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AAINews

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Counterpart Training Course for Syria's Water Saving Irrigation Project

A one-month project counterpart training course was held in Japan for Syria's water saving irrigation technicians. Two participants came from Syria. This training course did not follow the curriculum of existing courses, but was tailor made for the contents of the on-going technical assistance project. Main training contents included irrigation techniques, extension and training, all of which are important aspects of the technical assistance project, links between experimental research and extension activities, mechanisms and roles of agricultural cooperatives, and organization and participation of local people.

During the training course, we, as technical assistance project members, tried to share experiences with the trainees, joining them for field visits and lectures. We considered that the sharing of experience would enhance the effectiveness of the course, as well as benefit future technical assistance project management.With the presence of technical assistance project members at the counterpart training course, it is considered that discussions at lectures and understanding of the lectures was much enhanced. In addition, field visits became highly meaningful rather than merely fun visits.

The following table summarises the main field visits and lectures by category:

Category	Field Visit Destination / Lecture	Main Contents
Irrigation Technologies	Miyako land improvement area (Miyako Island)	Construction of underground dam and consolidation of irrigation agriculture
	Sprinkler factory	Sprinkler manufacturing and product testing methods
	Lecture on irrigation technologies	Introduction to Japan's irrigation technologies and ground water simulation models
Agricultural Experimental Research and Extension	Agricultural extension in Japan	Lecture on history and mechanism of agricultural extension in Japan
	Visit to agricultural experimental center	Role of agricultural experimental centers and relationship between experimental research and extension
	Visit to farmers	Understanding of the reality of agricultural production
Role of Agricultural Cooperatives / Agricultural Product Distribution	Lectures on agricultural cooperatives	Lecture on history of agricultural cooperatives, their mechanisms and roles
	Visit to an agricultural cooperative	Observation of facilities such as a distribution center and a storage system run by the cooperative
	Visit to the Ohta Market	Observation of mechanisms of vegetable and fruit distribution and auction procedures
Others	Training planning and evaluation methods	Lecture on formulation of training plans and impact monitoring and evaluation
	Participatory development	Visit to the Groundwork Project
	Tsukuba International Center (TBIC)	Examples of practical training courses

Furthermore, shortly before completion of the training course, we held an evaluation meeting with the counterpart participants, reflecting on the training contents and results. In the meeting, our discussion included how we will make use of the training in future implementation of the project. As situations differ between Japan and Syria, one cannot simply apply Japan's technologies and methods in Syria. However, it would be beneficial to try to make necessary modifications suited to Syria's situations or to apply technologies and methods in phases. What is important here is that the training courses in Japan do not only offer information and the opportunity to acquire technologies, but also offer the chance to understand how Japan's culture and Japanese mentality is connected to development and establishment of technologies and their progress and repercussions. Considering these points, it is expected that the impact of the training course will be further enhanced through the project implementation, by making the most of the experiences shared with the counterparts during the training, by further discussions, as well as by investigating how acquired technologies can be applied in Syria under varied conditions. By Koto (after the counterpart training course)

Production of value added high sugar content tomatoes using a water-saving cultivation method – Farmer in Shizuoka

A tomato selection center run by an agricultural cooperative – JA Chiba Midori, Chiba Prefecture

Improved and more natural river course created by local residents – Groundwork Mishima Project

Part 6 – GIS Use in Future Technical Cooperation

As indicated in the previous case studies in this series, AAI has been utilising the GIS in various technical cooperation activities in fields such as agriculture and rural development. Through our work, we learned the effectiveness of the GIS as well as a number of important points for consideration when using the GIS. As this is the last part of the series, we would like to reflect on how we can utilise the precious experiences in our future activities.

As we described in each case study, we made an effective use of the GIS by developing maps such as a land use map and irrigation potential map, by presenting many kinds of information on maps, and by using the GIS to select priority areas based on various conditions. These are examples of making direct use of GIS as a tool in technical cooperation activities, and many more effective uses can be envisaged. At the same time, we faced many problems when using GIS in developing countries. We feel that these lessons learned can be used positively in future activities.

For example, as indicated in the case study from Syria, in many developing countries, the information to be developed on maps is often inaccurate or incomplete. Therefore, in order to promote effective utilization of GIS, an information management system is essential to effectively manage information gathering and management at the central level. Paradoxically speaking, introduction of GIS leads to reinforcement of such an information management system. In practice, in our verification investigation work for development of the National Irrigation Master Plan of the Tanzanian Government, we suggested that information obtained at regional offices be managed by the newly established department at the central government, which produces map outputs. In this way, the more accurate information regional offices supply, the more useful geographical information they can obtain for improved understanding of their regions. This motivates regional offices to strive to gather accurate information for better quality maps.This in turn is an advantage for introducing the GIS in developing countries.

Furthermore, we have been stressing the importance of keeping the distance between information gathering and map output as short as possible, in order to raise accuracy rates of geographical information outputs and to ensure their effective utilization. In the case study from Oman, we learned that it is essential for those who collect information to conduct a thorough verification of GIS outputs. Without such steady verification work, it is impossible to sustain the accuracy of geographical information.The case study from Tanzania indicated that output maps need to clearly show their purposes. For example, by showing statistical data on maps, one can utilize such maps to grasp general tendencies and to consider the direction of development projects and their activity indicators. These GIS maps can offer extremely effective ingredients to be used for briefings to government officials, as one can describe individually collected information within the context of a bigger picture for easier understanding. However, in Tanzania, we found out that the same information as it was, had little use for farmers. This teaches us all concerned to seriously examine who are the recipients of particular geographical information and how they intend to use it, to ensure effective use of GIS characteristics as tools. Such considerations are additional advantages to introduce GIS in developing countries.

In future technical cooperation activities, a wide range of use of GIS is envisaged. What must not be forgotten here, as we stressed throughout this series, is that apparently impressive map outputs cannot be generated without tireless efforts to collect information and accurate information supplies from the field. Moreover, we mentioned in this series that GIS software is not something any one can operate easily. However, we also mentioned that it is difficult to take full advantage of GIS potential, if operation is entirely left to GIS technicians. GIS is a tool to extract usable data from multiple sets of information, establish their links, and to express them in GIS outputs. To decide on expression methods, the opinions of information collectors and users should be reflected rather than relying solely on GIS technicians. For this to happen, people in the field and on the frontline of activities could have an attitude of actively using GIS for their small analysis, or there could be a system enabling the opinions of users to reach GIS technicians. Generating a GIS output should not be the end of the process. It is important to constantly evolve the output according to progress made in information collection so that the product will become closer to the needs of the ultimate beneficiaries. In other words, if a process of active discussion and debate is activated, involving stakeholders such as project implementers and local residents, about GIS outputs, it can be said to be the cause of a major rippling effect of GIS introduction. Bearing these issues in mind, we hope to continue to use GIS effectively in our activities.

Part 6: Prospects for future resource management

In 2002, I had a chance to visit Syria after five and a half years away and conduct field work in the Jebal Abd al Aziz (JAA) mountains. The purpose of the field work was to assess the potential of a participatory rural development project involving the Baqqaras. However in JAA, as discussed in this series, the legacy of the systematic grassland landscape created by human activities had disappeared, and further vegetation changes were obvious. The particular grassland distribution patterns had been slowly created over 40 years, marking man's pastoral and firewood collection activities as the livestock herders, mainly the Baqqaras, became increasingly sedentary. This landscape had been totally destroyed.

The major reason for the destruction of grassland in JAA was the national government's tree planting project that started around 1979 in the surrounding area of the JAA and gradually expanded its project area. After the late 1990s, as a result of accelerated tree planting activities, the traditional grassland utilization by pastoralists saw a major change, confining the pastoralists in the particular and limited areas excluded from the tree planting activities. Traditionally, there was a clear demarcation of living space between sub-tribes based on the social norm. However, there was an excessive concentration of people and livestock in places, as the areas for their activities became increasingly limited and overlapped. The marked over-grazing caused the recession and degradation of grassland vegetation. At the same time, when we looked at conservation areas with tree plantations, almost all the planted tree species such as pines and pistachio had dried out due to insufficient management such as watering after planting. After having eliminated the pressure on mountain vegetation that was posed by lifestyle of pastoralists, weedy shrubs quickly dominated the area. Excessive overgrowth of the shrubs does not only prevent tree species from growing, but also creates a situation susceptible to natural disasters such as wildfires which commonly occur during the dry season in summer.

Consequently, the grassland in JAA was transformed into two contrasting and extreme vegetation types; i.e. over grazed and over grown areas. Is it impossible for the two different land uses based on totally different ideologies, namely livestock husbandry and tree plantation, to coexist? As far as seen from today's situation in JAA, one cannot say either of the land uses is successful, and both of them together seem to have hit a dead end. We keenly realise the difficult nature of tree planting activities in arid areas, especially when such activities are rather forcefully implemented in the space which pastoralists utilise. Fifty years ago, the Baqqaras had to overcome the hardship inflicted on them by the expansion of cultivated areas and reduced grazing land, by adapting their lifestyles to the new resources available. They are currently on the edge, waiting to see whether their livestock based livelihoods can be sustained alongside the expansion of protected tree planting areas. If they are to continue with livestock husbandry living within sedentary communities, the only way forward is to explore the directions of a more intensive livestock farming rather than pastoralism. This would probably require them to obtain some excess farming produce from neighbouring farming villages as supplementary fodder. For firewood collection, it should be possible for the activity to coexist with aforestation if the weeding of thick shrubs is considered. An urgent future task is to effectively involve local residents in resource management after tree planting so as to establish a cooperative system at the field level.

Furthermore, the following may be true. The Baqqaras, through long years of living in the JAA, have accumulated plenty of knowledge and experience regarding the grassland vegetation as their livelihood resource. Because of this, as discussed in previous parts of this series, they did not just use vegetation indiscriminately. Rather they selected and evaluated grassland as livestock herders, and as a result, an orderly grassland vegetation scenery is considered to have been formed. When we talk about "resource management", we often imagine processing satellite images or creating resource maps such as a vegetation map using GIS. If we call this the "external eyes" of resource management, it will be increasingly important for better understanding of regional vegetation, to view resource management in a compound fashion, incorporating the "internal eyes" of local residents. In future, if I have another chance to work in JAA, I would like to tackle tasks through resource management from a pastoralists' view of grassland vegetation; in other words, from the Baqqaras' ethno-botanical view and understanding of the grasslands.

Grassland vegetation in the mid 1990s

Artemisia herba-albe which withered due to overgrazing

Tree plantation conservation area: Pinus spp. six years after planting and overgrown shrubs

Mini Series: Global Scale Environmental Measures – Reduction of Greenhouse Gases (2)

Part 2: Greenhouse gas emission from fodder production in Nejid and environmental offset with local resources

Today, the issue of global warming caused by greenhouse gas emission is widely covered in the media. The Kyoto Protocol established greenhouse gas emission reduction targets for each of the developed nations. At the same time, it is necessary to tackle global warming issues as a global environmental problem irrespective of whether one belongs to a developed nation or a developing nation. A major purpose of agriculture and rural development is for peoples' welfare, improvement of their livelihood, and poverty reduction. Actual measures include expansion of agricultural production, employment creation and nutritional improvement. In recent agricultural and rural development activities, the following principles have become a norm; 1) non-dependence on external resources, 2) effective and circular utilization of resources within a region, and 3) a participatory approach. In this story, let us examine development assistance with regard to greenhouse gas reduction.

In the Dhofar Region, in southern Oman, as introduced in AAI News (Vol. 13-18), people have traditionally had a livelihood based on livestock rearing. In the desert area in the north called Nejid, people mainly herd camels. In mountain areas they raise cattle and goats using natural vegetation sustained by the summer monsoons. In the coastal area, cattle is the main livestock raised using fodder produced by using ground water. Apart from traditional cultivation seen in the Salalah plain, the main resources for the fodder were natural vegetation sparsely distributed in the Nejid or natural vegetation which occurs during the monsoon season in mountain areas. Basically when it was difficult to obtain fodder from other areas, people adjusted their livestock farming activities to exploit the available resources of the area.


Fodder production in Nejid

In order for further development of the regional livestock industry and for the expansion of diary production, since the 1980s, there was an increasing number of large scale grass cultivation farms, using groundwater found in Nejid and the effective utilization of groundwater in the coastal plain. These grass cultivations were only possible with the harvesting of ground water and the use of chemical fertilizers and farming machinery.

This led to increasingly apparent harmful effects of development. Around the fodder producing farms, groundwater levels went down significantly due to over exploitation. Irrigation water quality worsened. Along with these phenomena, many center pivot irrigation systems were also abandoned in Nejid. In addition, in mountain areas, which supplied a large amount of pasture in the form of natural vegetation until the 1980s, overgrazing has led to the recession of suitable vegetation for pasture and the expansion of harmful vegetation. Furthermore, grazing during the seeding season has lowered productivity of grass resources.

By 1999, fodder production using the center pivot irrigation in Nejid expanded to cover 467 ha with 17 centre pivot machines. The farms produced approximately 9,900 tons per annum of fodder, according to the estimate based on cultivation record of the Nejid Agricultural Research Station (NARS). A large amount of fossil fuel, which is a source of greenhouse gases, is consumed during the fodder production, for groundwater extraction, cultivation activities, and transport of products. For instance, gas oil consumption for cultivation machinery alone reaches around 600,000 litres per year. It is also estimated that in order to transport 1 ton of fodder to Salalah, 12 litres of gas oil is necessary.

In today's Dhofar region, there is a vicious circle created by an increase in livestock numbers and an increasing dependency on fodder produced outside the area. This has caused over-utilisation of natural vegetation in the areas concerned. As a result, it has become difficult to maintain a livestock industry based on sustainable regional-level resource circulation. We hear that the Government of Oman is also concerned about the negative impacts of increasing livestock numbers, and is investigating possibilities and in some cases implementing measures such as selective reduction of livestock (camels), subsidies for the selective reduction, establishment of protected areas aiming for rangeland management and seed production during the vegetation growth period in mountain areas. It is critical to implement sound livestock management and recover and increase fodder vegetation resources with appropriate protection of the resources in the mountain area. Promoting well planned utilization of vegetation resources and full use of local resources following a natural cycle should also lead to decreased regional dependency on external resources. In addition, this conservation, development and effective utilization of local resources would also contribute to reduction of greenhouse gases and therefore prevent further global warming. In our development cooperation effort, it is increasingly important to investigate forms of assistance that also ensure reduction of greenhouse gas emission.