional and future types.

Land improvement district is a Japanese farmer's water users' association which has been established under the terms of the 1948 Land Improvement Act. Last summer, we had a chance to visit Kamedagou land improvement district in Niigata Prefecture with the Iraqi trainees from the third country training. The Iraqi participants were truly interested in the land improvement district, which is acclaimed internationally as a highly successful water users' association. They listened enthusiastically to the explanations of the guide about everything from legal framework establishment, water management, operation of organizational structures to the history of the land improvement districts. The trainees have a huge mission; re-establishing irrigation facilities using water from the Euphrates and forming water users' associations. They, therefore, expressed concrete and practical interest, trying to acquire tips from Japan's experiences, which showed that they were extremely eager to learn and had a pressing need for this training. There were also exchanges of active questions and answers during lectures. It was impressive to see that trainees tried to take in one or two new lessons and ideas even when a lecturer pointed out that it would be difficult to apply Japan's water users' association system directly in Iraq, as the water users' associations have been formed in Japan's village society that have been in continuous existence since the pre-Edo era based on paddy field rice cultivation. It is obvious that there is a considerable difference between what water means to people in dry lands and in a wet environment. However, seeing the trainees' enthusiastic attitudes, we felt that there was a possibility that they would be able to utilize the experience of Japan's land improvement districts as roles for traditional water users' associations for the benefit of people in Iraq, a nation so far from Japan.



Iraqi trainees exchanging opinions in front of water use map (Tsukuba International Center)



Syrian counterparts during their training visit in Japan (At the Farm Pond at the Miyakojima Land Improvement District)

The counterpart training course in Japan, which was conducted as an integral part of the Project on Development of Efficient Irrigation Techniques and Extension in Syria (technical cooperation project), also included a field visit to a land improvement district; i.e. the underground dam of the Miyakojima Island. Syrian counterparts are also very interested in the topic of water users' associations and this visit seemed to have made a vivid impression. In Syria, in the 1960s, there were over 350 large and small water users' associations along the Euphrates and around the country. As they did in Iraq, traditional water users' associations in Syria developed as the needs arose for public water access to rivers, springs and underground canals (Qanat) to be distributed. The counterparts were primarily interested in introducing modern irrigation to traditional water users' associations. However, what was really worth noting was that they were investigating the possibility of applying the water users' association model as an effective joint management method for underground water sources which farmers traditionally regarded as being under individual ownership. Here, a new type of water users' association is being designed, using the example of a generic and traditional water users' association which is based on shared water resource utilization. Such a new type of water users' association aims to promote the integrated and joint utilization of the groundwater which is traditionally viewed as under individual ownership.

In Syria, the depletion of fresh water resources is a seriously pressing issue, resulting in the tight supply-demand situation. Therefore, the necessity of water saving irrigation in the agricultural sector, which accounts for nearly 90% of the total water use in the country, is called for. In particular, around 60% of the water use in the agricultural sector is groundwater pumped from wells by individual farmers, and water saving measures to curb individual use are urgently required. The problem is that most of the wells are dug illegally. Over-exploitation of groundwater resulting from the rapid increase in wells since the mid 1980s has been causing serious lowering of the groundwater table. There is no way that these illegal wells can be left alone. In order to tackle this problem, Syria is attempting to reduce illegal wells by consolidating wells. The country is exploring ways to achieve effective use of fresh water resources, such as the introduction of modern irrigation system and organizing water saving farmers' groups. However, grouping of farmers and the consolidation of wells are not as easy as they may sound. The larger the farm size is and the farther the distance between wells, the more complicated and difficult it becomes. Even if a certain measure is feasible technically, whether it is workable in terms of necessary initial investment and operational costs needs to be investigated. In addition, what is the social viability of a measure? In Syria, there still is much more room for further investigation. Furthermore, in order to communalise wells and fresh water resources, a substantial mind shift from private water to communal water needs to be cultured among farmers. Evidently, the Syrian plans to create water users' associations by communalising wells requires different thinking from traditional water users' associations. It is also clear that there is no sufficient legal framework for the organizations. Under these circumstances, what should we do in our technical cooperation activities? Should we dismiss the futuristic idea of the water users' association as totally unrealistic? Or should we explore the possibilities even if their results might seem small? What is effective cooperation assistance? Whatever the answer may be, diverse discussions and analysis as well as repeated consideration of issues are important in these technical cooperation activities.

Mini-Series: Sand Fixation and Tree Planting in Mauritania

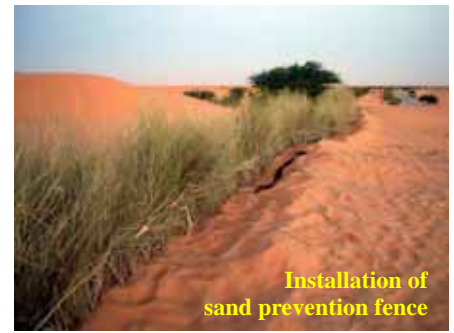
Part 2: Sand fixation and tree planting techniques in Mauritania

In the previous part of this mini-series, we reported on sand fixation and tree planting in Mauritania. Now we would like to report on actual planting techniques used in the country.

After the selection of planting areas, most of the time, a sand prevention fence (windbreak) is constructed before planting in order to stabilize the surface sands of the planting area. In particular, for tree planting along a road to protect the road, establishment of sand preventing windbreaks is essential. Common materials for such “sand prevention fences” are the trunks of *Calotropis procera* used as posts, and species such as *Euphorbia balsamifera* and *Leptadenia pyrotechnica* as “fence wire”. In oasis areas, mostly date palm leaves are used for sand prevention fencing. The windbreak fences established in planting areas for road protection beside roads and in planting areas for dune stabilization are rarely maintained and as time passes, and planted trees grow, the fences collapse and go back to nature.

In contrast, the planted tree species tends to be *Prosopis juliflora* which is a drought resistant exotic species. *Prosopis juliflora* has been used widely due to the fact it has a high water absorbing capability and grows very well in dune areas. However, due to its strong water absorbing capability, *Prosopis juliflora* tends to affect the growth of date palms, and its branches and leaves are not appropriate fodder for livestock. Therefore, people avoid using the species around farms and they prefer using indigenous species such as *Tamarix aphylla* and *Balanites aegyptiaca*. However, in extremely environmentally harsh areas such as dune areas, *Prosopis juliflora* is still widely used (according to information obtained in 2005).

When establishing a windbreak and planting trees in the same area, it is important to develop a schedule that employs good timing for seedling planting to utilize rain water in the rainy season. Planting of trees normally takes place from July to August when Mauritania has a relatively higher rainfall. Prior to the planting, establishment of windbreaks and nursing of seedlings starts around April (see the table below). When planting activities are conducted to establish common woodlands of an oasis, the seedling nursery is established at the peripheries of the oasis, windbreaks are established and seedlings are produced. Before a tree is planted, a cylinder is placed underground in order to prevent water permeating beyond the sapling’s root system. As sufficient amount of watering takes place inside the cylinder, transplanting of a seedling takes place. After planting, water is given inside the cylinder several times. After that, the cylinder is removed and the seedling is left to nature. It is a very simple technique.



Installation of sand prevention fence



Seedlings for planting (*Tamarix aphylla*)



Young tree after planting (*Tamarix aphylla*)



Grown up windbreaks (*Prosopis juliflora*)

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1) Seedling nursing	→									
2) Establishment of sand prevention fence	→									
3) Transplanting of seedling				→						
4) Maintenance, management and study	→									

In Mauritania, sand prevention and tree planting activities are undertaken in a very dry climate and in circumstances enduring severe economic constraints that prevent adequate investment in the activities. Windbreaks using local materials will achieve objectives and they will return back to nature when planted trees mature. Seedlings are nursed locally and planted. Apart from temporary post-planting management, rooting and establishment of the seedlings largely depend on the natural environment. Strong seedlings survive. This is the basis of Mauritania’s sand prevention and tree planting techniques.