

### Participation in Water Management Transfer in Egypt

I arrived again at Cairo airport one day in August, 2014, in order to join a JICA's Technical Cooperation in Egypt aiming to promote Water Management Transfer (WMT) by strengthening irrigation water users associations. Cairo, which I had not visited for one year, was much calmer than expected. There was no chaos in the city despite the coup that happened one year ago and the people seemed to be living peacefully although tourists were rare. With great relief, I started about one-month of field activities as a short-term expert to deal with training and other tasks designed to enhance WMT.

As reported in AAINews No.82, WMT is an initiative in irrigation national policy planning, promoted in many countries to tackle the fiscal difficulties of governments. It also seeks improvement of irrigation farming suffering from the enormous burdens involved in management of large-scale irrigation systems. The flat plains area of Egypt spans several million ha along the Nile and extends to the Mediterranean Sea. Irrigation channels fed by the river form a dense network transforming a naturally arid region into fertile agricultural fields. The Nile waters succor Egypt and make this possible. Cairo has an annual precipitation of less than 30mm. However, this large-scale irrigation system not only requires an enormous amount of labor and capital for its management but necessitates mutual cooperation and pro-active participation of the system users themselves. WMT intends to 'shift the status of the water users to a responsible position for sound irrigation water utilization' and adjust the paradigm from government management to more local management, direct user/beneficiary control and responsibility.

In the context of this article, the term 'water user' denotes a water users association that is a management entity of the irrigation system. The question is how to make water users accept the WMT concept and manage the irrigation system sustainably with more autonomy? Clearly, it is necessary to develop sufficient capacity both on technical and management aspects to enable successful application of WMT. The project I was involved with had adopted a three-tier training structure. It started with training the trainers of training implementers. These in turn, then train the actual trainers of the implementation, who go on to train the actual water users. My field mission was to support and facilitate this approach and to offer technical assistance for the establishment of the training system as a whole. The field activities themselves saw satisfactory progress thanks to efforts made by other long-term experts and cooperation from Egyptian counterparts. During my stay, a method of Curriculum Development Based on Vocational Ability Structure (CUDBAS) was used and I think that it led to a clear way forward for establishing the training system and made it possible to design a logical curriculum.



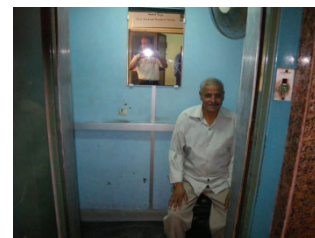
Training of trainers

CUDBAS Workshop

Honestly speaking, I was initially sceptical about the effectiveness of WMT. I thought that WMT would prioritize governments' needs to overcome their fiscal difficulties and that it would be difficult for WMT to receive cooperation from water users who may think WMT brings no benefit to them. Indeed, I witnessed one occasion where a government official could not answer a question posed by a farmer. It was a simple question, namely "How does WMT help us?" However, as I learnt about the real situation of irrigation administration promoted carefully by the Egyptian Government over the years, I began to think that the government-led effort might have gone too far in the direction of management and assistance with the result that it might become impossible for the government to actually manage the system.

Humanity, is by nature sometimes self-interested and short sighted. Each farmer works hard with high motivation when they face water shortages to establish a water user association. But once the irrigation system is built and the risk of water shortages is reduced, motivation among 'danger released' farmers to manage the irrigation system in collaboration dampens, and the operations of the association become less active. The government has increased interventions and subsidies in order to avoid such a condition and normalization of this situation has resulted in 'management of the irrigation system based on over-reliance on governmental support'. The government should think carefully about what they have promoted to create such a situation but I also want to say to the farmers, 'It's about time to stop being lazy and be more self-supporting'. Getting used to public services too much tends to cause loss of initiative and a sense of dependency.

The picture on the right was taken at an elevator of the Ministry of Water Resource and Irrigation in Egypt. An 'elevator uncle' has a full-time job here. Maybe this is one of the country's employment creation measures? However, it seems to me to be an unnecessary piece of government spending. This kind of excessive burden on the government and tax payer also often prevails in the field of irrigation administration.



(By Matsushima, October 2014)

# Being a good “interface” <Part 3>

## Linking different organizations

We frequently have overseas projects where we conduct missions with various different organizations and with project counterparts. In these cases, it becomes essential for a Japanese to function as an ‘interface’ and serve as a ‘linkage’ among people in different organizations or departments in order to implement the project. Call it glue, or cementing relationships, but this is an important role.

### Examples of project implementation with multiple related organizations

At the technical cooperation project on Development of Efficient Irrigation Technology and Extension in Syria, departments at the Ministry of Agriculture and Agrarian Reform in charge of irrigation experiment and research, agricultural extension, and training of extension workers became project counterpart organizations in order to promote water-saving irrigation techniques to farmers, and the Directorate of Modern Irrigation Conversion, which was established later, also joined as another counterpart organization. The division of roles among related organizations is as follows:

Experiment and Research	Agricultural Extension	Training	Water saving irrigation
GCSAR	Extension Directorate	Training Directorate	Directorate of Modern Irrigation Conversion
Experimentation on irrigation in experimental fields	Execution of extension activities to farmers	Implementation of training for agriculture extension workers	Introduction of water-saving irrigation equipment to farmers' fields

Division of Roles among related organizations under the Project on Development of Efficient Irrigation Technology and Extension in Syria  
GCSAR: General Commission for Scientific Agricultural Research

Generally, in developing countries, we often see difficulties in collaboration among different organizations as a negative effect of bureaucratic ‘sectionalism’ and a structure that inhibits communication and collaboration. The Syrian case is no exception. If we were to request something from a different department, for instance, we would be always requested to prepare an ‘official letter’, but the counterpart would not usually actively respond to our request simply because he had just received such a letter.



A Japanese functions as ‘glue’

In this sort of case, a Japanese can be ‘glue’ to connect and shorten the distance between related organizations and officers. This can be done though regularly visiting the Extension Directorate or Training Directorate with a GCSAR counterpart, getting to know the other counterparts, or increasing opportunities to create involvement of everybody by jointly implementing extension workers training, extension activities to farmers, etc.

### The Groundwork example

With regard to collaboration among different organizations, the ‘Groundwork Mishima’, introduced in AAINews No.82, is a good example which successfully realized collaboration among citizens, public administration, and enterprises. In this case, NPO Groundwork Mishima supports various activities playing a useful role as ‘glue’.

Towards realizing environmental protection activities in a sustainable manner, with involvement of local communities, this joint work with a linking organization is effective. We have experience in a mangrove planting and protection project in Oman, and we believe that this approach could serve as a model and be used for awareness raising activities and environmental education well beyond the project’s borders.

### OD (Organizational Development) approach

When we deal with collaboration among different organizations, we should seek effective collaboration by considering purposes and roles (official duties) of each organization and by maximizing their contributions. In addition, Organizational Development is effective to enable each organization to fulfill its roles.

In general, various training activities are designed for ‘individual’ capacity development. While increasing capacity of individuals within an organization is obviously important, it is essential to develop organizational capacity and improve functions of an organization as a whole in order to achieve goals.



Investigation of training needs using the CUDBAS method

Discussions are necessary to clarify the purpose of an organization and how we should train the staff members individually or reinforce the organization based on its stated purpose, as well as to identify training needs. An approach such as CUDBAS is an effective means to investigate measures for strengthening an organization.

# A Memoir of Kassala, Sudan <Part 3>

## Sorghum cultivation by pastoralists using water harvesting techniques

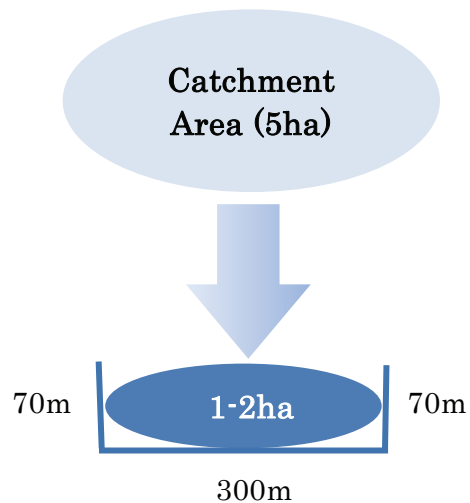
The climate in Sudan becomes drier when we move from the south to the north. Kassala State, which is located at the latitude belt of the Sahel's eastern edge, follows this same trend. The annual precipitation of 400 to 500mm in the south gradually decreases as it enters an arid area in the north (less than 100mm) adjoining the Egyptian border. Agriculture in Kassala State yields various products by combining different types of agriculture such as horticulture by pumping irrigation, mechanized rain-fed farming, and gravity type irrigation farming, which all benefit from the two rivers of Atbarah and Gash. See AAINews No.73 for more details. The majority of farmland in Kassala State is occupied by sorghum rain-fed farming on semi-arid area. Moreover, unstable sorghum production at the cultivation limit with scarce rainfall (150-250mm) is handled by a pastoral people. This time, we would like to introduce traditional water harvesting techniques practiced by pastoral sorghum growing people living in the eastern area of Atbarah River in Kassala State.

We have in the past observed various livelihood activities by pastoral peoples in Syria, Palestine, and Mongolia, and found their 'farming' styles were quite simple. Needless to say, the pastoral people's livelihood basis is livestock farming, and agriculture is only supplementary to this. Even when they engage in farming, they tend to save labor for agriculture by wage labor work or sowing seeds without tilling so that farm work is kept to a minimum.



Jidah made to collect water and a ridge partly damaged by a strong water flow

In the case of the pastoral people in the eastern area of Atbarah River we see a different approach. They have elaborated on the usual sorghum farming and have taken the technology one step further than some others. The sorghum fields are on very gentle slopes that almost look level, and the people build U-shaped field with ridges (20-30cm in height, covering land tracts of 1-2ha), which are called 'Jidah' in the local language, so that they can pool water flowing from upstream rainwater catchment area (two to five times bigger than the size of the U-shaped field) (please refer to the figure).



Schematic drawing of a traditional water 'Jidah' catchment system

The purpose of 'Jidah' is to stabilize sorghum production by supplementing an insufficient absolute quantity of water by utilizing water in the soil collected through rainwater catchment. The system might look simple, but it is quite hard work to make ridges manually using simple farming equipment such as shovels and hoes. Also, the force of water during the rainy season is sometimes so strong that 'Jidah' often get destroyed by the water flow. When it rains, the pastoral people frequently stay up all night and repair damaged 'Jidah'. Although the work is limited to a short period during the rainy season (June to August) each year, it is very interesting to see that the pastoral people allocate such a volume of time and labor for farming. Varieties of sorghum, such as Fatalita and Halirai, cultivated by the pastoral people usually grow tall and are strongly resistant to drought. They are cultivated not only for grains but also for stems and leaves that are used as livestock fodder. This selection of the hardy variety can be also recognized as traditional knowledge to adapt to the harsh natural environment of semi-arid area.

However, even after constructing 'Jidah', the annual yield becomes zero when the rainfall is extremely small or rainfall is erratic and unpredictable. Rainwater harvesting is fragile and comes with a harsh reality. The pastoral people must sell their livestock and conduct migrant work in towns if there is no harvest.



Sorghum cultivated in 'Jidah' and a scene of weeding

Mini series

# Greenhouses in the Middle East <Part 2>

Following the last part of this mini-series, this time, we would like to continue to investigate differences that exist between greenhouses in the Middle East and Japan. Greenhouses in Japan have a lot of varieties in terms of their shapes and covering materials. On the other hand, most greenhouses in the Middle East are arch greenhouse or quonset greenhouse and they are covered by yellow polyethylene sheets.

### Pad and Fan

Most greenhouses in the Middle East, especially those in UAE, have a cooling device called the Pad and Fan. The Pad and Fan is a cooling method utilizing the vaporization heat of water, and it contains a pad mainly made of cellulose and a large fan. When we moisten the pad with water, the water in the pad absorbs heat from the surrounding air due to the cooling effect of evaporation. By exhausting indoor air by use of the fan, the system can take in the heat-deprived air to the inside of the greenhouse and cool down the indoor temperature. This method has a better cooling effect when the temperature is higher and the air is drier. The system seems to be more effective in the dry Middle East than in the hot-and-humid summer in Japan, and as a matter of fact, when we visited a greenhouse in UAE in midsummer, the indoor temperature was kept around 30°C and the environment was very comfortable while the outdoor temperature was over 50°C.



Image of the Pad and Fan



Pad side

Fan side

### Differences in greenhouse shapes

Differences in greenhouse shapes between Japan and the Middle East can be understood as follows. Greenhouses in Japan are designed to grow crops mainly in the winter and the focus is on how to



Three-quarter greenhouse

gather more light during the winter when the day length is short and the sunlight is weak. For example, three-quarter greenhouse used for melon cultivation in Shizuoka Prefecture have large roofs facing the south in order to increase light transmission in the autumn and winter.

As for greenhouses in the Middle East on the other hand, it seems that they put emphasis on increasing effectiveness of air cooling by securing a good flow of air. As the indoor air is pulled out by the fan, we can assume that windows on the side wall and a sky window on the roof are not attached and that the house is designed in the shape of an arch in order to reduce occurrence of turbulent air flows.



Greenhouse without windows on the side wall and on the roof

### Covering materials

With regard to covering materials, light transmission and heat-retention capacity are strong selling points of greenhouses in Japan, and they are made of transparent glasses or films in general. In contrast, greenhouses in the Middle East are mostly made of yellow polyethylene sheets. When local farmers and technicians are asked why they used yellow sheets, they could not reply to the question clearly as the yellow sheets seem to be standardized. They probably use yellow sheets in order to avoid too strong sunshine during the summer by reducing light transmission and enhancing light dispersion. Through this, it is expected that room temperature increases and a leaf burn caused by direct sunlight, can be prevented.

Through the discussions so far, it seems that we have found a logical reason that both quonset greenhouse and yellow covering sheets in UAE are for increasing a cooling effect. However, the Pad and Fan is not so common for greenhouses in Syria and Iraq, and neither a heating device nor a cooling device is arranged in many cases. Moreover, the climate in these areas has hot summers and cold winters. This differs from the environment in the Gulf oil-producing countries, such as UAE. The climate seems to be more similar to that in Japan than that in UAE. In particular, the winter in the Kurdish region in the north of Iraq, which is famous for horticulture, has the same cold temperature as the one in Tokyo during the winter (the average temperatures in January are 6.1°C in Tokyo and 6.2°C in Erbil, the capital of the Kurdistan Regional Government). The conditions in this region might be different from those prevailing in oil-producing countries in the Middle East. Next time, we would like to investigate greenhouses in the Middle East in non oil-producing countries by analysing a case in the Kurdish region located in the north of Iraq.