IRAQ

EXPERTS DISCUSS SADDAM IRRIGATION PROJECT

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[Article by Maryam al-Sanati: "Huge Projects Have Been Undertaken Since the Revolution; Saddam Irrigation Project Will Help Us Achieve Food Security"]

[Excerpts] An idea Iraqis have dreamed of since Abbasid times has been realized by the revolution. Iraqi labor and expertise have demonstrated their ability and potential. The project makes intelligent utilization of water to minimize waste.

The Glorious 17th of July Revolution has produced a renaissance in the country, guiding it forward with huge and comprehensive development activity in various economic and social spheres.

Agriculture has received a great deal of attention from the party and revolutionary leaders headed by President Saddam Husayn. This important sector has had big and important projects aimed at developing agriculture in several ways, one of which is reclamation of large tracts of uncultivated, wasted land. The country needs to utilize all of its land.

There has also been a growing number of big irrigation projects throughout the country, which has made it possible to irrigate large tracts of land.

The Saddam Irrigation Project is a huge and vital project which will divert the course of the Lesser Zab to a man made canal by means of the Dibis dam so that water stored up by the Dukan dam can be used to irrigate the plain between the foothills of the Zagros and Himrin Mountains and the Zab River, as well as the al-'Azim Plain.

Implementation of a project such as this requires awesome material and human resources. Although the idea for the project is not new, work on it began several years ago.

To grasp the immensity of the task and to examine this vital project--which covers a total area of 1,167,160 dunams--first hand, we must make a field trip to the work sites.

We say work sites because the project is not fixed in one location the way ordinary projects are. It is extensive, and includes within its scope vast extents which can only be reached and studied over several days.

The Saddam Irrigation Project, which was formerly called the Kirkuk Irrigation Project, will irrigate an area of 819,600 dunams with flowing water, and an area of 132,640 dunams by means of sprinklers. The total irrigated area thus amounts to 952,240 dunams.

This project is one of the largest irrigation projects in the country, and it will be an important factor in helping to ensure the country's food security for several reasons: the fertility of the land involved, the suitability of its soil and climate, and the availability and proximity of its water sources, which, as we have mentioned, are fed by the Dukan dam. Most of the land encompassed by the project receives continuous rainfall and suffers when the rain stops. On the whole, there is no summer agriculture.

So where shall our examination of the work begin?

That is the question.

The answer was given by Mr 'Abd-al-Wahhab Mahmud, the minister of irrigation, who said, "It is true that the project will sustain a wide area. The governorates of al-Ta'mim, Salah al-Din and Diyala will benefit directly, but the bulk of the work and its completion begin in the governorate of al-Ta'mim."

That is the green light. The Governorate of al-Ta'mim is the focus and starting point of activity. It has the bulk or all of the work, while subsidiary work takes place in the other governorates.

On the way to al-Ta'mim I believed that I would be writing about a subject which must be described in terms of figures, areas and cubic meters. Frankly, I believed that it would be difficult to provide a balanced treatment of a project such as this.

An irrigation project. What would I say about it? From what perspective would I write? After more than three hours I was at the work site, or more accurately, at the Saddam Irrigation Project's general installation.

An Implementation Journey

On our trip from this site to another site Engineer 'Abd-al-Majid Hamid told me about the work. He remembered wonderful experiences of some of the workers with him at the site. He also told me about a trip in which he witnessed the most marvelous examples of communal endeavor.

He said, "We engineers who worked on this project consider ourselves fortunate, because the work has given us valuable experience. We feel proud to have worked on a strategic project such as this."

While still in the car on the way to the second work site we listened to reminiscences.

He said, "During the time we spent working I cannot remember us ever having been separated from each other at either lunch or breakfast. Everyone sat together, whether in a restaurant or at the work site. Laborers and engineers, the director and his assistants, drivers and technical people--we all sat together. We ate the same food and we shared the same feelings--the desire to complete the project properly, with a high level of precision. Praise God, as you can now see, we are proud to stand at the site of a project implemented through the efforts of Iraqis."

Let's pause here. This is the pumping station at the feeder canal which pumps 28 cubic meters of water a second to irrigate the land between Dibis and Kirkuk. This station operates with 14 vertical pumps each of which pumps 2 cubic meters per second.

The project extends and traverses the hills, then descends in straight lines and spirals. We follow its course another distance, then we stop again.

At this spot, a new work site, we met Engineer Mahdi Qanbar Mahdi, the director of one of the project's subprojects. After a short rest at the project's headquarters we again visited new work sites. But this time we were accompanied by the person directly responsible for implementation at this site.

Engineer Mahdi Qanbar Mahdi said, "This job involved construction of a 28 km underground pipeline with 300 sluice gates distributed over an area of 25,000 dunams. The diameter of these pipes ranges from 1.5 to 30 meters. Each of the 300 sluice gates releases 70 liters per second. This will help to solve difficulties faced by the farmers. The sluice gates will be operated from a central control. This method is notable for the fact that the water travels below the surface and thus remains cold. And cold water, as is well known, is best for agriculture. Each sluice gate will irrigate 160 dunams. In addition, there is a seven km earthen canal with eight barrages to raise the water level, with two barrages at the beginning and end of the sites."

Iraqi Efforts and Increased Experience

All of this tremendous undertaking was implemented directly. When we say "all" of the work we mean 100 percent--not a single foreign engineer worked on this project. Our cadre of workers has gained valuable experience in setting up and maintaining the network.

The area which will utilize this water has been carefully subdivided. Each farmer will have a 53 dunam portion of this land. The water will reach all areas, both nearby and distant, in equal amounts and at the same time. This will put an end to the farmers' saying: "The farmer goes to work without a hose". Each farmer will receive the same quantity of water at the same time because it is all pumped at the same pressure. This is one of the important features of the pipeline method used.

I learned from Engineer Mahdi Qanbar Mahdi that the area of this subproject alone is sufficient for 475 farmers. It has been subdivided, and is ready for distribution on this basis. We also built several villages. So far we have built five villages with a network of paved roads to facilitate the transport of agricultural produce to the governorate.

We then visited the new villages which were built to house the farmers. They have been provided with all the amenities, and there are markets and other facilities of important villages. They are notable for their beautiful, well-arranged construction. This area, which is 45 km from the beginning of the project, will in the course of a few months be changed into farms and green fields by this big, vital project. Work is still under way on its final stages.

At another work site we spoke with Engineer 'Adnan 'Abd al-Rasul, the project supervisor for two of the project's several subprojects which are being implemented directly.

He said, "You have probably heard plenty of statistics. I would like to speak to you briefly about some of the project's distinguishing features and the new methods that are being used. The project is controlled by computer from a remote location, and is operated by electric and diesel power. Precise scientific control over water distribution is thus ensured."

Various Methods Of Optimum Utilization

Water is a national resource that should be utilized with the least amount of waste. Therefore several steps have been taken to achieve this goal. For one thing, the primary canal has been lined with laminated concrete even though that added 40 million dinars to the cost of the project. However, it has increased the project's life expectancy by several dozen years. In addition, other, less important parts have been lined with other kinds of linings. Furthermore, the project's primary sluice gates are regulated by remote control, and control of other parts has been automated. This remote control of the gates uses wireless transmission.

Other notable features of this project are the use of an underground flowing irrigation system to control soil erosion and minimize water loss, and the use of suspended concrete canals, which can cover a complete unit of area with less effort on the part of the farmer.

Experience We Have Gained

The discussion continued. The topic changed, but consequently poured into the flow of the Saddam Irrigation Project. The engineer spoke about the experience he gained through his work on the project. The worker remembered the trip during the first days at the beginning of implementation, and the delicious exertion of the days which turned into a huge project serving a wide area, turning it into farm land. Everyone we met had fond memories.

Mr 'Abd-al-Majid Rashid Isma'il, the director general of the project, said, "Although the project required us to redouble our efforts, that did not prevent us from participating in the battle front. With the outbreak of the war of aggression against our country, all of us--from the director general to all the engineers to a large number of the laborers --left for the front lines of al-Basrah to participate in the work of barricading the front. At the same time, we were boldly tackling the most important experiment of the project, the task of lining the canal.

"There were many who said that we would not succeed because of the difficulty of an endeavor such as this. But we carried it out although under the most difficult circumstances. We worked harder and longer. The entire cadre worked day and night, and we actually completed the work on this important part of the project ahead of schedule. I should mention that this canal was difficult from the standpoint of topography because of the rocks and the varying types of soil. In some areas there were eight kinds of strata. In olden times canals were subject to frequent cracking, and were exposed to gypsum salts which in certain areas amounted to 50 percent while the allowable amount is only 3 percent. This caused many projects to fail and has caused many canals throughout the world to collapse."

How did you become absolutely certain that you had succeeded in this vital and important part of the project--lining the canal?

Mr 'Abd-al-Majid Rashid Isma'il said, "We became certain that the operation was a success by empirical observation. Six months after this part of the project was opened we found that there was no water loss due to leakage after the canal was filled. That is the right way to determine whether an experiment such as this is successful."

This project has many important and unique features. For example, the need for maintenance operations has been reduced by using a reservoir with an area of 160 dunams at the source of the project's primary stream to allow silt to settle and prevent it from entering the primary canal. Another distinctive feature is that the need for draining is not anticipated for several years because of the depth of the subterranean water which in certain areas reaches 70 meters. Nevertheless, studies on draining it have been prepared, and the project has the distinction of being the first to produce these studies.

It should be mentioned that there are natural depressions which will help in collecting the water when it is drained and then in disinfecting.

I noticed that there are certain experimental farms which belong to the project. What is their relation with the project?

Mr Isma'il said, "The question of agricultural development has accompanied the project's construction activities. Since 1978 four experimental farms have been set up for purposes of research and experiments with various kinds of plants which are suitable for the project's environment, and to determine how much fertilizer and water are needed in accordance with the soil and climate."

Sprinkler irrigation is also being used in areas where it is difficult to irrigate with flowing water. Thus an area of more than 50,000 dunams is being covered within the first and second phases, of which 10,000 dunams will be ready during the coming winter season. This subject, of course, makes me turn to the matter of providing housing for the farmers. When the project's three phases have been completed 20,000 farmers will benefit. Studies have been undertaken on the construction of modern villages for the farmers. In fact, 7 central and secondary villages have been built which include 577 houses equipped with water and electricity, and a network of paved roads. These villages were built according to directives of the political leaders of the party and the revolution, who are headed by President Saddam Husayn, in the knowledge that these villages, and particularly the central ones, include clinics, schools, observation installations and warehouses. Each house has an area of 800 square meters, to enable the farmers to their livestock, taking into consideration the distance of the farmers' land from these houses. We must not forget that in addition to the agricultural aspect of the project it also ensures a source of drinking water for the city of Kirkuk, adding to the other pipelines in the governorates of al-Ta'mim and Salah al-Din.

Finally, Mr 'Abd-al-Majid Rashid Isma'il, the director general of the project, said, "In addition to its above-mentioned importance this project has provided valuable experience to the Iraqi cadre who worked on it. The experience gained by the Iraqi engineers during implementation of the project has familiarized them with all the small and large details of the work. We can now depend on our cadre in other big projects. Some of them are now working on irrigation projects in certain governorates after having finished the part which they were responsible for. At the same time we must not forget the role of the female Iraqi engineers who participated effectively in the field work side by side with the male engineers, and who have shown high competence and superior ability in carrying out and persevering in their work."

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