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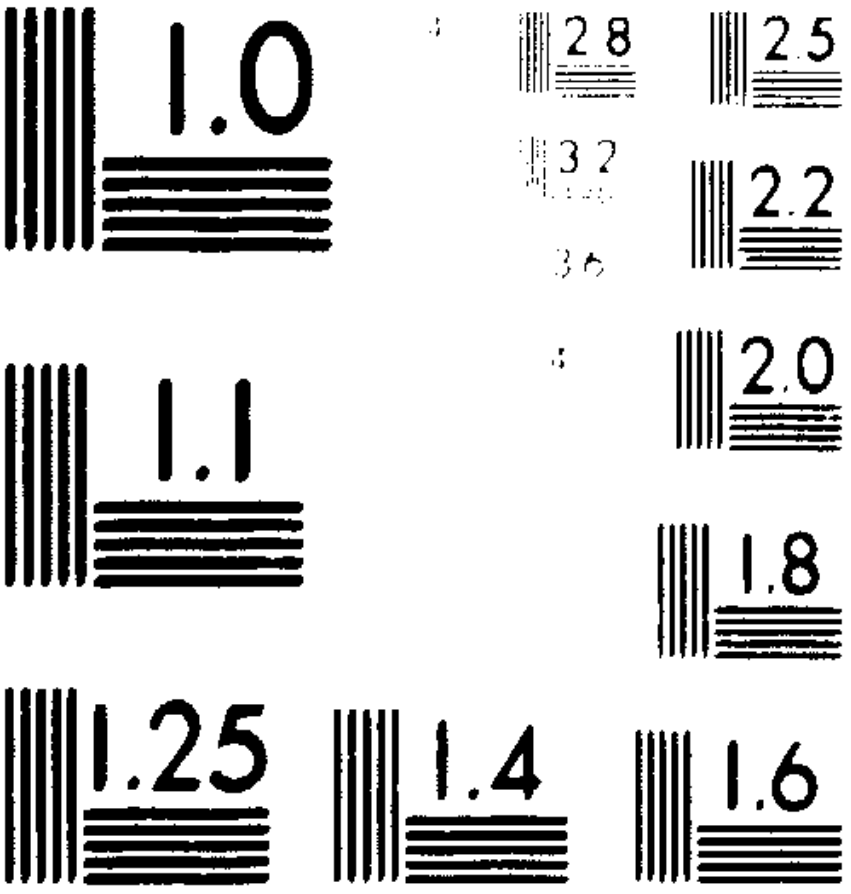

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Industrial Development and Prospects of Oman

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CHAPTER I

OUTLINE AND SUMMARY

(I.1) Introduction

In 1970 Oman started to use its revenue from oil exports to develop its economy. In this, the government was faced with the difficult decision on how to allocate the resources of the newly acquired wealth among three pressing economic needs:

i) The need to build the necessary, basic social and economic infrastructure for the country. The base from which development began was very small. The educational and health systems were backward and limited. At the same time, no economic growth could possible be envisaged within the existing transportation, communications, and energy systems. Building roads, ports, telephones, and electricity stations were tasks with a high priority.

ii) The need to embark on some welfare network to alleviate the low standards of living of the majority of the population. While it is true that the expectations of a traditional society, living mainly on agriculture and at subsistance level, is not very high, it is important to bear in mind that Omanis were living, during the fifties and sixties, surrounded by the oil bonanza of the neighboring Gulf states, which raised their economic aspirations and expectations as regards to what life with 'oil' entitles them to.

iii) The need to divert resources from present consumption to long range investment to create income-generating projects which would help lessen the country's dependence on oil in the future. It is an understatement to say that oil is a depletable, natural resource, and that the contry will have to live without it eventually.

These problems are not peculiar to Oman. They are the classical problems facing any poor country which uses one non-renewable natural resource to develop. Nevertheless, each country's trade-off among these three economic needs must depend ultimately on the size of its existing and forecasted reserves. Some countries with huge reserves can afford to put long-run investment on a back burner and allocate much of their current expenditures on welfare services and laying the foundations of a social infrastructure. Unfortunately Oman is not one of those countries. Unlike other Gulf states, Oman's oil reserves are small and the rate of extraction is already falling. The limited time horizon of "oil" is compounded by the fact that Oman has a relatively large population.[1]

Another important characteristic of the Omani economy which deepens its difference from other states in the Gulf is its area. It has an area bigger than any of the Gulf countries[2] and is endowed with sizable farm land and irrigation water supplies. In the future Oman's agriculture potential may be more important than oil.

As a consequence of these objective circumstances Oman could not and should not follow the pattern of development practiced by oil-rich countries.

The purpose of this study is to survey the economic development in Oman over the last decade, and analyze some prospects for the future.

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[1]Even though there is no reliable figure for Oman's population, it is recognized that it is more than the average population of the Gulf states (see Chapter II).

[2]The area of Oman is 260,000 square kilometers in contrast to an average of about 9,290 for Kuwait, Baharain and Qatar.

The emphasis is on the manufacturing sector, specially industries based on the agriculture potential of the country.

The purpose of this study is to survey the economic development in Oman over the last decade in view of the above mentioned three problems, and analyse some prospects for the future. The emphasis is on the manufacturing sector, specially industries based on the agriculture potential of the country.

A survey of Oman's economic performance in the 1970's clearly shows that the country has embarked on a rapid economic development which has gone a long way to change the traditional characteristic of Omani society. Gross Domestic Product (GDP) has sustained an annual real rate of growth of 5 percent over the decade. The transformation of the educational facilities from a primitive and limited number of schools to modern and growing systems of education is impressive. In addition the building of ports, roads, electricity stations, and oil refinary capability all testify to this rapid development.

This development, however, was carried on the basis of the deliberate decision of the government to take on first the task of building the social and economic infrastructure of the country and postponing the task of investment in industrialization and modernizing agriculture to the future. The rationale of this policy was that the two tasks are not really alternatives. Rather, they are complementary, one follows the other by objective necessity.

No doubt this policy is perceived as common sense by the government and enjoys widespread support. Nevertheless it engender some results which may prove troublesome in the future. The most important of these are:

i) The policy results in an extremely skewed distribution of income. As will be shown in Chapter II, the acceleration in the rate of growth of GDP can be accounted for by the growth in tertiary industries, at the expense of the primary and secondary industries. Since the former include construction and service industries, it follows that the acceleration growth was urban-biased. This bias is unmistakingly manifested by the fact that while the majority of the population live in rural areas, the agricultural sector's share of GDP declined from over 15 percent in 1970 to less than 2 percent in 1981. Naturaly, this has generated a large emmigration from the rural areas to the cities and the neighboring oil-rich states.[1]

ii) In spite of faster growth the manufacturing sector still accounts for only slightly more than 1 percent of GDP. While it is hoped that the government will allocate more resources to this sector after completing the construction of the infrastructure projects, the dynamic of development, as was observed in many neighboring countries whose industrialization is left to private capital, makes this hope tenuos. The policy has concentrated control over investable resources in the hands of a certain urban groups whose propensities do not favour domestic industrial investment. Rather, they favour short run trading and speculative profit activities. Consequently, the provision of an infrastructure will not automatically lead to industrialization. If this was to occur, it must come from a conscientious governmental decision. This would, of course, mean a revision of the tax structure so as to reallocate resources appropriately.

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[1] Omanis have been moving to the neighboring Gulf States before the new rapid development. Recently, however, the rapid growth brought with it many skilled foreign labor making the country an exporter and an importer of labor at the same time.

(I.2) Methodological Problems

Obviously, in a country whose experience with development is so recent one expects a number of problems concerning the availability, reliability, and consistency of its economic data.[1] In particular, the absence of information concerning the distribution of income prevents a full understanding of the process of development. We have, therefore, had to infer this from sectoral growth rates.

Another important deficiency of the data is the lack of reliable price indices. Almost all of the time series data supplied by government agencies are at market prices. While we can use these figures where the concern is with nominal magnitudes we are forced to deflate them when real magnitudes are required. The indices used for this purpose are those calculated by ECWA for the whole Gulf region.

Finally, even though our main interest in this study is the manufacturing sector, its data proved to be the hardest to acquire. We have no disaggregated data concerning input-output relations, capital intensity, and productivity growth of industrial establishments.

(I.3) Summary

The following section (I.4) gives some basic facts regarding the land, the population, and the government of Oman.

The following is a summary of the subsequent chapters.

CHAPTER II

MACROECONOMIC INDICATORS: AN OVERVIEW OF THE ECONOMY

The chapter surveys the economic performance of Oman in the 1970's. In part (II.1) we consider the performance of GDP and its three industrial

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[1] The lack of a definite figure for the population of Oman exeimplifies this concern.

components: Primary Industries, which include agriculture and oil and minerals. Secondary Industries denoting manufacturing. Tertiary Industries which include construction, electricity and water and services.

In the second part (II.2) we consider GDP and its expenditure components, consumption (public + private), investment (public + private), and the foreign sector including the balance of payments, exports and imports. The final part of the chapter (II.3) is devoted to analysis of the labor force (domestic and foreign) and the consumption of energy.

CHAPTER III

THE MANUFACTURING SECTOR

The first part of this chapter (III.1) present some general indications of the sector. The second part (III.2) is intended to present analysis of the economic situation within which the manufacturing sector operates. This economic situation is presented by considering the following factors:

i) The availability of raw materials.

ii) The market.

iii) The infrastructure facilities.

iv) The labor force.

v) The industrial policies of the government.

The final part (III.3) presents a disaggregated picture of the industrial structure.

CHAPTER IV

PROSPECTS FOR THE FUTURE

The last chapter is devoted to some forecasts concerning the sectoral behavior in the future.

(I.4) Basic Facts

The Sultanate of Oman occupies the South Eastern tip of the Arabian Peninsula. Its area is estimated at 260,000 square kilometers making it the largest country on the Arabian gulf, with the exception of Saudi Arabia and Iraq. There is a small part of the country at the tip of the Musandam Peninsula, separated from the main body of the Sultanate by some area of the United Arab Emirates. The country is engulfed from the South East and North East by the Arabia Sea, with a coastal line of total length of 160 km. It is bordered by the People's Democratic Republic of Yemen from the South and South West, Saudi Arabia and the United Arab Emirates from the West and North West.

The main topographical feature is the Hajar mountain range, which runs from the North to the Eastern-most part of the Arabian peninsula. Between the sea and its North western sector, the Western Hajar, lies the narrow but reasonably well-watered and fertile coastal plain of the Batina. Behind Muscat, the capital, lies the formidable Jabal Akhaar with plenty of rainfall of which very little reaches Muscat itself. On the slopes and foothills of the Hajar fruits and crops are grown by irrigation using the Jalaj system.[1] The other part of the country with plentiful of rainfall is the Dhofar region in the extreme South west. The rest of the country is predominantly desert land with rare vegetation.

No population census has been carried out in the country, and estimates invariably differ from 350,000 to 1,500,000; the last figure is adopted by the government of Oman for planning purposes. The capital area Muscat-Matrah-Sib is the most populeous with an estimated 80,000 people. Other important rural conglomeration are in Salalah, Suc, Sohac and Nazwah.

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[1]The Economist Intelligence Units, Annual Supplement, 1978, p. 26.

The population is ethnic Arab particularly in the hinterland but there are considerable numbers of Indians, Pakistanis and Baluchis in the capital area. Nearly 80 percent of the population makes their living on agriculture and fisheries. The work force in the modern sectors was estimated in 1975/1976 at nearly 115,000, the majority of whom are expatriates.

The Sultanate of Oman is a full independent state, member of the US since 1971 and is ruled by Sultan Qabus who took over power from his father Sultan Said bin Taimur in a palace coup in 1970 and where has followed an open policy of modernization thus ending the long isolationist policy of the old Sultan.

Sultan Qabous follows a policy of close collaborations with UK and USA. In 1980 he granted re-fuelling facilities for the British in the port of Muscat. In July of the same year he signed a millitary agreement with USA under which US troups were to be allowed access to bases in Oman in case of an emergency.

The country follows a policy of laissez faire with special encouragement for the development of the private sector and with minimal import duties and income taxation.

CHAPTER TWO

MACROECONOMIC INDICATORS: AN OVERVIEW OF THE ECONOMY

(II.1) The General Characteristic of the Domestic Economy

Even though Oman is not a major oil-exporting country, its economy nevertheless is dominated by the oil sector. In fact this dominance is stronger in Oman than in other oil producing Gulf countries. This is due to the fact the country is poor and oil exportation is relatively a new activity in Oman.

The share of the oil sector in GDP varies in the seventies on account of fluctuations in both its production and its price. On average, however, it amounted to 62 percent in the period 1971-1981. It reached its peak in 1974 (68.4%) following the significant increase in the price of oil, then it declined as a result of the decline in production reflecting pressure fall in the wells. Oil production has been declining at an annual average rate of 7.4 percent since 1976. The share of oil started to rise again in 1980, because of an increase in both its price and quantity. The former following the second increase in 1979; the latter due to better reservoir performance in the northern fields.

This fluctuation in oil revenue explains to a great extent the variation of the rate of growth in GDP. While this rate in real terms was a little more than 9 percent in the period 1970-1975, it declined to less than 1 percent in the period 1976-1979.

The performance of other sectors of the economy is explained also by the variation in oil revenue. Construction and services, grew at 13.9 and 53.1 percent respectively in the first period, and declined to -4.8 and 2.3 percent in the second period.

The most striking feature of this dependence on oil is that neither agriculture nor manufacturing have benefited greatly. While agriculture is the major source of income for the majority of the population, its value added accounts for a very small part of GDP. It is important to note that its share was 13.4 percent in 1971 and continued to decline during the seventies to reach 1.7 percent in 1981 (Table II.2).

On the other hand, the share of the manufacturing sector witnessed a great increase, but its share in GDP amounts to less than 2 percent.

Looking back over the seventies, while GDP sustained an impressive 5 percent annual rate of growth in real terms, the share of agriculture and manufacturing was 13.5 percent in 1971 declining to 2.8 percent in 1981.

The decline in agriculture compounded with the rapid growth in construction and services, which are urban developments, point out the danger of having the Omani economy developing along the path of "dual economy", a flourishing urban centers, and a stagnant rural areas.

(II.2) GNP and the Final Demand Structure

(i) Consumption and CFCF

During the seventies the rate of growth in both consumption and investment was greater than that of GNP (or GDP). Whereas the annual rate of growth at real terms in GNP was 6 percent (5 percent for GDP), investment (public + private) grew at 12 percent and consumption at 10 percent.

This difference is due to two factors: first, the decline in net exports. Table (II.5) shows that net export, in real terms, declined over the period from 57.7 million O.R to 36 million O.R in 1979, at an annual decline rate of 4 percent. As a consequence of this foreign trade has reduced the

rate of growth of GNP by 2 percent.[1] Second, the failure of the economy to channel national saving into investment. As is shown in Table (II.5) gross domestic saving exceeds investment in every year over the period 1970-1981.[2]

An important feature of the economy concerns the trend towards a decline in the share of the public sector in economic activities--a fact reflected in the distribution of both investment and consumption between the private and public sectors.

Public investment increased from 3.3 million O.R in 1970 to 50 million O.R in 1975 reflecting an annual rate of increase of 83 percent at current prices, and 52 percent in real terms. This trend was sharply reversed between 1975 and 1979, when the rate of increase was merely 1 percent at current prices implying a decline rate of 13 percent in real terms.

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[1]The relationship between the rate of growth of GNP and the growth rates of its components is given by the identity:

$$R_Y = \frac{C}{Y} R_C + \frac{I}{Y} R_I + \frac{X}{Y} R_X - \frac{F}{Y} R_F$$

where: R - rate of growth
Y - GNP
C - consumption (private + public)
I - investment (private + public)
X - net exports, i.e., exports - imports
F - net factor payments.

Over the period 1970-1979, we have

$$R_Y = .06, \quad R_C = .10, \quad R_I = .12, \quad R_X = -.04, \quad R_F = -.01.$$

$$\frac{C}{Y} = .52, \quad \frac{I}{Y} = .26, \quad \frac{X}{Y} = .41, \quad \frac{F}{Y} = .2.$$

[2]While there is a trend toward an increase in consumption in the early eighties, consumption over the seventies was not very high. The following regression equation gives an estimate of the consumption function over the period 1970-1979.

$$\hat{C} = 8.08529 + 0.57065 \text{ GNP}$$

t: (0.779) (5.275)

$$R^2 = 0.7767 \qquad \bar{R}^2 = 0.7488 \qquad F(1/8) = 27.828.$$

In fact public investment has been declining at an annual rate of almost 20 percent since 1976. This dramatic reversal is explained partly by the completion of the large infrastructure projects, and the difficulties faced by the small scale projects. The design and implementation of small projects have encountered some real constraints related to the lack of skill of both management and the labor force. More important, however, is the fact that capital formation to create income-gathering projects does not occupy a high priority in Omani economic policy.

Private investment showed an opposite trend over the period. Whereas it grew at a modest annual rate of 1 percent in the period 1970-1975, it reached a rate of 5 percent in the period 1975-1979. It should be noted, however, that the bulk of this investment is done by oil companies and residential construction.

A similar dichotomy exists between public and private consumption. In the first period (1970-1975) public consumption grew at an annual rate of 56 percent at market prices (26 percent in real terms), while in the second period (1975-1979) the rate was 5 percent at market prices implying a decline rate of 4 percent in real terms. On the other hand, private consumption rate of growth was 4 percent in real terms in the first period and reached 12 percent in the second.

(ii) Foreign Trade

(a) Balance of Payments

The magnitude and balance of the foreign sector in Oman reflect the stage of the country's development, the performance of the oil sector, and the government's expenditure policy.

In the late sixties the overall balance of trade was favourable

Table (II.1)

GDP and Its Industrial Origin at Market Prices 1970-1981

(Million O.R)

Industry / Year	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Primary Industries												
Agriculture & Fishery	16.6	16.8	17.0	16.7	17.4	20.2	21.4	24.0	27.1	32.0	36.5	40.0
Oil & Minerals	71.6	73.9	76.4	94.5	389.0	486.8	530.4	534.8	498.4	721.0	1241.0	1489.6
Total	88.2	90.7	93.4	111.2	406.4	507.0	551.8	558.8	525.5	753.0	1277.5	1529.0
Secondary Industries												
Manufacturing	.2	.2	.3	.6	2.0	2.1	4.0	8.3	11.2	14.2	22.3	26.3
Tertiary Industries												
Construction	10.6	20.4	22.6	24.0	58.0	70.8	83.0	84.2	85.3	90.7	111.3	129.3
Electricity & Water	.1	.2	.5	.5	.2	.2	.6	.7	.9	.8	14.0	16.7
Services	7.7	13.5	23.8	32.7	100.9	142.5	183.2	222.5	262.8	305.3	501.0	636.3
Total	28.4	34.1	46.9	57.2	159.1	213.5	266.8	307.4	349.0	396.8	526.3	782.3
GDP	106.8	125.1	140.8	169.4	568.5	724.2	827.0	880.1	829.8	1172.5	1921.2	2338.2

Source: Central Bank of Oman, Annual Reports.

Table (II.2)

Industry-wise Contribution to GDP at Market Prices (1970-1981)

(Percent)

Industry / Year	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Primary Industries												
Agriculture & Fishery	15.5	13.4	12.1	9.9	3.1	2.8	2.6	2.7	3.3	2.7	1.9	1.7
Oil & Minerals	67.0	59.1	54.3	55.8	68.4	67.2	64.1	60.8	60.1	61.5	64.6	63.7
Total	82.5	72.5	66.4	65.7	71.5	70.0	66.7	63.5	63.4	64.2	66.5	65.4
Secondary Industries												
Manufacturing	.19	.16	.21	.35	.35	.29	.48	.94	1.40	1.20	1.20	1.10
Tertiary Industries												
Construction	9.90	16.30	16.10	14.20	10.20	9.80	10.00	9.60	10.30	7.70	5.80	5.50
Electricity & Water	.10	.16	.36	.30	.04	.03	.07	.08	.11	.07	.73	.71
Services	7.20	10.80	16.90	19.30	17.70	19.70	22.20	22.03	31.70	26.00	26.10	27.20
Total	17.2	27.26	33.36	33.80	27.94	29.53	32.27	29.71	42.11	33.77	32.63	33.41
GDP	100	100	100	100	100	100	100	100	100	100	100	100

Table (II.3)

GDP and Its Industrial Origin at Constant Prices (1970-1979)

(Million O.R)

(1970 = 100)

Industry / Year	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Primary Industries										
Agriculture & Fishery	16.60	15.84	15.45	12.55	12.42	13.11	12.66	12.43	12.54	14.22
Oil & Minerals	71.60	55.56	51.97	32.03	64.51	69.14	71.00	69.00	62.37	69.32
Total	88.20	71.40	67.42	44.58	76.93	82.25	83.66	81.43	74.91	83.54
Secondary Industries										
Manufacturing	.20	.19	.25	.32	.68	.64	1.16	2.16	2.94	3.17
Tertiary Industries										
Construction	10.60	18.88	19.65	13.95	26.60	20.34	16.97	15.97	15.50	13.70
Electricity & Water	.10	.18	.55	.48	.18	.18	.64	.72	.93	.72
Services	7.70	12.61	19.34	21.09	54.83	64.77	71.0	63.21	77.52	77.48
Total	18.40	31.67	39.44	36.52	81.61	85.29	88.61	79.90	93.95	91.90
GDP	106.8	103.38	102.02	71.77	139.68	157.09	168.08	170.89	164.11	173.19

Table (II.4)

Rates of Growth of Different Sectors

(Constant Prices)

Industry / Period	1970-1975	1976-1979
Primary Industries	%	%
Agriculture & Fisher	-4.4	2.8
Oil & Minerals	-.5	0.5
Total	-1.1	0
Secondary Industries		
Manufacturing	25.8	28.7
Tertiary Industries		
Construction	13.9	-4.8
Electricity & Water	12.5	3.1
Services	53.1	2.3
Total	38.33	1.06
GDP	9.4	.8

Table (II.5)

Disposition of GNP at Market Prices (1970-1981)

(Million O.R)

Expenditure / Year	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Consumption	34.4	47.4	76.8	103.6	246.8	344.1	361.1	426.9	521.0	592.1	922.1	1188.9
Investment	14.7	35.6	42.0	44.4	174.1	258.0	321.2	310.8	281.0	318.0	464.3	562.6
Net Exports and non factor services	57.7	42.1	22.0	21.4	147.6	122.1	144.7	142.4	90.8	262.4	534.8	586.7
GDP	106.8	125.1	140.8	169.4	568.5	724.3	827.0	880.1	892.8	1172.5	1921.2	2338.2
Net Factor Income Payments	-25.0	-24.0	-35.1	-40.2	-122.8	-131.6	-146.0	-130.2	-119.8	-148.6	-171.3	-189.6
GNP	81.8	101.1	105.7	129.2	445.7	592.6	681.0	749.9	773.0	1023.9	1749.9	2148.6
Gross Domestic Savings	72.4		64.0	65.8	321.7	380.2	465.9	453.2	371.7	580.4	999.1	1149.3
Gross National Savings	47.4		28.9		198.9	248.6	319.9	323.0	251.9	431.8	827.8	959.7

Source: Statistical Year Book
Annual Report, Central Bank of Oman.

Table (II.6)

Composition of Investment*

(Million O.R)

Year	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Public	3.3 (3.3)	20.0 (16.53)	29.9 (21.67)	29.9 (12.67)	143.8 (35.33)	208.0 (45.33)	260.8 (54.63)	229.9 (44.64)	190.1 (34.94)	217.0 (32.05)
Private	11.4 (11.4)	15.6 (12.89)	12.1 (8.77)	14.5 (6.14)	31.3 (7.64)	50.0 (10.85)	60.4 (12.28)	80.9 (15.71)	90.9 (16.71)	101.1 (14.93)

Table (II.7)

Composition of Consumption*

(Million O.R)

Year	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Public	13.7 (13.7)	26.0 (21.49)	41.7 (30.22)	63.0 (25.69)	197.2 (48.45)	229.0 (49.67)	243.5 (59.65)	223.0 (43.3)	250.0 (45.96)	283.5 (41.5)
Private	20.7 (20.7)	21.4 (17.69)	35.1 (25.43)	40.6 (17.20)	49.6 (12.19)	115.1 (24.97)	117.6 (23.90)	203.9 (39.59)	271.0 (39.89)	308.6 (45.58)

*Those numbers at market prices, whereas numbers between parentheses are at constant prices (1970 = 100).

Table (II.8)

Price Indices for Different Sectors

Year / Sector	Agriculture	Oil	Manufacturing	Electricity	Construction	Commerce	Transport	Other
1970	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1971	1.06	1.33	1.08	1.06	1.08	1.08	1.08	1.06
1972	1.10	1.47	1.19	.90	1.27	1.15	1.17	1.39
1973	1.33	2.95	1.86	1.03	1.72	1.47	1.46	1.78
1974	1.40	6.03	2.94	1.06	2.18	1.76	1.70	2.07
1975	1.54	7.04	3.29	1.06	3.48	1.98	1.95	2.69
1976	1.69	7.47	3.45	.93	4.89	2.16	2.44	3.16
1977	1.93	7.75	3.58	.96	5.27	2.37	2.93	3.84
1978	2.16	7.99	3.81	.96	5.50	2.77	3.57	4.35
1979	2.24	10.40	4.48	1.10	6.62	3.19	4.01	4.63

Source: This is the price index used by EQUA for the Gulf Region.

Table (II.9)

GDP Price Index

1970	100
1971	121
1972	138
1973	236
1974	407
1975	461
1976	492
1977	515
1978	544
1979	677

Source: EQUA.

due to the rising oil revenue and the limited amount of government expenditure on imported goods.

The situation changed dramatically in the early seventies as a result of the government push to invest in large scale projects which laid the foundation for the basic infrastructure of the economy. Two-thirds of the imported goods in the early years of the decade were either capital or intermediate goods (Table II.10). As a consequence of this balance of trade showed a deficit in the period 1972-1974 (Table II.9).

Beginning in 1975 a surplus started to appear again. The surplus is a result of the decline of the government expenditure on investment, a fact which is reflected in the shift of the composition of imported goods towards consumption goods.

One important factor regarding the balance of trade should be pointed out. The balance of payments as recorded in Table (II.9) excludes the government's military expenditure. This item according to the Central Bank's estimates reached 30 percent of the total of recorded imports in 1976, declined to 20 percent of these in 1977, and rose again in the last two years. Including this item will change drastically the balance of trade as shown in Table (II.9). For instance, the surplus of O.R 108 millions recorded in 1978 will disappear completely when that year's military expenditure on hardware and other imported goods and services are recorded.

(b) Imports

The magnitude of imported goods for private consumption relative to GNP is very high and is similar to that of other oil-rich Gulf states.[1]

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[1] An import function was estimated for the period 1970-1979, at constant prices, gives the regression equation

$$\hat{M} = -11.0276 + 0.61469\ GNP$$

$$t = (-0.806) \quad (5.227)$$

$$R^2 = .77 \qquad \bar{R}^2 = .74 \qquad F(1/8) = 27.32$$

This trend is encouraged by the fact that there is no quantitative restriction on imports, and the duty on imports is only marginal at merely 2 percent, except for the imports of liquor with duty of 75 percent. This high marginal propensity to consume is responsible for reducing the growth rate in national income as was explained in the last section.

(c) Exports

Although Oman's exports are classified into three categories, oil exports, re-exports, and non-oil exports, the first constitutes the bulk of the total. The declining share of oil exports is caused by the increasing importance of re-exports, a development which started in 1976. At the same time, non-oil exports are very small, and as is shown in Table (II.11) are mainly foodstuffs which are exported to the UAE. Non-oil exports share of total exports is still less than one percent.

(II.3) Population, Labor Force and Energy

(i) Estimates of the Total Population

The population of the Sultanate of Oman is much larger than those of most other nearby Gulf states. However, there is no census figure for the size of the population. Estimates range from 350,000-1,500,000. The lowest estimate of total population which is quite often quoted is 330,000. This figure was arrived at in 1971 during a cholera inoculation programme conducted by the Omani Ministry of Health. It is believed that this figure is not quite accurate since a number of villages avoided inoculation and some villages in the Batina coast and in the Dhahira which is part of Northern interior Oman were never reached by the medical team at the time of inoculation. In addition to this, not all the widely scattered mobile population

Table (II.10)

Trade Balance (1970-1981)

(Market Prices)

Year	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Exports												
Oil	44.4	47.9	49.6	61.3	291.5	488.1	543.8	545.9	521.8	745.7	1244.6	1526.4
Non-oil	.4	.4	.4	.6	.4	1.1	7.4	13.5	30.2	41.7	50.0	95.5
Total of Exports	44.8	48.3	50.0	61.9	291.9	489.2	551.2	559.4	552.0	787.4	1294.6	1621.9
Imports	12.0	40.2	61.6	85.8	241.1	348.4	383.8	400.7	444.0	516.7	713.3	940.3
Balance of Trade	+32.8	+8.3	-11.6	-23.9	-50.8	+140.8	+167.4	+158.7	+108.0	+270.7	+581.3	+681.6

Source: Central Bank of Oman, Annual Reports.

Table (II.11)

Classification of Recorded Imports by Economic Use (1970-1981)

(%)

Class of Goods / Year	1973	1974	1975	1976	1977	1978	1979	1980	1981
Consumer Goods	31.5	32.4	33.4	42.1	44.3	48.0	43.9	44.8	45.9
Intermediate Goods	25	16.3	16.8	13.5	27.0	28.2	26.8	24.2	29.5
Capital Goods	43.5	43.1	44.4	40.7	25.6	21.5	21.9	25.3	21.8
Unclassified	--	8.2	5.4	3.7	3.1	2.3	7.4	5.7	2.8
Total	100	100	100	100	100	100	100	100	100

Source: Central Bank of Oman, Annual Reports.

Table (II.12)

Value of Recorded Private Imports by Major Groups (1975-1981)

(%)

Classification / Year	1975	1976	1977	1978	1979	1980	1981
Food & Live Animals	11.58	12.14	12.61	12.96	12.68	5.2	2.60
Beverage & Tobacco	1.34	1.92	2.09	3.52	5.00	7.82	7.54
Crude Materials	2.42	2.35	2.12	1.48	1.25	.82	.81
Mineral Fuels	4.67	6.87	7.12	8.41	6.86	.39	.30
Animal & Vegetable Oil Fat	0.38	0.48	0.66	0.95	0.69	.48	.06
Chemicals	3.89	3.75	3.67	4.17	3.60	.36	.55
Manufactured Goods	20.96	19.04	17.81	17.92	15.03	6.47	9.28
Machinery & Transport Equipment	41.40	40.76	40.91	38.48	40.92	72.28	70.35
Miscellaneous	7.91	8.98	9.73	9.79	7.39	3.50	3.37
Articles Not Classified	5.45	3.71	3.28	2.32	6.58	.03	5.11
Total	100	100	100	100	100	100	100

Source: Central Bank of Oman, Annual Reports.

Table (II.13)

Classification of Exports

(%)

Category / Year	1980	1981
Oil Exports	96.1	94.1
Re-exports	3.5	5.5
Non-oil Exports	.4	.4
Total	100	100

Source: Central Bank of Oman Annual Reports.

Table (II.14)

Value of Recorded Re-exports by SITC Sections

(in 000, R.O)

Classification / Year	1978	1979	1980	1981
Food & Live Animals	979	1,875	2,356	2,313
Beverages & Tobacco	4,949	7,989	3,544	6,748
Crude Materials Inedible except Fuels	73	441	371	723
Minerals, Fuels, Lubricants and Related Materials	64	130	176	263
Animal & Vegetable Oil	250	231	216	54
Chemicals	249	323	165	487
Manufactured Goods	3,633	4,247	2,929	8,274
Machinery	14,681	19,840	32,737	62,688
Miscellaneous	807	1,000	1,584	3,006
Articles Not Specified	1,223	962	1,215	4,556
Total	26,908	37,038	45,293	89,112

Source: Central Bank of Oman, Annual Report 1981.

Table (II.15)

Non-oil Exports (1976-1981)

Year	1976	1977	1978	1979	1980
Dry Limas	1,272	1,053.9	1,468.9	646.5	786.8
Dry Dates	110	65.1	317.6	635.2	199.3
Fresh Fruit, Vegetables including Wet Dates	--	16.1	154.0	244.0	525.8
Tobacco	9	4.9	28.1	16.1	18.2
Flour	--	320.8	873.1	636.6	999.6
Fish	1	63.7	571.7	845.1	200.5
Total	1,272	1,527.3	3,416.0	3,030.0	4,563.5

Source: Sultanate of Oman Directorate of General National Statistics.

was contacted.[1]

Another figure of the total population which is widely quoted is that given by the International Bank for Reconstruction and Development (IBRD) in 1972 which is 450,000. The basis of this figure is not clear but it is assumed that the Bank had access to confidential military estimates. In any case, this figure too is of no more accuracy than any other arrived at on the same non-comprehensive census basis.

The first modern inquiry based on lengthy field investigation by house counting on the ground and aerial photography and the application of a multiplier was that conducted by the Whitehead Consulting Group in 1972.[2] The subsequent figure of total population arrived at by the Whitehead was 435,000.

Another serious effort for estimating the total population of the Sultanate was that carried out by the Italian consulting firm Ital-Consult in 1974. Their estimate was based on the analysis of aerial photographs of the cultivated area and the ratio of inhabitants per hectar of these areas derived from comparison with similar oasis type economies in other countries. This has yielded a figure of 480,000.[3]

Using a method similar to that of Ital-Consult, in 1977 a Durham University team obtained a population estimate of 510,000.

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[1]The Sultanate of Oman, International Migration Project - Country Study, Department of Economics, University of Durham, England, July 1977.

[2]Whitehead Consulting Group, Sultanate of Oman: Economic Survey, 1972, London.

[3]Ministry of Communication and Public Services, Sultanate of Oman, Ital-Consult, Oman Transport Survey, Interim Report, 1974 Feb., Rome-Muscat, Oman.

The official figure of the total population quoted by the government of the Sultanate of Oman in 1973 for "planning purposes" is 1,500,000. The figure was again confirmed in the "National Plan 1976-1980". However, it is believed that this figure is unrealistically high in spite of the partial inflow of emigrant Omanis after the recent boom in economic development and the change of power from the former sultan Said bin Taimur to sultan Qabus.

Two other exercises aimed at estimating the total population of the Sultanate of Oman are worthy of mentioning here: one conducted by the United Nations in 1974 giving a figure of 750,000 raising the old IBRD figure to take into account the return of former Omani exiles; the second is that of Sir Alexander Gibbs (Water Resources Survey of Northern Oman) which arrived at a figure similar to that of Whitehead.

To emphasize the difficulty of reaching a definite figure for the total population, in the absence of a national population census, it would be appropriate to mention here that the population of the capital Muscat is itself not accurately known. Estimates put it at a range of 35,000-50,000.

Considering that the most elaborate efforts in sizing up the population of the Sultanate have ranged between 435,000-600,000, it would be reasonable to say that the figure given by the government of 1,500,000 for "planning purposes" is unjustified. Instead, various figures would be quoted here to avoid any misinterpretation arising from a nominally chosen "fixed" figure upon which certain erroneous planning judgement could be built.

(ii) Employment

Recent estimates of labor force suggest that the private sector employs 260,000 people, and the government 298,000 persons. The figure for

the public sector excludes those employed in the armed forces.

The civil labor force consists of those ranging in age between 15-60 years. It excludes those working in the police and military services, students, the handicapped and females who are not seeking employment.

The number of Omanis working in agriculture was estimated on the basis of 2 workers per hectar (total cultivated area being 41,000 hectars). The number of Omanis engaged in animal husbandry and grazing was estimated at 10,000. The number of Omani fishermen was estimated at 8,000. The number of Omani working in other occupations was based on a survey of 1965 registered companies which revealed that they actually employ 10,080 Omanis. There are 10,000 other registered companies which were not surveyed, and on average ten Omanis were assumed to be employed by each of these companies.

As far as government employment is concerned, Table shows its development since 1976.

It is worth noting that the growth of employment in the public sector was a lot higher in the first half of the seventies than the latter half. In the period 1970-1975 employment of Omanis grew at an annual rate of 42 percent while employment of foreign workers grew at the high rate of 76 percent annually. In contrast to this, Omani employment grew at 9 percent and that of expatriates at 16 percent annually in the period 1976-1981. The ratio of foreign workers to total employment continued to increase over the seventies.

It is more difficult to calculate the growth rate in employment in the private sector. Nevertheless, the growth rate has been very dramatic due to the huge increase in construction activities which overshadows all other activities in the private sector. Table (II.16) shows an estimate of labor force and its distribution among sectors. It is interesting to note that

the labor productivity of the oil sector was more than 500 times greater than that of agriculture in 1975, and has risen to 530 times by 1980. This dramatic difference points again to the danger of having Oman developed in the pattern of dual economy. The low productivity of agriculture is due in part to the increase emigration of Omanis from the rural sector, which is ignored by the planners who are interested mainly in developing a modern sector economy.

(iii) Energy

It goes without saying that the increase of economic activities in the seventies was accompanied by an increase in the demand and the consumption of energy. While the country's total consumption of energy in 1970 was 146.4 (thousands tons of oil equivalent) it reached 1186.1 in 1979. This implies an annual rate of increase of 23 percent.

This great increase, however, was accomplished in the first part of the decade. The slowdown of economic activities in the second part was evident by an increase in energy consumption of only 1 percent.

Most of the energy used in Oman is in the form of fuel oil. Table (II.18) shows that this energy source accounted for more than 50 percent of total energy in any year over 1970-1979.

While the consumption of electricity is still very small, its consumption increased from 3 (thousands tons of oil equivalent) in 1970 to 107 in 1979. This trend is expected to continue in the eighties, at a higher rate with the electrification of the rural areas.

The most important factors influencing the demand of energy in Oman is the price of energy, per capita income, and the ratio of the

agriculture sector GDP to total GDP.[1]

Oman, like other Arab oil-producing countries has been following a policy of cheap prices of energy since the total cost of energy is a very small part of oil revenue. It is expected, however, that a continuing increase in energy consumption induced by cheap prices will raise its cost relative to oil prices in the future and present a constraint on development.

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[1] The expected demand of energy in the Arab Countries, Second Conference in Energy, Quator 1982.

Table (II.16)

Alternative Population Estimates for the Sultanate of Oman

	Whitehead	Ital-Consult (1974)	IBRD (1972)
Muscat/Matia (capital/area)	25,000	40,000	30,000
Batina Coast	150,000	150,000	250,000
Interior	213,000	210,000	250,000
Dhufar	15,000	40,000	30,000
Desert Area (nomads)	25,000	30,000	30,000
Muscandam	7,000	10,000	10,000
Total	435,000	480,000	600,000

Source: International Migration Project, Department of Economics, University of Durham, England, July 1977.

Table (II.17)

1980 Estimates of Civil Labor Force

(in thousands)

Classification	Omanis	Expatriates	Total
Private Sector			
Agriculture and Fishery	100	4	104
Other Occupations	30	126	156
Total	130	130	260
Government	23	15	38
Total	153	145	298

Source: Directorate General of National Statistics.

Table (II.18)

Government (Civil) Employees (1970-1981)

Nationals/Expatriates

Year / Worker	Omanis	Expatriates	Total	% of Nationals to Totals
1970	1,630	120	1,750	93.1
1971	2,857	225	3,312	86.8
1972	4,765	553	5,318	89.6
1973	7,403	1,670	9,073	81.6
1974	9,035	3,000	12,035	75.1
1975	13,616	5,507	19,123	71.2
1976	15,668	6,643	22,311	70.2
1977	17,269	9,496	26.765	64.2
1978	17,314	11,367	28,681	60.4
1979	21,216	13,814	35,030	60.4
1980	23,445	15,398	38,840	60.4
1981	25,096	15,002	40,098	62.6

Source: Directorate General of National Statistics.

Table (II.19)

Estimation of Labor Force and its Distribution among Sectors

	1975				1980			
	Omani	Foreign	Total	%	Omani	Foreign	Total	%
Private Sector								
Oil & Minerals	2,982	1,787	4,679	3	4,500	2,000	6,500	5.7
Manufacturing	825	1,374	2,199	1.8	1,300	3,050	4,350	3.8
Construction	18,640	56,596	75,236	61.1	29,300	19,700	49,000	43.0
	123	1,841	2,764	2.2	1,500	2,850	4,350	3.8
Transportation	2,286	794	3,080	2.5	2,100	250	2,350	2.0
Financial Services	668	454	1,122	.9	1,250	320	1,570	1.4
Other Services	1,768	2,148	3,916	2.6	2,800	2,350	6,150	5.4
Total of Private Sector	28,002	64,994	92,996	75.5	42,750	31,520	74,270	65.2
Government Sector	23,717	6,430	30,147	24.4	31,640	7,920	39,560	34.8
Total	51,719	71,424	123,143	100	74,390	39,440	113,830	100

Table (II.20)

Labor Productivity Estimate

1975 and 1980

Sector	1975*	1980*	Rate of Increase
Agriculture	199	351	11%
Oil	101,240	190,923	13%
Construction	1,186	2,271	13%
Manufacturing	1,137	5,126	30%

Source: This table is calculated by using Tables (I.1) and (II.19)

*Labor productivity is calculated as the sector contribution to GDP divided by the number of labors.

Table (II.21)

Energy Consumption in Oman (1970-1979)

(Thousands Tons of Oil Equivalent)

Year / A Source of Energy	Total Energy	Electricity*	Fuel Oil*	Ratio of Fuel Oil to Total
1970	146.4	8	97.7	67%
1971	183.7	8	120.3	65%
1972	315.4	6	202.8	64%
1973	371.3	10	242.7	65%
1974	1234.8	18	1044.0	84%
1975	1181.7	54	821.5	70%
1976	1256.0	82	830.1	66%
1977	1299.7	82	831.8	64%
1978	1159.0	94	633.1	55%
1979	1186.1	107	634.8	54%

*Other sources of energy used are also petroleum products like gasoline, kerosene, jet fuel, middle distillate and L.P.G.

Source: Energy demand in Arab countries, Second Conference on Energy, Qatar 1982.

CHAPTER THREE

THE MANUFACTURING SECTOR

(III.1) General Indicators

The manufacturing sector in Oman is still at an early stage of development.

Prior to 1970 there were no manufacturing industries in the modern sense, except for some traditional metal workshops and boat construction. Only with the increase in oil revenue and the resulting increase in the demand for manufactured goods have the benefits of a domestic manufacturing sector become apparent. Not surprisingly with the increase in construction activities, the building materials industry was quick to react to the new surge in demand. The second category of manufacturing to react quickly to the rising demand was the food and beverage industry. While the third sub-sector to flourish is associated with services.

The government has been actively involved in the process of industrialization, either directly with public ownership or in collaboration with private, local and foreign capital in joint-ventures or through assistance to Omani entrepreneurs. The latter includes providing incentives like tax exemptions, concessional loans, and grants.

The constraints on developing a viable manufacturing sector, however, are numerous and in some cases formidable. The most important of which are the small size of the market, this compounded with the complete openness of the market represents a great challenge to the development of industry. Furthermore the shortage of an endogenous skilled labor force adds to the problems facing the sector.

The growth of the value added of the manufacturing sector over the

last ten years is substantial in both nominal and real terms. While the value added in 1970 was O.R (.2) million at market prices, it reached 26.3 million in 1981. This implies a 44 percent annual rate of increase. The rate of growth in real terms in the period 1970-1979 was 31 percent. This rate of growth is almost more than 6 times the rate of growth of GDP at the same period. This stems from the fact that the sector's contribution to GDP is still minimal. At current prices, the manufacturing sector contributed less than one percent to GDP (.19 of one percent), by 1981 the percentage was a little bit more than one percent (1.1).

(III.2) Economic Factors

The future development of the manufacturing sector depends on many objective factors, the most important of which are

i) the availability of raw materials,

ii) the market,

iii) the infrastructural facilities,

iv) the industrial policy of the government.

We turn now to discuss each of these factors.

(i) The Availability of Raw Materials

Oil is the main depletable natural resource in the country. Oil fields, however, are of small size. In consequence, introducing new fields is a necessity when old fields are exhausted. Hence, production of crude oil has witnessed relatively large fluctuations over the year. This is illustrated in Table (III.1). Production reached its peak in 1976 then declined as was mentioned earlier. Intensive exploration efforts reversed this trend and production started to increase at the end of 1980. Estimates of oil reserves also increased (Table III.2).

Table (III.1)

Crude Oil Production (1967-1980)

Year	Annual Production in Barrels	Average Production 000 b/d	Change
1967	20.9	----	
1968	87.9	241	+320.6%
1969	119.7	328	+36%
1970	121.3	332	+1.3%
1971	107.4	294	-11.5%
1972	102.8	282	-4.2%
1973	107.0	293	+4.1%
1974	105.9	290	-1.0%
1975	124.6	341	+17.7%
1976	133.8	366	+7.4%
1977	124.1	340	-7.3%
1978	114.8	314	-7.5%
1979	107.8	295	-6.1%
1980	103.3	282	-4.2%

Source: The Second Five-year Development Plan 1981-1985
Sultanate of Oman Development Council

Table (III.2)

Estimates of Oil Reserves in PDO Area

Date	m. Barrels	Change %
January 1, 1976	1329	--
January 1, 1977	1280	-3.7%
January 1, 1978	1379	+7.7%
January 1, 1979	1514	+11.4%
January 1, 1980	2480	+63.8%
January 1, 1981	2484	+0.2%

One of the important construction projects was oil refinery, it having been completed at the middle of this year (1982). It has a capacity of 50,000 b/d and aims to produce gasoline, kerosene, and fuel oil for local consumption.

An ashphalt project is also expected to be completed at the end of the year. This small unit is intended to utilize the by-products of the refinery.

Natural gas in Oman exists both in association with crude oil as associated gas and in free form in separate natural gas dunes. Yabal is the main source of dry gas with high quality sulphur free gas. The probable proved reserve is about 4000 billion standard cubic feet (SCF). Other estimates puts natural gas reserves of Oman as of 1st January 1979 at 57 billion cubic metres - 2000 billion SCF.[1]

Currently under construction is a 309 km, 20 in, pipeline connecting Yibal field with Sib/Miha Al Fahl/Al Chubra which is to deliver the gas from the oil fields near Yibal to the coast in the capital district where it will be used for Chubra water desalination and power generation plan and other industrial sectors like the cement factory and the industrial city development. With the completion of this project part of the natural gas in Oman will be utilized while the rest is flared - this includes all the associated gas.

Table (III.3) which shows the balance of production and utilization of natural gas in oman, clearly reveals that some 90 percent of the total natural gas produced is flared to waste. Although the construction of the new gas pipeline mentioned above is a welcomed step, nevertheless much

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[1]Petroleum Economist, Sept. 1978, Vol. XLV, Number 9.

more is needed to utilize this valuable natural resource. Much of the future industrial development should be geared towards this objective. Options for utilization of the presently wasted natural gas include an LNG plant for export, power generation, a nitrogeneous fertilizer plant, a petrochemical plant, copper smelter plant, sponge iron plant, and other energy consuming industries such as cement, calcium, glass, oil refinery, etc.

Although mineral prospecting, other than oil, did not start until 1972, preliminary surveys and prospecting have discovered several deposits of valuable minerals in Oman, including copper, chromium, manganese, iron, nickel, coal, asbestos and lime stones. The richest areas in mineral deposits are the Northern and Southern Hajar mountains and Jabal Al Gara region in Dhofar.

Among these mineral resources, copper has proved so far to be the most valuable. It is found in sulphide form about 20 km from Sohar and near Sunayah, drilled proven reserves are estimated at 15.20 million ton[1] with an average copper content of 2-2.5 percent which is considered to be excellent by world standards. Several options for the production and processing of copper exist: production of concentrates, smelting and production of fire refined copper or "black copper" with a copper content of 94-97 percent, electrolytic copper, wire rod copper and copper products.

Oman Mining Company which started in 1973 as a joint venture between the Omani government (51 percent), and American and Canadian owned firms (49 percent) started production in 1981.

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[1] Later surveys have evaluated the reserves to 80 million tons as reported in The Economist Intelligence Unit, Quarterly Economic Review, 1st Quarter, 1979.

Asbestos has been found in commercial quantities in several areas in Oman. Drilling has proved it to be of good fiberous quality. The best is located west of Sohar and preliminary results estimate its reserves to be around 8 million tons. A private Omani company in collaboration with a foreign firm is presently manufacturing asbestos-cement products, mainly pipes, with a capacity of 31,000 ton p.a.

There are huge deposits of good quality lime stone throughout Oman's territory which is suitable for cement production and for metallurgical purposes. This should provide the cement industry with ample supply for an indefinite period, as well as lime bricks and sand blocks, earthenware, sanitary products, and glass products.

There are large deposits of marble in good quality and colour in the Hajar mountains. Two quarrying projects are under preparation as well as a tile factory based on local marble with an annual capacity of 1 million tiles plus 4000 tons of marble. A Japanese company has recently released a study which suggests the possibility of the production of 10,000 tons of marble products, 18,000 tons of lime, 15,000 tons of dolomite plasters and 3,000 tons of calcium carbonate powder - products which suggest that Oman may have a potential for a ceramic sector.[1]

Iron is also found in Oman but no details on its quantity and quality are available. Further exploration is necessary to identify the potentiality of this valuable material for the basic manufacturing industry.

(ii) The Market

At this stage of development the local economy is the main market

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[1] The Economist Intelligence Unit, Quarterly Economist Review, 2nd Quarter, 1979.

for Omani manufacturing goods.

The capacity of this market is low due to the small Omani population and the limited purchasing patterns of an average consumer.

Even though the population of Oman is much larger than most other Gulf states, as was mentioned before, there is no census figure for the size of the population. Estimates range from 350,000 to 1,500,000. Needless to say, the highest figure does not qualify for a large market to absorb the output of large scale manufacturing industries.

Another constraint of the local market is the consumer behavior of the average Omani family, reflecting the low per capita income, and the fact that the majority of the population live in the poor rural areas.

In a consumer survey which was carried out in 1977, an average family with a monthly income of O.R 120-300 distributed its income in the following pattern:

41.2%	Food and beverages
24.2%	Rent and household expenditures
10.7%	Clothing
17.1%	Transportation
7.8%	Other[1]

This consumption pattern shows that most income is spent to satisfy the minimum necessities of life. Demand for manufacturing goods is very low due to the fact that the majority of the population cannot afford it yet. The lack of electricity in rural areas is an important constraint on consumption behavior in those areas. It is important to note that the lack of interest

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[1] Features of the Industrial Economy of Arab Gulf States (1), Gulf Organization of Industrial Investment 1982.

Table (III.3)

Natural Gas Production and Utilization

Year	Production	Total Flared Gas	Total Flared Gas to Total Production Gas (%)
1971	291.0	211.5	73
1972	213.3	179.6	84
1973	246.0	221.5	90
1974	284.8	277.8	98
1975	338.4	328.5	97
1976[a)]	399.1	358.7	96

a) Estimated.

Source: PDO as quoted in Central Bank of Oman Annual Report, 1976

in agriculture and agro industry has an adverse effect regarding the development of a viable market for the manufacturing sector.

The consumer behavior of the population is also important insofar as it creates the pool of national saving to support investment projects in industry. While the private sector increased its share of this pool in the last few years (31.1% in 1981 compared to 27% in 1977), its saving is not channelled to the manufacturing sector. Mainly it goes to the construction and the oil sectors.

It is hoped that the next few years will witness a change in the pattern of consumption in favor of manufacturing goods, as a result of the development of the infrastructure, and that the private sector will increase its roll in investing in this sector due to increased incentives encouraged by government policies.

The smallness of the local market makes it imperative that foreign markets should be found in order to stimulate the industrial sector and take advantage of the economies of scale. Unfortunately this has not been explored in Oman yet. So far the interest is mainly in building selected import substitution industries. The natural outside markets for Oman are the markets in the neighbouring Gulf states. Obviously those states will benefit from cooperating together in drawing a common industrial policy. They could benefit from both the economies of scale and the comparative advantage of each economy. This, however, should not be done by mere commercial and selective export and import agreements, rather it needs an agreement at the industrial planning level. The absense of such an agreement will result in depriving those states of the advantage of their natural markets, and make them small islands whose economic life depends on the great industrial countries,

against which they cannot take advantage of neither each comparative advantage, nor this collective economy of scale.

(iii) The Infrastructural Facilities

Transport Services

Prior to the discovery and commercial exploitation of oil there existed no modern means of transport. Primitive roads and beasts of burden were the only means of transportation within the country. The need to develop the oil resources of the country has introduced the first elements of modern transport facilities. With the subsequent flow of oil revenues, the process of building up a modern system of transport to cover the whole country started in the 1970's.

In 1970 there were only 10 km of asphalt surfaced roads which were mainly used for the oil company PDO and the armed forces. As a result of the intensive efforts to build a transportation system in the following years, the length of asphalt surfaced roads increased to 2,412 km at the end of 1980, while that of graded roads reached 14,703 km. It is worth noting that the length of roads tripled during the first five year plan, 1970-1980.[1]

With a coastline of some 1,700 km in length Oman has a number of natural harbours which are well known through history, such as the port of Muscut and Mortrah. However, until 1970 no deepwater port facilities existed in the country. Commercial loads had either to be unloaded on barges or "over the beach" at Mortrah. A new port, Port Qabus, was constructed in the early seventies with a capacity of 1.5 million tons per annum. It has nine deepwater berths and three other berths. The port's capacity was substan-

[1]The Second-year Development Plan 1980-1985, Sultanate of Oman Development Council, 1981.

tially enhanced through investment in additional equipment and storages during the first five-year plan.

Mina al Fahal handles oil export and some cargo. This port handled the export of 18 million tons of Omani oil and some 35,000 tons of cargo for PDO.

A new port has been completed in Dhofar province at Salalah, Raysut, with eight deepwater berths and several berths for smaller ships. Its capacity is one million tons per annum.

There is one international airport in Oman, the Seeb International Airport, near the capital. It was expanded in the late seventies. The total number of aircrafts landing at, and taking off from the airport rose from 15,011 aircrafts in 1975 to 24,942 in 1980. The total number of passengers passing through the airport also rose from 297 thousand in 1975 to 694 thousand in 1980.

A smaller airport at Salalah was constructed during the first five-year plan and is being used at present for internal flights only.

Communications

Post, telegraph and telephone use witnessed also a great increase in the seventies. The number of post offices rose from 2 in 1970 to 27 in 1975 and to 43 in 1980.

The total number of telephone lines installed in the country was 557 in 1970; they increased to 3,071 in 1975 and to 15,044 in 1980. The capital area has 63% of the total lines installed.

It would be necessary to stress here that the huge investments which have been sunk in the transportation and communications systems would soon be eased unless a proper system of maintenance is adopted on a regular basis by the authorities in the Sultanate.

Power

Until 1970 the electric power system which existed in Oman consisted of a small diesel generator serving part of the capital area and Salalah in the Dhofar region. Total installed capacity in 1970 was only 4.3 MW. There existed also some generators in isolated areas to serve special purposes, either military or oil operation with excess capacity being sold to local consumers. The annual growth in demand for electricity during the last few years was over 60 percent. The total power generated in government stations amounted to 8 m.KWh in 1970; rose to 122 m.KWh in 1975 and to 642 KWh in 1980.

The power system in Oman consists of three unconnected sub-systems. The largest one is the northern system serving the capital Muscat and the surrounding areas with an installed capacity of 110.3 MW. The southern system, which is the second largest one serves Salalah in Shofar region and the surrounding area with an installed capacity of some 22 MW. The third system is the rural electrification system with on the spot small diesel generators serving some 26 small cities and villages with an installed capacity of some 3 MW. There is a separate system serving the island of Masira with an installed capacity of 1.7 MW.

Autogeneration constitutes a sizeable part of total generated capacity due to the slow growth of public generation and transmission systems and its poor standard of reliability. PDO is the largest single autogenerator of electricity and it is expected to continue to expand in the next few years.

There is a need to review the generating and transmission systems of the country with a view to rationalize generating capacity based on larger thermal units faced with the now wasted natural gas as fuel and the installation of a national grid connecting the present isolated transmission

and distribution systems. The adoption of such measures with an eye on long-term development will serve the future needs of the country on a sound basis, economize on production costs, manpower utilization and current expenditures, and would thus make possible a sizeable reduction in the tariff rate per unit consumed.

(iv) Labor Force

As was mentioned earlier the skill of the labor force is one of the most important constraints on economic development in Oman. Even though education has improved substantially in the seventies, the country still lacks a skilled labor force and depends on foreign labor. The majority of Omani laborers are still engaged in agriculture, fishery, and services. The manufacturing sector does not employ more than one percent of the labor force. However, the productivity of this sector is quite high relative to other sectors. While one percent employed in manufacturing industries contribute a little more than one percent to GDP, 47.2 percent of the labor force working in agriculture and fishery do not contribute to GDP more than one and a half percent.

(v) The Industrial Policy of the Government

In the mid-seventies, the government had taken an active role in supporting and encouraging the development of the manufacturing sector. This role was formalized in 1976 by the creation of the Development Bank of Oman. The functions of the bank include:

- guaranteeing, or offering, loans to Omani companies investing in industry;
- supporting Omani companies by their stocks;
- assisting Omani companies in preparing technical studies of their projects.

In 1978, the government issued a decree to regulate and encourage industry which gives great inducement to Omani companies to increase their investment in this sector. Those inducements include:

- a favorable tax treatment to manufacturing companies which goes as far as exempts them from paying taxes for five years;
- protecting Omani industry by increasing the import tax on foreign goods which compete with Omani's;
- setting favorable prices on electricity, water and fuel for manufacturing companies.

Considering the stage of development of Oman's economy being still at the level of transformation from a traditional economy into a developing economy, the government has to assume a more active role.

The basic impediment to industrialization arises from two main sources; first the lack of skilled manpower, and second the trade mentality of the private investor. Other problems are connected with the availability of financial resources, the lack of industrial information, and the crude nature of institutional, social and local infrastructure.

As a result of these conditions, investment in industry in comparison with other sectors, particularly infrastructure and oil, proceeded slowly during the seventies and was mainly concerned with simple manufacturing activities which are either connected with the construction sector or with some simple consumer industry where investment is limited. The tendency of private capital (local and foreign) has been seeking quick profit in commerce and in real estate.

These conditions make it necessary for the state to take direct action in the development of this sector without waiting for the private, Omani or foreign capital.

(III.3) Industrial Structure

Data availability concerning industrial activity in Oman is still very limited and not systematic. There is no reliable data regarding number of manufacturing establishments, their capital intensity, capital-labor ratio, capital-output ratio, value added, and labor productivity.

The first industrial census was taken in 1980. The finding of the census showed that the bulk of industrial establishments is small in size and engaged in producing some construction materials. There are only 53 establishments with capital of 50,000 O.R or above employing 10 workers or more. Table summarizes the distribution of manufacturing establishments among industrial activities, and Table gives the breakdown of the 53 large establishments.

Table (III.4)

Distribution of Manufacturing Establishments among Industrial Activities

%	Industrial Activities
43.3	Cement & Cement Products
13.3	Food & Beverages
12.3	Wood & Wood Products
7.9	Textiles
7.2	Jewelry
5.8	Basic Metal Products
2.1	Printing & Publishing
5.1	Other Manufacturing Activity

Table (III.5)

Breakdown of the Largest Manufacturing Establishments

No. of Establishments	Industrial Activities
21	Cement Products
7	Metal Products
7	Wood & Wood Products
6	Food & Beverages
6	Chemical & Plastic Products
1	Textiles
5	Other

CHAPTER FOUR

(IV.1) The Dependence on Oil

Our analysis so far has shown that the Omani economy is dependent on, and dominated by, the oil sector. However, oil, a natural depletable resource is one component of national wealth. While exporting this wealth has dramatically increased the welfare of the present generation of Omanis, its economic value ultimately is measured by how much income-generating projects it creates to support the future generations.

Economically speaking, expenditures generated from oil revenue are similar to deficit spending. Both transfer resources from the future to the present generation. The economic performance of the present generation is judged by the wealth it creates as a result of this transfer. While we cannot calculate this wealth creating in this study, we can look at the growth of now-oil GNP and its relation to the deficit spending as an approximate proxy.

Define non-oil GNP as

$$NGNP - GNP - OX$$

where OX denotes the value of oil exports.

Obviously, the Omani domestic expenditures on investment I and consumption (both public + private) excedes NGNP. Define the difference as the deficit D, i.e.,

$$D = (C + I) - NGNP .$$

This deficit is shown in column 6 of Table (IV.1).

Table (IV.1)

(1) Year	(2) GNP	(3) OX	(4) NGNP (2)-(3)	(5) C + I	(6) D (4)-(5)	(7) D/GNP
1971	101.1	87.6	13.5	83.0	-69.5	.69
1972	105.7	88.2	17.5	118.0	-101.3	.96
1973	129.2	114.3	14.9	148.0	-133.1	1.03
1974	445.7	418.7	27.0	420.9	-393.0	.88
1975	592.6	488.1	104.0	602.1	-497.6	.84
1976	681.0	543.8	137.2	682.3	-545.1	.80
1977	749.9	545.9	204.0	737.7	-533.7	.71
1978	773.0	521.8	251.2	802.0	-550.8	.71
1979	1,023.9	745.7	278.2	910.1	-631.9	.62
1980	1,749.9	1,244.6	505.3	1,386.4	-881.1	.50
1981	2,148.6	1,526.4	622.2	1,751.5	-1,129.3	.53

It is interesting to note that the ratio of this deficit to GNP has increased in the early seventies then it declined steadily till 1980. Although this steady decline is impressive and suggests a good rate of return on the investment of the deficit spending, its level is still very high, i.e., more than fifty percent of the country's absorbing capacity is still financed by the oil revenue. This is a result of suing oil revenue to support consumption in addition to investment.

(IV.2) Prospects for the Future

On the basis of the outgoing discussion on various aspects of Oman's economy as well as the personal judgement of the author and making use of similar forecasts made within the UN system, in particular that of Leontief and UNIDO, an attempt has been made to project economic development of the country until the end of the century.

Special note has been taken of the projections made in the five-year development plan of Oman and with adjustment to actual performance during the last three years. In this respect special note was taken of the last development in the oil sector with regard both to new oil and gas discoveries as well as the big increases in oil prices compared to the general level of price increases of imports in the world market and finally recent political development in the area implying greater government expenditure. These factors have affected the choice of slightly different patterns of development during the first period of projection, 1975-1980.

Assumptions on level of growth of GDP, labor and labor productivity, capital/output ratio and investment are linked to arrive at the results assumed in this scheme of projection and any temperance with any one or group of them would necessarily change the results of the model.

It should be stressed that whatever the results may be they should

be taken as only an indicative attempt to guide the process of development and should in no way be considered more than that.

Gross Domestic Product

Growth rates of gross domestic product were considered in the light of growth of the constituent sectors of the economy and were not assumed per se, however, they were cross-checked in a backward process to varify their feasibility. The overall annual growth of GDP for the period 1975-2000 was found to be 5.4 percent. The growth of GDP in the initial periods was most influenced by the extractive sector due to the great weight of oil in its formation. As the process of development proceeds to form a more suitable structure of the economy, this influence is minimized. That is the reason why there appears such a low rate of growth in the initial period followed by higher growth rates and then stabilized again to lower rates at the end of the period. The compound annual growth rates of GDP for the five five-year periods are as follows:

Period	1975-1980	1980-1985	1985-1990	1990-1995	1995-2000
Annual growth rate	3.6%	4.3%	6.5%	5.7%	5.1%
Overall growth rate	----------	----------	5.4%	----------	----------

Applying these growth rates the value of gross domestic product at the end of each period would be as follows:

1975	1980	1985	1990	1995	2000
739	881	1,198	1,640	2,168	2,775

It should be noted here that these rates of growth of GDP would require large investment outlays and in order to meet these investment

requirements certain measures should be adopted, most important among them are the following:

- A moderate growth rate of final consumption with a policy of improved income distribution. However, the assumption made in the projection is to have a continuous improvement in the level of consumption over the periods as a whole with the objective of alleviating the standard of living of the population.
- Improvement in the rate of outflow of capital broad through tighter control over remittances of profits and remuneration. An important factor here is better share in oil income through national control over natural resources of Oman.
- Improvement and development of local skill and higher participation of Omani national in the development process which should lead to the decline of foreign workers and personnel.
- Securing a certain amount of the capital flow from the outside world in the form of loans, grants and foreign participation to augment the investment requirements, particularly at the initial stages.

On the basis of analysis and balancing the major economic variables of GDP, GNP, gross national savings, net flow of capital and net balance of trade as well as the different ratio of total consumption/GDP and investment/GDP the total balance of the economy was worked out for the period 1975-2000 subdivided into five planning periods.

Rates of growth of consumption were related to those of GDP with a view of availing better standards of the population. These rates were as follows:

	1975/80	1980/85	1985/90	1990/95	1995/2000
Annual growth rate of GDP (%)	3.6	6.3	6.5	5.7	5.1
Annual growth rate of total consumption (%)	5.0	5.4	6.6	6.6	5.7

As a result the ratio of total consumption to GDP registered a moderate increase from 54.7 percent in 1975 to 60 percent in 2000.

Investment/GDP ratio and investment requirements during the progressive planning period were as follows:

	1975/80	1980/85	1985/90	1990/95	1995/2000
Investment/GDP ratio (%)	28	30	31	31	30
Investment (RO m)	1,151	1,594	2,250	2,915	3,783

The ratio of remittances abroad to GDP during the planning period was progressively reduced from 15 percent to 7 percent in the manner shown below:

	1975/80	1980/85	1985/90	1990/95	1995/2000
Remittances/GDP (%)	15.5	15.0	13	10	7

These outflows in the form of profit and expatriate remittances abroad would be high at the initial period but would be reduced later on through national control over resources, greater local participation in economic activities and lesser reliance on foreign labor force by gradual replacement of expatriates by Omanis.

Due to the heavy investment requirements greater needs, at the initial stages, for foreign capital will be required. The need for foreign capital would be as follows in RO million.

	1975/80	1980/85	1985/90	1990/95	1995/2000
Foreign Capital	64	106	108	-	-
Foreign Capital/ GDP (%)	1.6	2.0	1.5	-	-
Foreign Capital/ Total Investment	5.6	6.7	4.9	-	-

The incremental capital/output ratio for the periods concerned worked out as follows:

	1975/80	1980/85	1985/90	1990/95	1995/2000
Increment Capital/ Output ratio	8.1	5.0	5.1	5.5	6.2

The explanation that could be given for the unusually high ratio during the first planning period 1975/80 is that during this time most of the investment went into physical and social infrastructure with little return but as these infrastructures are almost being completed and the new direction of investment would be more concentrated on income-yielding projects then the capital/output ratio is greatly improved going back to normal at such stage of development and then gradually going up again.

On the sectoral level the projection for their future development would be as follows:

Extractive Industry

Crude oil projections are based on the latest situation in the new oil discoveries and the expected improvement in later years in the technique of oil recovery and secondary recovery as well as the expected increases in oil prices in rates higher than the average rate of general inflation and prices of imports due to the expected supply/demand situation in the world

oil markets. Considerations have been taken also of certain assumptions in the improvement of oil reserves in Oman. On the basis of these assumptions the annual growth of oil income (GDP) for the various periods under projection would be as follows:

Period	1975/80	1980/85	1985/90	1990/95	1995/2000
Annual growth rate	0%	1.5%	0.5%	-1.5%	-3.5%

The annual decline in growth of oil GDP for the period as a whole would work out to -0.7%. Gross domestic product originating from crude oil would be as follows in RO million:

Year	1975	1980	1985	1990	1995	2000
GDP	473	473	509	522	484	405

Other extractive activities will increase in the meantime particularly that of natural gas, copper, asbestos, limestone, marble, aggregates, and other metals which exist in the country such as iron ore, cromium, manganese, coal, etc. The prospects of development of these natural resources seem to be bright in Oman. The figure stated in the development plan of Oman for 1980 has been taken and would be followed with quick and intensive work in the coming five-year periods in this sector. This sector would provide good bases for the development of manufacturing industry in Oman making possible a major structural adjustment in its economy when oil resources would be exhausted. The following rates of growth of the extractive industry have been assumed.

Period	1980/85	1985/90	1990/95	1995/2000
Annual rate of growth	35%	20%	11%	7%

On the basis of these rates GDP eminating from the extractive industry other than crude oil at the end of each period would be as follows:

Year	1975	1980	1985	1990	1995	2000
GDP (RO million)	-	11	49	122	205	288

Agriculture and fisheries sector would experience a rapid growth of development due mainly to the great availability of fish resources in the water surrounding the country. It is also expected that livestock and poultry have excellent conditions of growth within the country. However, due to the limitation of water resources and good agricultural soil it is not expected that agricultural products would develop very much horizontally, nevertheless in later years high productivity in agriculture is expected. High growth rates have been taken in the initial periods due to the expected increase in GDP originating in fisheries with lower growth rate in the subsequent periods. The following growth rates have been adopted for the periods indicated below in this sector:

Period	1975/80	1980/85	1985/90	1990/95	1995/2000
Annual growth rate	8	7	5.5	4.5	4

As a result of these growth rates GDP in agriculture and fisheries at the end of each period would be as follows in RO million:

Year	1975	1980	1985	1990	1995	2000
GDP	18	26	36	47	59	72

The picture of GDP in the primary sector at the assumed growth rates would be as follows in QR million:

	1975	1980	1985	1990	1995	2000
Crude Oil	473	473	509	522	484	405
Other extractive	-	11	49	122	205	288
Agriculture	18	26	36	47	59	72
Total	491	510	594	691	748	765
% of GDP	66.4	57.9	49.6	42.1	34.5	27.6

It is evident that, due to the excellent natural endowment of resources in Oman, although GDP originating from crude oil in 2000 will decline from 64 percent in 1975 to 14.6 percent in the year 2000, total share of the extractive industry will only decline from 64 percent in 1975 to 24 percent in 2000.

Manufacturing Sector

The manufacturing sector will experience a very rapid rate of growth indeed, particularly during the initial periods, due to the very low base it starts from. The establishment of a refinery, a gas liquification plant, a copper smelter, a canning factory and the construction industry would contribute great leaps in this sector. That is why very high growth rates are initially taken followed by lesser rates but still high in comparison to other sectors. The natural endowment of Oman further encourages the adoption

of such growth rates in manufacturing. This would be further enforced by the relatively high demand, in comparison with other Gulf states, on consumer goods produced for import substitution. The growth rates assumed for manufacturing during the five-year planning periods are as follows:

Period	1975/80	1980/85	1985/90	1990/95	1995/2000
Annual growth rates	50%	26%	18%	11%	9%

At these growth rates the participation of the manufacturing sector in GDP product and its value will be as follows in QR million at the end of each plan's period:

Year	1975	1980	1985	1990	1995	2000
Mang. GDP	3	23	73	167	281	432
percent of mang. in GDP	0.4	2.6	6.1	10.2	13.0	15.6

Electricity and Water

Rates of growth of electricity and water would be very close to those of manufacturing so as not to create a bottleneck in energy requirements for manufacturing or for the general services. The rates of growth for the periods in question for these utilities have been chosen as follows:

Period	1975/80	1980/85	1985/90	1990/95	1995/2000
Annual growth rate %	45	25	15	11	8

At these rates of growth the value of GDP created in electricity and water and its share in GDP would be as follows at the end of each planning

period (in RO million)

Year	1975	1980	1985	1990	1995	2000
GDP in electr. and water	2	13	40	80	134	197
Share in GDP %	0.3	1.5	3.3	4.9	6.2	7.1

Construction

Construction grows at rates higher than those of GDP and related to growth of industries and the services. However, consideration should be taken of the fact that in the past year the main emphasis has been on the development of the physical infrastructure and it has been almost completed so the following periods will experience a relatively moderate growth in this sector in comparison with manufacture and the utilities since the latter would start from a very low base while this sector has already been established. The annual rate of growth of this sector over the whole period under consideration, 1975-2000 would be 7 percent whereas the growth rate of GDP for the same period is 6.1 percent. The rates of growth of construction for the periods concerned would be as follows:

Period	1975/80	1980/85	1985/90	1990/95	1995/2000
Annual rate of growth	6.0%	7.5%	7.0%	6.5%	6.0%

It should be noted that for the initial period a rate of growth of 6 percent has been taken instead of the decline considered in the development plan of Oman due to increased activities in the services sector and in the oil sector as well. Also consideration of the real achievement of this

sector has been considered during the plan's year since it was enacted. With the above rates, which seem to be feasible, GDP originating in this sector and its share in total GDP would be as follows at the end of each period in RO million and %:

Year	1975	1980	1985	1990	1995	2000
GDP in construction	89	119	170	238	326	436
percent in GDP	12	13.5	14.2	14.5	15.0	15.7

Transport and Communication

Considering the relatively large area of the country, the important work which has been already developed in completing the important road system in the country, and the demand on services particularly those concerned with defence relatively high rates of growth for this sector have been considered with slightly moderate rates at the first period in view of the proclaimed government plan. The selected rates of growth for the period concerned are as follows:

Period	1975/80	1980/85	1985/90	1990/95	1995/2000
Annual growth rates %	7.0	12.0	10.0	8.0	6.0

At these rates of growth the value of GDP in transport and communication and its share in GDP would be as follows:

Year	1975	1980	1985	1990	1995	2000
GDP in transportation and communication	24	34	60	97	142	190
% in GDP	3.2	3.9	5.0	5.9	6.5	6.8

The Services Sector

The services sector which includes government and trade is expected to grow at rates faster than those of GDP due to the present low level of development of the services at present and the high government commitments to defence and security and the need to satisfy the demands of the population for educational, health, and trade services as well as to develop government and institutional facilities to cope with the fast development expected in industry, construction and other economic sectors. The overall annual growth rate for this sector throughout the period in question will be 7.3 percent. The growth rates for the different periods would be as follows:

Period	1975/80	1980/85	1985/90	1990/95	1995/2000
Growth rate %	7.0	7.5	7.5	7.5	7.0

At these rates of growth, GDP originating in the services and its share in GDP at the end of each period would be as follows in RO million.

Year	1975	1980	1985	1990	1995	2000
GDP in services	130	182	261	375	538	755
% in GDP	17.6	20.7	21.8	22.9	24.8	27.2

The overall picture of the development of GDP according to economic sectors for the period 1975-2000 would be as shown in Table (IV.2).

Labor Requirements

In order to assess labor requirements on a national as well as sectoral level two conditions were set: the first is the removal of the oil sector whose influence is so great on the GDP but so little on employment and

Table (IV.2)

Development of GDP in Oman, 1975-2000

(OR million)

Economic Sector	1975[1]	1980[2]	1985[2]	1990[2]	1995[2]	2000[2]
Primary Sector	491	510	594	691	748	765
%	66.4	57.9	49.6	42.1	34.5	27.6
Oil	473	473	509	522	484	405
%	64.0	53.7	42.5	31.8	22.3	14.6
Other Minerals	-	11	49	122	205	288
%	-	1.2	4.1	7.4	9.5	10.4
Agriculture	18	26	36	47	59	72
%	2.4	3.0	3.0	2.9	2.7	2.6
Manufacturing	3	23	73	167	281	432
%	0.4	2.6	6.1	10.2	13.0	15.6
Electricity and Water	2	13	40	80	134	197
%	0.3	1.5	3.3	4.9	6.2	7.1
Construction	89	119	170	238	326	436
%	12.0	135	14.2	14.5	15.0	15.7
Transport and Communication	24	34	60	97	142	190
%	3.2	3.9	5.0	5.9	6.5	6.8
Services	130	182	261	375	538	755
%	17.6	20.7	21.8	22.9	24.8	27.2
GDP	739	881	1198	1640	2108	2755
%	100.0	100.0	100.0	100.0	100.0	100.0

[1]Actual

[2]Estimated

whose average productivity per worker in 1975 was almost 18 times the national average including oil, the second was the isolation of agriculture whose effect is exactly opposite that of oil. After taking these steps the labor requirements of all sectors except oil and agriculture were calculated and after that oil and agriculture which were separately examined were added in order to arrive at the national total.

Average annual growth lf labor productivity for all sectors except oil and agriculture was taken at 5.4 percent for the period as a whole with different rates for each period. An initially moderate rate of 5 percent growth in productivity of labor was taken for the first period rising to 7 percent in the second and then falling to 6 perzent, 5 percent and 4 percent, for the following three periods. This would allow average labor productivity--value added per worker per annum--to rise from QR 1771 in 1975 to RO 6586 in 2000.

As far as oil is concerned, due to the gradual decline in the productivity of the producing fields the growth in productivity will be negative throughout the period at an annual decrease of 2 percent for the period 1975-2000. Thus, productivity per worker will decline from OR 88,000 in 1975 to OR 55,000 in 2000.

For agriculture and fisheries, due to the gradually increasing share of fisheries and agriculture income as well as the modernization of agriculture itself high growth rates of productivity for this sector were considered. Annual average growth rate of labor productivity in this sector for the period 1975-2000 was taken at 6.7 percent starting with a high rate of 8 percent during the first period 1975-1980 and gradually falling to 5 percent at the last period, 1995-2000.

In the light of the development of labor productivity the general

demand for labor would be as follows (in '000):

	1975	1980	1985	1990	1995	2000
Oil	5	6	7	7	7	7
Agriculture	80	78	78	72	66	63
Other	140	169	206	252	300	349
Total	225	253	291	331	373	419

The annual growth rate of employment for the whole period is 2.5 percent.

The growth of the population is expected to be at high rates particularly during the initial periods. The annual growth rate for the period as a whole is 3.26 percent, starting with a rate of 3.5 percent at the initial period and declining to 3.0 percent at the closing period. At these growth rates the development of the population would be as follows in 1,000s:

	1975	1980	1985	1990	1995	2000
Rate of growth		3.5%	3.4%	3.3%	3.5%	3.0%
Population	600	713	842	991	1,154	1,338

It should be noted that the initial figure for the total population which has been taken as the most reliable is 600,000, however, many other estimates exist including the one adopted by the Government of Oman for planning purposes with 1,500,000, will not be reached even at the end of this century. At the above-stated population figures the participation rate will decline since population grows at rates faster than those of employment.

In the whole there would be no labor problem in Oman, but the problem of skilled labor and professional will continue to exist for a long

time particularly with the increasing tempo of development and industrialization. We will have a situation of disguised unemployment where there is abundance of labor but shortage in skills. This is a situation differing from that in other small Gulf states where there is a general shortage of labor. The situation in Oman will create a two-way flow of labor; exit of unskilled labor and inflow of skilled and specialized labor.

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