

DD QC #5-1979

Indexed as Jordan River

- diversion issue 196.
- Jordan River - Israel struggle

CENTRAL INTELLIGENCE AGENCY (Continued)

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- A. [Israel] The Struggle for Jordan Waters [Israeli planning for the National Water Conduit extending from the Jordan Valley to southern Israel, Jordan's Yarmouk-Jordan Valley Development Project, climatic problems, and Arab diversion threats]. Geographic Intelligence Memorandum, RR GM 62-5. May 1962. 7 p., maps. CONFIDENTIAL. Declassified Feb. 14, 1979.
 - B. [Korean War] Communist Capabilities and Probable Courses of Action in Korea through 1953 [force strength and air and naval capabilities of North Korea, China, and the USSR; Soviet interests and influence in the Korean War; China's objectives and domestic political and economic strains resulting from the war; North Korean economy and morale]. National Intelligence Estimate, NIE-80. Apr. 3, 1953. 11 p., map. Annex: (A) The Estimated TO and E Strength of the Communist Air Force in China [1950-54]. 1 p.; (B) The Estimated TO and E Strength of the CAFIC [1950-54]. 1 p.; (C) Estimated Soviet Far East TO and E Air Strength [1952-54]. 1 p.; (D) CCAF Aircraft Technical Capabilities. 1 p. TOP SECRET. Declassified Aug. 2, 1977.
 - C. [Latin America] The Caribbean Republics [the situations in, probable developments for, political stability of, and relations of Cuba, Haiti, the Dominican Republic, Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica, and Panama are analyzed. These republics have not departed greatly from the colonial pattern of living; they are dominated by landed classes, the military, and, to an extent, the Catholic Church; the rulers are for the most part "strongmen" who have ascended to power by force instead of an electoral process; pressure for social, political, and economic change has been steadily increasing over the last 30 years and has come primarily from the urban intellectual element not the peasant masses; agitation against the traditional order has taken a nationalistic tone]. National Intelligence Estimate, NIE 80-54. Aug. 24, 1954. 17 p., map. Annex: (1) [Statistics on population, race composition, literacy and income.] 1 p.; (2) [Statistics on armed forces personnel and equipment.] 1 p.; (3) [Statistics on exports and private US investment.] 1 p. SECRET. Declassified Nov. 28, 1978.
 - D. [Latin America] Assessing Military Expenditures in Latin America: A Look at Four Countries [although military expenditures as a share of GNP in Bolivia, Brazil, Paraguay, and Peru are above average in Latin America, they are lower than the average for a larger group of less-developed countries. Portions of each country's military expenditures also include significant outlays for civilian construction. The economic burden of military expenditures is diminished partly because most of the cost covers personnel expenditures, and the personnel consists of conscripted, unskilled, illiterate peasants, who would at best make a marginal contribution to the economy. Purchases of military equipment have had little effect on foreign exchange earnings because they are small or the terms are spread over five to eight years]. Directorate of Intelligence, Office of Economic Research Memorandum, ER IM 68-78. July 1968. 19 p., tables. SECRET. Declassified May 7, 1978.

CENTRAL INTELLIGENCE AGENCY

- A. [Mali] Modibo Keita [biography]. Report. [1962.] 5 p., il. CONFIDENTIAL.
- B. [Peru] Plans of Peruvian Government with a View to Nationalization of Mining and Energy holdings hopes its holdings at \$170-180 million the holdings at about \$12 million presidential aspirations]. In Apr. 20, 1973. 8 p. Security classification not stated.
- C. [Peru] Persistence of General Velasco Alvarado has appeared has requested that the Bureau of Mines and Minerals has been directed to contract with the company to mine minerals in the US that could be mined. Cable, TDFIRDB-315/05390 SANITIZED copy. Released.
- D. [Peru] Developments in the Holdings of the Cerro de Pasco Company the tactics being used by the company in nationalization as a fait accompli company's holdings, which compensation; relations between labor troubles have been provoked company judges are in a state of confusion. Cable, TDFIRDB-315/06953-73. July 23, 1973. Released Apr. 20, 1978.
- E. Peru, Scheduled Take-Over probably occur between the company and the government undertaken with key personnel not accept the GOP offer of \$100 million holdings]. Intelligence Information Report. 6 p. Security classification not stated.

**GEOGRAPHIC
INTELLIGENCE
MEMORANDUM**

**CIA/RR GM 62-5
May 1962**

THE STRUGGLE FOR JORDAN WATERS



CENTRAL INTELLIGENCE AGENCY

OFFICE OF RESEARCH AND REPORTS

WARNING

This material contains information affecting the National Defense of the United States within the meaning of the espionage laws, Title 18, USC, Secs. 793 and 794, the transmission or revelation of which in any manner to an unauthorized person is prohibited by law.

INTELLIGENCE MEMORANDUM

CIA/RR GM 62-5

May 1962

THE STRUGGLE FOR JORDAN WATERS



CENTRAL INTELLIGENCE AGENCY

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~~CONFIDENTIAL~~

Declassified by 033769
date 14 February 1979

THE STRUGGLE FOR JORDAN WATERS

The first segment of the Israeli National Water Conduit, which will extend from the upper Jordan Valley to the Negev Desert in the South, is scheduled to receive water pumped from Lake Tiberias in late 1963. Progress on the construction of major features of the conduit appears to justify Israeli confidence that the schedule will be met. With the completion of this segment, Jordan water will, for the first time, be transported beyond the limits of the Jordan Valley. The Arab states are firm in their stand that no compromise permitting Israel to divert water from the Jordan Valley can be reached, and they have loudly but ineffectively promoted retaliatory threats to deprive Israel of water by diverting major tributaries of the upper Jordan. South of Lake Tiberias on the lower Jordan River, Israel and Jordan are proceeding with less friction in the development of their respective irrigation projects.

I. The Master Plan of Israel

The core of Israel's plan for the development of water resources is the National Water Conduit -- a system of canals, tunnels, pumping stations, reservoirs, and pipelines to transport water overland from the Jordan Valley to southern Israel. This major artery will be linked to regional projects so that available water can be diverted to those areas where the need is greatest. Near Rosh Ha'ayin in central Israel the National Water Conduit will connect with pipelines of the Yarkon-Negev Project, which will carry water as far south as Beersheba in the northern Negev. Although water from the Jordan River is a critical element in the water plans of Israel and will eventually supply 30 percent of its water needs, the plans also rely heavily on the combined resources of ground water, sewerage, surface runoff, and water returned from irrigation.

The Beit Shean Project, designed to irrigate the Jordan and Beit Shean Valleys south of Lake Tiberias, is not connected with the National Water Conduit. Here, water drawn directly from Lake Tiberias is to replace that now being pumped from the Yarmouk and Jordan Rivers. It is anticipated that the Beit Shean Project will benefit from plans being considered for the diversion to the lower Jordan of water from saline springs now emptying into Lake Tiberias and from the pumping of Yarmouk waters into Lake Tiberias during the winter flood season.

Israel originally planned to tap the Jordan River near the Banat Jacob Bridge in the Demilitarized Zone north of Lake Tiberias. The water thus withdrawn was to be used to power a hydroelectric plant at Tabigha on the northwestern shore of Lake Tiberias. In 1953, a clash with Syria occurred when Israel was at work on the section of the canal within the Demilitarized Zone. Work was stopped after the issue was raised in the Security Council of the United Nations, and the 1.5 miles of canal within the Demilitarized Zone have never been completed. The present plan is to draw water for the National Water Conduit from Lake Tiberias, rather than the upper Jordan, by means of the pumping station at Tabigha. When, as Israel hopes, water becomes available from the upper Jordan River, the Tabigha pumping station will be converted into the hydroelectric plant originally planned.

When Stage I of Israel's plan is completed in late 1963, water from Lake Tiberias will be delivered to the area of Rosh Ha'ayin east of Tel Aviv by means of 44 miles of 108-inch concrete pipe, 3.4 miles of 108-inch steel pipe, 25 miles of open canal, and 6.7 miles of large-diameter tunnel. By 1964, Israel plans to pump about 160 million cubic meters (cu m) of water per year from Lake Tiberias; according to an Israeli engineer the capacity of the pumps at Tabigha is 200 million cu m per year. Stage II, tentatively planned for 1966, provides for a general increase in volume of water pumped and in storage and distribution facilities. By 1970, when all three stages of the plan have been completed, Israel expects to draw 320 million cu m of water from the Jordan River for the National Water Conduit, 100 million cu m for

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II. Problems Arising in Israel

The ultimate success of Israeli water plans is closely associated with the climatic regime of the eastern Mediterranean -- an unreliable element at best. There can be little assurance that climatic and hydrological conditions upon which planning has been based will remain unchanged in the coming years. Heavy pumping and a series of abnormally dry years have already brought about an unanticipated lowering of the water table on the coastal plain east of Tel Aviv. In the face of this threatened water shortage, a temporary steel pipeline has been placed in service between a completed portion of the 108-inch pipeline and Rosh Ha'ayin Springs. Through this temporary pipeline, surplus water from the Benyamina-Pardes area midway between Tel Aviv and Haifa is carried south to supplement the flow of Rosh Ha'ayin Springs. It is estimated that even after several years of plentiful rainfall, however, these springs will provide only 120 million cu m of water per year whereas the sustained withdrawal during the late 1950's amounted to 180-200 million cu m per year.

The head of the Research Unit of the Mekoroth Water Company, Ltd., which is the contractor for the water plan of Israel, has charged that a serious miscalculation has been made concerning the total volume of water that will be available from the Jordan River for the National Water Conduit, and others have asserted that withdrawal of large volumes of water will lower the level of Lake Tiberias significantly. Both charges have serious economic implications, and both have been firmly denied by the Director General of Water Planning for Israel. Nevertheless, projected water requirements for 1969 are 22 million cu m more than the anticipated supply from all sources. Although this shortage is not considered critical in view of the long-term nature of the estimate, it is indicative of the delicate balance of water in Israel.

III. The Yarmouk River Project of Jordan

In June 1961 the Harza Engineering Company International presented the Jordanian East Ghor Canal Authority with plans for the Yarmouk-Jordan Valley Development Project, which places primary dependence upon the waters of the Yarmouk River -- Jordan's major water resource. This proposal for irrigation in the Jordan Valley and for power generation in the Yarmouk Valley is based on five stages, proposed for completion in 1979. By this date 119,000 acres of the Jordan Valley are to be irrigated and a power-generating capacity of 42,700 kw is to be provided. Under terms of the 1953 Yarmouk River Treaty, Syria will receive a minimum of 10 percent of this energy

Stages I and II of the project have been included in the Jordanian Five Year Program for Economic Development (1962-67). Stage I, which is being supported by the U.S. Aid Mission to Jordan, consists of a 3,214-foot tunnel and 43 miles of open canal on the East Ghor, extending south as far as Wadi Zarga. This work was actually begun in 1958 and has now been completed to Kilometer 22.8, a distance of 14.1 miles. The remaining stages call for a 25-mile extension of the East Ghor Canal and the construction of a 28-mile canal on the West Ghor that will be linked with the East Ghor Canal near Wadi Zarga. A diversion dam on the Yarmouk at Adasiya and a storage dam on the Yarmouk at Wadi Khalid are features of Stage II. At a later date the height of the Wadi Khalid Dam is to be increased, and a storage dam is to be constructed on the Yarmouk at Maqarin. Powerplants are to be installed below Wadi Khalid, at the Wadi Khalid Dam, and at the Maqarin Dam. When completed the storage dams at Wadi Khalid and Maqarin will provide 250 and 300 million cu m of water, respectively.

When the Yarmouk-Jordan Valley Development Project is implemented, it will require more water than is available from the average annual flow of the Yarmouk River, which amounts to 467 million cu m, and from the storage capacity provided by the Wadi Khalid and Maqarin dams. It is anticipated that much of this deficit can be made up through the construction of storage dams on wadis emptying into the Ghor in Jordanian controlled territory. The original plan for the Yarmouk-Jordan Valley Project, prepared by Michael Baker, Jr. and Harza Engineering Company in 1953, called for initial use of the waters of Lake Tiberias. Under the present plan, water from sources not completely under Jordanian control will be needed only in the final stages of development and then only if all land presently considered irrigable is used.

Israel has complained about the anticipated reduction in the flow of the Yarmouk River and increase in salinization of the Jordan River below Lake Tiberias that will result from diversion of Yarmouk River water by Jordan. The present flow of sweet water from the Yarmouk permits Israel to irrigate lands in the Jordan and Beit Shean Valleys, using water pumped directly from the Yarmouk and Jordan Rivers -- water that, under the Beit Shean Project, will have to be replaced by water from Lake Tiberias.

IV. Arab Diversion Threats

Three tributaries flowing from Arab territory contribute 572 million cu m of water per year to the Jordan River in Northern Israel. The Dan River, the largest tributary, has an average flow of 258 million cu m per year. Because the Dan rises on the Syrian-Israeli border, its use could not effectively be denied to Israel. The Hashani River flowing from Lebanon and the Baniyas River rising in Syria each

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IV. Arab Diversion Threats

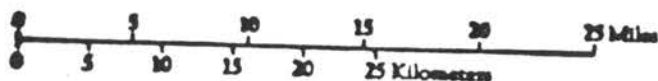
Three tributaries flowing from Arab territory contribute 572 million cu m of water per year to the Jordan River in Northern Israel. The Dan River, the largest tributary, has an average flow of 258 million cu m per year. Because the Dan rises on the Syrian-Israeli border, its use could not effectively be denied to Israel. The Hasbani River flowing from Lebanon and the Banias River rising in Syria each contribute 157 million cu m per year. Denial of Hasbani and Banias water could reduce the flow of the Jordan River north of Banat Jacob Bridge by about one-half. States of the Arab Bloc have held extended discussions over proposals to divert these headwaters and several plans have been set forth. To date, no real attack has been made on the engineering problems involved or on sources of funds for these retaliatory ventures.

JORDAN VALLEY WATERS

WATER CONDUITS

- Completed
- - - Scheduled
- Proposed
- Operating pond
- Pumping station
- Tunnel
- △ Power plant and dam

Demilitarized zone



NATIONAL

Eshel Kinneret Pan
108" steel pipe.

Tabigha Pump Station (Eshel Kinneret):
3 pumps with 6.5 cubic meters per sec.
Takes 70,000 kw from national grid.
Installation scheduled for completion 1
Plant estimated operational end of 1964

Canal between penstock and Eshel:
operating pond under construction; completion
in 1962. Siphons at Wadi Almusd and
Wadi Tsalmun under construction, to be
complete in 1962.

Eshel (Tsalmun) Operating Pond and Pumping Plant:
both under construction. To be completed in 1963.
Pumps will lift 334'.

Eshel Tunnel: excavated and 97% lined.
To be completed in 1962. 2,735' long.
Canal to be continued through tunnel.

Belt Netofa Canal: construction started.
To be lined in 1963. 12 miles of open canal.

Belt Netofa Reservoir: 10% complete.
To be completed in 1963.

Canal to be completed in 1963.

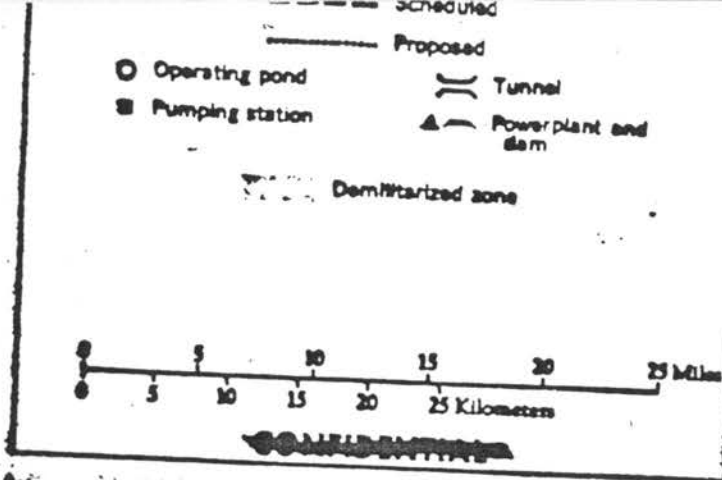
El Kandula Tunnel: excavation 29% complete.
Lining planned for 1963. To be 5,448' long.

108" pipeline from El Kandula to
Menashe Tunnels: no construction to date.
To be completed in 1963. Will be last of
108" line completed.

Menashe Tunnels: 45% lined. Northern tunnel
30,930' long. Southern tunnel 1,312' long;
being lined, May 1961.

MEDITERRANEAN SEA





Eshel Kinneret Pan
108" steel pipe.

Tabigha Pump Station (Eshel Kinneret):
3 pumps with 6.5 cubic meters per sec
Takes 70,000 kw from national grid.
Installation scheduled for completion 1
Plant estimated operational end of 1964

Canal between panstock and Eshelun:
operating pond under construction; completion
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Wadi Tsalmun under construction, to be
complete in 1962.

Eshelun (Tsalmun) Operating Pond and Pumping Plant:
both under construction. To be completed in 1963.
Pumps will lift 334'.

Eshelun Tunnel: excavated and 57% Hoed.
To be completed in 1962. 2,775' long.
Canal to be continued through tunnel.

Belt Netofa Canal: construction started.
To be lined in 1963. 12 miles of open canal.

Belt Netofa Reservoir: 10% complete.
To be completed in 1963.

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El Kandula Tunnel: excavation 39% complete.
Lining planned for 1963. To be 5,400' long.

108" pipeline from El Kandula to
Menashe Tunnels: no construction to date.
To be completed in 1963. Will be last of
108" line completed.

Menashe Tunnels: 45% Hoed. Northern tunnel
30,930' long. Southern tunnel 1,312' long;
being Hoed. May 1961.

108" pipeline - Menashe Tunnels to Rosh Ha'ayin
36 miles: 57% completed.
From a point east of Hadera to
2.5 miles north of Rosh Ha'ayin
section is complete (approx.
20 miles.)

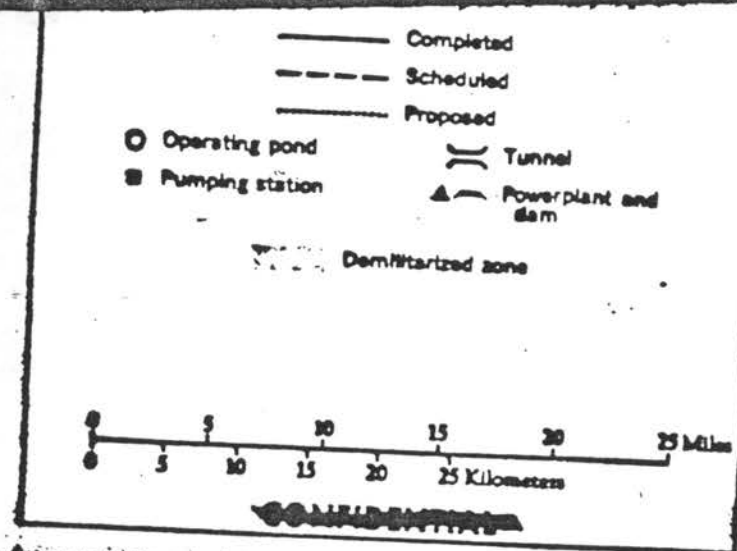
Temporary 24" steel pipeline: 2.5 miles long.
In operation between end of 108"
pipeline and Rosh Ha'ayin.

Rosh Ha'ayin Springs and Pumping Station.

MEDITERRANEAN SEA

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NATIONAL

Eshed Kharat Pm
108" steel pipe.

Tablaha Pump Station (Eshed Kharat):
3 pumps with 6.5 cubic meters per sec
Takes 70,000 kw from national grid.
Installation scheduled for completion 1
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Canal between panstock and Eshabun:
operating pond under construction; completion
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Wadi Tsalmun under construction, to be
complete in 1962.

Eshabun (Tsalmun) Operating Pond and Pumping Plant:
both under construction. To be completed in 1962.
Pumps will lift 334'.

Eshabun Tunnel: excavated and 97% lined.
To be completed in 1962. 2,735' long.
Canal to be continued through tunnel.

Belt Netofa Canal: construction started.
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M E D I T E R R A N E A N S E A

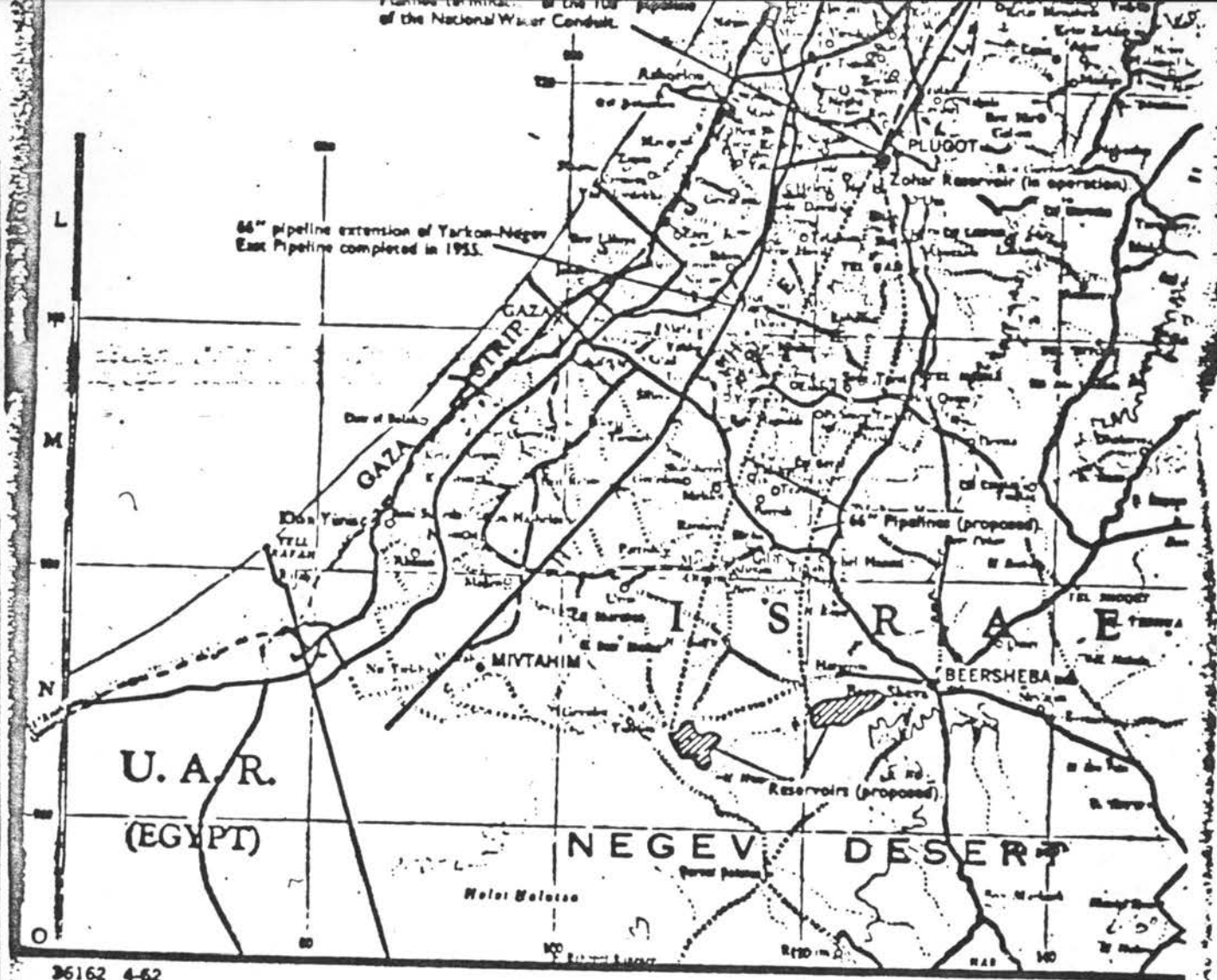




36162 4-62

One proposal would divert the Banias southward for a short distance to an area which the water could be used for irrigation of Syrian territory. An extension of the plan would transport Banias water southward all the way to the Yarmouk River. Because the Banias flows through Syria for only about 5 miles, a reservoir would be required near the Israeli border. Before reaching the Yarmouk the water would have to be lifted several times.

...of the National Water Conduit.



36162 4-62

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Two plans have been advanced for the Hasbani River. One would divert Hasbani water through a tunnel into the basin of the Litani River. The second would divert Hasbani water into a reservoir on the Banias River for transport to the Litani. Engineering data are lacking for both proposals.

Any scheme to divert the tributaries of the Jordan from their natural watershed would be costly and would provide scant economic return to Arab nations, even Jordan, Lebanon, already heavily committed in the Litani River Project, and Syria. The hope for irrigation lies in a dam on the Euphrates River, will be hard pressed to find funds for the diversion of the Jordan River. In Arab deliberations over the waters of the Hasbani and Banias Rivers, however, political considerations are likely to take precedence over economic considerations.

HULA DRAINAGE PROJECT

Complete 60,000 dunums (15,000 acres)
of land added by drainage

WATER CONDUIT

1.5 miles long
R approximately 885'

1962

1962

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BANAT JACOB
BRIDGE

Eshed Kinneret
operating pond

LAKE
TIBERIAS

BEIT SHEAN PROJECT

Deganiya Pump Station completed

Booster pump for upper Jordan Valley

pipe completed to this point

Doshen Booster Pump for Beit Shean Valley

pipeline to be complete to here by summer 1962

BEIT SHEAN

ADASIYA

Adasiya Tunnel
3,214' completed

Proposed Wadi Khaid
Dam and Power Plants

Proposed Adasiya Diversion Dam

East Ghor Canal complete to this point

Kilometer 22.8 (Mile 14.1)

Under construction to this point

Kilometer 47 (Mile 29.1)

1962

1962

1962

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1962

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Canal in Demilitarized Zone 1.5 miles long
Construction suspended in 1953

Canal from Demilitarized Zone to post-1967
proposed for completion 1967

1962

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The Yarmouk is Jordan's only major hope for irrigation water and power generation. Implementation of the Yarmouk-Jordan Valley Development Project will increase the industrial potential of Jordan, nearly double the area of its irrigated agricultural land, and provide land for more than 12,000 farm families. For Israel the River Jordan is the last major untapped water resource. Based upon present water consumption patterns, completion of Stage I of Israel's plan in 1963 will provide for a population increase of approximately 300,000 people. If the oil

