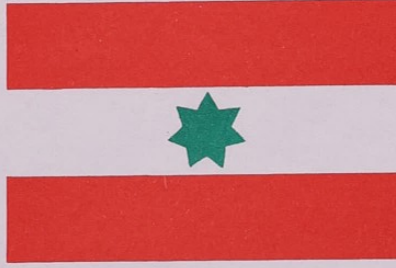


**NEWSLETTER**  
OF THE  
**TRUCIAL STATES COUNCIL**  
ISSUED BY  
THE DEVELOPMENT OFFICE



النشرة الاخبارية  
لمجلس محكام الامارات المتصالحة  
بصددها  
مكتب التطوير

April, 1970

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ابريل ١٩٧٠

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1. General

The enlarged Executive Committee of the Trucial States Council, comprising a membership of four from each of the seven States, met for the first time from 12th - 14th April. The main item for discussion was to reach agreement on the reduction of the proposed Capital Works programme by RD 600,000, to bring the total estimated expenditure for 1970 to the region of RD 3½ million. The total adjusted estimates, resulting from these discussions is given in the attached table, together with expenditure incurred during the first three months of 1970.

The Committee agreed on the formation of the following sub-committees, memberships for which will be considered at the next meeting on 4th May.

- (a) Finance and Administration Affairs
- (b) Health and Agriculture
- (c) Education
- (d) Planning and Execution

2. Fisheries.

The Trucial States Council survey boat **Majid** has discovered a large resource of suitable fish for a fish meal industry in the Gulf of Oman.

Whilst local fishermen have for many years made large landings of anchovy and sardine it was not known how large this resource was.

Results to date indicate that local fishermen catch only a small percentage of the available fish and this is because they use beach seines and are therefore limited to the fish available within a few hundred yards of the shore.

It is thought that a fleet of purse seiners could land over one thousand ton of fish per day at a reduction plant situated on the East Coast.

Suitable fish for fish meal that have so far been identified and that occur in sufficient quantity are:-

stolephorus indicus (common name Sardine. Arabic name Sariya).

sardinella jusselii sardinella gibbosa (common name Sardine. Arabic name Auma)

decapterus russelii (common name mackerel seeds. Arabic name Sina)

There is a distinct migration of fish down the East Coast from North to South.

During 1970 the season for stolephorus was January to April with some small catches of sardinella during this period

The beginning of May saw increased landings of decapterus and very little stolephorus.

Two large international fishing companies, the new England Fishing Company and International Proteins Ltd, are now co-operating with the Trucial States Council in respect of the fisheries survey in the Gulf of Oman.

Experts provided by the above companies are at present working on the Majid in order to satisfy themselves regarding the abundance of fish and also to find by experimentation the correct type of net and rig for this area.

One problem to be overcome is that this would be the first large fish meal industry in the world that is based on a warm sea and it may be necessary to brine chill the fish to prevent them from going bad before they can be unloaded at factory. This is not necessary in a cold sea.

Another problem is that the small size of individual stolephorus means that a very small mesh net is required for their capture. Such a net made from thick twine sets up too much water resistance and is impossible to haul. If fine twine is used a large catch will burst the net.

The completion of the Fisheries Department workshop, laboratory, office and stores has provided the Gulf of Oman survey with a much needed shore facility at Khor Fakkan.

### 3. Rural Water Development

#### (a) Rotary drilling

While drilling operations by the Council's percussion rigs have continued throughout the month, the item of greatest significance has been the operation of the rotary rig, on hire from the drilling firm of George Shaw & Co. which began in March in the area of Khatt (Ras al-Khaimah) and Habhab (Fujairah).

Virtually all the water at present abstracted in the northern Trucial States is derived from relatively shallow quaternary gravel aquifers fed from surface flow off the mountain wadis. On the mountain flanks and in the gravel plain this water is still relatively fresh with an electrical conductivity less than 2000 micromhos/cc. but in flowing seawards the water picks up increasing quantities of salts from the aquifer and very high salinities are encountered near the sea where evaporation from shallow aquifers can indeed raise salinities even higher than sea water. It is extremely unlikely that under these conditions good quality water will be encountered at greater depths.

No deep drilling was carried out during the period of the Water Resources Survey undertaken by the Consultants, Sir William Halcrow & Partners, due to financial stringency and the possibility that such drilling might be carried out by alternative & cheaper means than by hired rotary rig, capable of reaching the depth required. This gap in the information from the Survey has for some time been apparent and

when a suitable rig became available in the area, H.M. the Chairman agreed in 1969 that two deep bores might be sunk in two different areas, where variations from the general pattern described above occur in such configurations as to suggest that deep drilling could be promising. The two areas chosen were:

- (a) near Khatt, where hot springs issue from lower cretaceous limestone beds on the edge of the main limestone massif and where the temperature differential between this water and that normally encountered in the gravel plain suggests that the source for these springs is at least 300 meters below ground level, and;
- (b) east of Jebel Fayya, which bring an out-thrust of Mae striction limestone beyond the main mountain range suggests that underlying the gravel plain between aquicludes formed from a caliche horizon and the main body of serpentinite this limestone might possible be a source of sub-artesian fresh water.

The original intention in the Khatt area was to sink a bore along the spring line between Khatt itself and Habhab to locate the source and to provide information which might lead to proposals for increasing the yield from this aquifers.

In the event it was impossible to proceed on the best geological site for the hole because of a Boundary dispute between Ras al-Khaimah and Fujairah, and the considerable more expensive expedient of drilling two bores, one South of Habhab in Fujairah and one North of Khatt in Ras al-Khaimah had to be adopted.

The Habhab borehole has been sunk to a depth of 78 metres after a great deal of technical difficulty in drilling through fissured limestone without an adequate supply of water for the rig. The hole was therefore completed at this depth after providing 13 metres of well casing. Two aquifers were encountered, the first at 8 metres was almost certainly the same aquifer that supplying the existing hot springs in the area; the second at a depth of 54 metres had a rest water level  $\frac{1}{2}$  meter lower than the more shallow source and must therefore be constructed as being a geologically separate supply zone. Pump testing to date indicates a yield of at least 16,000 gallons per hour from the lower zone which is clearly a valuable aquifer previously unta pped.

To avoid water supply difficulties in the second borehole at Al-Khatt, a separate water well has been drilled to provide drilling water for sinking what is hoped will be a bore down to the main source depth of 900 feet. The water well has yielded valuable geological data itself and while revealing an unexpectedly large thickness of clay Overburden appears to confirm that the major aquiclude takes the form of a massive limestone band on the outside flank of the formation. The yield of this well remains to be determine by pumping test but qualitatively it is of the same order as the Habhab well.

Without prejudging the outcome of the whole operation it would appear that the lower cretaceous limestone in this area may have great possibilities as a source of water quite separate from the usual gravel plain aquifers presently tapped for irrigation in the Digdaga-Hamraniyyah area though there may be leakage into this latter zone which only long term records are likely to prove.

(b) Percussion drilling

Two of the three Council rigs are now operative and the third which has been under repairs will shortly again be in the field. One is operating at Masafi and will be used on the East Coast in future (where drilling has been neglected), the other in the Dhaid area, and the third rig will return to Hamraniyyah and the Jiri plain. H.H. the Ruler of Ras al-Khaimah has agreed to let the Council's Water Division in future operate the state rig which is currently under repair, and an Army rig periodically operates in area suggested by the Division.

The pattern of development of bore holes since the beginning of operation in 1966 can be summarised as follows:-

	Central Mountains Area	Central Gravel Plain	R.A.K/Jiri Plain	Desert Foreland (including U.A.Q. series)	Total
1. <u>Consultants</u>					
Oct. 1965-August 66	1	-	-	18	19
Sept. 1966- "	67	7	14	-	32
Sept. 1967- "	68	17	22	8	61
Sept. 1968 -"	69	22	41	12	85
2. <u>Council direct Operation</u>					
Sept. 1969 to date	-	27	20	8	55
	47	104	51	50	252

Of these totals the borcholes fall into the following categories:-

(a) Undeveloped:

Survey holes	50
Abandoned or dry holes	35

(b) Developed or developable

Rural Community bores	17
Urban Water supplies	21
Council irrigation development	46
Private gardens (prior to October 1969)	73
Private gardens (on repayment)	10

The distribution of these between states is:-

Ras al-Khaimah	85
Sharjah	83
Umm al-Qaiwain	42
Fujairah	25
Ajman	13
Dubai	4

All wells drilled by Council rigs are subsequently pump tested for 72 hours, and yield, drawdown and water quality records are maintained.

(c) Falaj, Springs & hand-dug wells

Before the advent of boreholes and mechanical pumps, water was entirely obtained from hand-dug wells, artificial falajes and normal springs. Modern methods of abstraction are generally easier to arrange and control, but falajes and springs have the advantage of consuming no fuel and are most valuable in the more isolated and inaccessible areas, where it is difficult or even impossible to transport drilling rigs. Many of the falajes and springs yield a constant flow of water but others have fallen into disrepair, are blocked, or have seasonal or other unexplained variations in yield.

In 1967 a programme for rehabilitation of falajes was commenced and there are now two crews experienced in the work. Falajes on which work has been done in the past have included Dhaid, Fili, Manama, al Mu'alla and Madaf. More recently the crews have been engaged on rehabilitation work in the Masfut (Ajman) and Hatta (Dubai) area, where heavy rains last October caused extensive damage to existing falajes; new work is planned for Masfut and Habhab, and the future programme includes improvement to natural springs and wells at Wam, Zenhab and Zikt (Fujairah).

(d) Water Research and Records.

In simplified terms the object of this work is to find out:-

- (a) Where the water is, and
- (b) how much there is.

To date, the Consultants, Sir William Halcrow & Partners, who carried out the Survey work from 1965 to August 1969 and published the Water Resource Survey at the beginning of 1969, and, since September 1969, the Water Division of the Public Works Dept. have gone some way, in some areas to answer the first question; the gravel plain from Ras al-Khaimah to Jabel Fayah has, in general been well covered, although further detailed exploration is required in the area between Hamraniyyah and Manama, between Falaj Mu'alla and Dhaid, south of Mileiha and along the mountain flank. Further work is also necessary in the wadi gravels within the mountains and in tracing fresh water leads across the desert.

Very much less is, at present, known about the second question and what is in the end more important, the maximum safe abstraction rate to avoid depletion of reserves. Certain conclusions can be drawn from observations at drilled wells but in the end a detailed investigation is required in the areas from which the water is derived viz, the mountains. An expansion of meteorological stations in the mountain areas is required to assess the total incidence of rainfall, which is believed to be significantly higher than that recorded on the plains, and also gauging stations to measure the surface and sub-surface flow, and hence the proportion of rainfall entering the aquifer and eventually available for exploitation.

The water Division operates four full meteorological stations at Falaj al-Mu'alla, Digdaga, Mileiha and Kalba and regularly records observations at 16 rain gauges, 6 flood record stations, 13 Falajes and springs, and a number of observation wells which have recently been increased from 107 to 700.

Before the commencement of the next Hydrological Year in October, it is hoped that, in cooperation with the Agricultural Department, a full register of all water supply installations, boreholes, hand dug wells, a and falaj's whether TSC, State or privately owned, will be finalised. It is also proposed that the operation of the existing meteorological stations should be integrated with the adjacent agricultural stations and that additional meteorological parameters e.g. soil temperatures and evaporation, of particular interest to the agriculturalists should be recorded.

As and when staff become available a programme of hydrological well testing specifically designed to determine aquifer characteristics is envisaged, together with a detailed study of the hydrological conditions in areas of intensive development such as Digdaga and Dhaid which may be expected to the first to suffer from overpumping.

#### 4. Finance

The British Government has paid in the first instalment of £100,000 of its 1970/71 contribution to the Development Fund, and news was received by the beginning of the May of a second contribution of BD500,000 from H.H. the Ruler of Abu Dhabi, bringing the Abu Dhabi contribution to BD one million out of BD 2½ million promised for 1970.

Summary of Recurrent and Minor Capital Expenditure

	Provision 1970	Expenditure January-March 1970
	B.D.	B.D.
<u>Council Headquarters</u> - Recurrent	37,963	14,235
Minor Capital	2,750	1,600
<u>Agricultural Services</u> Recurrent	74,350	15,924 *
Minor Capital	36,400	8,047
<u>Technical Education</u> Recurrent	193,000	34,980 *
Minor Capital	50,325	4,117
<u>Scholarships</u>	33,550	6,512
<u>Public Health Headquarters</u>		
Recurrent	24,000	3,490
Minor Capital	8,200	452
<u>Central Hospital</u> (Council Share) Recurrent	130,000	28,483 *
Minor Capital	18,750	3,359
<u>Health Centre &amp; Clinics</u> Recurrent	150,000	41,053
Minor Capital	60,500	4,280
<u>Malaria Eradication Programme</u>	40,000	1,346
<u>Public Works</u> Recurrent	202,300	32,389
Minor Capital	53,300	8,068
<u>Fisheries</u> Recurrent	44,900	15,295
Minor Capital	13,300	2,334
<u>Marketing &amp; Co-operatives</u> Recurrent	10,300	3,959
Minor Capital	7,000	309
<u>Agricultural School</u> Recurrent	10,100	2,187 *
Minor Capital	1,700	56
<u>Veterinary Services</u> Recurrent	14,500	2,015 *
Minor Capital	3,900	2,123
<u>Mileiha Agricultural Scheme</u>		
Recurrent	(49,223)	7,318 *
<u>Staff Provident Fund</u>	25,000	3,458
Total : Recurrent	994,963 (1,044,191)	212,544
Minor Capital	267,425	34,745

\* Figures incomplete because of late adjustments.



Major Capital Programme

		Provision 1970 B.D.	Expenditure January-March, 70 B.D.
<b>1. <u>Technical Education</u></b>			
Trade School Dubai,	Entrance Block	20,000	-
	Central Store	1,000	-
Trade School, Ras al-Khaimah	Staff Housing	6,000	-
Trade School Sharjah		<u>40,000</u>	<u>-</u>
		<u>67,000</u>	<u>-</u>
<b>2. <u>Health</u></b>			
Central Hospital - Special Women's Ward		500	458
	Maternity Ward	34,500	10,261
Health Centre, Sharjah- Hospital	Building	70,000	27,437
	Out patients deptt.	20,000	-
	Hospital Equipment	40,000	40,000
Health Centre, Ras al-Khaimah	Hospital Building	15,000	8,166
	Outpatients Deptt.	30,000	-
	Hospital Equipment	2,000	115
	Staff Housing	36,000	13,327
Health Centre, Dibba - Hospital Building		55,000	25,699
	Outpatients deptt.	30,000	-
	Hospital Equipment	40,000	-
	Staff Housing	55,000	9,923
Health Centre Dahid - Building		50,000	715
	Hospital Equipment	10,000	-
	Staff Housing	25,000	-
Clinic, Kalba	Building	5,000	4,529
	Equipment	5,000	-
	Staff Housing	10,000	-
Clinic & School, Abu Musa		35,000	-
Clinic & Maternity Wing Umm al-Qaiwain		500	15
		<u>568,500</u>	<u>140,645</u>
<b>3. <u>Agriculture, Veterinary &amp; Maternity</u></b>			
Station Building - 1st Programme		15,000	14,806
	2nd Programme	18,500	-
Imported Cattle		500	2
Tractors for hire		1,500	61
Hamraniyyah Agricultural Scheme		10,000	-
Rural Water Development		80,000	16,458
		<u>125,500</u>	<u>31,327</u>

4. Fisheries/-

	Provision 1970 <u>B.D.</u>	Expenditure Jan-March, 70 <u>B.D.</u>
<b>4. Fisheries</b>		
Offices, etc & Slipway	35,000	4,382
Purse Service	9,000	8,516
Cold Store & refrigeration, Khur Fakkan	35,000	-
- do - Dibba.	<u>35,000</u>	<u>-</u>
	114,000	12,898
<b>5. Harbours</b>		
Wharfs, Ajman and Umm al Qaiwain	1,200	1,200
Creek entrance, Umm al Qaiwain	50,000	-
Creek entrance, Ajman	40,000	-
Jetty, Dibba	<u>50,000</u>	<u>-</u>
	96,200	1,200
<b>6. Roads</b>		
Dubai - Sharjah Road	2,000	-
East Coast roads-direct labour and plant hire.	285,000	83,084
Purchase of equipment	60,000	6,116
Trunk road programme contract	100,000	-
Fujairah Town roads	<u>30,000</u>	<u>-</u>
	477,000	89,200
<b>7. Town &amp; Village Water Supplies</b>		
Umm al Qaiwain	80,000	495
Ajman	30,000	968
Jezirat Za'ab & south Ras al Khaimah	110,000	84,213
Fujairah/Ghurfa	3,000	793
Dibba	15,000	2,624
Other Fujairah Villages	20,000	297
Khur Fakkan	10,000	156
Kalba & Khor Kalba	4,000	2,897
Masfut & Matti	20,000	-
Falaj al-Mo'alla	10,000	-
Ras al Khaimah Villages	<u>50,000</u>	<u>-</u>
	352,000	92,443
<b>8. Electricity</b>		
Ajman	100,000	29,266
Umm al Qaiwain	10,000	11,997
Ras al Khaimah	3,000	809
Dibba	20,000	8,450
Fujairah/Ghurfa	<u>35,000</u>	<u>19,126</u>
	168,000	68,648
<b>9. Urban Development</b>		
Ajman	2,000	750
Fujairah	<u>10,000</u>	<u>-</u>
	12,000	750
<b>10. Miscellaneous</b>		
Salt experiment	<u>3,000</u>	<u>-</u>
<b>Total:</b>	<u>2,006,200</u>	<u>451,744</u>