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NEW WATER PROJECTS TABULATED AT LENGTH

Beirut AL-ANWAR in Arabic 27 Apr 80 p 11

/Article by 'A. 'A.: "Massive Water Projects in the Development Council Files"/

/Text/ Will Lebanon be able to wait long--for example until the Middle East crisis, the Afghan crisis and the directions of the winds of the Iranian revolution end and until domestic and foreign reconciliation occurs--before the reconstruction process begins, in the midst of the backwardness and suffering which afflict the people in their homes, water and vital public services every day, along with the loss of certain necessities for a life worthy of mankind?

The Development and Construction Council has given priorities to activities whose factors have been appraised in the determination of development projects.

Maximum priority has been given to projects which will help lessen human suffering--for example, the repair of houses which have been destroyed and the provision of drinking water. Priority has then been given to projects which will improve living conditions, so that Lebanon will be able to become the site of the good life.

Some projects have been granted high priority because it takes a long time to carry them out, such as providing Beirut with drinking water; a serious situation could arise if they are not started in the near future.

The priority of certain projects, or parts of them, drops when they are situated in disturbed areas (such as the south, for instance), and the priority of certain projects rises if they help increase security stability by reducing unemployment.

Herewith is new light on the drinking water and irrigation projects in the al-Litani, Jabal 'Amil, al-Qa', al-Harmal and al-Kharrub areas according to Development and Reconstruction Council studies:

The water projects are divided into two types: drinking water and irrigation water. The projects on which final studies have been set out are four in number. The total costs of these projects are 327 million Lebanese pounds. These are their details:

The al-Litani One project (drinking water): 170 million Lebanese pounds.

The Jabal 'Amil Project (drinking water): 30 million Lebanese pounds.

The al-Qa' and al-Harmal lands irrigation project: 100 million Lebanese pounds.

The al-Kharrub area project (drinking water): 27 million Lebanese pounds.

The grand total of these projects is 327 million Lebanese pounds.

The financial schedule, in millions of Lebanese pounds, is as follows:

al-Litani, a total of 170 million Lebanese pounds.

Jabal 'Amil, 30 million Lebanese pounds.

al-Qa' and al-Harmal irrigation, 100 million Lebanese pounds.

The al-Kharrub area, 27 million Lebanese pounds.

The total is 327 million Lebanese pounds.

The al-Litani One Project's goals are to supply the city and outskirts of Beirut with drinking water from the al-Litani River.

Studies and condition documents have been ready since 1974. In 1977, the World Bank financed the reappraisal of the 1974 study in the two areas of costs and certain technical aspects.

The cost of the project was estimated in 1974 at 50 million Lebanese pounds. Current estimates are close to 170 million Lebanese pounds.

Imported machinery and equipment: 60 percent of the total, or 102 million Lebanese pounds.

Equipment, manpower, local expenditures and implementation over 3 years: 40 percent of the sum, or 68 million Lebanese pounds.

The organization charged with project implementation: the Beirut Water Department, in cooperation with the National al-Litani River Department.

In summary, the project is to construct a filter plant, tunnels, and a 45 kilometer pipeline to carry 200,000 cubic meters of water per day by

gravity to Beirut; there is no alternative source to provide an equivalent amount of water to the capital and its suburbs.

The Jabal 'Amil project's goals are to supply the Jabal 'Amil area with drinking water from Lake al-Qar'un.

The stage of the presentation of studies and the work of project study was based on a discharge of 532 liters per second, or the equivalent of 46,000 cubic meters per day. Water treatment is to take place 6 kilometers from the source to avoid blockage and shutdown of the water mains by sediment which the water from the dam is likely to carry in the first 6 kilometers.

The volumes of water which the water mains will transport are broken down as follows:

The Jabal 'Amil project, 295 liters per second.

Kawkaba, 2 liters per second.

Provision to some of the villages now being supplied by Shab'a water: 66 liters per second.

Balat and Dabin: 9 liters per second.

Marj'uyun: 20 liters per second.

al-Khirbah and al-Qulay'ah: 10 liters per second.

The Haris area (the Sur-Ra's al-'Ayn Water Project): 130 liters per second.

The project consists of two stages:

First, the pipeline from al-Qar'un to al-Tibah and the filter plant. This project was studied in detail more than 10 years ago and its implementation will require a period of no less than 3 years.

Second, other branches to come in a subsequent stage.

Project cost estimates: the costs of the first of the two stages of the project have been estimated at 30 million Lebanese pounds, broken down as follows:

Appropriations, 1 million Lebanese pounds.

The water filter and treatment plant, 4 million Lebanese pounds.

Construction of lines: 21 million Lebanese pounds.

Various technical installations: 1 million Lebanese pounds.

Reservoirs, 1 million Lebanese pounds.

The total is 28 million pounds, in addition to an unallocated sum of 10 percent, or 2 million Lebanese pounds; the grand total comes to 30 million Lebanese pounds.

The costs of the second stage have been estimated at approximately 20 million.

The organization assigned to implement the project is the General Water and Electric Utility Department.

The source of the project to supply Jabal 'Amil with drinking water by gravity is the al-Qar'un Dam on the al-Litani River at al-Nafidbah, from a tunnel installed at a pressure level of 811 meters above sea level. This flows through pipes ranging from 500 to 800 millimeters in diameter and the length of the line is about 34 kilometers. It reaches the Municipality of al-Tibah and there flows into the Jabal 'Amil water distribution system, which already exists.

The project was studied on the basis of a discharge of 46,000 cubic meters per day; treatment of the water was to take place at a distance of 6 kilometers from the source.

The first stage, the only one on which detailed information is available, will cover 55 percent of the total project output, or the equivalent of 25,500 cubic meters a day out of a total of 46,000 when the project is completed in both stages.

The al-Qa' and al-Harmal Project

Regarding the project to irrigate al-Qa' and al-Harmal lands with water from the Orontes River, the United Nations Food and Agricultural Organization (FAO) delegation has estimated the arable land in the al-Qa' and al-Harmal areas at 5,000 hectares. This is to be irrigated by water from 'Ayn al-Zarqa', which is a major source of Orontes River water. The breakdown of this irrigated area is as follows:

The al-Qa' area: by gravity, 2,400 hectares, by pumping, 1,100 hectares; total 3,500 hectares.

The al-Harmal area: by gravity, 1,300 hectares, by pumping, 200 hectares; total, 1,500 hectares.

The grand total is 5,000 hectares.

Meanwhile, studies made by the Ministry of Agriculture and competent departments in the Ministry of Water Resources and Electricity have shown that the areas suited for agriculture which can be irrigated by 'Ayn al-Zarqa' water are 1,000 hectares above the preliminary estimates.

Topographical and study work has been assigned to the British engineering study office of Binney and Co. This office made detailed studies of the plans and set out topographic maps, planning for the main irrigation channels, and planning for the water distribution system canals, and estimated the costs for the various segments of the project in 1964.

For numerous reasons, mostly local disputes on water use among villages, the project was presented for bids only in late 1974. Two companies presented bids, a Rumanian firm for 42 million Lebanese pounds and a French firm for 62 million Lebanese pounds.

Since the project was subjected to basic study in 1964 and its costs were determined at that date, and since the project was presented for bids, which were made in 1974, the Development and Construction Council estimated the project cost in 1978 at about 100 million Lebanese pounds.

The organization assigned to carry out the project is the General Water and Electric Utility Department.

The project, in brief, in its first stage, is to construct a diversion dam over the Orontes Riverbed at the altitude of 'Ayn al-Zarqa'.

The second stage is construction of two tunnels, a common irrigation and electric power generating tunnel in the direction of al-Harmal and another tunnel in the direction of the al-Qa' lands.

The third stage is construction of distribution systems in the al-Qa' and al-Harmal areas.

#### The al-Kharrub Area Project

The al-Kharrub area project's goals are to supply the al-Kharrub area with drinking water from Lake 'Inan.

All studies were carried out in 1974. The project costs were estimated in 1974 and re-evaluated in 1978.

Project costs in 1974 prices were estimated at 9 million Lebanese pounds, broken down as follows:

Construction of lines and reinforcement of certain existing lines: 2.78 million Lebanese pounds.

Construction of a refining station, 2 million Lebanese pounds.

Construction of reservoirs, 1.55 million Lebanese pounds.

Reinforcement of systems to connect them to the reservoirs, 270,000 Lebanese pounds.

Appropriations, 300,000 Lebanese pounds.

Unallocated funds and studies: 500,000 Lebanese pounds. The grand total is 9 million Lebanese pounds.

The estimate of project costs in 1978 is 27 million Lebanese pounds; the organization assigned to construct the project is the General Water and Electric Utility Department.

Water will be drawn from the lower part of Lake 'Inan, into which the al-Litani River flows, and a water treatment plant will be built at an elevation of about 588 meters above sea level 1,500 meters from the source.

After treatment, water will be distributed to the al-Kharrub region by a main line from south to north ending at the Municipality of al-Hardush. Meeting this line will be branches going from east to west covering the other areas by gravity.

The main line will pass below the Municipality of Shuhaym. This will require the construction of an auxiliary pump station to provide drinking water for the Municipality of Shuhaym, which is considered the biggest village in the area.

After water is provided to Shuhaym, it will be possible to use 3,000 cubic meters for distribution to villages.

This project is the only solution to the problem of supplying the al-Kharrub region area, since the sources used now do not presently cover the area's requirements. The abovementioned project, however, will cover the needs of 45 villages in the area, which are expected to reach 21,600 cubic meters per day in 2000.

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