

4. Economy, Industry, and Trade

1) Recent Economic Growth and its Characteristics

The process of the Omani economic development can be summarized into four phases:

- | | |
|----------------------------|--|
| Phase I (- 1967) : | A period of traditional self-supply economy |
| Phase II (1967 - 1970) : | Dawning of economic development upon the beginning of petroleum exploitation |
| Phase III (1970 - 1975) : | Rapid economic growth owing to open-door and petroleum development |
| Phase IV (1975 - Present): | Slowed-down economic growth and shift to industrial diversification |

Before 1967 industrial activities in Oman were practically limited to agriculture and fishery, which it is assumed, produced barely enough to satisfy the minimum need of the people.

Petroleum exportation began in 1967, bringing large sums of foreign exchange to Oman. But, because the then Sultan Said adhered to the traditional isolation policy and made little investment on economic and social improvements, a fair part of the foreign exchange receipts went unused and was accumulated.

Since 1970, however, active economic, social, and political modernisation and infrastructural and other development investments began under the regime of Sultan Qaboos. Government expenditures swelled faster than did oil income, which increased by six times from 1971 to 1974 with the 1973 OPEC action. Due chiefly not only to the rise in development investments but also to the increase in defence expense for the suppression of guerrilla movements in Dhofar, the government's financial deficit reached 64.5 million RO or nearly 20% of the total government expenditures in 1974. To overcome the emergency, the government borrowed stopgap funds in the total amount of 94.5 million RO (or 274 million dollars) from Abu Dhabi and obtained assistances of 8.3 million RO (24 million dollars) from foreign countries.

In 1975, the Omani government started to reconstruct the fiscal system by obtaining a loan (without interest) and an aid, each in the amount of 100 million dollars, from Saudi Arabia and cutting back expenditures by screening development projects of each ministry for final implementation. As a result, the government revenue and expenditure started to balance with each other in the latter half of the 1970's, while, on the other hand, a stagnant situation was brought about in the industrial sectors which depended heavily upon the government's development investments. The Oman's Five-Year Development Plan (1976 - 1980) foresaw the topping off of petroleum revenue and, accordingly, held government's development investments to a relatively moderate total of 1,871 million RO (in 1976 prices; including projects to be implemented jointly with private concerns) and estimated only 6.3% (or annual average of 1.5%) GNP growth during the four-year planning period, suggesting that the Omani economy was entering into a slowed down growth period in contrast to the rapid growth achieved in the first half of the 1970's.

Table I-1 shows the estimates by the IBRD Mission of Oman's GDP growth terms from 1970, when the rule of Sultan Qaboos began, to 1977. This rapid economic growth was mainly due to the rapid expansion in the oil sector.

Table I-1 Economic Growth of Oman

Year	GDP (At Market Value) (Million R. O.)	Growth Rate (Nominal) (%)	Growth Rate (Real) (%)
1968	78.7	103	100
1969	100.0	27	↑
1970	106.8	7	↑
1971	125.1	17	4 ~ 6
1972	140.8	13	↓
1973	169.4	20	↓
1974	568.5	236	40
1975	738.8	30	20
1976	839.2	14	NA
1977	872.9	4	NA

(Source) Central Bank of Oman, IBRD

The estimates indicate that the economy grew by eight times in nominal terms from 1970, when the rule of Sultan Qaboos began, to 1977. This rapid economic growth was mainly due to the rapid expansion in the oil sector.

The rapid development investment expansion and the rapid economic growth naturally brought about rises in both prices and wages. Additional factors of price and wage increases were rise in import prices due to the 1973 oil crisis, rise in distribution cost due to the underdeveloped distribution system and facilities, and labour shortage and dependency on foreign labourers. Because price inflation worsened in 1973 and 1974, the government commenced intervention in distribution markets by engaging in the purchase and sale of major food items and controlling prices, and tried to subdue the inflation by expanding the import capabilities of ports and harbours. As a result, inflationary pressure weakened in 1975 and thereafter, and the price of rice, flour, and sugar descended each year by from 10 to 30% until 1977. Also the price of some construction materials such as white cement, timber, and steel pipes declined from 1976 through 1977. In addition to the government efforts, the abatement of price inflation could also be ascribed to the topping off of demands, to price competition engaged in by importers, whose number increased, to inventory increase caused by speculative importation, and to the 1974 reduction of import tariff rates.

While it is difficult to assess real economic growth rate, it is assumed that the Omani economy achieved a 100% growth in 1968, from four to six percent growth in the period 1969 through 1973, 40% growth in 1974, 20% growth in 1975, and, in view of the fact that price had become stable since then, from five to eight percent growth in 1976, and no growth in 1977--as indicated by Table I-1.

The nation's production is examined from the aspect of gross national expenditures on Table I-2, which can be summarised as follows:

Table I-2 Gross National Expenditures
(In Market Values)

	(Million R. O.)								
	1967	1970	1971	1972	1973	1974	1975	1976	1977 ²⁾
1. Consumption Expenditures	22.3	34.4	47.4	76.8	103.6	246.8	401.1	472.2	505.2
Private	20.6	20.7	21.4	35.1	40.6	49.6	78.6	N.A.	N.A.
Government	1.7	13.7	26.0	41.7	63.0	197.2	322.5	N.A.	N.A.
2. Gross Domestic Fixed Capital Formation	12.1	14.7	35.6	42.0	44.4	174.1	223.1	245.4	235.9
Private ¹⁾	12.1	11.4	15.6	12.1	14.5	31.3	50.1	N.A.	N.A.
Government	-	3.3	20.0	29.9	29.9	142.8 ¹⁾	173.0 ¹⁾	N.A.	N.A.
3. Current Surplus	4.4	57.7	42.1	22.0	21.4	147.6	144.6	121.6	131.8
Import of Goods & Services	8.7	21.0	40.2	61.6	80.9	245.6	374.3	N.A.	N.A.
Export of Goods & Services	13.1	78.7	82.3	83.6	102.3	393.2	488.9	N.A.	N.A.
4. GDP (At Market Value)	38.8	106.8	125.1	140.8	169.4	568.5	738.8	839.2	872.9
5. GNP (At market Value)	35.2	81.8	101.1	105.7	129.2	445.7	611.0	694.6	756.0
Indirect Taxes	0.8	1.1	1.1	1.6	2.0	2.3	1.7	N.A.	N.A.
6. GNP (By Factor Costs)	34.4	80.7	100.0	104.1	127.2	443.4	609.3	N.A.	N.A.
7. Gross Domestic Savings	16.5	72.4	77.7	64.0	65.8	321.7	337.7	367.0	367.7
8. Gross National Savings	12.9	47.4	53.7	28.9	25.6	198.9	209.9	223.7	250.8

(Notes) 1) Includes government contributions to PDO capital
 2) Preliminary estimates by the Central Bank of Oman

(Source) IBRD, Central Bank of Oman

- (i) The ratio of consumption to investment (both increased rapidly) was about 1:2 except in 1974.
- (ii) Government expenditures increased due to the rise in defense expenses and to the increase in the number of government personnel.
- (iii) In comparison to investments in the government sector, investments in the private sector showed a relatively low growth.
- (iv) Transfers to and from "rest of the world" resulted in yearly deficit, and GNP was substantially smaller than GDP.
- (v) Indirect tax revenues were very small in view of the level of consumption and investment.
- (vi) Economic growth slow-down in 1975 to 1976 from the previous period was mainly due to the levelling off in the amount of investments.

2) Industrial Structure Change

The sectoral distribution and growth rate of, and contribution rates to, Gross Domestic Products (GDP) of Oman are presented on Tables I-3 and I-4.

Table I-3 Gross Domestic Products: Sectoral Distribution
(In Market Values; Million R.O.)

	1967	1970	1971	1972	1973	1974	1975	1976	1977*
1. Agriculture/Fishery	14.3	16.6	16.8	17.0	16.7	17.4	18.1	20.0	21.9
2. Mining (Petroleum)	12.0	71.6	73.9	76.4	94.5	389.0	473.7	575.0	530.8
3. Manufacturing	0.1	0.2	0.2	0.3	0.6	2.0	2.5	4.0	5.2
4. Construction	8.3	10.6	20.4	22.6	24.0	58.0	89.0	98.2	104.7
5. Transportation/ Communications	0.4	0.7	2.1	3.2	4.4	12.3	23.5	29.6	32.3
6. Electric Power	-	0.1	0.3	0.7	0.9	1.2	1.8	2.9	4.4
7. Wholesale/Retail Sale	1.0	1.6	2.8	3.8	8.3	27.2	48.1	47.0	60.4
8. Finance	0.1	0.6	0.7	0.8	0.9	3.5	8.9	9.4	11.8
9. Dwelling Ownership	1.2	1.5	2.1	2.5	2.9	4.8	9.3	14.2	14.2
10. Government Adminis- tration/Defense	0.6	2.3	4.1	11.0	13.1	46.4	55.3	78.9	75.6
11. Services	0.8	1.0	1.7	2.5	3.1	6.7	8.4	10.0	11.6
12. Gross Domestic Products (At Market Value)	38.8	106.8	125.1	140.8	169.4	568.5	738.8	839.2	872.9
13. Net Factor Income Transfer	-3.6	-25.0	-24.0	-35.1	-40.1	-122.8	-127.8	-143.3	-116.9
14. Gross National Products (At Market Value)	35.2	81.8	101.0	105.7	129.2	445.7	611.0	694.6	756.0

(Note) *Preliminary estimates by the Central Bank of Oman

(Source) IBRD, Central Bank of Oman (1977)

Table I-4 Gross Domestic Products: Distribution, Growth & Contribution

	1970	Distribution Rates				Growth Rates				Contribution Ratios**			
		1974	1975	1976	1977*	74/73	75/74	76/75	77/76*	74/73	75/74	76/75	77/76*
1. Agriculture/Fishery	15.5	3.1	2.4	2.4	2.5	4.2	4.0	10.5	9.5	0.2	0.4	1.9	5.6
2. Mining(Petroleum)	67.0	68.4	64.1	62.6	60.8	311.6	21.4	10.8	1.1	73.8	49.7	51.1	17.2
3. Manufacturing	0.2	0.4	0.3	0.5	0.6	233.3	25.0	60.0	30.0	0.4	0.3	1.5	3.6
4. Construction	9.9	10.2	12.0	11.7	12.0	12.0	53.5	53.5	6.6	8.5	18.2	9.2	19.3
5. Transportation/ Communications	0.7	2.2	3.2	3.5	3.7	179.6	91.1	26.0	9.1	2.0	6.6	6.1	8.0
6. Electric Power	0.1	0.2	0.2	0.3	0.5	33.3	50.0	61.1	51.7	0.1	0.4	1.1	4.5
7. Wholesale/ Retail Sale	1.5	4.8	6.5	5.6	6.9	227.7	76.8	-2.3	28.5	4.7	12.3	-1.1	39.8
8. Finance	0.6	0.6	1.2	1.1	1.4	288.9	154.3	5.6	25.5	0.7	3.2	0.5	7.1
9. Dwelling Ownership	1.4	0.8	1.3	1.7	1.6	65.5	93.8	52.7	0	0.5	2.6	4.9	0
10. Government Adminis- tration/Defense	2.2	8.2	7.5	9.4	8.7	254.2	19.2	42.7	-4.2	8.3	5.2	23.5	-9.8
11. Services	0.9	1.2	1.1	1.2	1.3	116.1	25.4	19.1	16.0	0.9	1.0	1.6	4.7
12. Gross Domestic Products (At Market Value)	100.0	100.0	100.0	100.0	100.0	235.6	30.0	13.6	4.0	100.0	100.0	100.0	100.0
13. Gross National Products (At Market Value)	76.6	78.4	82.7	82.8	86.6	245.0	37.1	13.7	8.8	-	-	-	-

(Notes) * Preliminary estimates by the Central Bank of Oman

** Ratio of production increase in each sector to GDP increase

(Source) IBRD, Central Bank of Oman (1977)

Value added in the petroleum sector represented almost all of the mining production. The government revenue swell owing to this oil money brought about increases in development investments, which, in turn, resulted in expansions in the construction, transportation/communications, and government sectors. On the other hand, agriculture, fishery, manufacturing, and service industries received little benefit from the oil boom and their productions as a percentage of GDP was greater than by the petroleum sector in 1977.

As seen, the commercial sector's contribution to the economic growth greater than by the petroleum sector in 1977.

Factors of growth and factors of production decline in each sector may be summarised as follows:

(1) Agriculture/Fishery: The chief causes for the low productivity of agriculture, in which about two-thirds of the Omani population are engaged, can be pointed out as (a) severe climatic conditions, (b) scarcity of water resource, (c) small cultivated areas, (d) crop diseases and vermin, and (e) outflow of agricultural labour to cities. On the other hand, fishery production has rapidly expanded as the introduction of modern fishing methods began in 1976, and it expected that this industry will accomplish a fairly high level of growth in the future.

(2) Mining: At present, the mining of crude oil represents activities in this sector almost in its entirety. After reaching 120 million barrels in 1970, crude oil production dropped to from 102 to 107 million barrels from 1971 to 1974 for technical reasons. Subsequently, the production rose to 125 million barrels in 1975 and to 135 million barrels in 1976 but is now believed to decline again in the several years to come. Should any new oil fields be discovered in the future, from four to five years of preparatory time is necessary before they actually start producing oil; therefore, production increase if any, can be expected to begin only in the middle of the 1980's or later. In 1977, the petroleum sector represented a large portion of the Omani economy; it produced 60.8% of GDP or 78.6% of government revenues (including aid received from abroad) and represented 99.8% of exports. It is assumed, however, that the amount of value added in the petroleum sector will decrease in the short term future in view that oil price increase will be difficult and that oil production will drop.

While the occurrences of such mineral resources as copper, chrome, zinc, nickel, iron ore, and coal have been reported, little efforts have been made to prove the reserves and grades, and commercial development feasibility in the near future is limited to copper and natural gas.

(3) **Manufacturing:** Only several modern industries exist currently in Oman such as flour mill, asbestos pipe plant, aluminium processing plant, soft drink bottling plant, and furniture plant. The manufacturing sector produced only 0.6% of GDP in 1977, which the government plans to increase to 3.1% or five times (in terms of value of production) by 1980. The accomplishment of this plan, however, will be difficult unless such large projects are successfully implemented as cement and oil refinery. The greatest difficulty to the Omani industrialisation is the smallness of market, and the government now practices a strict checking of the applicants' market plans before the approval of industrial siting.

(4) **Tertiary Industry:** The tertiary industrial sector produced 36.1% of GDP (1977), mostly owing to construction (12.0%) and government (8.7%). The construction sector grew rapidly in the first half of the 1970's as the infrastructural and other developmental investments of the government expanded. Government developmental investments will shrink and the investment emphasis will shift from infrastructure to other areas, and further rapid growth may not be expected of the construction industry.

Value added in the government sector expanded by 33 times from 1970 to 1977, due both to increase in the number of government personnel as the government function was much diversified and to rapid swell in defense expenses for the suppression of the civil war. Government personnel increased from the 12,000 in 1967 to about 19,000 in 1976. Military expenditures will gradually decrease from now.

3) Trade and International Balance of Payments

(1) Trade Policy

Prior to 1970, the old regime effected a fairly stern restrictive policy on imports and exports, as well as on import tariff. For instance, a high tariff rate of from 7 to 76% was imposed on imported goods and the importation of automobiles and other consumers durables was subject to a special permit.

It was also by the present regime that the isolation policy was changed to free trade policy. Import and export licences are now issued without restrictions and tariff rates have been lowered substantially.

(2) Exportation

Crude oil accounts for 99% or more of the total exports of Oman. Trend in the value of oil exports has been estimated on Table I-5 based on the government's foreign exchange receipts on exports. The most important destination of exported oil is Japan, which represented about one-third of the total exports in the first half of the 1970's and more than 50% in 1977, followed by the Netherlands, the United States, and Canada for the four-country total of more than two-thirds of the total oil exports.

Table I-5 Composition of Exports

	(1,000 R.O.)					
	1970	1973	1974	1975	1976	1977
Oil Exports	44,400	114,300	418,700	488,100	543,800	546,000
Non-oil Exports	389	609	430	1,078	1,410	1,200
Fish and fish products	9	19	6	4	-	
Dried dates	49	99	54	233	110	
Dried limes	275	269	338	594	1,272	N.A.
Other fruits and vegetables	12	180	13	211	2	
Goat skins and hides	14	-	3	5	-	
Tobacco	16	35	12	27	9	
Others	14	7	2	14	16	
Total	44,789	120,309	419,130	419,178	545,310	547,200

(Source) Central Bank of Oman, IBRD

Export items other than petroleum are insignificant and come to the yearly total of only about one million RO. Major traditional nonpetroleum export items are dates, limes, vegetables and tobacco, which are exported to the Gulf countries, Iran, and India. Re-exportation through Oman is almost non-existent.

(3) Importation

Table I-6 presents import statistics, which shows "others" item covering tax-free imports prior to June 1973 (as estimated by IMF) by the government, petroleum companies, and contractors carrying out development projects which are excluded from the customs clearance records. Also covered by this item were parts of government imports after June 1973 which were excluded from such records. Import values for 1974 and before exclude imports which were landed at Salalah, which estimatedly amounted to only two or three percent of the total.

Oman's import value increased by about 35 times during the past eight years. This rapid import increase was in parallel to the government's oil revenue increase and infrastructural and other developmental investment expansion, and was partly due to the rise in import prices since 1973.

Table I-6 Estimates of Imports

	(in Million R.O.)					
	1970	1973	1974	1975	1976	1977
Recorded ¹⁾	7.6	40.7	135.6	264.3	250.5	302.1
Others ²⁾	4.4	45.1	110.0	97.1	130.0	104.0
Total	12.0	85.8	245.6	361.4	380.5	406.1

- (Notes)
- 1) As recorded by the Customs Department there were changes in the recording procedures from July 1, 1973. Salalah's imports were included in the recorded imports for 1975 and onwards. Part of public sector imports which were not recorded by Customs prior to 1977 were covered in the data for 1977.
 - 2) IMF estimates of duty-free imports from 1970 to 1973. For other years their estimates are based on the available information.

(Source) Central Bank

The greatest origin of imports, whose composition is shown on Table I-7 based on the customs statistics, is the United Kingdom (19% in 1976), followed by the United Arab Emirates (17%), Japan (12%), West Germany (6.3%), and India (4%). Imports from UAE, which represent a large share in the total imports, are practically all re-exports of items imported from advanced industrial nations.

Table I-7 Value of Recorded Private Imports by Major Group

Year Classification	Percentage							
	1970	1971	1972	1973	1974	1975	1976	1977
0. Food & Live Animals	39.52	36.26	30.16	23.94	11.09	11.58	12.59	12.64
1. Beverage & Tobacco	1.80	3.95	3.56	2.00	1.17	1.33	1.63	1.99
2. Crude materials	1.00	1.91	1.57	1.92	2.04	2.43	2.29	2.04
3. Mineral Fuels	4.48	6.93	4.86	4.32	3.74	4.67	7.28	7.68
4. Animal & Veg. oil and fats	-	-	-	0.44	0.52	0.38	0.45	0.70
5. Chemicals	2.41	4.19	3.96	4.51	3.70	3.89	3.96	4.05
6. Manufactured goods	23.88	16.20	19.40	19.62	21.81	20.97	18.78	16.39
7. Machinery & Transport equipment	16.91	25.03	27.91	30.98	39.61	41.40	38.94	40.46
8. Miscellaneous	5.93	5.05	5.29	7.11	8.16	7.91	10.66	10.60
9. Articles not classified	4.01	1.38	3.29	5.16	8.16	5.44	3.61	3.45
T O T A L	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

(Source) Central Bank of Oman

(4) International Balance of Payments

A review of the structure of Oman's international balance of payments on Table I-8 indicates that, while trade balance continues to be of a surplus, deficit current account balance due to substantial deficits in services and private

Table I-8 Balance of Payments (Provisional)

	(In Million R. O.)				
	1973	1974	1975	1976	1977 Preliminary
Trade Balance	29.1	205.0	117.8	139.7	141.2
Exports f. o. b.	114.9	419.1	489.2	545.2	547.2
	114.3	418.2	488.1	543.8	546.0
Non-Oil	0.6	0.4	1.1	1.4	7.2
Imports c. i. f.	-85.8	-214.1	-371.3	-405.5	-406.0
Services and Private transfers (net)	-57.7	-131.3	-161.4	-161.4	-126.1
Profit remittances	-44.1	-96.3	-93.1	-72.6	-66.5
Private transfers	-14.2	-27.6	-51.3	-70.0	-50.2
Investment Income (net)	4.4	6.6	-0.2	-0.7	-0.2
Other services (net)	-3.8	-14.0	-16.3	-18.2	-9.2
Current account balance	-28.6	73.7	-43.6	-21.7	+51.1
Official loans and transfers (net)	14.1	43.8	124.0	61.0	122.0
Official transfer receipts	3.5	8.3	71.6	18.0	92.3
Official loans and suppliers' credits received (net)	10.6	35.5	52.4	43.0	29.7
Other nonmonetary capital (net)	-8.4	-83.2	-29.5	+30.1	10.0
Direct investment (net)	4.8	7.4	7.1	6.4	4.7
Participation payment	-	-35.9	-	-	-1.2
Oil export credit (net)	-13.2	-54.7	-36.6	23.7	6.5
Errors and Omissions (net)	-6.3	-45.8	-52.6	-75.1	-71.6
Overall balance	-29.2	-11.5	-1.5	-5.7	+75.5
Monetary movements (net)	29.2	11.5	1.5	5.7	-75.5
Monetary authorities	23.8	-33.9	-13.8	-20	-35.1
Central Bank of Oman	-2.9	-17.4	21.4	-11.9	-27.8
Government	26.7	-16.5	7.6	-8.1	-7.3
Commercial Banks	5.4	45.4	15.3	25.7	-40.4

(Source) Central Bank of Oman

transfers is made up for with loans from foreign governments and commercial banks.

Particularly noteworthy of the preliminary estimates for 1977 is that the overall international balance of payments of Oman, which had always been a deficit ever since 1973, turned to a surplus chiefly due to improvements in service and transfer accounts as profit remittances by petroleum companies decreased and fund remittances by foreign labourers in Oman also decreased reflecting the generally stagnant economic situation.

4) Labour and Employment Structure

Population statistics is one of the basic information on Oman which is most inadequate, and labour statistics is also highly incomplete. According to the government estimates, however, the number of employees at work other than in the agricultural and fishery sector was about 93,000 in 1975, of which 28,000 were Omanis and 65,000 foreigners. This was a four-time increase in the number of foreign employees from the 1972 estimates (20,500 Omanis and 16,500 foreigners, for a total of 37,000). As indicated by Table I-9, more than 80% of employment is concentrated to the construction sector, which employs nearly 90% of expatriates. Most of the expatriate labourers come to Oman by themselves, leaving their families in their countries in view of the inadequate educational and other basic living facilities in Oman, and work under a time contract (for one year in many cases).

Foreign workers can be classified into higher class labour (managers, skilled workers, engineers) and lower class labour (unskilled labourers, simple workers in the construction sector). Many of the former class are Europeans, Egyptians, and Jordanians, while many of the latter class are labourers from India, Pakistan, Bangladesh, and Sri Lanka.

Employment in the government sector came to a total of 30,000 in 1975, about half of which were in military jobs. About 20% of the government employees were expatriates.

Primary school education started in Oman in the 1970's, and there are only two vocational training schools and no facilities for higher education at present.

Table I-9 Non-Rural Employment, 1975

	Omani	Expatriate	Total
Private Sector			
Petroleum and Mining	2,829	1,787	4,679
Manufacturing	825	1,374	2,199
Construction	18,640	56,596	75,236
Wholesale and Trade	923	1,841	2,764
Transportation	2,286	794	3,080
Banking	668	454	1,122
Other Services	1,768	2,148	3,916
Sub-Total	28,002	64,994	92,996
Government			
Civil Service	10,967	4,180	15,147
Armed Forces	12,750	2,250	15,000
Sub-Total	23,717	6,430	30,147
T O T A L	51,719	71,424	123,193

(Source) IBRD Report, 1977

Practically all Omani workers are unskilled labourers. Although the government plans to accomplish the Omanisation of labour as soon as possible, it will require a fairly long period of time and, for the time being, increased reliance on imported labour force is inevitable.

5. FINANCE

1) Public Finance

(1) System and Characteristics

Capital accumulation in Oman is still in a premature condition and the economy is operated with a heavy government centrality; namely, big projects funded with the government's oil and other revenues have played a pivotal role in the economic development. Development of economic infrastructure is now approaching its completion. At the present stage, both investment and consumption activities are concentrated in the Metropolitan area, and the government organisation is "pulling forward" the economy, based on the operation of fiscal funds; this pattern will continue for a fairly long period in the future.

As the basis of government revenue has been secured thanks to the sudden worldwide rise in petroleum price in 1974, the development of the economic infrastructure has been undertaken as the first step of the economic development. While private finance and small manufacturing industries are being fostered by the Government, the Five-Year Plan itself up to 1980 consists mainly of the economic development programmes that are based on the government finance.

The fiscal system of Oman has gradually been developing ever since the 1970 reform, but, upon the fiscal crisis of 1974, efforts began to accomplish a more organized fiscal system to overcome the then realised consequences of badly coordinated project implementations by individual ministries, and the system was substantially improved through (a) the establishment of a Financial Council, (b) subjecting each expenditure in excess of 15,000 RO to approval by the Directorate General of Finance, and (c) the establishment of a surveillance system over government expenditures.

As a result, a procedure for the formulation of budgets was established and placed under the jurisdiction of the Directorate General of Finance, which, at the same time, formulates financial and foreign exchange policies in close co-ordination with the Central Bank and development policy with the Development Council.

(2) Fiscal Revenue and Expenditure

The trend of government revenue and expenditure is presented on Table I-10. The initially estimated fiscal deficit of 191 million RO in 1977 reduced to 17.9 million RO due to revenue increase by petroleum price rise and substantial reductions in defense and development expenditures; the first fiscal surplus since 1971 of 75.1 million RO was registered in 1977 after the addition of 93 million RO grants. Inevitable petroleum revenue decline and development expenditure increase are considered to constitute the long-term key tone of government finance, and the 1978 budget anticipates a deficit of 223 million RO.

a) Trend of Revenue

The amount of government revenue increased by 18 times from the 2.8 million RO in 1967 to 50.1 million RO in 1971 and, further, by 111 times to 311.5 million RO in 1974 due to the substantial rise in the posted price of crude oil and to the acquisition of a 60% share in PDO, as indicated by the trend shown on Table I-11. The substantial financial base of the government as recognized in 1977 reflected petroleum production increase, petroleum price hike, and active crude oil exportation.

It is characteristic of the Omani government revenue that, since 1973, the receipt of grants from Saudi Arabia and Abu Dhabi to make up for the fiscal deficit has increased and reached 71.6 million RO (or 16% of the total revenue) in 1975.

Table I-10 Government Revenue and Expenditure

		(Millions R.O.)					
		1974	1975	1976	Budget 1977	1977	Budget 1978
(I)	Revenue	303.2	387.7	487.4	493.0	520.2	455.0
	Oil Revenue	291.5	373.1	454.7	460.0	482.2	415.0
	Other Income	11.7	14.6	32.7	33.0	38.0	40.0
(II)	Expenditure	365.4	495.5	580.7	684.0	538.1	706.0
(a)	Defence and National Security	117.7	241.0	271.0	297.0	237.4	265.0
	Recurrent Expenditure	45.6	67.0	104.0	136.0	88.0	154.0
	Capital expenditure	72.1	144.9	167.0	161.0	149.4	111.0
	Other capital expenditure	-	29.1	-	-	-	-
(b)	Civil Expenditure	191.2	228.0	283.4	353.0	267.0	384.0
	Recurrent Expenditure	63.3	71.2	102.3	143.0	136.6	162.0
	Development Expenditure	128.0	156.8	181.1	209.0	130.4	222.0
(c)	P.D.O. Operations	56.5	26.5	26.3	35.0	33.7	57.0
	Operating Expenditure	5.7	10.3	12.3	13.0	14.8	16.0
	Capital Expenditure	14.9	16.2	14.0	22.0	18.9	41.0
	Participation Payments	35.9	-	-	-	-	-
(III)	Deficit (-) Surplus (+)	-62.2	-107.8	-93.3	-191.0	-17.9	-251.0
(IV)	Grants	8.3	71.6	18.0	144.0	93.0	28.0
(V)	Net Deficit (-) Surplus (+)	-53.8	-36.2	-75.3	-47.0	+75.1	-223.0
(VI)	Loans (net)	83.7	49.4	71.9	-	-33.0	173.0
	Receipts	83.7	84.6	91.0	-	60.0	212.0
	Payments	-	-35.2	-19.1	-	-93.0	-39.0
(VII)	Surplus (+) Deficits (-)	29.9	13.2	-3.4	-	+42.1	-50.0

(Source) Central Bank of Oman, Annual Report 1977

Table I-11 Development of Government Current Revenue*

	(Millions R.O.)							
	1971	1972	1973	1974	1975	1976	1977	Budget 1978
Oil Revenues	47.9	49.6	61.3	291.5	373.1	454.7	482.2	415.0
Royalty and Income Tax	47.9	49.3	60.6	159.3	126.5	178.8	158.9	-
Buy-back	-	-	-	116.4	196.0	199.4	197.5	-
Third party sales	-	-	-	15.3	50.3	76.1	125.4	-
Oil installation produces	-	0.3	0.7	0.5	0.3	0.4	0.4	-
Other Revenues	2.2	3.4	3.6	11.7	14.6	32.7	38.0	40.0
Custom duties	-	1.6	1.7	2.3	0.5	4.5	4.6	-
Corporate Income Tax	-	0.5	0.7	0.5	2.1	4.6	5.9	-
Investment Income	-	0.1	0.4	4.3	1.7	2.4	4.5	-
Service and Utilities	-	-	-	1.1	3.9	6.4	7.2	-
Municipal tax	-	-	0.5	0.5	1.2	0.1	0.3	-
Miscellaneous	-	1.2	0.6	3.0	5.2	14.6	15.5	-
Grants	-	-	3.5	8.3	71.6	18.0	93.0	28.0
Total	50.1	53.0	68.4	311.5	459.3	505.4	613.2	483.0

(Source) Central Bank of Oman, Annual Report 1977

b) Trend of Expenditure

As can be seen from Table I-10, expenditure continues to exceed the level of revenue due to large yearly defense budget and economic infrastructure investment and other development budget.

It is characteristic of the government's expenditure structure that defense and development expenses represent a very large portion of the expenditure. These expenses account for about 80% of total expenditures, while defense expense alone accounts for 40% to 50%.

Development expenditure, on the other hand, is being directed toward the construction of infrastructure in the overwhelming majority; and as long as any important infrastructure remains underdeveloped and inadequate, this expenditure item will be maintained and will have a substantial economic impact together with the defense expense.

Major objects of development expenditure had been roads and other public utilities (power generation, desalination plant) up to 1976, each of which accounted for about 20% of the development expenditure. All other development items enjoyed only a small amount of expenditure.

(3) Future Prospect of Revenue and Expenditure

Details of the government revenue--consisting of oil and tax revenue and foreign aid--anticipated by the Five-Year Plan are as shown on Table I-12.

Table I-12 Estimates of Resources during the Development Plan
Period 1976 - 1980 (Government)
(valued at 1976 fixed prices)

	(Million Rials Omani)					
	1976	1977	1978	1979	1980	Total
Oil Revenue	470	458	447	436	425	2,236
Tax Revenue	25	27	30	35	40	157
Foreign Aid	155	136	66	28	19	404
Total	650	621	543	499	484	2,797

(Source) Development Council

The indicated anticipation of revenue reduction is based on oil production decline. While oil revenue reduction will result in rise in relative position of tax receipts in total government revenue, tax revenue will not increase so rapidly when industrial structure is yet to be developed. In order to expand tax

revenue, the establishment of individual income tax and real property tax is now being studied.

The Five-Year Plan anticipates the amount of expenditure listed on Table I-13. It is planned that defense expense, a major expenditure item, can be reduced due to the suppression of guerrillas in Dhofar district and to the completion of military modernisation.

Operating expenses, on the other hand, is forecast to increase yearly due to the government's organizational modernisation and improvement and to become the greatest expenditure item in 1980.

Table I-13 Estimates of Uses during the Development Plan
Period 1976 - 1980 (Government)
(valued at 1976 fixed prices)

	(Million Rials Omani)				
	1976	1977	1978	1979	1980
Defence and national security	275	219	179	154	144
Civil current expenditure	103	115	129	145	163
Government share of P.D.O's current expenditure	12	15	15	15	15
Civil capital projects	192	190	140	96	82
Joint investment projects with the private sector	6	5	4	4	4
Government share of P.D.O's capital investment	18	20	20	20	10
Repayment of loans and interest	44	53	46	51	47
General reserve	-	4	10	14	19
Total	650	621	543	499	484

(Source) Development Council

Inasmuch as the oil revenue declines and the development effort continues in the long run, it is feared that the amount of foreign loans may increase and the interest as well as the principal, which the government will have to pay may build up to threaten sound public finance.

(4) Public Finance and Economic Development/Fostering of Private Economy

The private economy of Oman relies on fiscal expenditures, which currently amount to about 60% of GDP.

Although it is keenly realised that private sector--particularly secondary industries--which would be able to replace petroleum as the major source of government revenue must be fostered while rich oil revenue is still available, this will require expeditious accomplishment of the securing of raw materials, fostering of manpower, and development and expansion of domestic market, along with the development of economic infrastructure which has received much attention so far. All of these will require a many-faceted fiscal "propping-up".

2) Development Expenditure: Scale and Source

(1) A Summary of Development Expenditure

Government and private fixed capital formation as a percentage of GDP has shifted as presented on Table I-14.

Table I-14 Gross Domestic Fixed Capital Formation
1970 - 77

(Millions of Rials Omani)

	1970	1971	1972	1973	1974	1975
Private Sector	11.4 11%	15.6 12%	12.1 9%	14.5 9%	31.3 6%	50.1 7%
Government	3.3 3%	20.0 16%	29.9 21%	29.9 18%	142.8 25%	173 23%
Total	14.7 14%	35.6 28%	42.0 30%	44.4 27%	174.1 31%	223.1 30%
GDP at market Prices	106.8	125.1	140.8	169.4	568.5	738.8

(Source) Central Bank of Oman

Under the aggressive national development policy, government fixed capital formation exceeded in 1971 the magnitude of private capital formation (chiefly investments by petroleum companies), which had previously represented a major part of the total capital formation in Oman up to 1970.

The position of development investment in the total fiscal expenditure has shifted as shown on Table I-15.

Table I-15 Development Expenditure

	(Million Rials Omani)						
	1971	1972	1973	1974	1975	1976	1977
Development Expenditure	20.0 43%	29.9 42%	29.5 32%	127.9 35%	156.8 32%	181.1 31%	130.4 24%
Total of Government Expenditure	46.0	69.4	91.7	329.5	495.5	591.5	538.1

(Source) Central Bank of Oman

While the absolute amount of development expenditure has generally been on the increase, the amount as a percentage of the government's total expenditure started to decline after 1974 due to the administrative revamping reshuffle and strict controls on expenditure items which followed the fiscal crisis of 1974.

As can be seen from Table I-16, major development expenditure items are roads and public utilities. In addition, important development projects are the repair of Muttrah Port, construction of new airport at Seeb, communications network development, desalination plant, electric power facilities, and hospital and school construction.

In addition to the development of economic infrastructure, which had been the central part of the government's development investments during the period of 1970 to 1975, it is anticipated that investments for the fosteration of industries to substitute for petroleum as a major source of government revenue will increase, as can be seen from Table I-17.

Table I-16 Government Development Expenditure

Item	(Million Rials Omani)					
	1971	1972	1973	1974	1975	1976
Ports and Harbours	7.0	7.6	5.4	3.4	2.8	7.1
Airports and Aviation	1.5	2.8	1.7	2.5	2.1	3.6
Roads	4.8	4.3	5.1	19.9	35.4	42.7
Public Utilities	*	*	*	23.7	39.1	41.0
Transport and Communications	*	*	1.1	14.2	8.0	2.7
Health	1.7	2.3	1.7	7.9	7.8	8.6
Education	0.8	1.6	0.8	2.6	2.2	3.4
Public buildings	0.5	2.8	1.1	9.2	4.4	15.7
Housing and Community Development	0.7	2.1	3.5	9.6	13.8	12.7
Other buildings	-	-	-	-	1.2	7.8
Miscellaneous infrastructure	-	-	-	-	3.6	5.1
Petroleum Development (Oman) Ltd.	-	-	-	14.9	16.2	14.0
Agriculture, fisheries and mining	*	*	2.4	3.8	1.1	2.5
Information and Culture	*	*	0.3	9.5	7.9	7.4
Dhofar Region development	2.2	5.3	6.5	9.8	8.3	2.9
Other services	0.8	1.0	0.3	11.9	19.1	17.9
T O T A L	20.0	29.9	29.9	142.9	173.0	195.1

(Source) Statistical Year Book, 1976

Table I-17 Government Capital Expenditure by Sector Valued

at Fixed 1976 Prices

at Fixed 1976 Prices															(Million Rials Omani)							
Sector		1976	1977	1978	1979	1980	Total	Sector		1976	1977	1978	1979	1980	Total							
A--Petroleum and Mining								E--Economic Infrastructure														
1. Government share of P.D.O's capital expenditure		18.0	20.0	20.0	20.0	10.0	88.0	1. Roads		51.9	51.2	27.5	16.0	16.0	162.6							
2. Oil refinery project		-	2.0	13.0	8.0	2.0	25.0	2. Ports		9.8	13.3	15.5	3.5	-	42.1							
3. Gas Pipe-lines		5.0	8.0	4.0	-	-	17.0	3. Airports		6.3	8.3	3.0	1.0	-	18.6							
4. Copper Project		0.3	10.0	14.0	-	-	24.3	4. Posts and telecommunication		4.0	1.7	2.5	2.7	1.5	12.4							
Total Petroleum and Mining		23.3	40.0	51.0	28.0	12.0	154.3	5. Electricity and water		44.6	39.7	11.3	18.0	9.5	123.1							
B--Agriculture and Fisheries								6. Housing								10.8		5.0	4.0	4.0	5.0	28.8
1. Agriculture and Irrigation		1.0	4.1	5.5	7.5	8.5	26.6	7. Civil works and construction		47.8	47.4	24.8	18.6	12.5	151.1							
2. Fisheries		1.6	1.8	3.0	4.0	4.0	14.4	Total Economic Infrastructure		175.2	166.6	88.6	63.8	44.5	538.7							
Total Agriculture and Fisheries		2.6	5.9	8.5	11.5	12.5	41.0	F--Social Infrastructure														
C--Manufacturing								1. Education		3.7	5.9	5.5	5.5	5.5	26.1							
1. Oman Portland Cement Co.		2.0	2.3	-	-	-	4.3	2. Health		9.4	6.5	6.0	6.0	6.0	33.9							
2. Oman Flour Milling Co.		0.5	-	-	-	-	0.5	3. Cultural affairs		7.3	1.3	1.0	1.0	1.0	11.6							
3. Other industries		0.1	4.8	5.0	10.0	15.0	34.9	4. Social affairs		0.8	12.3	13.0	4.0	4.0	34.1							
Total Manufacturing		2.6	7.1	5.0	10.0	15.0	39.7	5. General administration		19.0	3.9	1.2	1.2	1.2	26.5							
D--Trade and Tourism								Total Social Infrastructure		40.2	29.9	26.7	17.7	17.7	132.2							
1. Trade (oil tanks)		0.8	0.2	-	-	-	1.0	G--Financial Institutions														
2. Tourism (hotels)		7.9	3.0	-	-	-	10.9	1. Development Bank of Oman		3.0	2.0	4.0	4.0	4.0	17.0							
Total Trade and Tourism		8.7	3.2	-	-	-	11.9	Total Financial Institutions		3.0	2.0	4.0	4.0	4.0	17.0							
								All sectors		255.6	254.7	183.8	135.0	105.7	934.8							

(Source) Five-Year Development Plan

In the petroleum sector, a refinery and a natural gas pipeline are being considered for the high level utilisation of oil and natural gas. Also, exploitation of copper deposits, agriculture and fishery promotion, and development of manufacturing industries are being planned to provide sources of revenue other than petroleum.

(2) Foreign Funds

The international balance of payments of Oman had basically shown a surplus up to 1970, but subsequently, fund remittances by expatriates to their home countries and commodity imports drastically increased due to expansion in government expenditure, and the balance turned to a deficit of 115.6 million RO in 1975. In the beginning, the deficit could be made up for with the international reserve which had been accumulated in the past, but, later, grants and loans from the Gulf nations and loans from the European banks had to be depended upon.

Foreign loan agreements which had been executed and those yet to be executed as of December 1976 are shown on Table I-18 by country. The breakdown of these loans is: supplier credit, 30%; commercial bank loan, 60%; and foreign government loan, 10%. Loans are taken out for an average period of three years in most cases, and long-term loans bear an interest of from six to nine percent per annum.

Table I-18 External Public Debt Outstandings

(in Million R.O.)			
Type of Creditor Creditor Country	Disbursed	Undisbursed	Total
Suppliers Credits			
France	5	27.5	32.5
Germany, Fed. Rep. of	2.7	-	2.7
Italy	1.4	0.5	1.9
United Kingdom	5.3	-	5.3
United States	1.2	-	1.2
Total Suppliers Credits	15.6	28	43.6
Private Bank Credits			
Germany, Fed. Rep. of	3.6	26.6	30.2
Sweden	0.4	4.4	4.8
United Kingdom	20.8	-	20.8
Multiple Lenders	17.3	-	17.3
Total Private Bank Credits	42.1	31	73.1
Loans from International Organization IBRD	0.4	2.5	2.9
Loans from Governments			
Kuwait	6	-	6
Saudi Arabia	8.7	-	8.7
Total Loans from Governments	14.7	-	14.7
Total External Public Debt (1 + 2 + 3 + 4)	72.8	61.5	134.3

(Note) Includes only debt committed Jan. 1, 1900 -
Dec. 31, 1976

Debt repayable in foreign currency and goods

(Source) IBRD Report

Funds required of the Omani government for the repayment of these loans and interest payments thereon has increased and will increase as shown on Table I-19.

Table I-19 Service Payments of External Public Debt (Principal and Interest) Projections Based on Debt Outstandings

	(In Million R.O.)						
	1974	1975	1976	1977	1978	1979	1980
Service Payments Total	13.3	13	14.6	35.5	34	32.3	26.9

(Note) Includes only debt committed Jan. 1, 1900 - Dec. 31, 1976

Debt repayable in foreign currency and goods

(Source) IBRD Report

The Five-Year Plan document shows that loans in total amount of 37.9 million RO have been committed and, therefore, available. For details, see Table I-20. These will be on the decline after 1979, indicating that the government plans to reduce loans from foreign sources as much as possible.

(3) Ease of Fund Generation and Prospect of Aid

One aim of the Five-Year Plan is to lessen fiscal reliance on loans; target values compare 3.9% in 1980 against 8% in 1976. It is suspected, however, that the accomplishment of this aim will have to be delayed because, when the government leadership in economic infrastructure development is expected for a fair length of time to come, the government, depending on the amount of oil revenue, will have to be flexible in introducing foreign loan funds.

Table I-20 Detailed Estimates of Available Loans

(Millions Rials Omani)						
Item	1976	1977	1978	1979	1980	Total
Development Loans						
1. From Saudi Arabia	15.7	4.0	-	-	-	19.7
2. From I.B.R.D. for education	0.8	0.6	0.1	-	-	1.5
3. From I.B.R.D. for technical assistance	1.5	-	-	-	-	1.5
4. Loan for the gas pipe line	5.0	8.0	4.0	-	-	17.0
5. Loans for the development of the Southern Region	-	30.0	30.0	-	-	60.0
6. Oil refinery project	-	-	8.0	7.0	-	15.0
7. Copper project	-	6.0	9.0	-	-	15.0
Export Credit						
8. Bid Bid-Sur road	20.8	9.7	-	-	-	30.5
9. Electricity supply for 19 villages	6.8	-	-	-	-	6.8
10. Salalah Hotel	1.1	-	-	-	-	1.1
11. Defence Loan	37.5	21.6	6.3	-	-	65.4
12. Raysut port	6.0	10.0	10.0	3.0	-	29.0
Other Loans						
13. Buraimi-Ibri road	2.2	-	-	-	-	2.2
14. Renewal of bank loans	13.8	-	-	-	-	13.8
Total available loans	111.2	89.9	67.4	10.0	-	278.5

(Source) Five-Year Development Plan

3) Private Finance and Money Market Trend

(1) An Overview of Private Finance: History and Characteristics

Private finance developed in Oman in four phases. The first phase began when the United Kingdom withdrew her strategic point of foreign policy from India and moved it back to the Middle East. As a part of this action, the British Bank of the Middle East established its first Oman office in Muscat in 1948. Oman remained isolated from the world for the subsequent 20 years. The second phase started upon the oil discovery of 1964 and the commencement of oil exportation in 1967. The new oil revenue prompted financial transactions and allowed two additional foreign banks to start business in Oman. Since 1970, the incumbent Sultan had aggressively modernised the financial system in Oman by issuing own currency and developing private finance structure in the third phase. The final fourth phase saw the promulgation of the Banking Law in November 1974, based on which the Central Bank and the present modern money market were established in Oman for the first time.

Characteristics of money market in Oman, like in other oil producing Arabian nations, is that, first, financial activities themselves are strongly affected by governmental funds; secondly, under the government policy it is difficult to control the foreign banks, which are playing an important role in commercial bank activities; thirdly, when domestic industrial infrastructure is yet to be developed, financial activities are concentrated to such sectors as commercial, government, and construction; and fourthly, financial network shows a distinct uneven regional distribution with heavy concentration of bank offices in cities.

(2) Financial System

The Muscat Currency Authority was established in 1970 (based on Decree 1390) and issued Omani currency called Rial Saidi (which was later redesignated as Rial Omani). The Authority later in 1972 evolved into the Oman Currency Board, which was established under Decree 1392 with the main responsibility of issuing currency and administering exchange funds.

Subsequently, greater money supplies resulting from oil revenue and increased fiscal expenditure for defence and economic infrastructure development invited price inflation in Oman. In order to cope with this new situation, the said Banking Law was established in November 1974 in want of a central institution for the administration and governing of monetary policies. The Central Bank of Oman was established under this new law in December 1974.

The major policy involvement of the Central Bank in commercial banking activities is to provide administrative guidance (moral suasion) on reserve ratio, lending ratio, and interest rate structure. Accordingly, lending ratio was raised in 1975, and it is said to have effectively oppressed the price inflation.

Three government banks and 17 commercial (including foreign) banks currently operate in Oman, and they are listed on Table I-21.

(3) Financial Trend

a) Central Bank

The yearly activities of the Central Bank of Oman since its inception can be understood from changes in its assets, as presented on Table I-22. The Central Bank assets increased rapidly, a majority of which (86% in 1977) has been foreign assets.

The breakdown of the Bank's foreign assets is, in descending order of size, balance in foreign banks, 78%; miscellaneous foreign investments, 10%; IMF deposit, 8%; and gold, 4%. Short term loans to the government represent 85% of "all other assets."

Money supply has expanded due to the extension of credits to private parties and the government, as can be seen from Table I-23. The Banking Law contains no provision on reserve for the issuance of Central Bank notes, but the issuance is backed up 100% by foreign assets customarily since the administration of the Oman Currency Board.

Table I-21 Banks in Oman

Name	Establishment	No. Office Approved	No. Office in Operation	Origin	Remarks
(Government Banks)					
Central Bank of Oman	1974			Gov't.	Established under the Banking Law
Oman Development Bank				Gov't.	Established under 40% government, 20% private Omani capital, and 40% foreign capital investments for providing funds for development in manufacturing, petroleum, mining, agriculture, and fishery business. Financing activities somewhat delayed.
Oman Housing Bank	1977			Gov't.	Evolved from the former Oman National Housing Development Company; Provides for personal housing loans.
(Private Banks)					
Al Bank Al Ahli Al Omani	1976	2	2	Oman	A joint-venture; 80% Omani capital, 20% Societe General Paris. Authorized capital, two million RO
Arab African Bank	1975	1	1	Egypt	Head office in Cairo
Arab Bank Ltd.	1975	4	4	Jordan	Head office in Amman
Bank of Baroda	1976	2	1	India	Head office in Baroda
Bank of Credit and Commerce Int.	1974	15	11	Luxembourg	30% capital participation by Bank of America
Bank of Oman, Bahrain and Kuwait	1974	6	3	Oman	Omani and Kuwait capitals, 50% - 50%; authorized capital, two million R.O.
Bank of Oman and Gulf	1977	1	-	Oman	Has not yet started business
Bank Mellat Iran	1974	3	3	Iran	Head office in Teheran
Bank de Paris	1975	2	1	France	Head office in Paris
Bank Saderat Iran	1976	1	1	Iran	
The British Bank of the Middle East	1948	20	19	United Kingdom	The first bank to have started business in Oman; greatest number of bank branches and greatest deposit balance in Oman
Chartered Bank	1968	6	6	United Kingdom	Head office in London
Citi Bank U.A.	1975	2	2	United States	Head office in New York
Commercial Bank of Oman Ltd.	1976	7	5	Oman	Joint-venture; Omani capital and United Bank (Pakistan)
Grindlays Bank Ltd.	1969	8	6	United Kingdom	Head office in Karachi
Habib Bank A.G., Zurich	1973	8	3	Pakistan	
Habib Bank Ltd.	1972	13	11	Pakistan	Head office in Karachi
National Bank of Abu Dhabi	1976	2	1	U.A.E.	Head office in Abu Dhabi
National Bank of Oman	1973	24	21	Oman	Omani capital, 80%; Bank of America
Union Bank of Oman	1976	1	1	Oman	Omani and Kuwait capitals joint-venture; authorized capital two million R.O., 50% paid-in

(Source) C.B.O. Bulletin Dec. 1977

Table I-22 Central Bank of Oman Assets

End of the year	(Millions R.O.)							
	1977	(Rate of ncrease)	1975	(Rate of Increase)	1976	(Rate of increase)	1977	(Rate of increase)
Foreign Assets	34.4 (99.7)	1.00	56.8 (85.7)	1.65	76.8 (78.0)	2.23	105.5 (86.2)	3.07
Other Assets	0.1 (0.3)	1.00	9.5 (14.3)	95.00	21.6 (22.0)	216.00	16.9 (13.8)	169.00
Total Assets	34.5 (100.0)	1.00	66.3 (100.0)	1.92	98.4 (100.0)	2.85	122.4 (100.0)	3.55

(Note) Figure in brackets are percentages to totals

(Source) Central Bank of Oman Annual Report 1977

Table I-23 Money Supply

	(Millions R.O.)						
	1971	1972	1973	1974	1975	1976	1977
Currency	8.8	12.3	15.2	28.9	38.5	47.8	55.1
Demand Deposits	4.6	6.7	9.8	21.6	33.5	54.9	58.2
Time & Saving Deposits	32.1	25.8	21.7	36.8	38.2	64.7	88.4
Private Domestic Liquidity	45.5	44.8	46.7	87.3	109.8	167.5	201.7

(Source) Central Bank of Oman Annual Report 1977

Because the currency, Rial Omani, is coupled with the United States dollars and has taken a fixed foreign exchange rate since July 1974, the recent devaluation of the U.S. dollars has resulted in automatic devaluation of Rial Omani in relation to other major currencies and a rise in import prices. To Oman, which relies on imports for the majority of domestic needs, domestic price inflation due to the raised import prices is a critical problem, and, therefore, foreign exchange policy is now being reviewed.

b) Commercial Banks

Sudden change in the assets and liabilities of commercial banks in Oman took place in 1974, as it is shown by Table I-24. Although commercial banks had previously made efforts to maintain a level of foreign assets by administering funds abroad, their foreign assets were on the yearly decrease as they

Table I-24 Commercial Banks Assets and Liabilities

	(Millions of R.O.)							
	1970	1971	1972	1973	1974	1975	1976	1977
ASSETS								
1. Cash on hand balances with CBO	0.3	0.6	1.6	1.1	3.0	10.6	16.7	25.7
2. Foreign Assets (net)	28.2	35.0	17.0	13.2	-	-	-	-
3. Credit to Government	-	-	7.2	6.6	56.5	62.1	89.5	56.0
4. Credit to private Sector (Domestic)	3.7	4.3	6.7	18.9	65.8	85.2	119.4	166.3
5. Other Assets (net)*	0.6	-	0.4	-	-	-	-	-
Total	32.8	39.9	32.9	38.3	125.3	157.9	225.6	247.9
LIABILITIES								
1. Demand deposits (Domestic)	2.8	4.6	6.7	9.8	19.5	33.5	54.9	58.2
2. Time deposits (Private domestic)	27.8	32.1	25.8	21.7	36.0	40.5	57.9	88.4
3. Government deposits	2.2	3.0	0.4	3.1	15.6	24.9	28.0	59.5
4. Foreign Liabilities(net)	-	-	-	-	33.7	48.9	74.7	34.3
5. Other Liabilities (net)*	-	0.2	-	3.7	20.5	10.1	10.1	7.6
Total	32.8	39.9	32.9	38.3	125.3	157.9	225.6	247.9

* Balancing items

(Source) Central Bank of Oman Annual Report 1977

extended increasing credits to private parties in Oman. And, due to the expanded credit offering, commercial banks became the borrowers of foreign assets in 1974, since when foreign borrowing has been on the increase year after year. Private credits are short term import finance in most cases, and long term credit is yet to be developed in Oman.

The number of bank offices increase in cities and in rural areas as shown by Table I-25.

The amounts of credit extended by commercial banks are presented by sector/segment on Table I-26. Credits offered by commercial banks are traditionally mostly short period loans to finance the settlement of import bills

and loans to the government due to the increasing fiscal deficits. Because foreign banks, which are the mainstream of commercial banks in Oman, depend on short term fund operation within their head office-branches network for their fund procurement, commercial banks are still fragile as the source of long term funds. Supplier credits, bank loans, and foreign grants are depended upon for long term project funds.

Table I-25 Number of Bank Branches in Oman

	1970	1971	1972	1973	1974	1975	1976
In Capital Area (Muscat, Mutrah, and Ruwi)	6	6	8	18	28	44	52
Outside capital area	0	3	5	9	10	11	15
Total	6	9	13	27	38	55	67

(Source) I.B.R.D. Report

Table I-26 Distribution of Commercial Bank Credit

End of Year Sector	(in Million of R.O. and in percent)					
	Outstanding Loan Amount			Percent to Total		
	1975	1976	1977	1975	1976	1977
Trade	48.9	66.7	93.5	33.3	32.0	40.7
Mining	1.3	2.5	2.2	0.9	1.2	1.0
Construction	17.1	14.8	21.6	11.6	7.1	9.4
Manufacturing	0.7	1.5	5.3	0.5	0.7	2.3
Services	1.8	2.7	5.6	1.2	1.3	2.4
Personal	10.3	21.5	29.4	7.0	10.3	12.8
Government	63.1	86.3	56.3	42.9	41.5	24.5
Others	3.9	12.2	15.6	2.6	5.9	6.8
Total	147.1	208.2	229.6	100.0	100.0	100.0

(Source) Central Bank of Oman Annual Reprot 1977

Manufacturing and mining industries are enjoying little commercial bank credit. While commerce, construction, government, and individuals (personal loans) are the major borrowers, it is noteworthy that loan distribution to the construction sector is decreasing and that to individuals is increasing.

In order to quickly foster manufacturing, mining, agriculture, and fishing industries as the sources of income in substitution for oil production, financial assistance to such industries is much needed. But, as already said, commercial banks are passive in extending such required long term loans. In this situation, the Development Bank was established in order to offer the much essential long term development loans in lieu of commercial banks.

c) Development Bank

The Development Bank of Oman was established on August 7, 1976, under Decree No. 31/76. Because project planning has been generally delayed, the Development Bank is yet to commence its actual lending business. However, when it begins to fully function, its importance as a stable supplier of long term credits, which the Omani money market has been lacking to date, will increase considerably.

(4) Monetary Policy

The major objectives of the Central Bank's monetary policy is to develop a stable value of Rial Omani as a currency through facilitating money market activities. For this very purpose, the Central Bank maintains surveillance over and provides assistance and guidance to commercial banks on their reserve ratio, lending ratio, and lending limits.

The government is at the moment attempting to discourage the activities of private business which have strong demands for credits, particularly of construction industry, by controlling the interest rate and the lending limits. Recently, the Central Bank established the Central Risk Bureau for the surveillance of commercial bank's interest rates and limits of lending particularly to private business firms and is trying to check price inflation by properly adjusting money supply and lending ratio through the guidance to commercial banks. The lending ratio has fluctuated as shown on Table I-27.

Table I-27 Lending Ratio

	1975 Dec	1976 Dec	March	1977 June	Sept	Dec
1. Deposits (in Million R.O.)	192	254	238	270	263	288
2. Actual Lending (in Million R.O.)	152	213	208	227	218	229
3. Permitted Lending (in Million R.O.)	158	216	202	229	224	245
4. Excess Lending (in Million R.O.)	11	18	22	16	21	10
5. (2)/(1) x 100	79	84	87	84	83	80

(Source) Central Bank of Oman Annual Report 1977

6. Infrastructure

In 1970, the total length of paved roads in Oman was only 10 kilometres and Oman had no modern sea port or civil airport. But under the regime of the Sultan Qaboos, rapid infrastructural development was started with a majority of the government development budget invested for the purpose. As a result, roads, ports and harbours, airports, water, electric power, and communication facilities have been developed to the minimum level required, and the future investment emphasis will be shifted from infrastructure to income-generating sector such as the resource exploitation and industrial development activities under the new policy.

1) Transportation

(1) Road

The government's infrastructural development policy had placed the greatest emphasis on the construction of roads, and, as a result, Oman has now come to possess asphalt paved roads for a total extension of about 1,300 kilometres. This rapid increase in the total road extension is shown by Table I-28.

Table I-28 Length of National Road

Type of Road	(in Kilometres)						
	1970	1971	1972	1973	1974	1975	1976
Asphalt Surfaced Road	10	27	198	300	427	708	1,272
Graded Road	1,817	2,168	3,060	3,620	4,105	5,495	8,500

(Note) Excludes defense roads

(Source) Statistical Year Book, 1976

Figure I-2 shows the road network now available in Oman.

Pavement of Nizwa - Salalah Road (which connects the northern and southern regions of Oman) for a total extension of 780 kilometres is a new big project. A feasibility study of this project was completed in 1974, but final design has not yet been drawn for the project due to the shortage of fund even though the substantial economic impact of the project has been expected.

Table I-29 Vehicle Registration

	(Number on the road at end of year)					
	1971	1972 ¹⁾	1973	1974	1975	1976
Private	846	1,460	2,756	5,320	8,994	13,283
Commercial	2,898	5,380	7,247	9,925	15,108	20,360
Government	224	760	1,376	2,465	3,489	4,713
Taxes	210	240	443	495	732	1,525
Self-drive hire	167	330	5 ²⁾	5	7	20
Public Service	999	990	979	941	928	928
Diplomatic	8	20	54	73	101	120
Motorcycles	170	494	747	1,427	2,109	3,224
Total	5,540	9,674	13,607	20,651	31,468	44,173

(Note) 1) Estimate by IBRD based on registration data for year

2) Most of the self-drive hire vehicles registered as taxes

(Source) IBRD Report

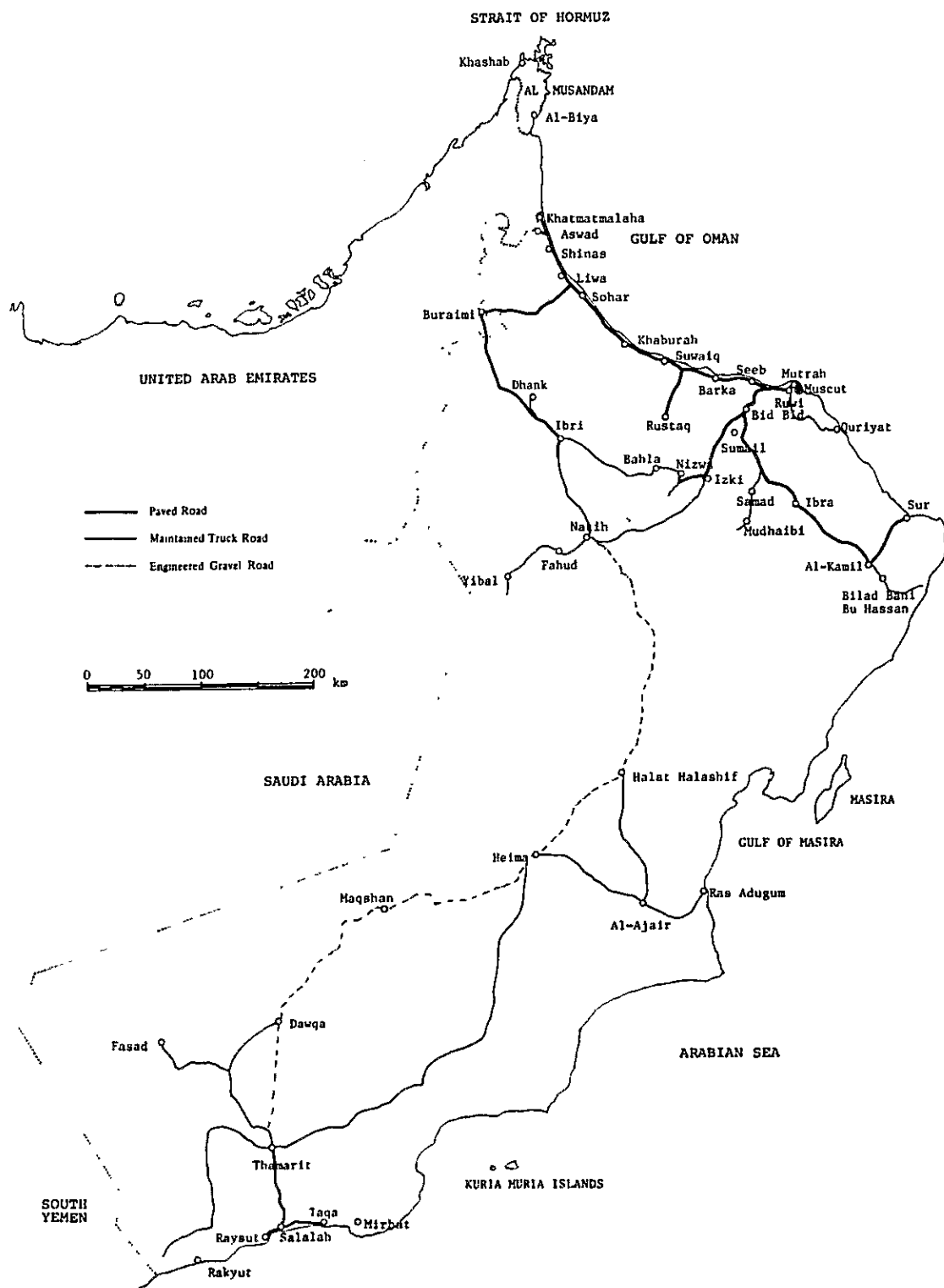
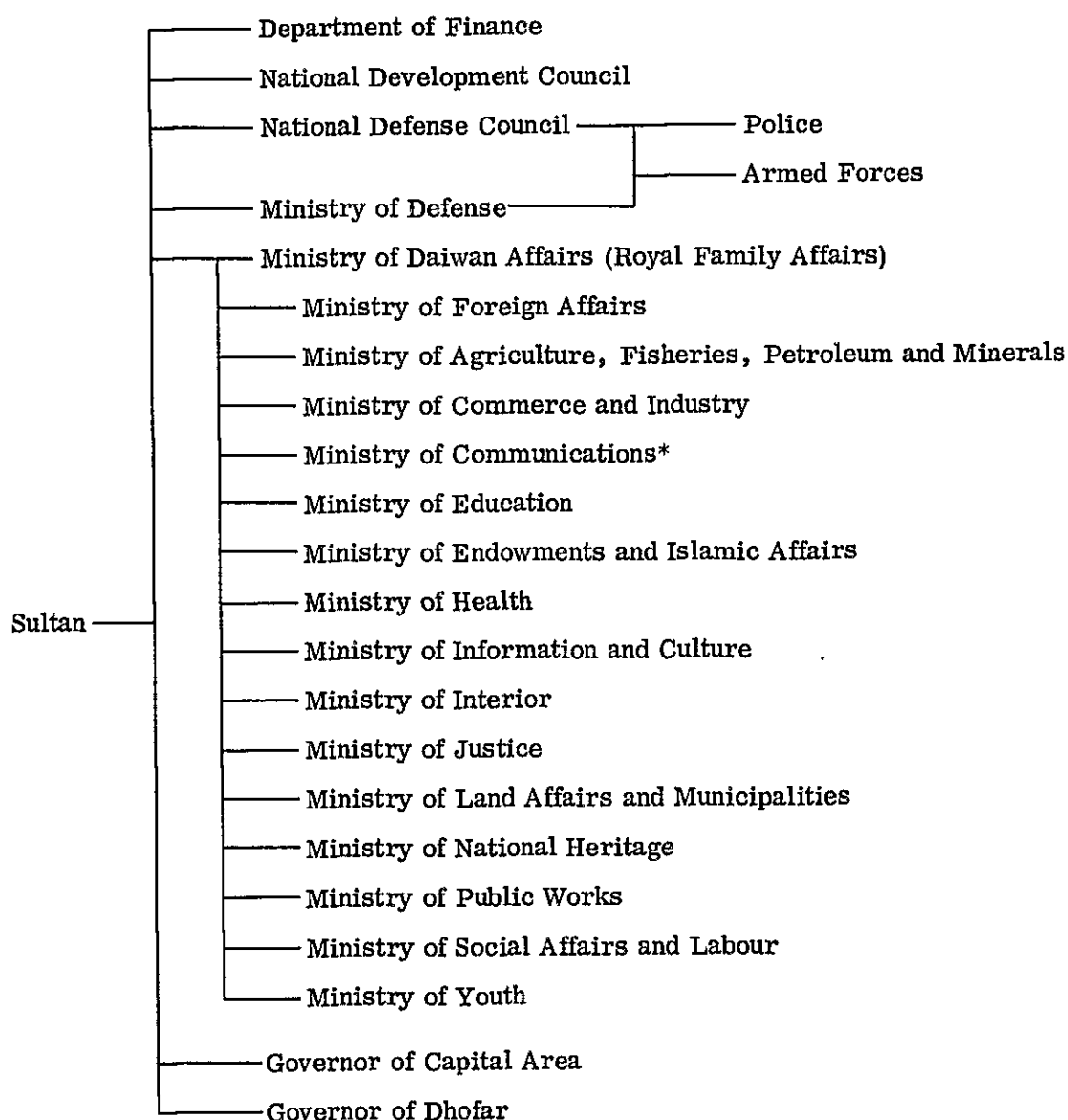


Figure I-2 Road Network in Oman



* The Ministry has been divided into three different ministries at the time of writing this report.

Fig. I-3 Organization of the Central Government (as of Feb, 1978)

As the road extension grew, the number of automobiles increased. Automobile ownership in Oman increased from 5,540 vehicles at the end of 1971 to 44,173 vehicles by the end of 1976. The content of this 8-fold increase is presented on Table I-29. Ownership structure has changed also; when there was not much paved road 4-wheel drive vehicles was the mainstream, but as roads were improved light trucks and passenger cars became more common.

Cross-sectional traffic volumes at major points of the nation are graphically presented by Figure I-3. While traffic jam occurs in the morning rush hours in the Metropolitan area, traffic movement at a speed over 100 kilometres per hour is possible in rural areas, where daily traffic is several hundred vehicles at the most.

The contractor which constructed a road is held responsible for the repair and maintenance of the road for the period of one year after completion, after which the road is placed under the administration of the Directorate of Roads. Necessity will rise in the future to expand the organization of this Directorate for the effective maintenance of the roads.

(2) Ports and Harbours

Well equipped modern ports in Oman are Mina Qaboos and Mina al Fahal (for the shipment of petroleum) in the Metropolitan area, and Mina Raysut in Dhofar area in the southern region.

i) Mina Qaboos

Mina Qaboos has 11 berths, 10 transit sheds, and a cement silo. In addition, a grain silo and a freezer warehouse are now under construction.

The theoretical capacity of this port is believed to be about 1.5 million tons per year. The actual volume of cargo handled in 1976 was 1,178,400 shipping tons. The volume of cargo has been increasing yearly and if the increase trend continues, over-congestion will eventually occur in this port and harbour. But there are no concrete plans for the expansion of this port.

ii) Mina al Fahal

This is the port for the shipping out of PDO oil, and the port has small jetties for barges for the purpose of landing goods consigned to PDO. In 1976, 18 million tons of crude oil was exported and 35,000 shipping tons of cargo was imported through this port.

iii) Mina Raysut

This is the second commercial port of Oman and has a 400-metre break-water, four berths (water depth: 2.5 - 5.2 metres), and PDO's Raysut Oil

Depot. This port used to be a fishing port, but it has been developed with a total investment of four million RO for exporting agricultural and livestock products and for importing petroleum and other industrial products. Annual capacity is one million tons, and cargo handling record in 1976 was 220,000 shipping tons. A 300-DWT freighter is in service of non-scheduled shuttle between Mina Raysut and Mina Qaboos.

(3) Airport

While Seeb and Salalah are the only airports available for regular flights, there are many airstrips for light airplanes in Oman.

Seeb International Airport has a 3,000-metre runway, which can accommodate 747's and airbuses. In 1976, aircraft landing and taking off counted about 3,000 with the total of 32,000 passengers and 12,621 tons of air cargo. Expansions of the runway and the terminal building are on the planning for this airport.

About 25,000 passengers use regular flights between Seeb Airport and Salalah airport each year. The Government is planning to develop Salalah airport into another international airport of Oman by improving its runway. For this purpose, a cost of about 15 million RO has been estimated.

(4) Pipeline

A pipeline is currently under construction in order to bring non-associated gas from a deposit in Yibal to the Metropolitan area. The 20-inch pipes for a total extension of 309 kilometres between Yibal and Al Ghubra were purchased in 1975 for a total cost of about 30 million U.S. dollars. Natural gas which will be supplied through the pipeline will be consumed for power generation and other industrial and home use.

Should copper smelting, power generation, and seawater desalination projects materialise for Sohar area after the completion of this pipeline, the construction of another pipeline for an extension of 200 kilometres from Seeb to Sohar will be contemplated.

Table I-30 Cargo Flows Through Main Ports

	Unit	1970	1971	197	1973	1974	1975	1976
Port: Mina Qaboos, Mutrah								
Vessels entered	Number	207	-	265	337	362	563	730
Goods loaded	Shipping tons of 35.3 cu. ft.	2,000	2,000	2,000	5,150	2,364	2,407	3,103
Goods unloaded*	"	71,000	80,000	275,000	394,000	556,000	1,037,620	1,178,740
Port: Raysut, Salalah								
Vessels entered	Number	-	-	-	20	80	159	154
Goods loaded	Shipping tons	-	-	-	-	-	-	852
Goods unloaded	"	-	-	-	-	147,000	216,870	222,008
Port: Mina al Fahal								
Vessels entered	Number	-	-	-	-	-	-	795 ⁺
Dry Cargo								
Goods loaded	Shipping tons of 35.3 cu. ft.	370	880	1,340	100	161	-	-
Goods unloaded	"	55,500	102,300	52,400	49,250	86,990	47,717	35,018
Petroleum**								
Goods loaded	Thousand tons of 2,204 lbs.	16,203	14,358	13,741	14,166	14,041	16,619	18,093
Goods unloaded	"	-	-	57	72	88	155	360

(Note) * Includes estimated tonnage of cargo imported by dhows.

** Excludes Bunker fuel.

+ Includes 762 tankers.

(Source) Statistical Year Book, 1976

2) Electric Power

In Oman, independent power systems exist and are operated by the Directorate Generals of Electricity (DGE) under the Ministry of Communications and by PDO. Their generation capacities and the record of power supply are presented on Table I-31.

DGE for the northern system, which supplies power to the Metropolitan area, operates Riyam Power Plant and Ghubra Power Plant. Riyam Plant has a capacity of 33 mega watts in total. Ghubra Plant was established together with a seawater desalination plant with the total cost of 30 million RO and started its operation in 1975. The capacity of this plant is 67.9 mega watts and supplied 62.8% of the power consumed in the Metropolitan area in 1977. Fuel will be switched from the present crude oil to natural gas upon the completion of the pipeline.

DGE for the southern region has a 28.8-mega watt plant in Salalah, which is supposed to have been enlarged by 6.8 mega watts at the end of 1977.

Table I-31 Installed Capacity and Gross Production of Electric Power

Item	Power Station	1969	1970	1971	1972	1973	1974	1975	1976
Installed capacity in megawatts (at end of year)	Public utilities:								
	Capital area	3.0	3.0	3.0	12.2	17.1	37.4	37.4	66.2
	Salalah	-	0.1	0.9	1.8	2.3	6.6	15.3	17.5
	Petroleum Development (Oman) Ltd.								
	Mina al Fahal	7.6	7.6	7.6	7.6	7.6	7.6	7.6	8.4
	Fahud	22.8	22.8	22.8	22.8	22.8	22.8	25.8	24.0
	Ghaba area	-	-	-	-	-	-	1.7	1.7
	Other areas	-	-	-	-	-	3.0	3.0	3.0
Gross production in million kilowatt hours	Public utilities:								
	Capital area	6 6.3	8.0	12.0	22.2	38.9	72.6	121.9	214.2
	Salalah	-	-	1.0	3.4	8.0	18.5	32.5	51.7
	Petroleum Development (Oman) Ltd.								
	Mina al Fahal	17.1	20.3	24.6	25.9	26.7	27.5	28.1	28.9
	Fahud	76.2	76.6	73.3	78.5	98.9	102.2	104.0	102.1
	Ghaba area	-	-	-	-	-	-	10.4	6.6
	Other areas	-	-	-	-	-	9.1	9.4	9.4

(Source) Statistical Year Book, 1976

The electrification of the Interior area has been done directly by the Ministry of Communications under the government's comprehensive rural development programme. Electrification projects have been implemented for 26 villages, and power generation and distribution facilities have already been installed in Sur, Nizwa, Buraimi, Ibri, and six other areas (but have not yet been operated in want of electric engineers and technicians.)

In addition to the foregoing quantitative review of power supply situation in Oman, it should be noted that the level of service has a qualitative problems, namely, frequent voltage declines and blackouts. And since the power supply is not fully reliable, many enterprises and hospitals have their own generators.

3) Water

Oman is relatively blessed with water resource among the Arabian peninsula countries. In the northern region, much rain is experienced in the months of December through March. In the southern region, southwesterly trade wind brings rain during the monsoon season of June through September. Precipitation exceeds 720 millimetres in some locations. Much of rainwater is allowed to

evaporate or to run off into the sea without being used. Some volume seeps into the ground to become the very precious subterranean water resource of Oman.

Annual demand for water in Oman is about 420 million cubic metres for agriculture and about 10 million cubic metres for industrial and living purposes. The irrigated area of the present 36,000 hectares is to be expanded to 40,000 hectares in the near future. However, the total demand for water will not increase substantially because of the improvements of the efficiency of water utilisation. On the other hand, demand for living and industrial water is growing rapidly. For this purpose, exploitable water resources are estimated to be about 230 million cubic metres and the recharge of used water is expected to produce as much as about 200 million cubic metres. (See Table I-32.)

Table I-32 Water Resources Potentials

Region	(Million m ³ /year)			
	Northern Coastal	Northern Interior	Dhofar	Total
Total Resources	220	410	35	665
Actually exploited	180	240	15	435
Future potential available for development	40	170	20	230
Potential increase through recharge	160	40	-	200

(Source) Water in Oman, prepared for distribution at the UN water Conference, Argentina, March 1977

The supply systems of water for household use covers only the Metropolitan area and a part of Salalah. Demand for water in the Metropolitan area is about four million imperial gallons per day, and water is obtained from the desalination plant and wells in the vicinity of Seeb (while there are about 160 wells, only 20 are operating).

Table I-33 Water Statistics Relating to Water Departments, Capital Area and Salalah

Item	Unit	Water Department	1970	1971	1972	1973	1974	1975	1976
Quantity of water Produced	Million gallons	Capital area	14.0*	85.0	171.1	218.6	301.0	358.5	429.8
		Salalah	-	-	15.4**	111.4	244.5	-	-
Water connections	Numbers at the end of the year	Capital area	463	1,554	2,435	3,417	4,437	5,020	5,632
		Salalah	-	-	45	156	390	-	-
Revenue ⁺⁺	Thousand R.O.	Capital area	11.4	116.4	225.4	262.7	235.6	437.6	781.5
Expenditure		Capital area	6.6	44.5	59.9	82.5	131.5	113.9	346.2
(a) Staff	Thousand R.O.	Salalah	-	-	-	-	6.5	-	-
(b) Total	Thousand R.O.	Capital area	11.1	129.7	123.5	162.3	1,070.1	1,291.9	980.3
		Salalah	-	200.0	250.0	140.0	289.6	-	-

(Notes) * May - December 1970

** July - December 1972

+ Includes Public distribution points: December 1972 - 22
December - 1973 - 46
December - 1974 - 65

++ Water supplied by Salalah water department is free of charge

(Source) Statistical Year Book, 1977

The maximum capacity of the Al Ghubra Desalination Plant is said to be six million gallons per day, but the plant is currently operating at the capacity of four million gallons per day. A plan envisages an addition of another two-million gallon/day unit by 1980. Many of the wells are from 200 to 300 feet deep. Construction of a well costs from 5,000 to 6,000 RO. Capacity of a well is about 50 gallons per minute in most cases.

Plans of a sewage system have been completed for the Metropolitan area and for Salalah, but have not been implemented.

4) Communications

The spread of telephone is taking place with a high speed, but the rate of the spread of 0.83 per 100 people at the end of 1976 is one of the lowest in the Middle East. Coaxial cable and a new communications system with the use of microwave were completed in 1975. The new system has 12,000 lines and its service network covers the Batinah Coast area and the cities in the Interior. This system is connected with Salalah in the southern region by 550 wireless circuits. Omantel was established for the operation of this new communications

system in August 1975 with a 60% capital participation by the Government. Under the telephone saturation programme of this company, the total number of telephone lines is to be increased from 6,649 at the end of 1976 to 9,800 by 1980, and to 16,000 thereafter. Even if this programme goals should be achieved, demand will not be fully satisfied in view of the current waiting list of already about 8,000 as of March 1978. The number of installed telephone lines are presented by area on Table I-34.

International telecommunications have been substantially improved by the construction of 60 circuit communications satellite base in the Hajar Mountains in 1977.

Table I-34 Telephone lines installed as at the end of 1976

(Number)					
Name of exchange	Lines installed	Name of exchange	Lines installed	Name of exchange	Lines installed
Greater Mutrah	1,413	Masnaa	28	Nizwa	168
Mutrah S x S	762	Suqaiq	33	Bid Bid	20
Muscat I	954	Khabura	45	Izki	54
Muscat II	63	Sohar	182	Bahla	71
Mina Qaboos	599	Saham	64	Sumail	32
Qurum	365	Shinas	53	Sur	105
Azaiba	219	Rostaq	28	Salalah	851
Seeb	196	Buraimi	101	Taqa	33
Barka	66	Ibri	61	Marbat	83
Total (end of 1976)					6,649

(Source) Statistical Year Book, 1976

Only 275 telex lines had been installed by the beginning of 1978, but Omantal plans to install a 1,200-line automatic exchanger in the near future. About 300 applications are on the current waiting list.

5) Housing and Hotel Accommodations

Modern buildings and houses have been built in the Metropolitan area during the building rush of 1970 on. New buildings are concentrated in the suburban cities such as Ruwi and Beit al Falaj. Government offices, schools, and mosques with the total floor area of about 200,000 square metres (about 50% of which in the Metropolitan area) and 2,000 units of 2-bedroom and other government employee housing (about 60% of which in the Metropolitan area) were constructed by the end of 1976 under the public projects of the Government.

Such building rush, however, could not quite satisfy the demand, and the shortage of houses is serious particularly in the Metropolitan area, where expatriates and rural population have moved in. A consulting firm estimates that 5,000 units of dwelling need to be constructed during the period of 1975 to 1980. The Government has constructed about 200 low cost units in the Metropolitan area, and plans to build 800 more in Al Ghubra (near Seeb) and 700 more in Dhofar. But housing would remain an important problem for the Government to solve even these housing units might have been built.

One of the big private housing development projects was implemented in Medinat Qaboos in 1973 with the total investment of 18.3 million RO. About 1,000 units of medium class and premium houses, as well as stores, schools, mosques, banks, and dispensaries are now under construction. The houses will be either rented or sold. Rental for 3-bedroom houses is from 800 to 1,000 RO per month and rentals for two to four years are commonly paid in advance.

In the first half of 1970, the Oman's only international standard hotel was Al Falaj Hotel (then, 76 rooms) in Ruwi and hotel boarding situation was extremely difficult as was in other Gulf nations. But as Gulf Hotel (120 rooms) was built in 1975, Ruwi Hotel (100 rooms) was built and Al Falaj Hotel was expanded (by 84 rooms) in 1976, and Inter-Continental Hotel (300 rooms) was built in 1977, all in the Metropolitan area, the shortage of hotel rooms has been disappeared by now. In Salalah, Salalah Holiday Inn was completed in 1977 in addition to the previously established Dhofar Hotel.

7. Socio-Economic Development Plan

1) Background

The Five-Year Development Plan, 1976 - 1980, which is now in force, is the first long term development plan to be formulated in Oman and was announced by the Development Council in August 1976.

The Development Council is comprised of Sultan Qaboos as chairman, Minister of Foreign Affairs as vice-chairman, and other ministers and the Undersecretary for Financial Affairs, and has the organization as shown by Figure I-4. Five planning officers (three Omanis and two Egyptians) constitute the Department of Planning, the central function of the organization, and two (three at the time of plan formulation) IBRD staff are assigned to give advice.

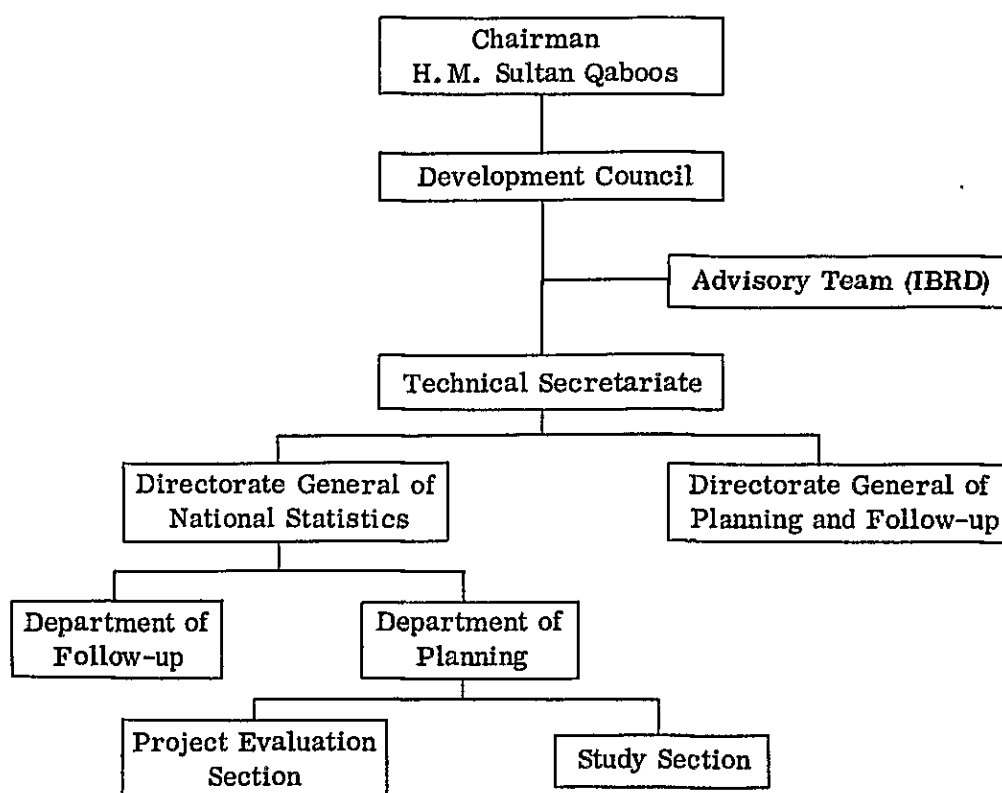


Figure I-4 Organization of the Development Council

The functions of the Development Council have been stipulated as follows:

(a) To establish plan objectives and to suggest policies and measures for the accomplishment of the objectives; (b) to draft yearly development budget; (c) to assign priorities to and coordinate between various projects submitted by each ministry; (d) to assign priorities to and authorise various projects of investigation by outside consultants submitted by government organizations; (e) to study policy for fund loans and capital participation by the government; (f) to authorise, as appropriate, monopolistic rights and concessions; (g) to coordinate between and adjust the activities of ministries for the implementation of development projects; (h) to review and process consultants' investigation reports and project progress reports submitted by ministries; (i) to issue annual reports on the actual progress and status of the Development Plan; and to perform other business as directed by His Majesty the Sultan.

The formulation of a long term development plan follows the following general process: First of all, the Development Council establishes development objectives and notifies the ministries concerned by about one year before the initial year of the plan; each notified ministry prepares draft development plan to cover the area of its jurisdiction by six months before the start of the plan, while the Development Council lays down a macro-economic framework and determines the scale of development investments to be made during the plan period; then, investment plans submitted by ministries concerned are adjusted against the determined investment scale into a comprehensive plan document.

The current Five-Year Plan is a small document, consisting of 62 pages, setting forth the government's development objectives, macro-economic prospects, development policies, and so forth. The planning officers of the Council testify that they are prepared to modify or amend the Plan as situation requires.

The make-up of the Plan document is as follows:

"Chapter I. Economic Development in the Sultanate of Oman, 1970 - 1975

Chapter II. Targets of the Five-Year Development Plan

Chapter III. Government Resources and Uses

Chapter IV. Investment

Chapter V. Projects

Chapter VI. Economic Development Policies and Procedures

Chapter VII. National Income"

2) Basic Objectives of the Five-Year Development Plan

"Aims and objectives of Economic Development Policy", which was announced by the Development Council in February 1975, offered a model for the basic objectives of the current Five-Year Plan, which are:

- (a) To develop new sources of revenue to supplement or substitute for oil revenue;
- (b) To increase capital expenditures on manufacturing, mining, agriculture, and other activities to achieve increased level of income;
- (c) To narrow and eliminate regional gaps;
- (d) To preserve population centres and to prevent population inflow to over-populated areas;
- (e) To develop water resource;
- (f) To utilise Omani human resource in the economic activities;
- (g) To further develop major infrastructures;
- (h) To promote trade activities;
- (i) To lay an institutional base for a free economy and society, expanding economic activities in the private sector; and
- (j) To improve the efficiency of government functions.

In summary, these objectives are designed to eliminate or lessen restrictive factors which are now hindering economic development in Oman. Major area of investment had since 1970 been the development of economic and social infrastructures until the fiscal crisis of 1974. Now that the prospect of oil revenue is not bright, the government has become more careful in distributing development funds, and investment emphasis has shifted to new income-generating activities and water resource development, which is the prerequisite to agricultural development. Although fostering and utilisation of Oman's human resource and a balanced regional growth are impending problems, they will by nature

require a long period of time for accomplishment and will remain the long term assignment to be performed by the Omani government.

3) Plan Framework

(1) The Five-Year Plan forecasts shifts in value added in each industrial sector as presented on Table I-35. The greatest reason for the setting forth of

Table I-35 Estimates of Gross Domestic Product by Industrial Origin:
(At 1976 Prices)

Sector	(Million Rial Omani)					
	1974*	1976	1977	1978	1979	1980
Agriculture and Fisheries	17.4	18	20	22	25	30
Petroleum and Mining of which	389.0	505	487	478	471	461
- Natural gas	-	-	(1)	(3)	(4)	(5)
- Copper	-	-	-	-	(5)	(6)
Manufacturing	2.0	3	6	9	17	25
Building & Construction	58.0	76	82	64	55	49
Transportation and Communication	12.3	25	25	22	20	19
Electricity and Water	1.2	5	6	7	9	10
Internal trade	27.2	28	31	35	39	44
Banking	3.5	10	11	12	13	14
Ownership of dwellings	8.8	12	17	22	28	34
Public administration and defence	46.4	61	69	79	89	100
Services and other sectors	6.7	15	17	17	10	20
Gross Domestic Product at market prices	568.5	758	771	767	776	806
Minus net factor income remittances abroad	-86.6	-135	-136	-122	-110	-102
Gross National Product at Market prices	481.9	623	635	645	666	704
Minus net indirect taxes	-2.3	-5	-5	-6	-7	-8
Gross National Product at factor cost	479.6	618	630	639	659	696

(Note) * 1974 figures are the most recent estimates prepared by the International Bank for Reconstruction and Development. Estimates for 1975 have not yet been prepared.

(Source) The Five-Year Development Plan 1976 - 1980

these very low targets compared with the rapid economic growth in the first half of the 1970's was the shrinkage of the petroleum sector, whose value added is expected to dwindle by an average annual rate of 2.8%. Also, due to the diminishing infrastructure and other development investments, the construction and transportation/communications sectors are expected to achieve a negative growth.

Despite the indicated strophy of these key industries, overall GDP increases, although moderate, are forecast on the strength of growth in other industrial sectors to more than off-set the dwindling key productions. That is, the primary (agriculture and fishery) and manufacturing sectors are hoped to grow during the planning period of 1976 to 1980 by average annual rates of 13.7% and 71.5%, respectively. The growth target set forth for the manufacturing sector is conspicuously high, but is not unreasonable to expect this sector to achieve the target in view of the fact that it is still in its infancy with only a few modern industries. With all other industrial sectors added, it is expected that the economy achieve an average annual growth of 11.5%. The public administration and defense sector shows the greatest increase in the absolute amount of value added.

(2) Investment

The Five-Year Plan contemplates on investments in an aggregate amount of 1,355 million RO, 935 million RO of which is government development investments and the remaining 420 million RO private investments. Investment amounts are presented by sector and by year on Table I-36.

As indicated by the table, it is expected that government investments will experience yearly reductions down to less than one half of the 1976 level in 1980. This will be mainly because the government's development budget will be pinched between oil revenue reductions and recurrent expenditure increases. In contrast to the decreasing government investments, private investments are predicted to expand from the 58 million RO in 1976 to 95 million RO in 1980, when they will represent a 47.3% share in the total investments.

Table I-36 Total Government and Private Investments by Sector
(at fixed 1976 Prices)

(Million Rials Omani)

Sector	1976	1977	1978	1979	1980	Total
A. Government Capital Expenditure						
1. Petroleum and Mining	23.3	40.0	51.0	28.0	12.0	154.3
2. Agriculture and Fisheries	2.6	5.9	8.5	11.5	12.5	41.0
3. Manufacturing	2.6	7.1	5.0	10.0	15.0	39.7
4. Trade and Tourism	8.7	3.2	-	-	-	11.9
5. Economic Infrastructure	175.2	166.6	88.6	63.8	44.5	538.7
6. Social Infrastructure	40.2	29.9	26.7	17.7	17.7	132.2
7. Financial Institutions	3.0	2.0	4.0	4.0	4.0	17.0
8. Subtotal	255.6	254.7	183.8	135.0	105.7	934.8
B. Private Investment						
1. Petroleum and Mining	22.0	37.0	37.0	37.0	33.0	166.0
2. Agriculture and Fisheries	2.0	3.0	3.0	4.0	4.0	16.0
3. Manufacturing	5.0	15.0	14.0	18.0	21.0	73.0
4. Trade and Tourism	4.0	4.0	4.0	4.0	4.0	20.0
5. Housing and Construction	25.0	27.0	29.0	31.0	33.0	145.0
6. Subtotal	58.0	86.0	87.0	94.0	95.0	420.0
C. Total Investment						
1. Petroleum and Mining	45.3	77.0	88.0	65.0	45.0	320.3
2. Agriculture and Fisheries	4.6	8.9	11.5	15.5	16.5	57.0
3. Manufacturing	7.6	22.1	19.0	28.0	36.0	112.7
4. Trade and Tourism	12.7	7.2	4.0	4.0	4.0	31.9
5. Economic Infrastructure	200.2	193.6	117.6	94.8	77.5	683.7
6. Social Infrastructure	40.2	29.9	26.7	17.7	17.7	132.2
7. Financial Institutions	3.0	2.0	4.0	4.0	4.0	17.0
8. Total	313.6	340.7	270.8	229.0	200.7	1,354.8

(Source) The Five-Year Development Plan 1976 - 1980

Government investment distribution to economic infrastructure--which is certainly declining through the ten years--still remains to be large, because infrastructural development projects which started in the 1974 - 1975 period are still continuing and investments may not be discontinued on such projects. On the other hand, distributions to agriculture/fishery and manufacturing sectors will increase at high rates, even though their shares in the total investments will remain small.

A large share of private investments will go to the petroleum/mining and housing/construction sectors, which, together, will receive 74% of the total private investments. Distributions to the agriculture/fishery and trade/tourism sectors will either increase slightly or remain unchanged, while distribution to the manufacturing sector is expected to increase from the five million RO in 1976 to 21 million RO in 1980.

The Five-Year Plan shows a regional distribution of the government investments which reflects its basic objective of achieving a balanced national development, and narrowing the regional gaps.

(3) Consumption

Under the Five-Year Plan, nation's total consumption during the Five-year period are estimated at 1,968 million RO, of which, 1,525 million RO is government consumption and 444 million RO, private consumption. Defence and security are the two major items of government consumption; the share of these two items in the total government consumption is predicted to fluctuate from 87% in the initial year of the planning to 45% in 1980. Private consumption has been estimated for the plan period by successively applying an annual increase rate of 12.5% to and starting from 1975 consumption value of 61.4 million RO, which was based on the IBRD estimate of 49.6 million RO and real increase rate of 12.5% and price increase of 10% thereon. It is characteristic that the government sector has large shares in the total consumption as did in the investment (See Table I-37).

Table I-37 Estimate of Consumption 1976 - 1980

	(Million R. O.)				
	1976	1977	1978	1979	1980
Civil recurrent expenditure	103	115	129	145	163
General reserve	-	4	10	14	19
Expenditure on defence and national security	275	219	179	154	144
Minus construction of a civil nature	-40	-40	-40	-15	-10
Minus financial allotment of previous contracts	-23	-	-	-	-
Total government consumption	315	298	298	298	316
Total Private Sector Consumption	69	78	88	98	110
Total Consumption	384	376	386	396	426

(Source) The Five-Year Development Plan

(4) Trade and International Balance of Payments

Petroleum will continue to be the major export item, and the Five-Year Plan uses the 1976 oil price for the forecast of oil exports. The Plan predicts the exportation of copper beginning in 1976, as shown on Table I-38.

The values of imports have been estimated at certain diminishing rates to investments and consumption. Decline in the propensity to import capital goods has been predicted through the expectation that cement plant, refinery, and other raw material production facilities will start operating and meeting domestic demands, while the expected decline in the import of consumer goods has been explained by the progress of industrialisation and agriculture and fishery development. (Table I-39).

Table I-38 Estimate of Export

	(Million Rials Omani)				
	1976	1977	1978	1979	1980
Crude oil	525.2	511.5	499.5	487.0	475.0
Copper	-	-	-	6.0	8.0
Other exports	1.1	1.1	1.7	3.3	4.0
Total	526.3	512.6	501.2	496.3	487.0

(Source) The Five-Year Development Plan

Table I-39 Estimate of Import

	(Million Rials Omani)				
	1976	1977	1978	1979	1980
1. Total investment	314	341	271	229	201
2. of which proportion of imports	80%	75%	70%	68%	60%
3. Value of imports of capital goods	251	256	190	155	121
4. Total consumption	384	376	386	396	426
5. of which proportion of imports	56%	54%	52%	48%	44%
6. Value of imports of consumer goods	215	203	201	190	187
7. Total imports (3 + 6)	466	459	391	345	308

(Source) The Five-Year Development Plan

As for the balance of payments, current deficit will estimatedly turn to surplus, while capital surplus will turn to deficit, for continuous overall surplus balance throughout the plan period. (See Table I-40).

Table I-40 Balance of Payments Estimates

Description	(Million Rials Omani)				
	1976	1977	1978	1979	1980
A. Goods and Services					
exports	526	513	501	496	487
imports	-466	-459	-391	-345	-308
surplus (+) or deficit (-)	+60	+54	+110	+151	+179
B. Net factor income remittances abroad	-135	-136	-132	-110	-102
C. Current surplus or deficit	-75	-82	-12	+41	+77
D. Capital transactions					
grants and loans	+155	+136	+66	+28	-19
repayment of loans	-44	-53	-47	-51	-47
Net capital transactions	+111	+83	19	-23	-28
E. Overall surplus or deficit	+36	+1	+7	+18	+49

(Source) The Five-Year Development Plan

4) Development Projects

The Five-Year Development Plan contains a number of projects--for which feasibility studies have not been completed--in each sector with little coordination with development budget. The Plan document clearly states that a project is not listed in the document because it will be automatically approved and supported by the budget allocation.

(1) Petroleum Sector

- a) Oil Field Survey in the Southern Region
- b) Oil Refinery Project
- c) Natural Gas Pipeline

(2) Other Mineral Sector

- a) Development of Copper Mines

- (3) Agriculture/Irrigation Sector
 - a) The continuation of the currently implemented projects
 - b) Water resource survey, preservation of falajs, construction of small dams, and drilling of wells
 - c) Promotion of livestock industry
 - d) Soil, fertiliser, and insecticides surveys, agricultural extension centres, experimentation farms, and investments in agricultural machines
- (4) Fishery Sector
 - a) Fishery survey
 - b) Construction of cold stores and ice plants, purchase of freezer trucks, construction of fishing ports
 - c) Introduction of modern fishing gear, development of lobster and oyster resources
 - d) Capital participation in modern fishing enterprises
- (5) Manufacturing Sector
 - a) Cement project
 - b) Flour milling project
 - c) Other manufacturing industries: development of industrial estates, lime and sand blocks project, animal fodder, liquefaction of gas for civil use, and so forth
- (6) Trade/Tourism Sector
 - a) Construction of petroleum products storage tanks
 - b) Construction of hotels
- (7) Economic Infrastructure Sector:
 - a) Projects under construction (Muscat-Mutrah Road, Bidbid-Sur Road, Mutrah-Quriyat Road, Grain Silos at Mina Qaboos, Salalah Airport, telephone system, desalination plant at Al Ghubra, the 19-village electrification project, desalination plant on Masira Island, high voltage power distribution cable project, Greater Mutrah Project)

- b) New Projects (mountain roads in the southern region, secondary roads in the Interior, Raysut Port, Sur Port, Sohar Port improvement, Seeb International Airport improvement, telephone system expansion, establishment of new power generation plants, village water supply project in Musandam, water supply project in the Metropolitan area, water supply projects in the southern region and in the Interior, public utilities projects in Al Khuwair and Qurum)
- (8) Social Infrastructure Sector
- a) Projects under construction (radio-TV service in Muscat and Salalah, construction of schools, vocational and professional training centres, Al Nahda Hospital expansion, construction of Salalah Hospital)
 - b) New projects (schools, vocational and professional training centres, Al Khowla Hospital expansion, increase of dispensaries and health centres outside the capital area, construction of a social administration centre in the southern region)
- (9) Financial Sector
- a) Establishment of the Development Bank of Oman
- 5) Fund Generation Programme

The estimated amount of the government revenue in the Five-Year Plan is listed on Table I-41. The decreasing oil revenue will still account for 80% of the total revenue by an estimation based on the production by the existing wells and the discovery in the future of some new oil fields.

Table I-41 Estimate of Government Revenue 1976 - 1980
(valued at 1976 fixed prices)

	1976	1977	1978	1979	1980	Total
1. Oil revenue	470	458	447	436	425	2,236
2. Other revenue	25	27	30	35	40	157
3. Loans and grants	155	136	66	28	19	404
4. Total resources (= Total Expenditure)	650	621	543	499	484	2,797

(Source) The Five-Year Development Plan

Gradual increase from the 25 million RO in 1976 to 40 million RO in 1980 of non-oil revenues has been predicted based on:

(a) Greater efficiency of collection systems of tax and fees. (b) the revision of the regulation concerning import tariff exemption, (c) revision of import tariff rates, and (d) expansions in electric power, water, and other public services.

Expenditures in excess of available revenues will have to be met by foreign grants and loans, whose breakdown is presented on Table I-42. However, the government will still have to secure an additional 125.5 million RO to fill the difference between the total fiscal deficit of 404 million RO during the five years of the plan and the total available foreign grants and loans of 278.5 million listed on the Table.

Table I-42 Detailed Estimates of Available Loan

(Millions Rials Omani)						
Item	1976	1977	1978	1979	1980	Total
Development Loans						
1. From Saudi Arabia	15.7	4.0	-	-	-	19.7
2. From I.B.R.D. for education	0.8	0.6	0.1	-	-	1.5
3. From I.B.R.D. for technical assistance	1.5	-	-	-	-	1.5
4. Loan for the gas pipe line	5.0	8.0	4.0	-	-	17.0
5. Loans for the development of the Southern Region	-	30.0	30.0	-	-	60.0
6. Oil refinery project	-	-	8.0	7.0	-	15.0
7. Copper Project	-	6.0	9.0	-	-	15.0
Export Credit						
8. Bid Bid-Sur road	20.8	9.7	-	-	-	30.5
9. Electricity supply for 19 villages	6.8	-	-	-	-	6.8
10. Salalah hotel	1.1	-	-	-	-	1.1
11. Defence Loan	37.5	21.6	6.3	-	-	65.4
12. Raysut Port	6.0	10.0	10.0	3.0	-	29.0
Other Loans						
13. Buraimi-Ibri road	2.2	-	-	-	-	2.2
14. Renewal of bank loans	13.8	-	-	-	-	13.8
Total available loans	111.2	89.9	67.4	10.0	-	278.5

(Source) The Five-Year Development Plan

II. RESOURCES AND INDUSTRY

1. Agriculture

Agriculture--a sector which has been left out of the very rapid modernisation in recent years in contrast to petroleum sector--has now come to represent an extremely small part of the entire industrial activities of Oman, and agricultural products estimatedly amount to only 2% of the nation's Gross Domestic Products (GDP). Agriculture, however, was previously a major industry of this nation together with fishery, as it is evident from the fact that 34% of Oman's GDP came from these two industries in 1967. Oman occupies a rare part of the Arabian peninsula where rainfalls are sufficient, and its major agricultural areas are Southern Dhofar region, where much agricultural activities have taken place since long ago, and the coastal plain of Batinah in the northern region, where underground water resource is relatively plentiful. Currently, decrease in farming population and the insufficiency of essential technical instructors for agricultural modernisation represent the greatest problems of Omani agriculture. Various promotional measures have been taken by the government, which is fully aware of the high potentials of its agriculture, but the achievement of the objectives have been hindered by the lack of necessary hands and capabilities. As one report supports the possibility of Oman becoming a supplier of food to neighbouring countries by more effective utilisation of its rich resources, much is to be expected of Omani agriculture in the future.

1) Agricultural Production: Current Status

(1) Water Resource

Given the regional difference referred to in Chapter I, annual precipitation in the plains of Oman rarely exceeds 200 millimetres on the average. Precipitation is only a several tens of millimetre per year in dry parts, and therefore, agriculture can place little reliance on rainfall except in Dhofar region in the south, where from 700 to 800 millimetres of rainfall is recorded. In Oman, the utilisation of underground water resource is accomplished generally in either of

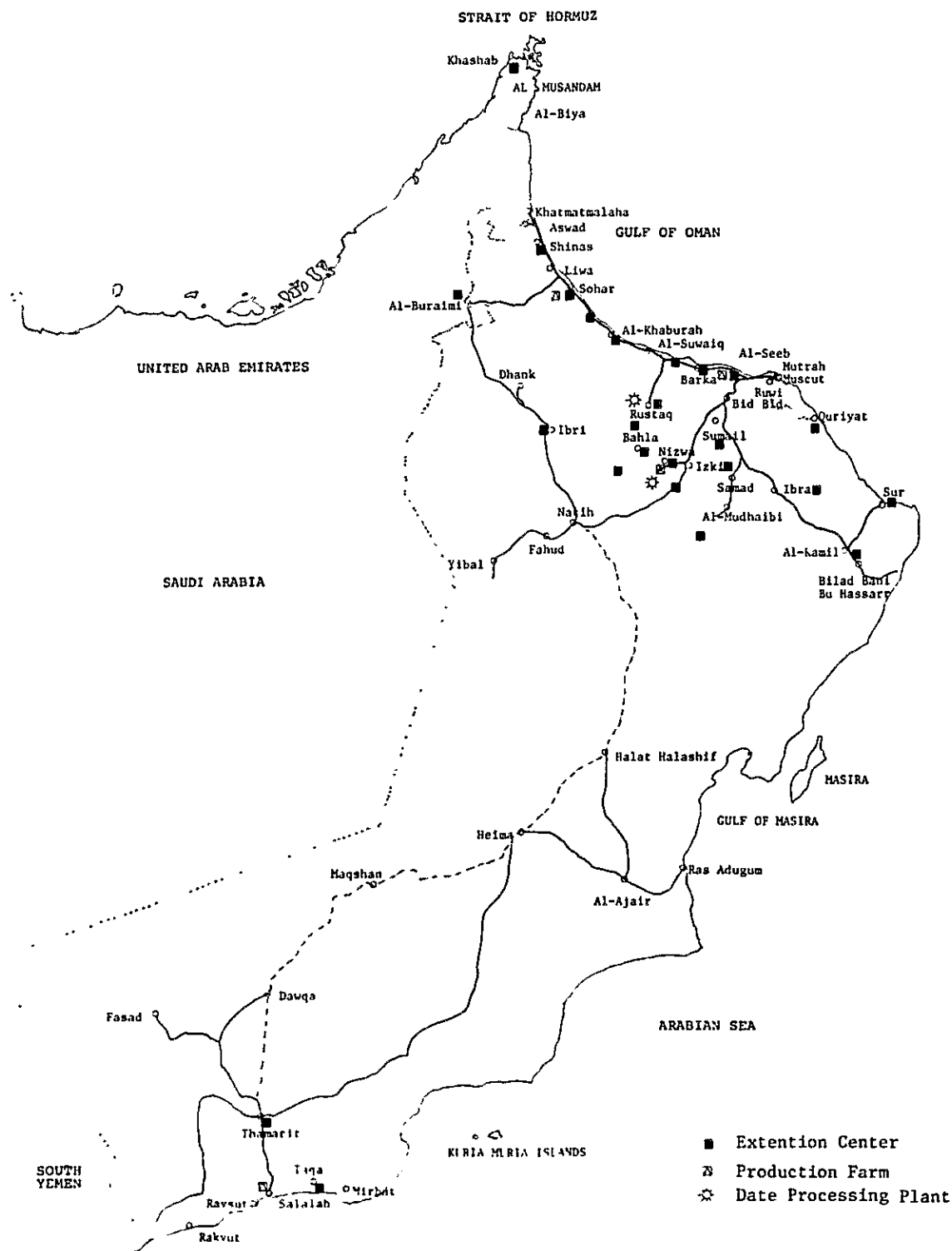


Figure II-1 Agricultural Facilities

the following two ways: ordinary well (an engine or a motor has been installed for the pumping of water in most cases) and the traditional falaj (an artificial underground tunnel aqueduct to connect a water bearing layer with cultivated areas several, or in some cases ten, kilometres downstream; the excavation of the tunnel was accomplished through shafts which were dug at an interval of from 15 to 20 metres and which are still used for the repair and maintenance of the aqueduct after completion--a technique developed during the several hundred years of Persian rule since 6,000 B.C. and is the Omani version of the water facility called "qanat" which are still found in Iran).

Figure II-2 illustrates the principle of a falaj system, which was devised in order to obtain water from very low subterranean water from very low subterranean water tables that were out of the reach of ordinary wells. Falajs are well developed in the northern part, in the Hajar Mountains and the highland adjacent to it on its south, and in Dhofar district, in mountainous areas and the area between the mountains and the coast. Whereas, the distribution of wells is heavier in low lands where the level of subterranean water table is high enough as in the Batinah plain, as well as in the elevated areas with much precipitation where the water table is close to the ground surface. Before the appearance of modern boring techniques and highpower pumps, water supply by the means of a well had nearly been impossible in many parts of this country, where, although rainfalls are relatively heavy in mountainous parts, rain water quickly seeps into the ground down to subterranean water table which sharply goes down as it leaves mountain side and remains deep until it reaches the seaside.

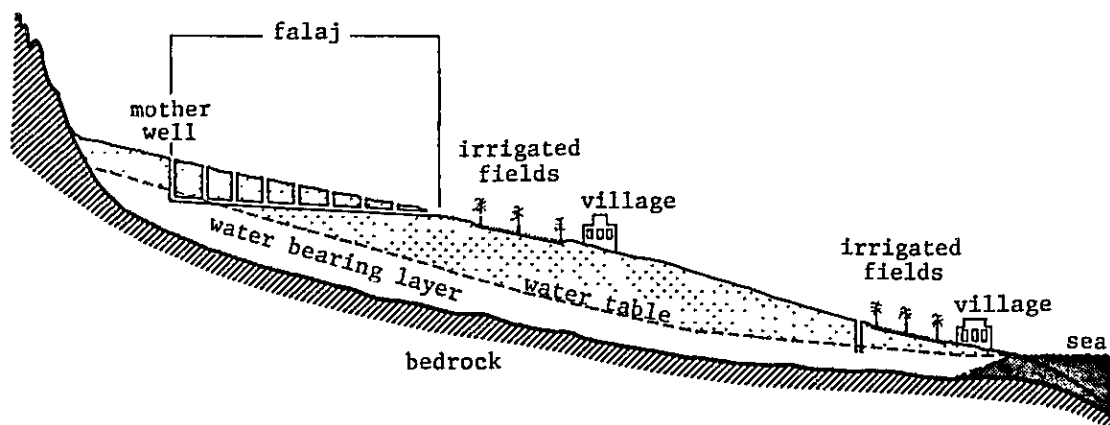


Figure II-2 Falaj System

Both agricultural activities and village life are being supported by water supplied either through well, whose capacity is from 10 to 50 litres per second on the average, or falaj, whose capacity is from 10 to 150 litres per second. It is claimed that a water supply capacity of 30 litres per second can support a village of from 1,000 to 2,000 people and a farm of 40 hectares.

(2) Cultivated Areas

The total area of cultivated land in Oman is currently limited to 36,000 hectares or only 0.12% of the nation's land, but further expansion appears nearly impossible in view that farming is governed by the availability of water source in a close proximity. Although the development of new water sources and new farms is being propelled under the government's agricultural promotion policy, the gains are being offset by the losses of agricultural population to urban areas and the overall area size of Oman's cultivated land remains practically unchanged.

Major agricultural areas of Oman are the plain along Batinah coast (about 40% of the total cultivated area), the area which extends from the centre of the Hajar Mountains to the Interior (58%), and Dhofar district in the southern region (see Figure II-3). Dhofar district, which represents only 2% of the total cultivated area, includes a highland which is most suited for grazing cattle and has a high potential for livestock industry. Farms are individually owned in most cases in Oman, with some exceptional village farms. The role of commonly owned land is particularly important in the areas where inhabitants are engaged in stock-farming. Unit of individual ownership of farm land is large (from three to five hectares) in Batinah plain and in Dhofar, where farms were developed relatively recently, but is small in the interior parts, where farming had been done since long time ago and where topography is complicated.

Most farmers in the Batinah plain farm on their own land, while tenant farming wherein the land owner usually has a 50% share in crop is being practiced extensively in some parts of the Interior region. Since the traditional systems of the society and the rights still play important roles with regard to land ownership and to the utilisation of water, the rearrangement of these old systems is one of the important items of the government's agricultural policy.

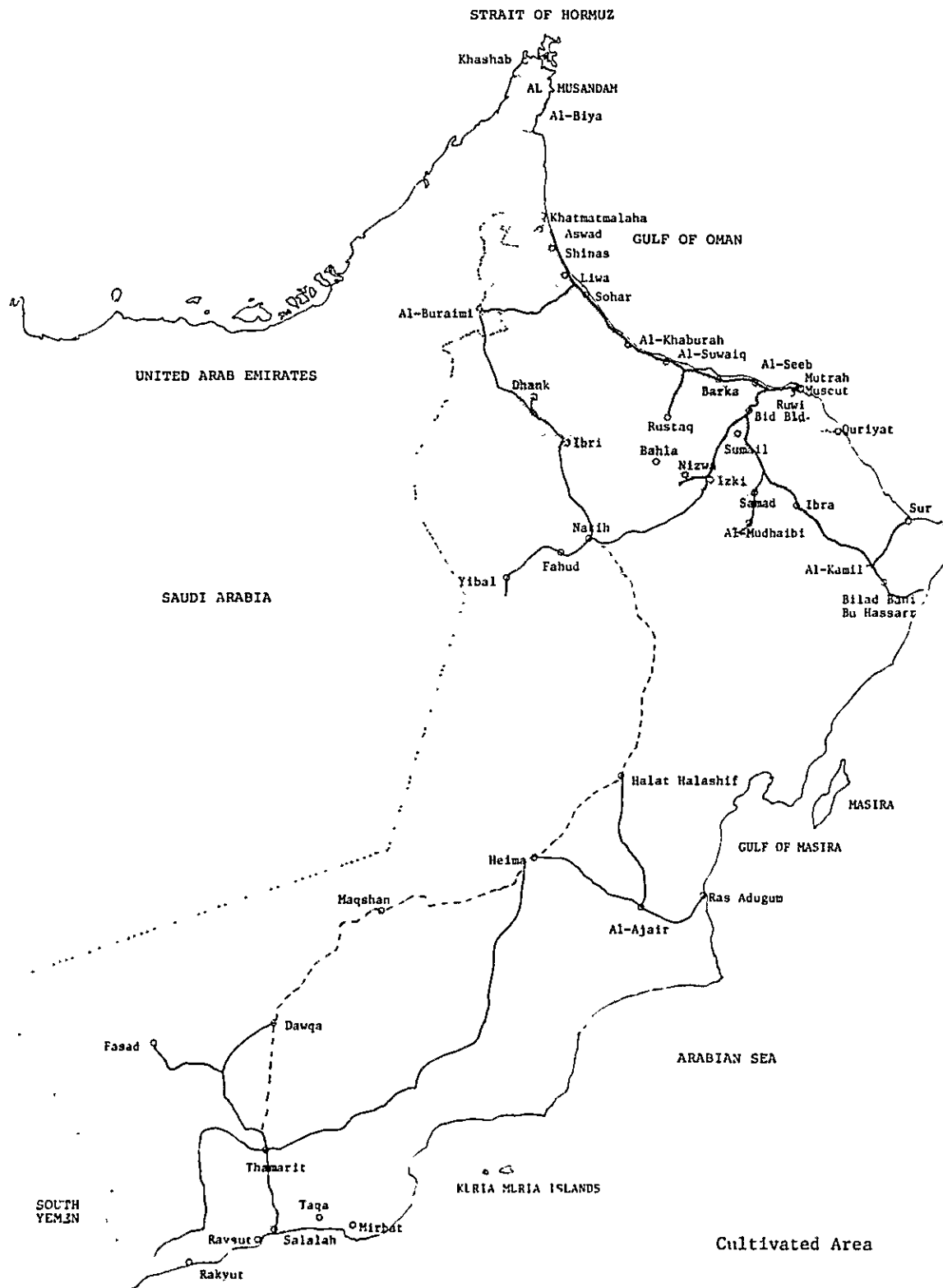


Figure II-3 Main Cultivated Area

In the absence of population statistics, agricultural population is estimated at 450,000, or 55% of the nation's total population. Of this, about 100,000 are considered pure farmers, about one third of whom are believed to spend several months in cities (with registered residence in rural areas) each year and to be engaged in non-agricultural, nonfishery activities. Along with the recent modernisation of Oman the population flow from rural villages to urban area has been substantial, and the cultivated area is shrinking in some farming villages. As the farming families have an average member of 6.5, the average income of 260 RO per year yields an average per capita income of 40 R.O. This compares unfavourably with urban incomes--even the wages of unskilled labourers is about twice the farmer's income.

(3) Agricultural Production and Market

Major agricultural crops of Oman are dates (a kind of palm), limes, wheat, onions, alfalfa, and so forth, with some regional differences. In the Batinah plain, the production of alfalfa and fruits is high, i.e. dates, limes, mangoes, and bananas, while the important products of the Interior region are dates, limes, and wheat. In Dhofar district, on the other hand, a variety of vegetables such as sweet potatoes, tomatoes, and onions, and fruits such as mangoes, bananas, and coconuts, as well as maize, are much produced, but, in contrast to the northern region, no dates are produced.

No reliable agricultural production statistics is available, but Table II-1, which offers rough estimates, indicates that dates are the most important crop of the nation. The importance of dates can be further appreciated by the fact that two-thirds of date crop is exported as one of the few export items of Oman.

Table II-1 Major Agricultural Products

(1975 Estimates)		
	Quantity (1,000 tons)	Value (1,000 R.O.)
Dates	50.0	5,500
Limes	3.0	1,125
Tomatoes	5.0	500
Onions	7.0	700
Wheat	4.0	520

(Source) IBRD Report, 1977

Livestock industry also suffers from the lack of precise statistics, but roughly estimated livestock populations are: 10,000 camels, 30,000 sheep, 70,000 cattle, and 140,000 goats. (The mountainous area of Dhofar district, which is most suitable for livestock activities as stated before, currently has a share of from 30,000 to 40,000 in the above cattle population.) Dairy products and meats are considered to represent about 30% of Oman's gross agricultural products.

In view of the limited production scale, agricultural activities in Oman remain those of self-supplying nature and short of a system of any significance for mass-supplying the urban population. Therefore, populace in Muscat and other urban areas depends nearly 100% on imports for food supply. Even in urban areas, imports are depended upon for from one-third to nearly 100% of wheat, rice, some vegetables, and egg supply. (Rice, the staple food of the Omani people, is 100% imported from India or Pakistan, while import-reliance is high for wheat and eggs. Supply of vegetables, with some exceptions, depends on imports from Lebanon and other areas, while meats and eggs are much imported from the European countries and Australia.) Table II-2 estimates the ratios of import-reliance by crop.

Table II-2 Import Share of the Agricultural Products
(1975 Estimates)

Item	Domestic Consumption	(tons)
		Imports (%)
Wheat	30,000	27,000 (90)
Rice	25,000	25,000 (100)
Vegetables	25,000	10,000 (40)
Dates*	16,000	-
Fruits	11,000	3,000 (27)
Meats	7,500	3,000 (40)
Milk and other dairy products	20,000	6,500 (33)

(Source) Compiled from IBRD Report, Renarded-Saudi-ICE
Report and other materials collected by the JICA Mission

(Note) * Out of the total domestic production of 50,000 tons,
34,000 tons of dates are exported.

Prices of domestic agricultural and livestock products are generally high. While those imported from neighbouring countries via land transportation are sold at prices comparable to domestic products, those imported via air--particularly perishables--command as much as twice or more the prices of comparable domestic products. Prices are relatively high in the Metropolitan area in contrast to the rural areas. However, the prices particularly of those products of a high import-reliance are high throughout the country. Producers' price of crops may not be estimated since the crops are consumed directly by those who produce them, and also the estimation based on cost element of production is impossible.

2) Agricultural Promotion Policy: Present and Future Prospect

(1) Current Status

The Five-Year Economic Development plan aims at the promotion of economic activities other than those related to petroleum, as seen before. Along with industrialisation, agricultural sector is expected to play an important role in the nation's economy. Said Five-Year Plan puts agriculture and fishery together as one sector and envisages the sectoral average annual growth of 13.7% in real terms for a total growth of 1.7 times during the planned five years. Because a greater emphasis is placed on fishery under the government policy, the target values of agricultural growth will estimatedly be lower than the above averages.

According to this plan the government will invest a total of 26 million RO for agricultural development, which is broken down to 14 million RO for harvest expansion, and 7 million RO for livestock promotion. Of the said total, only one million RO (0.4% of the total investment in public sector) is to be invested in the initial year. In 1980, however, the investment will amount to 8.5 million RO, or 8% of the total investments.

A review of agricultural production trends indicates that average annual increase in the estimated nominal value added of 2% during the period from 1970 to 1974 was lower than the average rate of price increase in the same period, and, therefore, it is suspected that agricultural productions achieved a negative growth in said period. In fact, production of dates, citrus fruits, and meats--the major crops--has grown little, and it was only the vegetables and some of

the fruits that achieved production increase.

Several causes are conceivable of this production stagnancy, the greatest of which is the lack of labour particularly in, needless to say, suburban areas, where farmers are being drawn to increased employment opportunities in the secondary and tertiary industrial sectors. Additional causes are the degradation of natural resources such as land and water and the ignorance and the lack of protection against crop diseases.

It is in view of this current situation that the Five-Year Plan has suggested practical development and promotional measures, major ones of which will be discussed below. Two important aims of agricultural projects are to increase the yield of existing farms and to develop new farms through the exploitation of water resources and the improvement of irrigation systems. Government assistance to agricultural extension and research activities is important in achieving these objectives. Also improvement of the product distribution channel and market expansion are considered in the Plan as issues that must be carried out sooner or later.

The elements of the agricultural promotion programme are now discussed in summary:

a) Agricultural Research

The chief aim of the activities in this area is to find effective ways of protecting crops from diseases and vermin. Also it is expected that efforts will be made to define and identify agricultural activities of the nation as a whole.

b) Agricultural Extension

A total of 25 Agricultural Extension Centres (AEC) are being operated by the government throughout the nation and offer such services as distribution of seeds, fertiliser, and insecticides, renting of tractors and other farming machines, and assistance in organizing local farmers. Figure II-1 offers a map of AEC locations.

c) Agricultural Training

Under this item, agricultural schools (a junior high school level) is

operated, and programs for the re-education and training of farmers and their technical instructors are being carried out.

d) Water Resource Development and Irrigation Facilities Improvement

Propelled under this item are the repair of falajs, survey of water resources, and the collection of existing survey data.

e) Fosteration and Expansion of Agro-Based Industries

Currently undertaken are the expansion of production by the date processing plants at two locations, the improvement and expansion of government-operated dairy farms, and the promotion of privately operated dairy farms. Dates are one of the few export items of Oman, and about 2,000 tons per year of date cakes are produced by the plants and almost all of them are exported.

The above summarised on-going projects under the government's agricultural development policy, however, are believed to achieve the objectives set forth in the Five-Year Plan only when numerous difficulties and obstacles, which will be discussed below, have been fully overcome or eliminated.

(2) Agricultural Development: Problems and Future Prospect

The greatest problem of Oman's agriculture is, at present, outflow of the agricultural population to cities and the consequent decline in the production capacity. And, as the development and expansion of secondary and tertiary industries are concurrently pursued, this problem must be overcome in some way other than bringing the city workers back to farms. Thus, mechanisation and automation of agricultural works and any other means of improving farm production efficiency are of prime importance. Failure to fully utilise the existing resources is observed, for one, with regard to water. Inadequate pumping operation and poor management of falajs are causing insufficient water supply or wasting of available water. And, needless to say, the mechanisation of plowing, sowing, harvesting, and of spreading fertiliser/insecticides is essential. When farmers are organized in cooperatives and when product distribution channels are improved in addition to solving the stated problems, highly efficient agriculture would then be realized in Oman.

Certainly in the above direction or orientation, a number of various projects are being implemented, a representative of which is the activities of AEC's. AEC's were first established at 17 locations in 1971, and there are 25 AEC's as of 1978. Each centre is designed to serve about 1,000 farms. AEC activities have been expanded year after year and the quantity of chemical fertiliser distributed (sold) through AEC increased from the 375 tons in 1972 to 2,100 tons in 1975, while the total hours of operation AEC-rented tractors increased by three times during the several years and reached 30,000 hours in 1975. Yet, AEC services must be said still far from the optimum level, as indicated by the fact that much fertilizer is being piled up in AEC warehouses and many tractors are left unused in the absence of a qualified operator. The greatest factor hindering extension services is the lack of necessary manpower. An AEC has a staff of only two or three including special experts, who, in almost all cases, are men from other Arabian countries. These poorly staffed AEC's have still been unable to fully realize and cope with the problems with which farmers are confronted. Extension activities are further made inefficient by the fact that much of the personnel's work is diverted from in-field guidance to clerical works that should otherwise be done by farmers, among whom the rate of illiteracy is still high, and also by the fact that written communications between the personnel and the farmers are nearly impossible.

Numerous problems exist also with regard to water resource. Data obtained through various water resource surveys which have been conducted must be reviewed for an overall evaluation, and new development of cultivation must be accomplished based thereon. For instance, more than 30,000 hectares of good alluvial land may be turned into farms in the Batinah plain, where it is reported that nearly 100 million cubic metres of underground water is allowed to flow without being utilised. Also, even though a fund of about 400,000 RO is expended each year for the important purpose of managing and repairing 3,000 falajs scattered throughout the nation, the lack of experts equipped with adequate skills is constituting an obstacle to the accomplishment of the technically difficult task, and the quality of falajs is gradually deteriorating, it is reported.

In the area of livestock industry, the fosteration of veterinarians is an urgent need. A basic plan should be formulated for the control of livestock

populations and the supply of feed, and specialists therefor should be fostered if the potentials of Qara Mountains in Dhofar district and others with suitable natural conditions are to be fully exploited.

The expeditious solution of the small scale and complicated forms of land ownership and water utilisation rights is essential in removing obstacle to agricultural mechanisation and scale expansion. Fundamental prerequisite to the successful accomplishment of mergers and rearrangements of farms and the rationalisation of water right is to implant a new awareness in the mind of farmers through a penetrating education programme. Such new awareness, of the conversion of farmers attitude from that of self-consumption to that of cash crop production with cost consciousness, is essential not only for such purposes but also for the development of efficient agriculture in all aspects of production, distribution, and marketing.

In thinking the future of agricultural activities in Oman. It is believed that more can be expected of production expansion through the efficient utilisation of the existing resources than through the development of new water sources and new farms. Effective mechanization and automation must be accomplished quickly to compensate for the loss of the agricultural labour to cities, and, as precondition thereto, the form of land ownership and water right must be rearranged, improved, or otherwise rationalised. When such precondition has been satisfied, technical guidance must be provided. But it is suspected that at least several years' time will be needed for the realisation of these reforms. For, even though technical assistance from abroad may be inevitable for the time being, farmers can absorb and digest new techniques and make them their blood and flesh only when they have been awoken to new awareness and consciousness, which can be accomplished only through a time consuming educational efforts. At any rate, it will require some time for the various policy measures now being taken to spread out among the farmers at large. Meantime, not only technical guidance but also educational and training programmes for the deepening of farmers' understanding and awareness should not be neglected.

2. Fishery

1) Resource

With its coastal line extending for about 2,000 kilometres, Oman faces the Gulf of Oman and the Arabian Sea--one of the world's richest stores of fishery resources.

Weather along the coast is affected by the southwesterly monsoon during the months of April to October and by the northeasterly monsoon during the months of November to March. The southwesterly monsoon causes upwelling of cold sea water in Kuria Muria Bay and the adjacent waters of the Arabian Sea, and as a result the potential yield of fish in these areas is very large.

Only a few surveys have been taken of fishery resource in the waters off Oman. According to their reports, ^{1/ 2/} the yearly yield of demersal fish is estimated to be about 750,000 tons and that of pelagic fish is from 500,000 to 1.5 million tons of sardine and from 10,000 to 60,000 tons of tuna. Table II-3 shows an example of major fishery resource survey findings in the vicinity of Oman.

Table II-3 Dominating Species and Their Potential Yield

		1975			1976		(1,000 Tons)
		Spring	Summer	Spring	Summer	Fall	
Southeast Oman Coast	Small Pelagic Fish	50 Sardinella Anchovy	910 Sardinella Herring	480 Sardinella Herring	500 Sardinella Herring Horse- mackerel	440 Sardinella Herring	
	Bottom Fish	130 Ponyfish	120 Threadfin bream	70 Catfish Ray	90 Threadfin bream	180 Slimehead carlfish	
Gulf of Oman	Small Pelagic Fish	20 Horsemac- kerel	50 Scad	10 Various	30 Anchovy	140 Ponyfish Horse- mackerel	
	Bottom Fish	40 Threadfin bream	40 Threadfin bream	10 Various	10 Various	357 Croaker Threadfin bream	

(Source) Indian Ocean Fishery and Development Programme
Pelagic Fish Assessment Survey North Arabian Sea
FAO, September 1977

(Note) Figures show the potential yield.

(Note) 1/ Indian Ocean Fishery and Development Programme Pelagic
Fish Assessment Survey North Arabian Sea, FAO, September
1977

2/ Marine Resources Development Programme, Sultanate of Oman,
Final Report, Mardela International, Ltd., April 1975

Fishery resource which is caught by the Omani fishermen includes kingfish, tuna, shipjack, mackeral, scad, barracuda, herring, sardine, snapper and shark as well as lobster, clam, oyster, and seaweed. The total landing of these catches is estimated by the Fishery Department at about 213,000 tons per year. Small pelagic fishes such as sardine and anchovy, which are chiefly used to feed cattle and camels, represent about 180,000 tons of the said total. Of the remaining 33,000 tons, about 20,000 tons are domestically consumed and the rest is exported.

2) Fishermen

Fishery activities have been vigorous in Oman since ancient years. The number of Omani Fishermen was estimated by Bertram at 25,000 in 1948, at 15,000 by Harold Whitehead and Partners, Ltd. in 1971, and at less than 9,900 by a more recent report (see Table II-4). Thus, Omani fishermen have come to decrease in number and the current count is suspected to be under 10,000.

Table II-4 Estimated Fishermen Population by Region

Region	Number of Fishermen
Musandam	- 1,000
Batinah	- 6,000
Qurm - Bandar Khayran	- 1,200
Bandar Khayran - Ras - Al Hadd	- 1,200
Masirah and adjacent coast	- 200
Dhofar	- 300
Total	9,900

(Source) Fisheries of Northern Oman, Mardela, Feb. 1973

3/

A survey taken of fishermen in Batinah region whose findings have been summarised on Table II-5 below is suggestive of the occupational structure and distribution of Omani fishermen. As indicated, one out of every two fishermen

(Note) 3/ Durham Oman Project, Fishing & Fish Marketing 1974 - 1976,
Durham University, 1977.

(50%) owns a garden or an orchard as a means of production, in most cases, of dates, in addition to fishing activities. In the majority of cases, however, the garden is not large enough for more than self-consumption, and only a few (5%) reported an garden income larger than the fishery income.

A fair number of fishermen operate far beyond their villages: 13% extend their activities to other parts of Oman, and 38% to the United Arab Emirates. Qatar, Saudi Arabia, Kuwait, and other Arabian Gulf countries. Of those who reported their sphere of fishing activities as being limited to the close neighbourhood of their dwellings, an overwhelming majority (92%) are engaged only in catching and a few (2%) are engaged in both catching and selling of fish, while some (6%) reported the engagement in some other occupations. However, their source of income other than fishing is limited mostly to their gardens or orchards.

Table II-5 Occupational Structure of Fishermen in Batinah

Possession of Gardens	
Garden produce smaller than fishing	117 (45%)
Garden produce equal to fishing	7 (3%)
Garden produce sufficiently larger than fishing	4 (2%)
Total	128 (50%)
No Possesion	128 (50%)
Total (samples)	256 (100%)

(Source) Durham Oman Project Fishing & Fish Marketing
1974 - 1976, 1976

Most of the Omani fishermen are petty fishermen, average monthly net income of those who operate a motorised craft being from 30 to 50 R.O. and that of those who operate a non-motorised craft about half that during the period of from 1974 to 1976. Compared with other industrial labourers' wages of 213 R.O. in the petroleum sector at the highest and of from 66 to 67 R.O. of construction employees at the lowest and the private sector average of 82 R.O. in 1976, it can be relised that the income of fishermen is even lower than the minimum wage level in the private industrial sector.

3) Fishing Method

Although the traditional fishing techniques which have been used vigorously since ancient years are still the mainstream today, the Omani fishermen have started to use nylon nets, synthetic lines, and outboard- and inboard-engines and the government has commenced the introduction of modern fishing techniques. Fishing gear and their use in Oman will be introduced in the following.

(a) Gillnets

Three types of floating gillnets represent most of the fishing nets used by the Omani fishermen. They are set in 10 to 20 fathoms of water (from 18 to 37 metres deep) depending on the situation. Large gillnets measure 500 fathoms (880 metres) across and 12 fathoms (20 metres) deep.

(b) Cast Nets

These nets are used for catching sardines and anchovies.

(c) Beach Seines

Used for winter sardine fishery.

(d) Hooks and Lines

Used for two types of fishing: trawling and hand lining. Trawling is operated with a motorised craft for catching tuna and skipjack. Hand lining is done aboard a non-motorised craft to fish chiefly demersal fishes. No long-lining is used.

(e) Traps

Traps represent fishing method of minor importance. Traps are used for catching demersal fishes along with hand lining tackle, using a small craft.

4) Fishing Crafts

Wooden crafts peculiar to Oman have been used for fishing since long ago. These fishing crafts are mostly small in size and non-motorised, but the government now encourages fishermen to use aluminium or fibreglass-reinforced plastic (FRP) crafts and to motorise their boats. Also, the government has commenced the demonstration of trawling operation. The wooden crafts and their productivity are discussed by type.

(1) Types of Wooden Craft

The following three types of wooden crafts are presently used: shasha, huri, and bedan. Motorised crafts are also used.

(a) Shasha

Shasha is the commonly used craft of Oman and is about ten feet (three meters) long. A shasha is made of date palm fronds and are propelled with an oar or a sail, but are not suitable for the use of an outboard engine. Because palm fronds absorb water and, therefore, shashas may not be operated for many hours, each fisherman has two or three shashas for alternated use and drying.

(b) Huri

Many Omani fishermen use a canoe called huri, dugout of a single log with planks on sides to provide a freeboard. The length of huris vary largely from about 17 feet to 28 feet (about five to nine metres), and oars are used for small ones and many of large ones are propelled with a 4-horsepower outboard engine.

(c) Motorised Crafts

Motorised wooden crafts larger than huris are being build at shipyards in Sur and Sohar. In Sohar, where boats are beached, 25- to 30-footers (8- to 9-metre crafts) are preferred, while in Sur, where the estuary of the wadi can be used as an anchorage and where crafts are sometimes used for fishing in northern off-shore of Ras al Hadd, those of 30 to 40 feet (9 to 12 metres) long are more popular.

(d) Bedan

A small number of large dugout canoes (42 to 48 feet, or 13 to 15 metres, long) called bedan are used for catching sardines and anchovies with a beach seine in the months of February to April.

(2) Productivity by Type of Craft

Two separate surveys have been taken of the productivity by type of fishing craft. The first survey, taken during the period of from March 1972 to

April 1974, covered Sohar, Soham, Barka, Seeb, Mutrah, and Quriyat^{4/}. This survey found, as summarised on Table II-6, that average market delivery quantity (weight) of fishery catch per craft much reflected the size of craft: large 218 kilogrammes by a motorised carft and small 26 kilogrammes by a shasha. As for value of catch per delivery, motorised (inboard engine) crafts and huris with an outboard-engine showed over 20 RO, while shashas and huris without an engine showed low figures of 5.5 RO and 8.3 RO, respectively. It should be noted, however, that in the case of motorised huris, the survey covered Mutrah, which is within the Metropolitan area where fish prices are higher than other parts of the country, whereas, in the cases of motorised crafts and shashas the survey covered only Sohar and Soham but no part of the Metropolitan area; therefore, the indicated 20.6 RO for the former is believed to have been an over-statement and the values indicated for the latter two are likewise believed to have been understated.

(Note) 4/ Mardela International, Ltd., op. cit.

Table II-6 Number of Fishes, Weight, and Value per Delivery

	Inboard	Shasha	Huri With Outboard	Huri Without Outboard
NUMBER OF FISHES				
Deliveries Sampled*	157	139	447	70
Fisherman Days	759	202	1,106	154
Number of Fishes	9,743	5,652	18,806	2,509
Fishes per Delivery	62	41	42	36
Fishes per Fisherman Day	13	30	17	16
WEIGHT OF CATCH (kg)				
Deliveries Sampled	116	56	143	35
Fisherman Days	576	80	326	55
Weight of Catch	25,247	1,466	12,155	1,714
Catch/Delivery	218	26	85	49
Catch/Fisherman Day	44	18	37	31
VALUE OF CATCH**				
(RIALS OMANI)				
Deliveries Samples	129.0	61.0	387.0	29.0
Fisherman Days	628.0	83.0	957.0	41.0
No. Fishes Landed	7,233.0	3,075.0	15,209.0	1,140.0
Fishes per Fisherman	11.5	37.0	15.9	27.8
Value (R.O.)	2,629.0	333.0	7,997.0	242.0
Value per Delivery(R.O.)	20.4	5.5	20.6	8.3
Value per Fisherman(R.O.)	4.2	4.0	8.4	5.9
Value per Fish (R.O.)	0.4	0.1	0.5	0.2

(Note) * Deliveries for which the number of the catch were not determined have not been included.

** Only the deliveries for which the total value of the catch could be determined are used for this table.

(Source) Marine Resources Development Program
Sultanate of Oman, Final Report

The second survey, which was taken at the Khaburah market during the period of November 1974 to August 1976, used a small number of samples but calculated an average value of catch per craft as shown on Table II-7 below.^{5/}

Table II-7 Fishery Catch by Type of Craft

	Diesel Engined Crafts	Gasoline Engined Crafts	Non-motorised Crafts (Shashas)
Number of Market Delivery	26	32	8
Value (R.O.)	331.6	222	29.2
Value of Catch per Delivery (R.O.)	12.75	6.94	3.65

(Source) Durham Oman Project Fishing & Fish Marketing
1974 - 1976, 1976

This survey, too, revealed varied values of fishery catch by the type of fishing craft. Motorised crafts are engaged in direct sale of catch to village inhabitants in addition to market deliveries; average daily sale per each diesel craft is estimated at about 6.5 RO and that per each gasoline-engined craft, about 4 RO.

As for the comparability of definitions, it is believed that motorised crafts and outboard-motored huris on Table II-6 roughly compare to diesel engined crafts on Table II-7, respectively, and value per delivery on the former roughly corresponds to value of catch per delivery on the latter. The lower values shown on the latter should be viewed with the understanding that the survey was taken in Khaburah area, where fish prices were low, and did not cover the Metropolitan area and, furthermore, that the addition of village sales would bring the values to 19.25 RO for diesel crafts and to 10.94 RO for gasoline crafts.

(Note) ^{5/} Durham Univ., op. cit.

Neither of the surveys took into consideration the part of catch consumed by fishermen themselves, which is estimated to have been from 2 to 4 RO in the case of diesel crafts and 1 or 2 RO in the case of gasoline crafts.

5) Market

In addition to domestic consumption, some Omani fishery products had been exported, namely, sardines for fertilizer and shark tails exported to the United Arab Emirates and other countries. Exportation has declined, and only 391 RO worth of sardines were exported during 1976. While it is estimated that about 180,000 tons of sardines are consumed in Oman as livestock feed, about 19,000 tons are for domestic consumption. As for imports, frozen and canned products are imported whose value came to a total of 405,000 RO in 1976.

Landed fishes are sold as one of the following, depending on the condition of sale: fresh, salted, charred or frozen.

As for the routes of fish distribution (sale), the simplest is direct sale by fishermen to consumers in villages, which represent 10 or 20% of the total catch. In fishing villages, fishery catch is also sold to dealers by auction. While consumers may also buy at auction, most of them actually buy fish from the dealers. Outside fishing villages, fish catch is first sold to traders who transport the products to other parts of the country, where the products are either sold to local dealers or auctioned (and reaches consumers). In Muttrah, which is within the Metropolitan area, population is large and consumption of fish is high; in addition, there are influential large consumers such as the military, PDO and food procurement companies.

Most liked by the Omani people are such relatively large pelagic fishes as kingfish, tuna, skipjack, barracuda, and scad, while demersal fishes are not much preferred. The development of Omanis' taste for such fishes may be ascribed to the traditional fishing method which brought back quantities of such fishes, to the fact that the catch had to be consumed immediately in the absence of ice and cold store (which have recently been used increasingly) and to the large size and high fat content of these fishes making them suitable substitutes for meats.

Regardless of the regional and seasonal fluctuation, fish price appears to be generally high. It is appreciably higher in the Metropolitan area, where demand is large, than in fishing villages and is as much as 70% higher in extreme cases in the Interior, where no distribution facility has been developed. During the stormy weather (as typified by the summer monsoon season in Dhofar district), fish landing diminishes and the price skyrockets. The development of cold stores and freezers is urgently needed for the stabilisation of the fish price.

6) Wooden Craft Building

Omanis, by whom maritime trade in the Indian Ocean had been carried out since about 3,000 B.C. as mentioned in the preceding Chapter and who used to build 500-ton class wooden ships at times, still have the tradition of wooden ship-building.

Wooden crafts such as shasha, huri (with or without an outboard engine), and motorised (inboard) boats, as well as small aluminium and FRP boats (see Item 4) above. While shashas are easily made in various parts of Oman, larger crafts such as huris and motorised boats are being constructed by craftsmen who still remain in the vocation in Sur (where just under 100 of them exist) and Sohar. They build ships at seaside "Shipyards" by first laying a keel in a wooden frame formed with pillars using adzes, saws, chisels, hammers, bow drills, and other hand tools. For keels, ribs and masts, teak imported from India is used.

The cost of building a non-motorised small huris is from about 200 to 400 RO per boat, and a motorised ship of about eight tons cost about 1,500 RO, sans engine.

These Omani ship craftsmen persistently adhere to the traditional craftsmanship and have little inclination toward learning modern technology to build aluminium, steel, and/or FRP ships. Yet, because demands for wooden crafts have been declining, the government measures in this area have been more for the preservation of the traditional techniques or the provision of jobs to the craftsmen than for the promotion of modern shipbuilding industry. (In Sur, aged craftsmen are given the job of building model ships of about one metre in length for interior ornaments.) It is suspected that the traditional wooden shipbuilding as an industry is to disappear sooner or later.

7) Fishery Modernisation Policy

(1) Current Status and Problems

Together with agriculture, fishery has long been a major industry and a supplier of food in Oman. Yet, fishery production has continued to decrease in recent years, despite the availability of rich resource in the adjacent waters. And this has been much due to the fact that, since the commencement of oil production, fishermen have been attracted away from their fishing grounds to new jobs in Oman and neighbouring countries, which offered higher wages than what they could earn through fishery, whose productivity has remained low under the obsolete production method employed.

The production of oil resulted in a sudden swell in the government's financial revenue and its aggressive development investment efforts. However, now that inevitable reduction in oil production is in the offing, the government has adopted a policy for the encouragement of fishery, as well as agriculture and other industries which utilise resources available in Oman, in order to secure new sources of revenue in place of petroleum.

The future direction of the Omani fishing industry development must be determined based on an accurate inventory and assessment of the current status of (1) fishery resource, (2) production, and (3) market. The available resource supports much greater production and a high development potential of the industry. As for production, which is now being undertaken in a petty scale under the less-productive traditional method, strong efforts should be made in developing fishing grounds, crafts, gear, and port facilities, if the productivity of this industry is to be raised to the level, eliminating the existing production (and income) gaps with other industries in order that further dispersion of fishermen from their villages might be prevented. As for the market, domestic demand for fishery products is strong and inveterate (and the importation of frozen and canned fish has recently been on the increase); therefore, the development of freezers and other distribution facilities is essential to the stabilising of fish supply and to the checking of the high fish price due to the seasonal fluctuation in supply.

(2) Fishery Promotion Policy

The government's Five-Year Plan (which started in 1976) adopted fishing industry promotion as an objective and listed projects in the following areas for its accomplishment:

- a. Technical research
- b. Construction of cold stores and ice factories in villages and markets
- c. Freezer trucks for transporting fishery products from the point of landing to markets
- d. Provision of small boats and gear which can be operated by fishermen accustomed to the traditional method
- e. Construction of fishing craft berthing facilities for use by fishermen at large
- f. Development of novelty fishery (shells and other invertebrates) and distribution (means) and market therefor
- g. Establishment of modern fishing companies for off-shore fishing and processing and manufacturing of fishery products.

As indicated by the above projects, major emphasis is placed on the development of infrastructure for production and distribution in order to secure a higher productivity and stable supply of fishery products.

Yearly fishery development investments under the Five-Year Plan are shown on Table II-8 by project, and a summary of the projects, as examined by the Fishery Department in detail, is presented on Table II-9.

(3) Development Projects: Current Status

Development projects under the plan and their status are discussed below.

In the area of distribution, cold stores, freezers, icemaking machines, freezer ships, and fish markets are planned for various parts of the country (see Figure II-4; provided that the cold store plan for Sohar has been discontinued). Storage capacity expansion to 4,000 tons after 1980 has been studied for cold store in Mutrah, which is now used for the storage for both fish and meats at a ratio of about fifty-fifty at 24 R.O. per ton for 28 days. A cold store is particularly important for stabilising fish price in Salalah, where the

Table II-8 Fishery Development Investments

(Million R.O.)

Description	Region	1967	1977	1978	1979	1980	Total
Fisheries Sector							
Mutrah Fisheries Projects	Capital	1.30	-	-	-	-	1.30
New Fisheries Projects	Interior	-	1.00	2.00	2.50	2.50	8.00
Cold Store Complex-Salalah	Southern	0.30	-	-	-	-	0.30
Other new Fisheries Projects	Southern	-	0.80	1.00	1.50	1.50	4.80
Total Fisheries of which		1.60	1.80	3.00	4.00	4.00	14.40
	Capital	1.30	-	-	-	-	1.30
	Interior	-	1.00	2.00	2.50	2.50	8.00
	Southern	0.30	0.80	1.00	1.50	1.50	5.10

(Source) The Five-Year Development Plan 1976 - 1980
Sultanate of Oman, Development Council

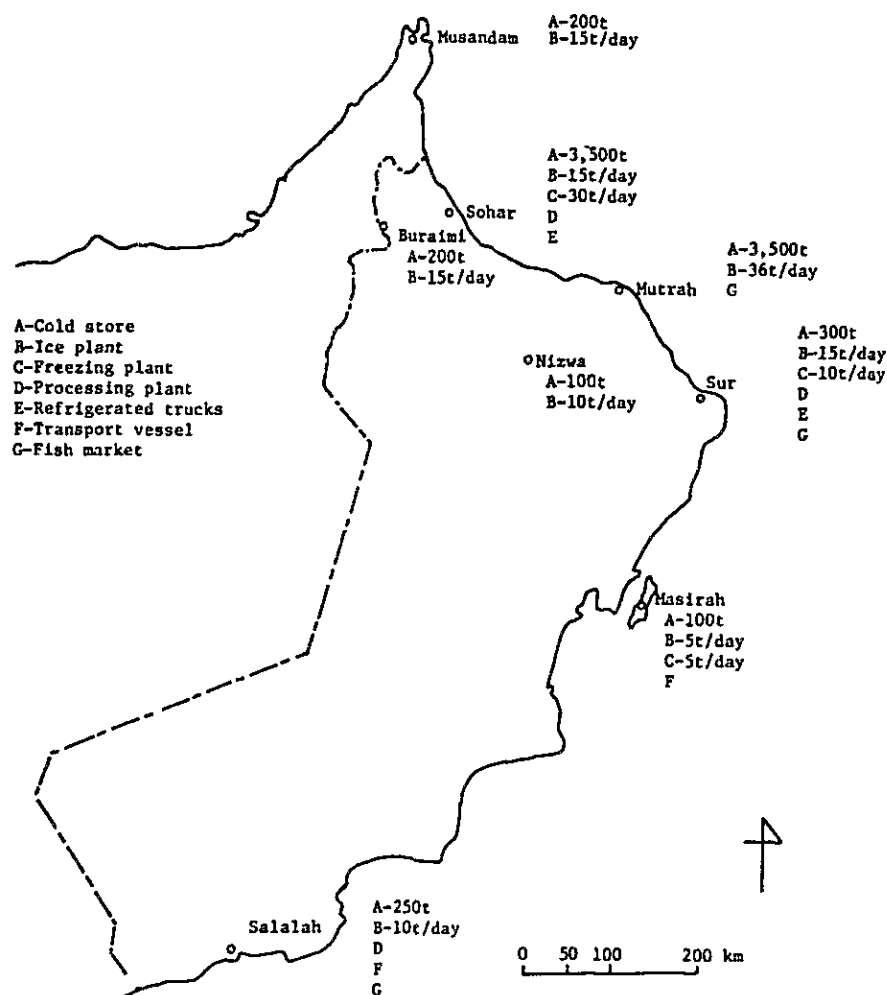


Figure II-4 Major Development Programmes of Fisheries

price rises high during the summer monsoon season when fishing is dangerous.

Cold stores will be completed in Buraimi and Musandam peninsula in 1978 under the plan. Also, a 30-ton/day ice factory is planned for Buraimi and a 10-ton freezer and a 15-ton/day ice plant for Musandam peninsula.

The government has established a fund to assist fishermen in purchasing fishing crafts, engines, and nets to improve their productivity, and the fund was first utilised in Salalah in 1974 and, then, in other various parts of the nation. Under the system, the fisherman pays an advance of 25% of the purchase cost, receives a 25% grant, and a 50% long term credit to be paid by installments. The Five-Year Plan provides one million dollars every year to fund the purchase of 100 outboard engines, 200 small crafts, and 100 tons (in the initial year) or 25 tons (in the second and each subsequent years) of nets. Later development has resulted in a plan for the purchase of 500 aluminium ships, 500 additional outboard engines, and 100 inboard engines, with the fisherman receiving a 10% initial grant plus a 5-year loan for the remaining 90%.

The construction of maintenance shops for the fishing crafts and engines in Salalah, Musandam, Sohar, Sur, and Mutrah has been planned, as such repair maintenance shops will be essentially needed when shipping crafts are modernised in the above described scale.

Also planned is the establishment of extension centres for the improvement of fishermen's techniques and the training of fishermen in the operation of new gear, engines, and so forth.

For the extension centres, a mobile type equipped with audio-visual and other equipment for the demonstration of new gear and engines is being considered in view that fishing villages are widely scattered along the long coastal line of Oman.

The Government of Oman has been making efforts to import modern fishing technology from abroad. In April 1976, the government entered into a contract with Taiyo Fishing Company and Nissho-Iwai Company of Japan, under which the government granted to the party the right to bottom fishes between Masirah Island and the Kuria Muria Islands, the catch was to be shared by the Japan side and the government by the ratio of 60 to 40, and each fishing craft was

to accommodate Omani fishermen for learning trawl fishing and two Omani government officials for gathering fishery data. Taiyo was engaged in fishing in the 6,000-kilometres waters during the period from April 1976 to November 1977, but because the catch of cuttlefish was smaller than Taiyo had expected, the contract went without being renewed.

The Ministry of Agriculture, Fisheries, Petroleum & Minerals granted the right to fish in the waters (this time, extended by 70 nautical miles) to Korean Overseas Fishing Company (in lieu of Taiyo and Nissho-Iwai) by the agreement of December 18, 1977, under which the Korean company was to bear the entire cost of operation for a 70% share in the catch. Exportation to Kuwait of the Omani share in the catch is considered.

Also under this agreement a 250,000-dollar fishmeal plant is to be constructed at Mina Qaboos (Mutrah) under the joint venture of 60% investment by the Government of Oman and 40% by the Korean company for the production of 3 tons per day.

In addition to the fishery plant in Mutrah, the Government of Oman is planning to construct a fishery complex in Raysut. However, there are still varied views within the government whether or not feasible are canning 20 tons of sardine and grinding scrap sardine meat into several tons of fishmeal per day.

Table II-9 Projected Investments by Area

		(US\$1,000)				
	Total	1977	1978	1979	1980	
1. Musandam						
Cold store	400	400				
Ice plant	200	200				
Workshop	75	75				
Generators, etc.	200	200				
10 boats	75	75				
	950	950				
2. Buralmi						
Cold store	400	400				
Ice plant	200	200				
Mobile shop	70	70				
3 trucks	150	150				
Generators, water supply etc.	300	300				
Residential units	200	200				
	1,320	1,320				
3. Salalah						
Repair shop	100	100				
3 refrigerated trucks	150	150				
Transport vessel	1,000		1,000			
	1,250	250	1,000			
4. Sohar						
Cold store	600	400	200			
Freezing plant	350	300	150			
Ice plant	200	100	100			
Processing plant	500		500			
3 refrigerated trucks	150	150				
Repair shop and generators	350	350				
	2,150	1,200	950			
5. Sour						
Cold store	600		200	400		
Freezing plant	150		150			
Ice plant	200		100			
Processing plant	200					
5 trucks	250	100	150			
Workshop	150					
Generators, etc.	450		450			
Patrol boat	700		700			
Jetty	500		500			
	3,300	100	2,400	800		
6. Masirah Island						
Cold store	200					200
Freezer	100					100
Ice plant	100					100
Generators	250					250
Transport vessel	400					400
Water desalination	400			100		300
	1,450			100		1,350
7. Nizwa						
Cold store	170					120
Ice plant	100					50
Generators, etc.	150					150
	420					320
8. Mutrah						
Marine workshop	250					250
Store for equipment	150					150
Local marketing center	150					150
Laboratory	150					150
	700					400
9. Development Fund	6,000	1,800	1,500	1,500		1,200
10. Extension Centre Incl. operating costs	135			100		20
11. Harbour studies	600	100		500		
12. Other Projects						
Socio-economic study	330	330				
Legislation	55	55				
Marketing study	100			100		
	485	385				
GRAND TOTAL	US\$ 18,760	6,105	6,650	4,390		1,615
Funds earmarked:						
R. O. thousand	12,800	1,800	3,000	4,000		4,000
1,000 - US\$ approx.	38,500	5,500	9,000	12,000		12,000

3. Petroleum/Natural Gas

1) Petroleum Development: History and Current Status

The history of petroleum development began in Oman when, in 1937, prospecting right was given to Iran Petroleum Company, which established Petroleum Development (Oman) Ltd. (PDO). In 1962 PDO started to prospect at Yibal (I) and Yibal (II), as well as at Natif (I) and, in 1964, found crude oil of commercial scale. A pipeline was constructed between Fahud and Mina Al Fahal for a total extension of about 240 kilometres for the development of the three petroleum fields, and commercial oil shipment commenced in August 1967 through the pipeline, whose nominal capacity is 385,000 barrels per day.

Discoveries after 1967 were few. In 1969 a small scale oil reservoir was identified at Al Huwaisa to the south of Yibal, and in 1972 four discoveries of commercial scale were made in the vicinity of Ghaba on the southeast of Fahud. These new oil fields have been connected with the Fahud-Mina Al Fahal Pipeline. Records of Petroleum production are presented on Table II-10.

Table II-10 Omani Petroleum Oil Production Record
Quantity of Production

Year	Annual Total (Million Barrels)	Daily Average (1,000 bls)
1967*	20.9	57
1968	87.9	241
1969	119.7	328
1970	121.3	332
1971	107.4	294
1972	102.8	282
1973	107.0	293
1974	105.8	290
1975	124.6	341
1976	133.8	367
1977	124.2	340

(Note) * Covering four months from August, when production started, to December.

(Source) Statistical Yearbook

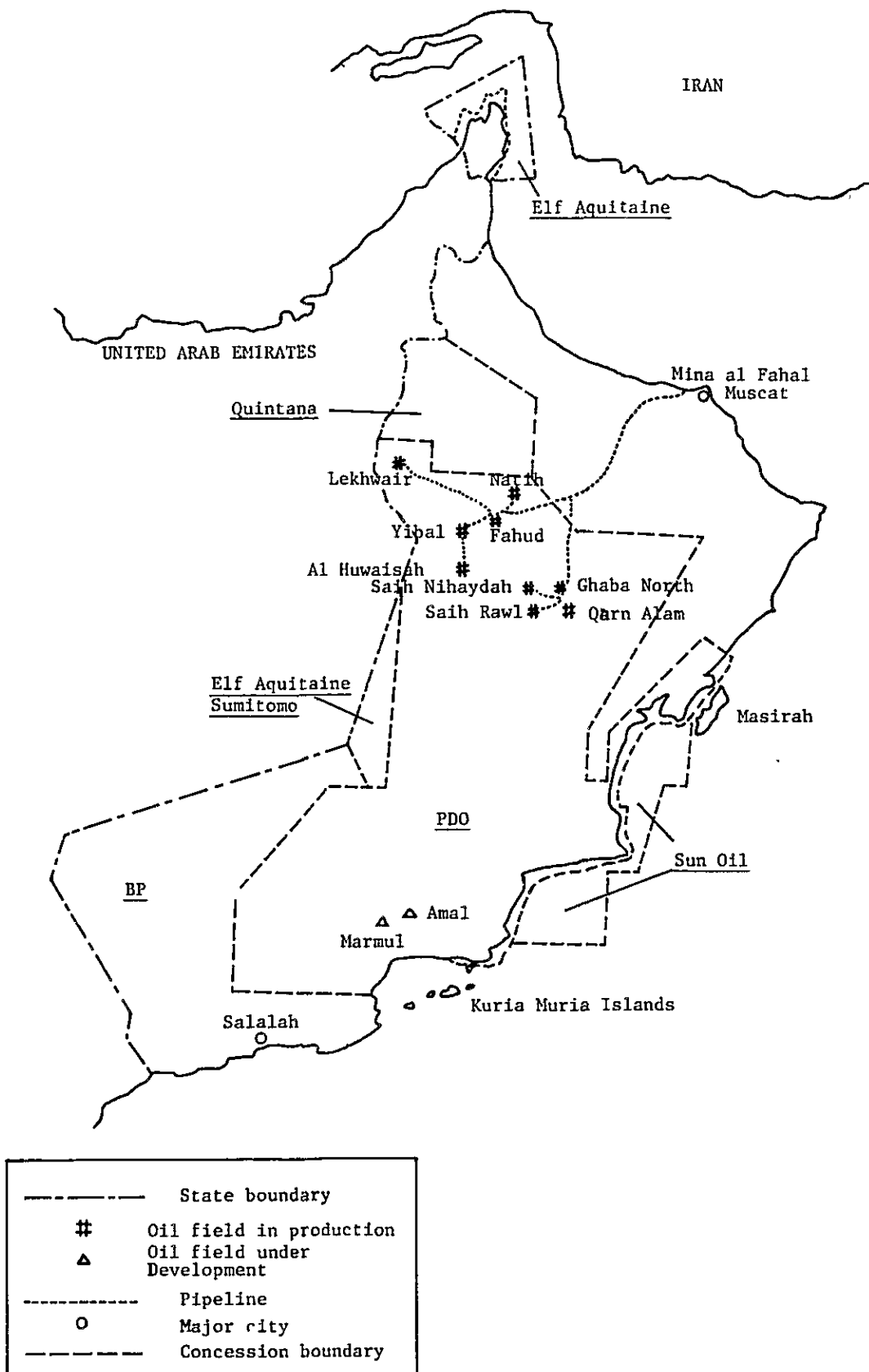


Figure II-5 Petroleum Concessions in Oman

PDO is the only firm which is engaged in oil production in Oman at present. Oman Sun Oil Company (SUNOCO), Elf Aquitaine Oman/Sumitomo, and Quintana International, Ltd. have been prospecting since several years ago without any success as yet. Recently, BP Petroleum Development, Ltd. started a seismic survey in the southern region. Petroleum concessions established in the Sultanate of Oman are shown by Figure II-5.

The activities of oil companies operating in Oman are summarised below.

Petroleum Development (Oman) Company (PDO)

PDO's oil fields now in production are not large in scale by the Middle East standard. The fields are considered to have passed their peaks; and therefore, the production is expected to decline though efforts have been made to improve the recovery rate and stabilise the production. The crude is of good quality having a lower specific gravity and sulphur content as compared with Arabian Light crude as shown on Table II-11 below.

Table II-11 Comparison of Oil Quality

		Omani Crude Oil	Arabian Light Crude Oil
Specific Gravity	15/4° C	0.845	0.854
API Gravity	66° F	35.9	34.2
Kinematic Viscosity	50° F cs	14.8	-
	100° F cs	6.4	5.56
Sulphur Content	wt%	0.77	1.65
C1 - C ₄	wt%	0.88	1.07
Distillation			
C ₅ - 200° C	vol. %	26.6	27.4
200° - 250° C		9.9	9.0
250° - 300° C		10.6	10.3
300° - 370° C		13.6	11.5
370° C -		38.5	40.2
Properties above 370° C			
Specific Gravity	at 15/4° C	0.933	0.953
Sulphur Content	wt%	1.48	3.0

(Source) PDO (data of December, 1977)

PDO recently discovered crude oil at Marmul, Amal and several other places in their vicinities in the southern region and plans to start production upon completion of the Raysut Port expansion near Salalah and a pipeline connecting the port and the oil fields. The crude oil will probably be shipped from the port; or alternatively, the crude may be transported to the north by a pipeline which is reportedly contemplated to be laid northward to the place where it may be connected with the existing pipeline. The crude oil from the south will be blended in an appropriate ratio with the crude oil produced in the north in order to compensate for its high sulphur content and high viscosity and thereby to enhance market acceptability.

Oman Sun Oil Company (SUNOCO)

SUNOCO has an off-shore concession to the south of Masirah Island. Two prospection wells have been drilled since 1974 without any success. Having completed a seismic survey of the entire area, the result of which, in the opinion of SUNOCO, may be considered to indicate the presence of promising geological structures, the company plans to drill another well by the end of 1978.

Elf Aquitaine Oman/Sumitomo

In 1975 Elf Aquitaine found condensate and gas off Musandum Peninsula in the northern region, but the scale of the reservoir is yet to be determined. Subsequent prospection has not been successful. Elf Aquitaine plans to continue prospecting in the same area in collaboration with Gulf Oil Corporation.

Prospection in Elf Aquitaine's concession in West Oman was to be started in April 1978 by a consortium formed by Elf (48%), Sumitomo Petroleum Development Company (32%), and Wintershall (20%). A seismic survey of this area has already been completed, and Elf says that probability of discovery is rather high.

Quintana International, Ltd.

Quintana has a concession in the western part of Oman. The company completed a seismic survey of this area and claims high probability of discovery.

The Five-Year Plan of the government predicts as follows petroleum production in years up to 1980. (See Table II-12)

Table II-12 Forecast of Petroleum Production in Oman

(Million Barrels)

1976	135.0
1977	132.0
1978	128.0
1979	125.0
1980	122.0

(Source) The Five-Year Development Plan

As indicated by the Five-Year Plan, it is predicted that petroleum production in Oman will decrease in the future. Experts seem to agree that producing wells in Oman have passed their production peaks, and the newly discovered fields of PDO in the southern region will produce only about 10 million barrels yearly of heavy-gravity crude oil starting in 1980. Therefore, the present level of production is not likely to be maintained in the future, unless new oil fields of significant scale are discovered.

2) Natural Gas Development: Current Status

Oman is relatively blessed with natural gas resource, of which there are two types of gas reserves, namely associated and gas-field types. Associated or wet gas is primarily reinjected into oil fields in order to maintain oil pressure. Gas-field or dry gas is therefore exploitable as an industrial raw material and fuel. The major gas fields in Oman have been located around Yibal, where gas reserves are estimated at the scale of 4 trillion (4×10^{12}) cubic feet, enough volume to maintain production of 140 MMSCFD (million cubic feet at 15° C at 1 atm per day) for a period of 80 years.

A gas pipeline of 20-inch diameter connecting Yibal with the outskirts of Muscat has been under construction and was almost completed at the time of the survey by the JICA mission (in February to March 1978). The designed capacity of the gas pipeline is reported to be 140 MMSCFD without pressurizing and, if pressurized, 320 MMSCFD. In parallel with construction of the pipeline, an extraction and processing plant for LPG (liquefied petroleum gas) and NGL (natural gas liquid) has been planned and constructed in Yibal.

4. Minerals (Other than Petroleum)

1) Geology

The oldest geology of Oman traces back to Palaeozoic Permian period, which is distributed in Sayh Hatat, Akhdar Mountains, Haushi, Huf Mountains, and so forth. There, rocks consist of conglomerates, sand stones, shales, and limestones. Mesozoic Triassic, Jurassic, and Cretaceous rocks are distributed to cover almost entire part of the Hajar Mountains, Masirah Island, and a part of Dhofar region and consist of limestones, dolomites, shales, sandstones, cherts, conglomerates, metamorphic rocks, and igneous rocks called ophiolite. Tertiary rocks consisting of limestones and dolomites are distributed in Qurayat Mountains, Ibri-Buraimi Hills, and Watif-Salalah area. And Quaternary formation chiefly of sand gravel is widely spread over the Interior hills.

No metal ore of a commercial value has so far been found in Permian System. Pure limestone suited for cement is available in an abundant quantity. Ophiolite, which is distributed in an elongate form in the central part of the Hajar Mountains and covers about one-half of the Mountains' entire area, is the most economically important rock in Oman, because practically all metallic deposits occur in connection with ophiolite. Ophiolite was formed in middle-to-late cretaceous period and is classified into the following major rock units from the lower part:

Peridotite: The most widely and thickly distributed kind of ophiolite; the bottom part of peridotite has become serpentine by the effect of hydration

Gabbro: A middle-to coarse-grained ophiolite

Diabase: The most part of this rock occurs in the form of a dike

Basalt: Produced as the uppermost unit of ophiolite, has a pillow lava structure and is greyish or black in colour, fine grained and compact.

As for the faulting, northwestern system and northeastern system are pre-dominant. Also the folding is well developed throughout the entire area of the

Hajar Mountains, which has a complicated anticline overthrust structure in north-south direction in the northern part and in northwest-southeast direction in the southern part.

2) Metallic Minerals

(1) General

Many reference documents exist on the geology of Oman, none of which, however, discusses rocks or ore deposits that can be economically exploited. An old literature (1928) by Lees observed the copper mineralisation of serpentine and phyllite and reported that a number of deposits had been mined in the past. The first mineral survey in the true sense of the word was conducted by a geologist of Petroleum Development (Oman) Ltd. in the late 1960's. Subsequently, J.C. Carney and M.F.P. Welland reported findings of a geochemical survey. Metallic ores (copper, chrome, iron, manganese, nickel, lead and zinc) have been found in the entire area of Northern Oman from Fujayrah on the northwestern end down to Ras Al Hadd on the eastern end mostly near the edge of the mountains, as well as on Masira Island. These metallic minerals productions and mining claims have been mapped on Figure II-6. As seen, the number of mineralised zones, outcrops, and ancient mines is the greatest in the case of copper, followed by chrome and iron.

Prospection (Oman), Ltd. has already conducted exploration drilling, has found promising copper ore deposits, and plans to commence development works in the near future. Promising outcrops exist, and the probability of discovering mines of economic value is extremely high. Chrome deposits have been claimed to have little economic value, but it is believed that a detailed survey needs to be conducted. The mining of manganese deposits appears feasible, if carried out in a small scale. More detailed examination is believed necessary of lead, zinc, and iron deposits.

(2) Copper

It appears that copper mineralisation has been limited to quartz veins which accompany gabbroic host rocks, and the deposits are assumed to be fissure-filling hydrothermal type. Main minerals are chalcopyrite and brochantite of secondary

oxide mineral. Copper in most cases accompanies limonite and quartz. A large number of outcrops have been found throughout the Hajar Mountains. Main mineralised zones are as follows:

In Wadi Wa'al a number of copper-bearing quartz veins (the largest of which is generally two metres thick and about 200 metres long) have been found in gabbro. The ore is comprised of chalcopyrite aggregate and brochantite is impregnate. Also, copper-bearing veinlets of about one centimetre are found distributed (controlled by joints of the host rocks) in gabbro to the south of Wadi Jizi. The size of this mineralised zone is estimated at a half million square metres and the copper content at a quarter of a million tons. The ore at the ancient mine of Luzuq is brochantite and found impregnated or as veins in gabbro. The ancient mine of Nizwa has veins (breadth of about 1.5 metre average) of brochantite containing chiefly iron and quartz. Copper content is high according to the mining records and the existence of a high quality outcrop deposit is expected, but an accurate assessment of the reserve is difficult.

A total of nine copper mineralisation zones have been identified in the northern and southern parts of Masira Island. They occur in the fracture zone of pillow lava or gabbro, and the ore veins consist of malachite, azurite, and pyrite, accompanying quartz. The orientation of the vein system is either east-west or north-south and the dip is generally vertical. While the width of the veins is usually about 30 centimetres, the length reaches 180 metres in some cases. The deposits are small in scale and is claimed to be of a low quality.

A report on statistical analysis of stream sediment data (see Figure II-7) indicates that the most of anomalies of copper are found in a gabbro zone. The wide spread of copper mineralisation in exposed gabbro in this way has a significant mining implication.

As seen, it is characteristic of copper deposits in Oman that host rocks are widely distributed and copper mineralisation is found throughout the national territory. Furthermore, the fact that these outcrops were mined only in the ancient times and have since been left untapped suggests greater extension downwards of mineralised zones and the existence of bonanza in the lower parts of oxidized zones. According to the information obtained from Prospection,

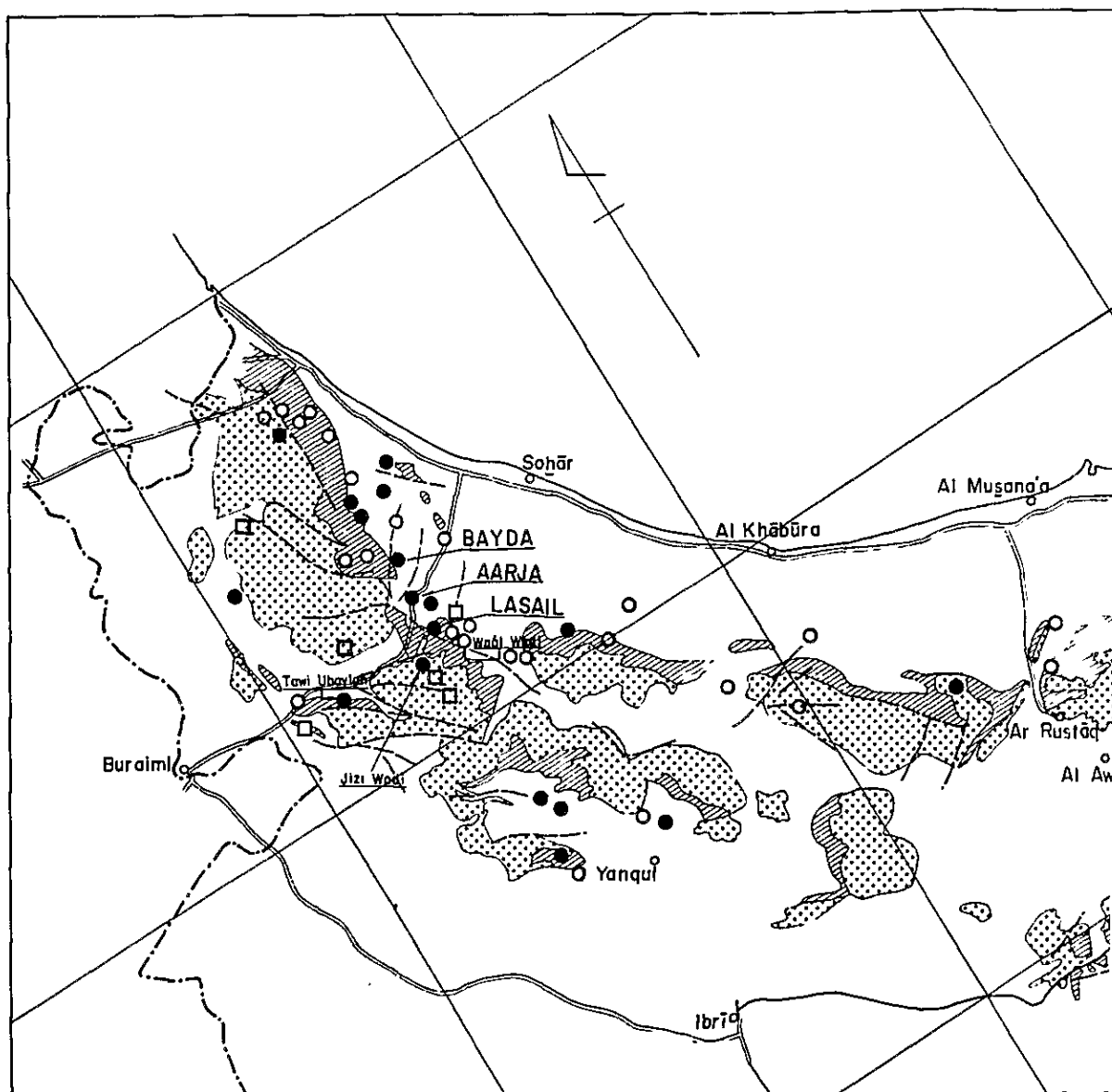


Figure I - 6 Mineral Resources in Northern Oman

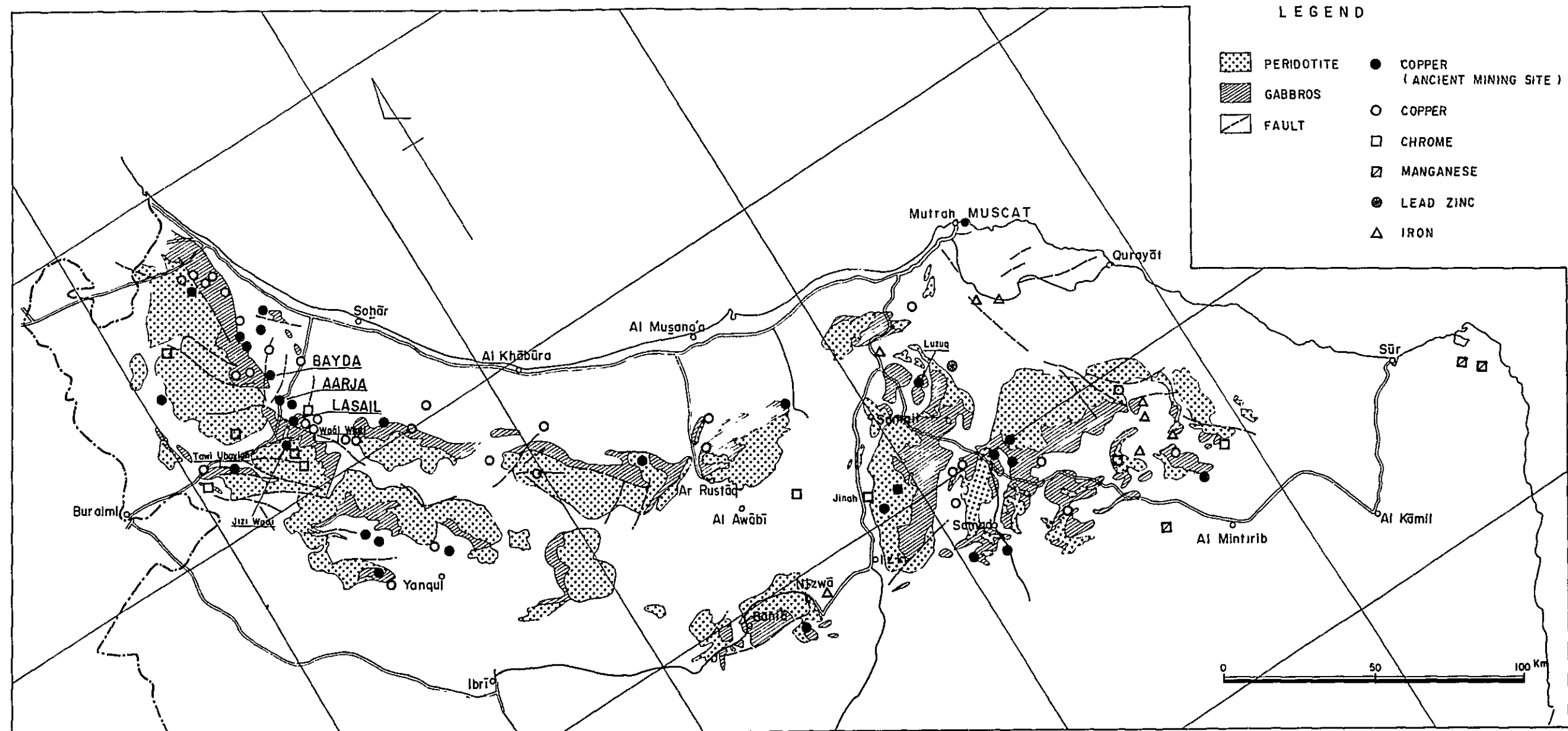
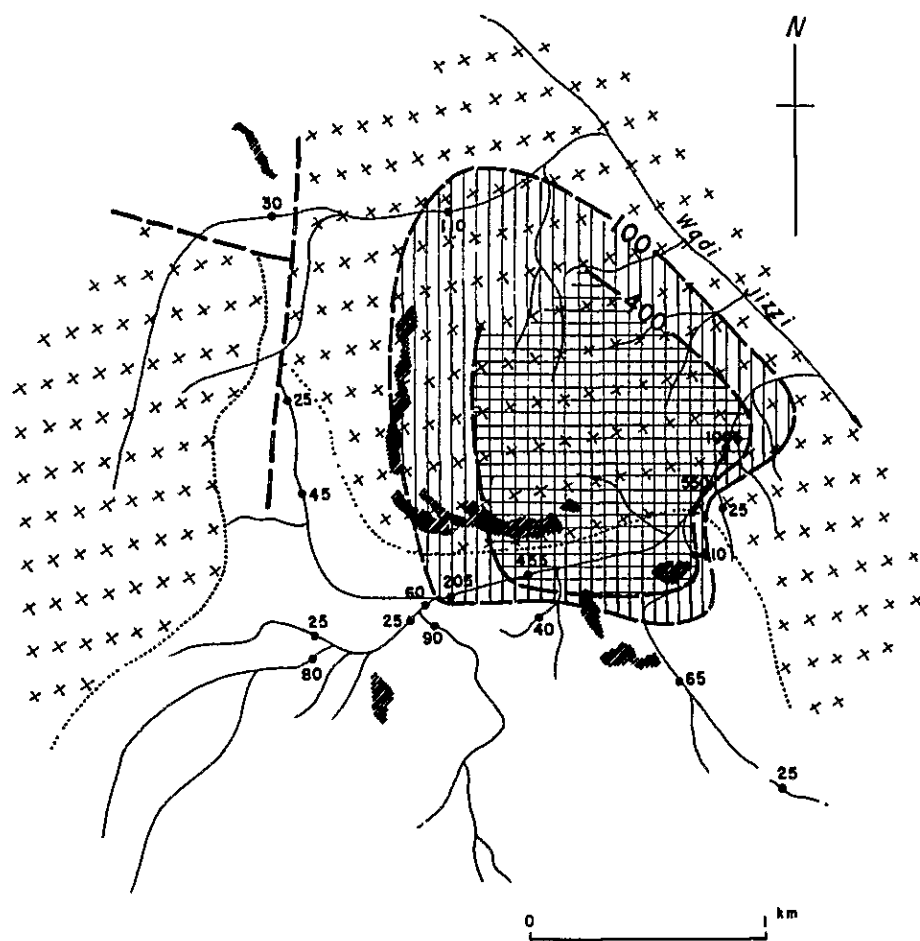


Figure II - 6 Mineral Resources in Northern Oman



LEGEND

- Sample site
- 50 Cu Anomalous Values (ppm)
- x x x Gabbro
- Peridotite
- Copper Mineralisation
- Fault
- Area with values greater than 100
- Area with values greater than 400

Figure II-7 Cu Anomalous Values (ppm) of the Tawi Ubaylah Copper Workings

Ltd. during the recent investigation, the chemical, microscopic and X-ray diffraction analyses of the drilling core indicated that the grade of copper was 20.73% (see Table II-13) and that the mineral was chalcopyrite, bornite, tennantite, and djurleite.* Tennantite and djurleite had never appeared in any literature on copper ore in Oman. The occurrence of high grade copper sulphide minerals in Oman has a significant importance to copper mining and suggests a high probability of future discovery of promising ore bodies.

Table II-13 Results of Quantitative Analyses of Copper Ore Sample

No.	Description	Locality	Cu%	Pb%	Zn%	S%	Ni%	As%	Ag ^g /t
1	Boring Core	Lasall	20.72	0.28	1.79	18.25	0.005	4.30	102
2	Brochantite New Work	"	2.58			0.003			
21	Chip Sample Across Brochantite Vein	Tawi Ubaylah	0.73						
22	"	"	0.93						
23	"	"	0.78						
42	Chip/Channel Sample Across Brochantite Vein	Nizwa Copper Mines	1.79						
43	"	"	0.92						
47b	Sulphide-Bearing Vein Quartz	Wadi Wa'al	4.08						
47d	"	"	2.18						

(Source) JICA MISSION
I.G.S. Report No.27

Much is to be expected of future surveys, with particular emphasis on:

Wadi Wa'al: Even though the scales of individual veins are said to be small, the total number of occurrences supports hopes for the deep deposits.

Tawi Ubaylah: In view of the wide mineralised zones of brochantite, the developed faults, and the structural control, much is hoped for from the deep part.

Nizwa: Deep exploration is a must for the same reasons as stated in the above.

"Bowling Alley" (the Interior part, 30 kilometres from Sohar): Copper mineralisation is densely concentrated particularly in this area, where nine

* See the data attached at the end of this chapter.

deposits intermittently occur within a north-south span of 40 kilometres with the orientation of 10 degrees northwest and an eastward dip of from 30 to 70 degrees (which is suspected to have been influenced by pillow lava orientation) in an echelon-like configuration pointing east with increasing sharpness farther away toward north due to the northwesterly-oriented fault. (See the horizontal distribution map of Figure II-8.) In view that the horizontal and vertical con-



Figure II-8 Location map of the copper deposits in the "Bowling Alley" area near Sohar

figurations of deposits often resemble each other, it is highly possible that the ore body is occurring intermittently not only horizontally but also vertically and in an echelon configuration pointing upward east with an increasing sharpness in deeper parts. Therefore, a detailed deep exploration must be conducted in this area also. (The currently on-going copper development project covers only the southern part of this "Bowling Alley.")

(3) Chrome

Chrome ore, or chromite, has small crystals and is an ordinary accessory mineral in peridotites. A PDO analysis shows that peridotite contains from 0.4 to 0.45% of Cr_2O_3 . A chrome ore body is formed by the aggregation of chromite crystals during the crystallisation of peridotite. Chrome ore found in host peridotite rocks ranges from pure chromite to such variations as dissemination and stringer. Disseminated ores form a banded structure. Therefore, a massive local chrome ore body, if found among deposits widely distributed in host peridotite rocks, will be possibly developed as a promising mine.

Farfar deposit contains chromite bodies at five locations within an area of one square kilometre, one of which is from 10 to 15 metres thick and 150 metres long. The ore bodies become thinner in the direction of west, and, in east, are cut off by shear zones. While little is known about the bottom parts of the bodies, ores show sharp contacts with host rocks and have been displaced by shear zone or fault. The ore reserve is estimated at about 160,000 tons. The result of an analysis of samples taken from the upper, middle, and lower parts of the ore body is shown on Table II-14. As indicated, the values of Cr_2O_3 , CaO , and Al_2O_3 , tend to increase from top to bottom, while the values of Fe_2O_3 , MgO , and SiO_2 tend to decrease from top to bottom. Four other ore bodies are stratified, in a lenticular form, or disseminated lenticular body with a thickness of about one metre and an extension of 10 metres. Some of them are stratified with bands of from two millimetres to 20 centimetres.

Table II-14 Results of Quantitative Analyses of Chromite Sample

No.	Description	Locality	$\text{Cr}_2\text{O}_3\%$	Total	$\text{CaO}\%$	$\text{MgO}\%$	$\text{Al}_2\text{O}_3\%$	$\text{SiO}_2\%$
				$\text{Fe as}\%$ Fe_2O_3				
1	Massive Ore	Al Awabi	42.00	17.17	0.19	14.10	24.53	1.00
2	Float of Massive Ore	"	41.58	16.99	0.08	11.12	18.17	4.91
YBr27	"	Wadi Wasit	47.90	15.30	0.20	16.80	17.20	2.48*
YBr30	Massive Ore	Top of Farfar 1 Deposit	34.00	15.00	0.42	20.10	16.90	9.18*
YBr62	"	Middle of Farfar 1 Deposit	39.60	14.30	1.04	17.60	20.60	5.57*
YBr31	"	Base of Farfar 1 Deposit	36.70	14.30	1.18	17.70	19.90	6.25*
YBr32	Chromite	Farfar 5 Deposit	25.20	12.20	0.28	28.30	11.20	14.90*

(Source) JICA MISSION

* I.G.S. Report No.27

Analysis shows that stratified ores are of a low grade with high contents of SiO_2 and MgO , and the samples contained a high volume of peridotite.

Jinah deposit is 10 metres thick in maximum and 50 metres long, and the ores are cut by shear faults. Although the grade is high, the estimated reserve of 20,000 tons is less than an economic scale. Ajran deposit consists of thinly stratified veins of chromite grains laying horizontally flat and sheared by faults.

In view that chrome ores at the above three deposits are cut by either fault or shear zone and are thinned out into horizontally flat bodies within a short distance, as revealed by the investigation, discovery of a large deposit may not be expected.

The value of chrome ore is determined by the level of chrome, iron, and aluminium contents. High chrome ores are used for metallurgy, high aluminum ores are utilised for refractory bricks, and high iron ores are used in manufacturing chemicals and also extensively used in making alloys and refractory bricks. According to analyses so far, chrome ores available in Oman are too high in silica and iron for refractory purposes but too low in chrome for metallurgy purposes. The Awabi sample which was examined recently (see Table II-14), although it may not indicate the average grade of the entire deposit since it was obtained from the lower base of the ore body, showed a high aluminium content and, therefore, suggested excellent properties for use as casting sand and refractory bricks. Future investigation should determine the scale, grade, and economy of the deposit.

The analysis of reconnaissance geochemical stream sediment sample obtained from peridotite outcrop shows a range of chrome content from 60 to 11,000 ppm and anomalies were clearly discernible; the finding is interpreted as an important showing.

It appears that chromites are concentrated in peridotite at peridotite-gabbro interfaces. Also the ore body is cut by many faults and shear zones. Therefore, the ore body may not be expected to be continuous, and the estimation of reserve is difficult. However, because exploration is to cover peridotites spreading over the wide area of Oman, possibility of discovery is high. Farfar ore body is a possibility and should be subjected to a detailed survey including

exploration drilling because the extension of deep part is considered interesting. Quality is also important, and the analysis of average content must be done. Awabi deposit also requires a detailed geological survey and chemical content analyses.

(4) Iron

Iron either occurs in relation to copper-bearing veins or occurs in deposits not related to copper in a different geological environment. Iron includes limonite, goethite, hematite (iron oxides), pyrite (an iron sulfide), and pyrrhotite.

Hematite used to be recovered at one mine, and the deposit has been sized up at the length of 100 metres, breadth of 100 metres, and thickness of three metres and estimated reserve of 150,000 tons based on the information on the host rock and remains of ancient excavation. This scale is too small to be considered for development, but the deposit should be taken into consideration in the future exploration of iron ore.

(5) Lead/Zinc

Galena is the major lead-bearing ore, and sphalerite is the major zinc-bearing ore. Lead ore and zinc ore frequently accompany each other. The abandoned mine in Oman has a single ore vein, hydrothermally metamorphosed, and has a length of about 300 metres and an average breadth of about one metre with frequent fluctuations. Ore grades of 15% lead and 7.5% zinc have been confirmed.

(6) Manganese

Manganese nodules have been found in red cherts at several locations. The deposit scale is small, but it is possible that more deposits may be discovered in the future.

(7) Nickel

An extremely minute amount of nickel mineralisation has occurred in relation to pyrrhotite, and the phenomenon appears to have been limited to gabbro and quartz vein. Survey so far has resulted in the suggestion of no economically exploitable nickel sulphide deposit. But, because ophiolite shows especially

high iron, nickel, and chrome contents, it is possible that concentration has been locally accelerated by local weathering process and that a large volume of ore is located.

3) Non-Metallic Mineral Resources

Limestone, marble, dolomite, quartzite, coal, and asbestos are the non-metallic mineral resources (industrial rocks) of Oman which are worth attention. Conversely, argillaceous or clayey materials (Kaolin, etc.) are the resources which are industrially needed but lacking in Oman. Unconfirmed deposits have been reported for only two or three locations including Nakhl and Nizwa.

(1) Limestone

Limestone is one of the richest natural resources of Oman, and deposits of fairly high quality limestones are widely scattered on both east and west flanks of the Oman (Hajar) Mountains. Even though the industrial utilisation of these deposits are quite likely, they are now used only for obtaining construction aggregate (crushed stones, rubble mounds). But a big project for the construction of a million-ton/year cement plant has recently officially started and a consultant for its feasibility study has been selected.

Marble is another big potential resource of Oman. This resource is now being utilised, even though in a small scale, for the production of terrazzo stone (artificial marble). Full industrial utilisation should be considered in the future. Because only a survey of very preliminary nature has been done on this resource, both extensive and intensive research and investigations should be conducted in the future.

(3) Dolomite

This resource is not exploited at all at present, even though a fine quality deposit has been located in the Sayh Hatat Basin (south of Muscat) in a scale which is expected to be able to support an industrial exploitation. Utilisation of this resource should be considered as dolomite plaster and for the agricultural purpose (magnetic fertiliser). In the said Basin, quartzite dikes and quartzite (quartz sandstone) beds are also well developed and their outcrops are found widely spread.

(4) Coal/Asbestos

As for coal, about 10 million tons of anthracite reserve has been reported in Sur area but the Mission did not make any survey of this deposit. Data on "a promising deposit" of asbestos found by Amiantit (Oman) Ltd. in the northern Interior was not made available to the Mission and, therefore, assessment as to whether the deposit is industrially exploitable or not is impossible.

Generally speaking, a number of scientific studies (general geological surveys) have been done on the non-metallic mineral resources (industrial rocks) of Oman, but few data have been gathered from the viewpoint of their feasibility as industrial raw materials. The reason why reported clayey resources (kaolin deposits) have been limited to only a few localities is believed to have been that such resources have never been explored from the standpoint of ceramic industry or other industrial exploitation of the resources. Therefore, it is believed that full possibilities still remain for the discovery of promising deposits of useful industrial minerals through exploratory efforts in the future.

4) Current Mining Status

None of the metal ores is mined at present, but a number of mining traces, including as many as 30 ancient copper mines, have been found in the Oman Mountains suggesting that copper was already mined some 4,000 years ago. Ancient mines are on brochantite, probably because the copper sulphate could easily be smelted. In addition, ancient iron, lead, and zinc mines of unknown age have been found at several locations. Their slags have been analysed and the findings are presented on Table II-15.

Table II-15 Results of Quantitative Analyses of Tailing slags

No.	Description	Locality	Cu%	Fe ₂ O ₃ %	ZnO%	PbO%	CaO%	MgO%	Al ₂ O ₃ %	SO ₂ %
1	Slag for Tailings	Lasall	0.60	55.60	0.02	1.35	3.36	1.93	1.58	31.68
17	"	Tawl Ubaylah	0.90	50.9						*
18	Brochantite Slag	"	2.07	55.9						*

(Source) JICA MISSION

* I.G.S. Report No. 27

5) Development Project

(1) Copper Development Project

Prospection Ltd. (Canada) established an Omani subsidiary, Marshal Oman Exploration Inc. and Prospection Ltd., in early 1973, and has undertaken a geological survey, a geochemical survey, a magnetic survey, and a drilling exploration in Wadi al Jizi area in the northern region. As a result, three ore bodies of Lasail, Aarja, and Bayda have been found (total ore reserve of 12 million tons, copper grade 2.1%). The Government of Oman participated in 51% of the exploration cost. Feasibility of the exploitation of this mine was studied in 1975. It has been planned that Oman Mining and Company is to be established in about May 1978 (with 75% capital investment by the Government, 22.5% by Marshal, and 2.5% by Prospection). The copper mine is to be developed with initial expenses of about 120 million dollars, of which 100 million dollars is a loan from Saudi Arabia. Summary of this copper mine is as follows:

- i) Location: The mine is located on the eastern outskirts of the Oman Mountains and is about 30 kilometres west of Sohar.
- ii) Transportation: Sohar-Buraimi Road (width, 6 metres, asphalt paved) runs through in the vicinity.
- iii) Topography, environment: A relatively flat land about 800 metres above sea level with localized hills; no village within the radius of four kilometres. Puddles are found in Wadi Jizi in February and sheep are seen grazing. Spots of shrubs are on the site.
- iv) Geology/Deposit: This is a massive copper deposit occurring in late Cretaceous gabbro, and the ore is mostly chalcopyrite or pyrite. The deposit consists of three ore bodies. Their dimensions are as follows (length X width X depth):

Lasail: An oval shape extending north to south (450 metres X 280 metres X 120 metres)

Aarja: A pipe shape with a south-east dip of 30° (300 metres X 70 metres X 40 metres)

Bayda: Two bodies with a length of 130 metres and 170 metres, respectively.

Mine operation and development programmes (the details of which will be discussed in PART TWO, Chapter IV) include the mining of 1,050,000 tons ore from the three ore bodies (at the rate of 3,500 tons/day by sub-level caving system with the use of heavy trucks), ore dressing of 78,000 tons/year of 26% grade concentrate, smelting to produce 20,000 tons/year of fire refined copper with the grade of 99.5%, and the exportation of the copper ingot.

6) Government Measures and Policies for Mineral Resources

(1) Mining Right and Licence

Mining right pertaining to metal ores (excluding petroleum, gas, and asbestos) is under the jurisdiction of the Ministry of Agriculture, Fishery, Petroleum, and Minerals, and is granted in the form of one of the following three:

- i) Exploration Permit: Validity, 18 months
- ii) Exploration Licence: Validity, three years
- iii) Mining right: Validity, 50 years; provided that failure to commence production within five years from the date of mining right nullifies the right.

(2) Topographical Maps

The only available topography map covering the Oman Mountains and their vicinity is a mosaic map with the scale of 1:100,000 without contour lines (a British military map). As for Dhofar area, a recently drawn 1:50,000-scale and contoured map is available.

(3) Policy Making

The Ministry of Agriculture, Fishery, Petroleum, and Minerals has only four petroleum officers, three economical geologists, and two metal-deposit geologists. It goes without saying that a much expanded staff of experts with full experience is essential to the effective administration and surveillance of, and to the provision of adequate assistance and guidance on, the future developmental investigations and systematic exploratory surveys. In this regard, utmost efforts should be made in training expert Omani geologists.

5. Manufacturing

1) Past and Present Status

Prior to 1970, only manufacturing activities in Oman were traditional handicrafts of such items as hand-worked golden or silver ornaments, hand-worked copper ware of daily use, farm tools such as ploughs and hoes, potteries, carved wooden door frames, cotton textile, dyed clothes, and wooden fishing boats. These handicraft industries are scattered throughout the country for the local demands, as shown by Figure II-9. The traditional handicrafts have been decaying due to a change in the Omani life styles and to the increase in imports and, despite the government efforts to preserve and possibly improve their techniques, are becoming a cultural asset rather than an industry.

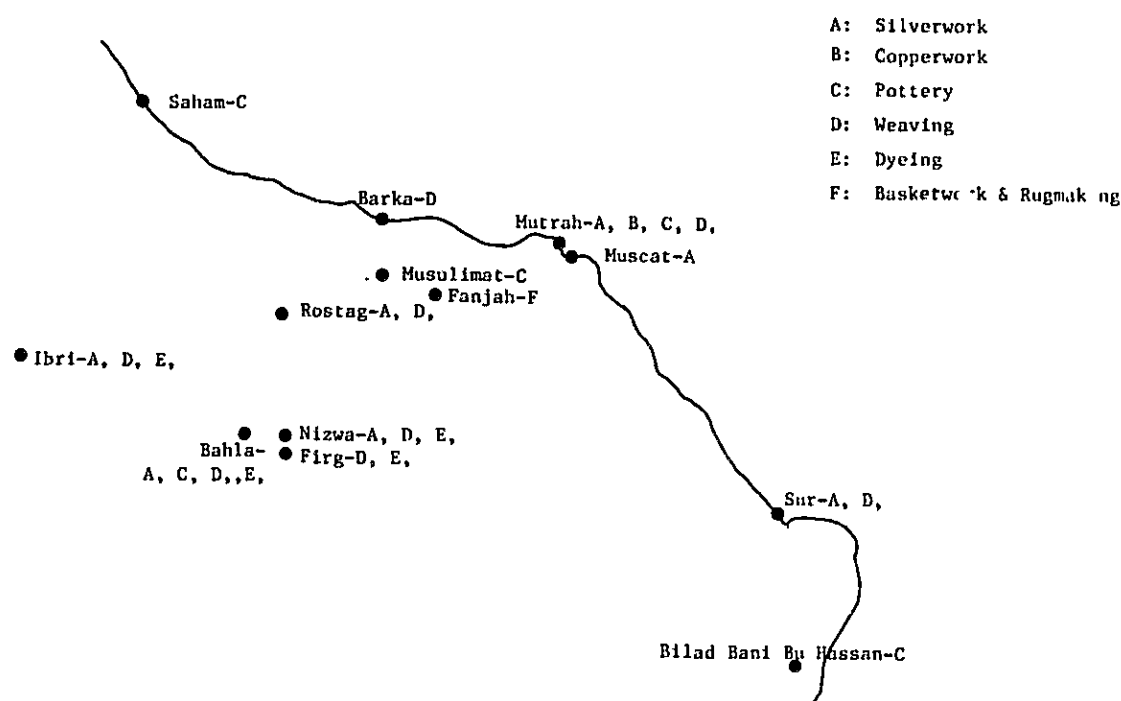


Figure II-9 Location of Traditional Handicraft Manufacture in Northern Oman

Since the 1970 revolution, national modernisation has been propelled. The manufacturing sector is now growing in Oman under technical and financial cooperation by foreign countries and with big modernisation projects being implemented under the government's leadership and small and medium scale industrialisation projects chiefly based on private capital funds.

At the present stage of development, contribution of the manufacturing sector to GDP is very small--only 0.2 million RO or 0.18% of the GDP of 106.8 million RO in 1970. While GDP increased by 6.9 times to 738.8 million RO by 1975, products of this sector (although grew by 12.5 times) remained at a low 0.33% of GDP. The indicated industrial growth is extremely slow compared to the growth of construction, transportation/communications, and commerce sectors (not to mention the petroleum sector). This is because the construction of domestic economic infrastructure has since 1970 been preferred to industrial development. But today, when the economic infrastructure development has been accomplished to a certain level, increased efforts should be directed to the fosteration of the manufacturing sector.

2) Features of the Existing Industry

The features of enterprises which are now engaged in manufacturing activities--apart from said traditional handicrafts--in Oman will be analysed here.

Currently there are a few large scale manufacturing industries. Those which were started with the initial investment of 100 thousand RO or more and are still in operation are: concrete blocks, asbestos-cement products, PVC pipes, aluminium products, furniture, soft drinks, processed date products, flour, dairy products, automobile repair, painting, and printing. These industries are being fostered as substitutes for imports in supplying domestic demands or to utilise the available resources of Oman. None is engaged in manufacture of capital goods.

The number of government-operated or government-related (joint-venture with private capital) enterprises is relatively large in agro-based industries such as the processing of dates, flour milling, and dairy products.

It is planned that in the future mineral resources exploiting industries such as cement plant and copper smelting will be added to the above industries. As for privately owned and operated enterprises, on the other hand, the number of relatively small scale industries is large, such as concrete blocks, aluminium processing, furniture, automobile repair, and soft drinks. The number of privately owned and operated manufacturing industries, including small scale enterprises, is roughly estimated at 550. While private manufacturing industries aim at domestic markets, government or government-related industries export any surplus over domestic demands as exemplified by date products and flour.

In terms of initial investment, the desalination plant at Al Ghubra is the largest at 18.7 million RO, followed by the flour mill at 4.8 million RO, the asbestos-cement products plant of Amiantit Co. at 4.2 million RO, and several other plants at just over one million RO each; the remainder being less than one million RO. The scale of private enterprises is generally small.

Each of these factories employs a small number of workers, and there are only four private plants which employ more than 50 workers each.

As for the raw materials used, the majority of government or government-related manufacturing industries utilise domestic resources except the wheat milled by the flour mill, while private industries mostly use imported materials.

A large number of manufacturing industries are market-oriented and, therefore, are concentrated in the Metropolitan area around Muscat. Outside the Metropolitan area where traditional selfsustaining economy seems deep-rooted, markets are small, and little attraction is offered for industries to locate, only certain number of resource-oriented industries such as petroleum and other mining and processing of agricultural products are found. When the government is trying to perform rural development and decentralization of population as its policy tasks, attention is being directed to how many factories will actually be established at rural locations.

The Central Bank has statistically analysed the size of some 5,500 business enterprises (not only manufacturing, but also commercial, construction, transportation, financial, hotel, and services; excluding 737 enterprises in Salalah) which were registered with a capital of 2,000 RO or more during the period of 1974 through October 1977. The finding of this analysis follows.

From 1974 through October 1977, a total of 5,646 companies were registered, and their capitals came to an aggregate amount of 212,190 thousand RO. Of this total, 466 companies with a total capital of 8,870 thousand RO were in manufacturing sector; the number being only 8.25% of the total, and capital only 4.39% of the total. Average capital per enterprise was 19,032 RO in the manufacturing sector, as compared with the overall average of 35,812 RO. In this regard, the greatest was the petroleum sector to which PDO belongs and whose average capital was over one million RO per enterprise, followed by the financial sector with 768,473 RO per enterprise, while the least was 8,893 RO of the

Table II-16 Manufacturing vs. All Industries: Business Size by Capital

Classification by Amount of Capital (Million R.O.)	Manufacturing Sector				All Industrial Sector			
	Enterprises		Capital		Enterprises		Capital	
	Number	Composition %	Amount (Mill RO)	Composition %	Number	Composition %	Amount (Mill R.O.)	Composition %
Less than 2	-	-	-	-	4	0.07	0.01	0.01
2 to 5	104	22.32	0.29	3.30	1,593	28.21	4.24	2.10
5 to 10	99	21.24	0.56	6.30	942	16.37	5.21	2.58
10 to 50	230	49.36	3.49	39.37	2,603	46.12	39.12	19.35
50 to 100	16	3.43	0.97	10.94	236	4.16	13.32	6.59
100 to 250	13	2.79	1.75	19.74	186	3.29	24.57	12.15
250 to 500	3	0.64	0.80	9.08	46	0.81	12.92	6.39
500 to 1,000	-	-	-	-	31	0.55	16.25	8.04
1,000 to 2,000	1	0.21	1.00	11.28	14	0.25	15.83	7.83
2,000 to 3,000	-	-	-	-	1	0.02	2.50	1.24
3,000 to 4,000	-	-	-	-	3	0.05	9.95	4.92
4,000 to 5,000	-	-	-	-	1	0.02	5.00	2.47
over 5,000	-	-	-	-	4	0.07	53.27	26.35
Total	466	100.00	8.87	100.00	5,646	100.00	202.19	100.00

(Source) Central Bank of Oman Annual Report 1977

services sector. Classification of manufacturing industries by the size of capital is presented on Table II-16, which shows that about half the total enterprises and 39% of total capitals are concentrated in the range of 10,000 - 50,000 RO.

3) Progress of Development Projects

The status of progress of the 54 industrialisation projects has been compiled by the Ministry of Commerce and Industry, as shown on Table II-17. Of the 54 total, 19 projects are in the "starting up" stage, while feasibility study is being done for 14 projects (such study has been discontinued for one project.) The total cost of these projects is estimated to be within five million RO. Of the start-up projects, private sectors are engaged in asbestos-cement products and PVC tile production, aluminium products, Epossilie Resin tiles, furniture, plastic containers, poultry raising, soft drink, land transportation, automatic cleaning, automatic baking, and industrial gases; while government or government-related sectors are engaged in agro-based or infrastructure-related industries such as flour milling, livestock feed, dairy plants, date processing, cold stores, desalination of sea water, power generation, and printing.

Table II-17 Progress of Industrialization Projects

No.	Project	Capacity	OR Million			No.	Project	Capacity	OR Million		
			Invest Cost	Stage					Invest Cost	Stage	
1	Cement	1,000,000 TPY	45	3		28	Livestock feed stuff	200,000 TPY	0.88	12	
2	Asbestos-Cement Pro.	31,000 TPY	4.2	12		29	Poultry Farms	50 mio eggs/yr + 380 TPY	8.5	12	
3	Lime Bricks	50,000 m ³ /yr	1.7	4		30	Salt refinery	-	-	1	
4	Earthenware Sanit. Pro.	1,400 TPY	0.6	2		31	Soft drinks (pepsi)	750,000	0.5	12	
5	Local Marble	1 mion/yr + 4,000 m ³ marble	9.1	2		32	Bottling mineral water	-	-	1	
6	Prefab concrete	-	-	1		33	2 dairy plants	-	0.4	12	
7	Glass Products	10,000 TPY	1.0	1		34	2 dates plants	10,000 TPY	1.1	12	
8	Nails + Screws	-	-	1		35	Cannings	-	-	1	
9	Dry Dock, Floating dock	-	(33)	drop		36	Cold storage	10,000 t	0.315	12	
10	Furniture	-	0.07	12		37	Fish process	10,000 t	-	1	
11	Alu Products	-	-	12		38	Mani lobster	-	-	1	
12	Manuf. local copper	3,000 TPD of ore	25	4		39	Seaweed utiliz.	-	-	1	
13	Sponge Iron	400,000 TPY	14.52	2		40	Refuse treatment	-	-	1	
14	Batteries Prod.	30,000/year	0.124	1		41	Steel re-rolling	100,000 TPY	11.9	3	
15	Matches Prod.	-	-	1		42	Road transport	-	-	12	
16	Footwear	350,000 pairs/yr	0.13	2		43	Water ways	time charter	1.5	1	
17	Plastic wares	2 TPY	1.2	12		44	Desalination + Power	6 mio gal. water 38 mw	18.7	12	
18	Fertilizer plant	600,000 TPY (Prod.)	1.395	1		45	Tiles (RESIN)	36,000 m ² p.a.	0.1	12	
19	LPG	4,320,000 bbl/yr	0.35	2		46	Asbestos fiber	6,000 TPY	3	2	
20	Oil refinery	35,000 BPD (full ref.)	US\$200MIL.	2		47	Confectionary	600 TPY	0.02	1	
21	Petrochemicals	-	-	3		48	Autom. Laundry	-	0.04	12	
22	Fiber Glass	-	-	1		49	Printing press	-	0.16	12	
23	Tobacco Prof.	600 mio cigarettes/yr	0.33	1		50	Autom. Bakeries	-	-	12	
24	Sugar refinery	30,000 TPY	6.6	2		51	Industrial gases	1,000 CF/H	0.25	12	
25	Flour Mill	45,000 TPY	4.8	12		52	Natural Gas Project	40 Mil CFT/yr	US\$94.1MIL.	1	
26	Vegetable oil	200 bbl/yr	0.054	1		53	Industrial Area	-	-	2	
27	Soap	-	-	1		54	Paint Manufacture	1 mil.	0.2	12	

Legend: Stage 1 Preliminary
Stage 2 Feasibility report available
Stage 3 Advanced detailed studies available
Stage 4-8 Implementation under way (up to tendering)
Stage 9-11 Under construction
Stage 12 In operation

☐ Private Project
☒ Private/Gov't Project
☒ Government Project

Those which went into operation after October 1976 were asbestos-cement products and PVC tiles, plastic containers, poultry raising, cold store, Epos-silie Resin tiles, and paint. Ten enterprises were in operation as of October 1976. Dry dock and floating dock projects were discontinued in the study stage.

Projects now under construction are cement plant, copper smelting, and gas pipeline. For the feasibility study of cement plant, a consultant was selected in June 1978 through the international bidding. The plant construction cost is estimated at 45 million RO, and production scale as planned will be one million tons per year; 60% for primarily domestic supply and the remainder for export, in the form of clinker, to Kuwait. For this reason, the Kuwaiti Government has participated in 40% of the capital.

A feasibility study has been completed for the copper smelting plant planned at a location in the vicinity of Sohar where a 12 million-ton reserve of copper ore (copper content, 2.1%) has been discovered, and the total cost of the project is estimated at 47 million RO. A grant of 100 million dollars from Saudi Arabia has been decided on in order to finance this project.

In 1977, the Government made a decision for the construction of a 330-kilometre pipeline to transport the unutilised natural gas from Yibal to Al-Ghubra on the Metropolitan coast for use as fuel at the desalination and power generation plants in Al-Ghubra, which would facilitate water and power supply at lower costs as well as accelerate the industrialisation.

In addition to the above projects, re-rolling of steel billets, lime bricks, and liquefied petroleum gas are being studied for implementation. At present, evaluation of the results of these feasibility studies and process of financing these projects tend to be delayed, and this will inevitably affect realisation of these industrial projects.

Analysis Data

Microscopic Photographs of copper ore (core), Oman

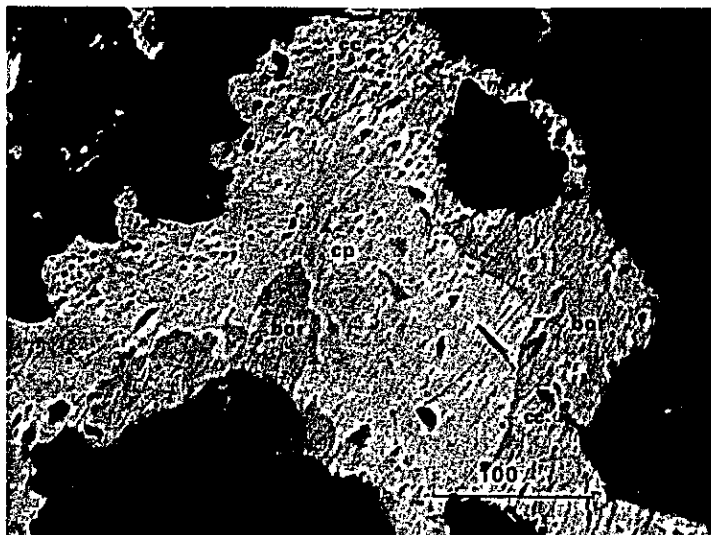


Photo. 1 x 250

Chalcopyrite (Cp) occurred only in a part of abundant gangue minerals.

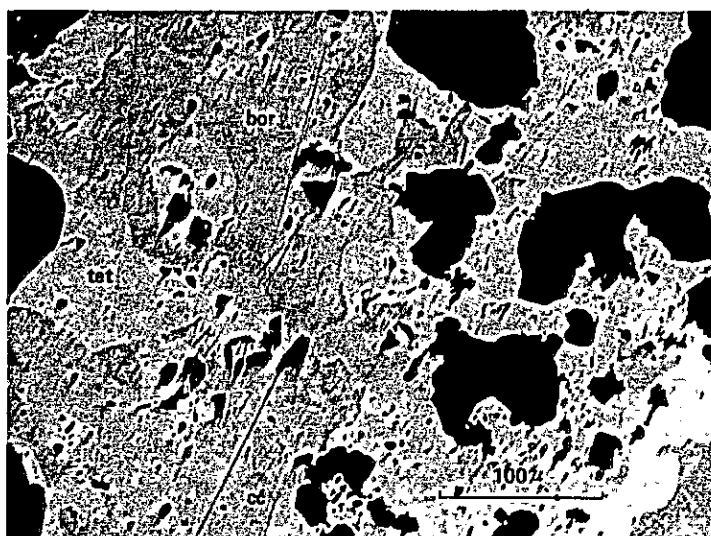


Photo. 2 x 250

Occurrence of copper minerals in much tetrahedrite. Some fine bornite grains in chalcocite grains are sometimes observed.



Photo. 3 x 250

A little abundant Chalcocite in a bornite-rich part. A color tone of chalcocite varies from gray to blue.

A purplish part may include ultramicroscopic grains of bornite.

Fine tetrahedrite grains are scattered.

Yellowish white parts are pyrite — with a fibroidal texture above right— and marcasite.

