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On the shore of the Black Sea, Turkey: female farmers carrying regional agriculture

I had a chance to visit Turkey for the first time in the last 17 years. My last visit was to Kahraman Maras Prefecture near the north-west border of Syria. This time, I visited the areas around the Black Sea and learned about agriculture in the region. Turkish people are known as japanophiles. I was told during my previous visit that Turkish people are grateful for the fact that in the Meiji Era when a Turkish navy vessel shipwrecked off the coast of Japan, the Japanese villagers rescued the crew and looked after them with devotion. However, this time, I did not hear any story like this from them. I wonder whether this is because of the change in time. I was still reassured, though, feeling their same old pro-Japanese attitudes.

Young hazel nut leaves

Women farmers selling their produce

Women showing hand knitted shoulder

The eastern Black Sea region is famous for its tea and hazel nut production (70% of the world's production). Farmers grow these cash crops, cereals and vegetables for self-consumption, as well as rear livestock for milk and dairy products. The area has very little flat land and steep mountain slopes come very close to the shore of the Black Sea. Therefore it is difficult to introduce machinery and most farm work is done manually. Land productivity is correspondingly low and even production for subsistence is not sufficient. Farmers' lives are becoming increasingly difficult with the Government abolishing subsidies for cash crops such as tea and hazel nuts, and price competition is becoming severe with the entry of private sector companies in the market.

Incidentally, it is women who shoulder the agricultural industry here. They are the ones who do most of the work in the hilly farmlands, from producing subsistence crops and rearing livestock to harvesting tea and hazel nuts. In addition to agricultural work, women are engaged in child caretaking, knitting and other domestic work. They also take limited excess produce and hand made items to the market to sell. However, there is not much sense of solidarity among the women and there is very little collaboration such as cooperative sales and distribution of agricultural produce.

The Eastern Black Sea region of Turkey is considered to be one of the least developed areas in the country. There is not much of a market for excess produce apart from in the markets in nearby cities, and farmers are dependent on income from non-agricultural day work and payment from parents' retirement annuities. As a result, a large number of male labourers migrate to Europe and large cities in Turkey for work, and the percentage of old people, women and children is extremely high in agricultural villages. It is women who are sustaining the agricultural village society. The major focus of rural development in the Eastern Black Sea region is to support these women farmers who hold the fort in a man-less rural society. I cannot help hoping that the living standard will be improved for the women farmers in the declining villages who maintain the rural society, protect their families and farm the land in this harsh living environment. (By Zaitsu on the shore of Turkish Black Sea in March 2005.)

New Series – Case Study of Use of GIS by AAI

Part 3 – Case Study from Tanzania

In Tanzania, the National Irrigation Development Plan was formulated in 1994. However, it has become necessary to revise the Plan, due to the low implementation rate of the Plan and due to the fact that it became necessary to ensure the compatibility of the Plan with other priority plans such as the Tanzania Development Vision, the Agriculture / Livestock Farming Policy, and the Agricultural Sector Development Strategy. In 2001, the Government of Tanzania requested the Japanese Government to assist with the revision of the National Irrigation Development Plan and formulate the National Irrigation Master Plan. Therefore, a series of surveys was conducted in order to develop the Irrigation Master Plan, identifying pilot areas, formulating an action plan, and identifying bottlenecks in the implementation process. For this development study, in preparation for formulation of an Irrigation Master Plan, we developed a distribution map of irrigation potential areas, using the GIS, based on water and land resources and socio-economic situations.

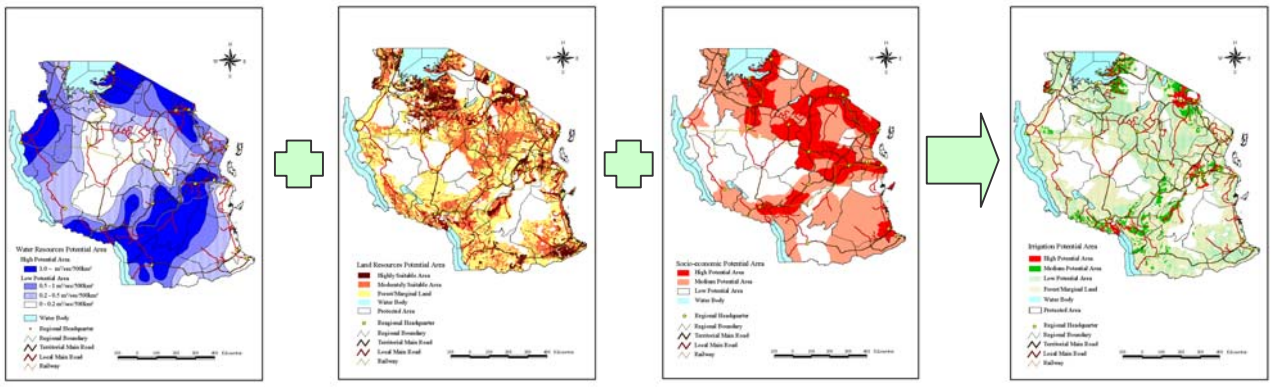
The distribution map of irrigation potential area was created by overlaying the water resources, land resources and socio-economic situation potential maps. Details of the three potential maps are as follows:

Potential Map	Summary of Creation Method
Water resources	Evaluate water resource potential by creating a national level runoff map from specific runoff data of 143 points around the country.
Land resources	Evaluate land resource potential by overlaying land use map, conservation area distribution map, topography and soil map.
Socio-economic situation	Evaluate socio-economic potential based on information such as population density, road density, areas experiencing food shortages, and distances from a tarred road.

By overlaying each potential map generated in the above manner, we created a map that shows three levels of irrigation potential from areas blessed with three resources (water, land and socio-economic) to areas that are disadvantaged in terms of those resources. Conservation areas were excluded from the analysis given the fact that they are not target areas for development.

In our attempt, we produced this map as a case study showing national level distribution of irrigation potential, making a maximum use of the available and usable GIS data at the point of development survey, and supplementing this with GIS manifestation of data obtained from related statistics. The map shows the distribution potential by different patterns and is considered to be an ingredient in understanding the national level trend of potential. In order to evaluate potential at individual sites, it is necessary to conduct further analysis using more detailed topography and soil maps. However, there was a case where the national level potential map was displayed at an agricultural festival event and there was a complaint made from villages living in areas classified as having low potential. Borders of GIS generated zones can be changed by reviewing criteria and adding and updating data. However, once information is displayed as a map, there is a danger of it being seen as absolute and fixed. I strongly felt the necessity of being aware of this fact. Map generators may need to devise ways for countering this danger by perhaps making borders fuzzy.

For creation of this potential map, we sought assistance from the University of Dar el Salaam, considering the solid ground of national level geographic information. However, as organizations such as the Ministry of Agriculture use different coordinate systems and projective methods for GIS analysis, it was difficult to link this achievement with further development. In other words, it is essential to shift to more unified management of GIS in order to promote information sharing. During this development study there was a workshop on this subject as part of the movement towards better information sharing. We hope that this movement will accelerate and that it will soon be easier to share information between different organizations.



Water Resource Potential Area　　Land Resource Potential Area　　Socio-economic Potential Area　　Distribution of Irrigation Potential Area

Changes in Pastoral Society in Syria and Resource Management

Part 3: Pastoralism combined with use of post-harvest farmland

In Hasakah Prefecture, the history of agricultural development is very short. We have already mentioned in the previous volumes of AAI News that until the start of agricultural development, there were vast rangelands utilized by pastoralists.[1] We also mentioned that the recent tendency for the pastoralists to become sedentary farmers happened as a process of changing land use. The characteristics of agricultural development in Hasakah are; 1) it was done on a massive scale in an area with few farmers, and 2) many commercial financiers in urban areas such as Aleppo with large machinery started agribusiness at the same time as an investment.[2]

Agricultural development in Hasakah started with barley and wheat productions as the first stage. The subsequent second phase was cotton and Hasakah is now one of the most important granaries of Syria, and is greatly contributing to the regional and national economy as a production center of industrial crops. However, during the time of dramatic change of land use and living environment of modern times, how did pastoralists deal with ecological resources and adapt to the changes? One choice was to part with most of the livestock and make farming the main livelihood, and there were indeed many people who made this choice. Nonetheless, in the Abd al Aziz Mountains, the Baqqara al Jabal people made a different choice. They practiced easy farming and became half-sedentary, but also continued with livestock rearing moving seasonally as before. It is easy to imagine that the main problem of the Baqqara al Jabal at that time was how they would deal with insufficient grazing as the grassland size diminished dramatically due to agricultural development in the plains. Still, for them, there was a new type of rangeland available in front of their eyes, such as post-harvest land of barley and cotton. They took in this new fodder positively and flexibly and beautifully adapted to the change from rangeland to farming land with qualitative and quantitative changes of surrounding environment. Their adaptation involved retention of the traditional and mobile lifestyle, and transition to a new level of livestock management skillfully introducing untapped and unexplored resources.

As above, in the large current of the time such as agricultural development and settling down of farming communities, the Baqqara al Jabal established a new way of livestock farming based on seasonal pastoralism the the Abd al Aziz mountains combined with use of post-harvest farmland. They established a pattern of moving to plains from summer to autumn when grazing is scarce. In contrast, the the Abd al Aziz mountains became important grazing resources in spring for non-Baqqara al Jabal people who have a large number of livestock in the plains.

Barley harvesting using large combine

Grazing in post-harvest barley

Irrigation work in a wheat field by a young pastoralist

[1] There were repeated attacks by pastoralists, which led to the decline and abandonment of villages. As so called “bedouinization” progressed, there were some centuries of low sedentary population in Jazira which includes the present Hasakah prefecture. (Wolf-Dieter Hütteroth, 1992). It was only in 1950-60 that the Jazira’s population started increasing.

[2] For example, see Amin. S. 1976.

Mini Series: Irrigation and Water Saving in Arid Land – Case Study from Field Work

Part 1: State of irrigation by farmers

We have dealt with the issue of irrigation in arid areas in previous volumes of the AAI News. In this mini series, we would like to present our thoughts on irrigation and water saving in arid land, focusing on case studies in the Middle East / Syria. In order to effectively utilize limited water resources and to ensure healthy growth of crops, it is important to estimate an appropriate volume of water and irrigation schedule and implement this. Basically, according to the crop water requirement (CWR) of a particular crop, an appropriate amount of water should be fed bearing in mind the amount of effective rainfall (where there is rainfall). There are many different methods of measuring the CWR such as a method to calculate using climatic data (Penman method and others), a method to calculate based on actual evaporation volume (Pan method) and a method to actually measure the CWR with a soil moisture meter and lysimeter. In Syria, one of the methods based on climatic data, the Blaney-Criddle method is relatively often used. CWR of each month is calculated by multiplying reference crop evapotranspiration (Eto) by crop coefficients (Kc), and considering irrigation efficiency.

In theory, the necessary amounts of water can be calculated in this way however it is very interesting to know how farmers irrigate their land in reality. According to the survey of farmers in Daraa Prefecture in the southern part of Syria, which produces crops such as tomatoes and water melons and where drip irrigation is widely operated, the main reason for introducing water saving irrigation systems is cost reduction along with water saving. As to the advantages of water saving irrigation methods, 72 % of the respondents said labour force reduction was important and 46% indicated water saving (multiple answers were permitted). This shows that those farmers tend to value the reduction of irrigation cost and labour rather than the saving water.

Comparison between CWR as calculated and actual amount of irrigated water (m^3/ha)

Month	Mar	Apr	May	Jun	Jul	Aug	Total
ETcrop	193	663	1,451	1,930	1,142	1,091	6,470
Farmer A	548	1,920	2,400	1,920	2,060	2,060	10,908
Farmer B	-	424	1,060	1,908	2,226	3,392	9,010
Farmer C	-	447	894	1,788	2,436	2,384	7,949

In relation with this survey, we investigated the actual irrigation schedules and volume of irrigation water used by tomato farmers through interviews and physical measurement, with an aim to better understand the actual state of use of irrigation by farmers. The table on the right proves that farmers tend to provide more water than theoretically necessary through irrigation, which reinforces the earlier point of valuing cost reduction over water saving. Generally, it is often said that farmers tend to irrigate excessively, however, these remarks had seldom been substantiated quantitatively. This survey, although in rough figures, revealed the fact that water saving quality of introducing drip irrigation was not fully achieved. However, considering some information regarding irrigation schedules and others obtained from interviews may not be accurate, it is necessary to obtain more data to increase accuracy.

Moreover, it is important to review the frequency of water provision in irrigation schedules. With the traditional channel irrigation, farmers irrigate their lands once a week and do not irrigate frequently because of the amount of work required. However, because drip irrigation can be operated relatively easily by just opening and closing valves, it is possible to irrigate more often. It is considered that this can lead to improvement of soil moisture conditions around roots of crops, resulting in better crop growth. There is a need to further investigate the relationship between different irrigation methods and frequency of irrigation, taking into account the specific situations in each area. In this issue, we introduced the state of irrigation by farmers. In the next issue, we will deal with water saving measures.

Furrow irrigation

Laying drips and mulching

Measuring amount of water fed by drip irrigation system