

INDUSTRIAL DEVELOPMENT IN SAUDI ARABIA

by 583

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PREFACE

Saudi Arabia, being one of the developing countries, has similar characteristics and problems like other developing countries in Asia and Africa. However, Saudi Arabia has a unique position among them which distinguishes it from the other developing countries. First, it has a sizeable recurring foreign exchange income that can be diverted to the development of the country in its rich deposits of oil and its production. Secondly, the country does not have the problem of a rapid population growth which is a common feature of most of the developing countries.

This study has been designed to investigate Saudi Arabia's unique position with regard to its industrial development. My basic aim is to give the reader a broad background within which the industrial development of a country like Saudi Arabia can be examined and from which a reasonable conclusion can be drawn. The study consists mainly of a survey of the literature and the history with the emphasis on the process of industrialization by which a contemporary developing country like Saudi Arabia can achieve its goals for development.

The scope of this study is a limited one since the main emphasis is on the manufacturing industries, their progress, and problems. This being the case, the oil industry is not extensively examined in this study; however, it is not completely ignored.

Saudi Arabia, similar to other developing countries, has launched an extensive program of industrial development with the view of accelerating the rate of development and growth. Although superficially it is possible to recognize substantial industrial development and growth, it is difficult to derive any conclusions without a detailed study of the process of industrialization. Therefore, this report attempts to evaluate the extent of industrialization in Saudi Arabia.

The source of data in this report involves the review of important and pertinent publications and reports by the government of Saudi Arabia and the United Nations and its agencies. Furthermore, thoughtful consideration to personal experience has been given by the author and some statements have been included which are based upon this experience. The report also includes statistical information, graphs, and maps to support the written parts. The report could be considered to employ "Synthetic Method of Approach" in the entire analysis.

The reader should always keep in mind that there are many difficulties in obtaining adequate data since no specific statistical data about Saudi Arabia in general and its industrial development in particular are available. The data presented are rather rough estimates; however, despite the lack of precise data, it is possible to analyze some aspects of industrial development in Saudi Arabia.

The organization of this study consists of an introductory section which will help the reader to get acquainted with Saudi Arabia, its land and its people in general, and its economy in particular, and this is followed by the statement of the problem and the objective of the study.

The second section is mainly a review of the industrial status of Saudi Arabia before 1960, which is considered to be a turning point in its industrial development.

The third section deals with industrial policy in the 1960's and gives some idea about development strategy, industrial legislation, and policies.

The fourth section deals with industrialization during the 1960's and draws heavily on publications of the General Petroleum and Mineral Organization, familiarly known as "PETROMIN," which is responsible for a major share of industrial development planning in Saudi Arabia.

The fifth section deals with problems associated with industrialization in Saudi Arabia. The last section presents the conclusions drawn from the study.

I extend sincere thanks to Dr. E. W. Nafziger, my major professor, who has offered many valuable suggestions and criticisms. Also I extend sincere thanks to Dr. E. S. Bagley and Dr. J. A. Nordin, my committee members, who have extended their

valuable guidance.

Special thanks is also given to His Excellency Shaykh Hisham-Nazer, Chairman of the Central Planning Committee, Riyadh, and to Mr. Mohammed A. Hebshy, Secretary General of the King Abdulaziz-University, Jeddah, Saudi Arabia, for their assistance in supplying the needed information.

To conclude, I express my gratitude to my father Mr. Ahmed Fadel Kabli and to my wife Elham for their help and encouragement during the course of the study.

WADEA A. KABLI
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I INTRODUCTION

A. The Land and the People

Saudi Arabia is a large country of about 865,000 square miles or about 2.15 million square kilometers and occupies most of the Arab peninsula in Southwest Asia¹.

At least one third of the total area of the country is sandy desert, and unfortunately, there are no lakes or rivers in the country. The country consists mainly of a narrow coastal plain along the Red Sea, an adjoining mountain range which extends the length of the country, and a large plateau that slopes gently towards the Arabian Gulf in the east. The southern part of this plateau is Rub-al-Khali or "the empty quarter".

The country is divided into four provinces as shown in map

1. But there are no specific boundaries dividing them.

The four provinces are:

1) Al-Hejaz, in the northwest with an area of about 135,000 square miles.

2) Asir, in the southwest with an area of about 40,000 square miles.

3) Najd, in the central plateau with an area of about 650,000 square miles.

¹Area in miles is from International Bank for Reconstruction and Development (World Bank), Approach to the Economic Development of Saudi Arabia (Washington, D. C.: The World Bank, 1960). pp. 1. Area in kilometers is from United Nations, Statistical Yearbook of 1967 (New York: Department of Economic and Social Affairs, 1968). pp. 82.

4) Al-Hasa, in the east with an area of about 40,000 square miles.

The climate in general is hot and dry. Although the temperature is slightly lower along the coasts, the humidity is higher, especially in the east, which is noted for its heavy fogs. While average rainfall is four to five inches per year, the mountains in Asir in the southwest receive an average of ten to twenty inches per year. The country is sparsely populated and had an estimated population of 6.99 million in 1967². The density of population is only seven per square mile.

The following table gives reasonable estimates of population for the major cities.

Riyadh, capital of Saudi Arabia	225,000
Jeddah, main port on the Red Sea	194,000
Mecca, religious capital	185,000
Medina	50,000
Al-Hasa Oasis, including town of Al-Hufuf	150,000
Al-Taif	30,000
Dammam	20,000
Daharan	12,500

In addition to the above there are some twenty other cities with a population of 10,000 or more³.

²United Nations: The Statistical Yearbook of 1967, op. cit., pp. 82.

³The estimated population lies between 3.5 to 7 million. Since there are no official statistics, we must depend on the United Nations estimate which also give population estimates of the major big cities. See United Nations', Demographic Yearbook of 1967 (New York: Department of Economic and Social Affairs, 1968).

According to a 1960 estimate more than half of the population are nomadic or semi-nomadic Bedouins. About one-fourth reside in the principal population centers around the capital Riyadh, the Red Sea port of Jeddah, the holy places at Mecca and Medina, and the oil producing region on the Arabian Gulf⁴. However, urbanization is proceeding very rapidly and the latest figures of urban population may show more than 25 percent of the population in urban centers. The remainder are engaged in agriculture in the southwest which has relatively heavy rainfall or around oases dotted over the country. The one notable exception is the Rub-al-Khali where only a very few Bedouin live. Only a small percentage of the population is fully employed the year around⁵.

The low labor mobility combined with a high government expenditure has induced a steep rise in wages in the major population centers where most of the oil revenues have been spent. Unskilled labor can earn 6 to 10 Saudi Riyal⁶ (SR) per day (i.e., \$1.32 to \$2.20 at the present exchange rate) in these localities,

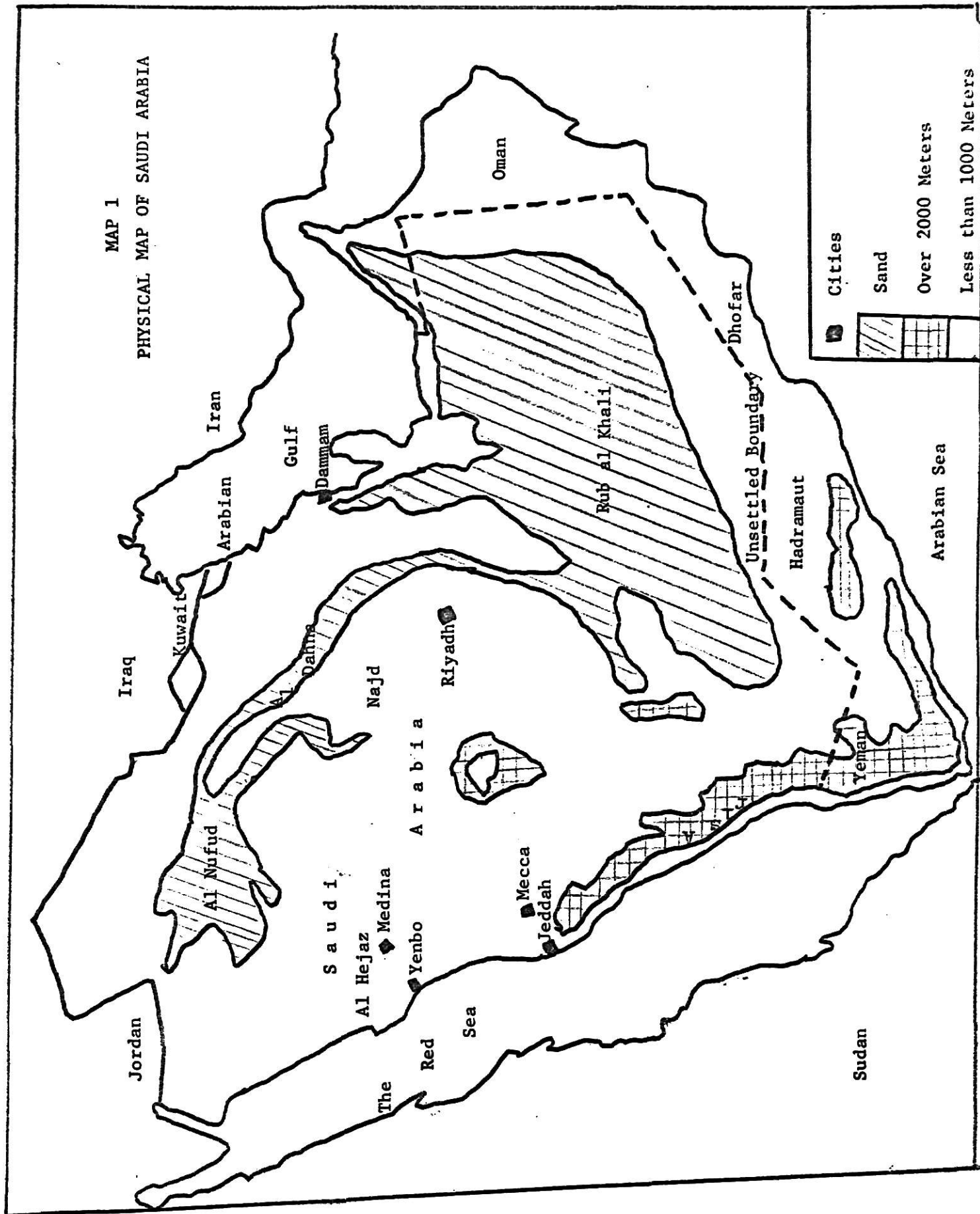
⁴The World Bank, op. cit., pp. 3.

⁵Aramco Handbook, Oil and The Middle East (Saudi Arabia: Arabian American Oil Company, 1968). pp. 180.

⁶Official exchange rate since 1960: \$1.00 = 4.5 Saudi Riyal.

**THE
FOLLOWING
PAGES CONTAIN
CROOKED
TYPING AND IS
THE BEST
POSSIBLE IMAGE
AVAILABLE**

MAP 1
PHYSICAL MAP OF SAUDI ARABIA



a level well above that prevailing in the other Arab countries, except Kuwait.

Immigration of professionals, technicians and others from the surrounding Arab States is on the increase due to the development of the oil industry and the lack of adequately trained and educated Saudi Arabian personnel. Palestinian Arabs, displaced by the establishment of the state of Israel, have been chief immigrant group since 1948⁷.

B. The Economy

Before the discovery of oil in commercial quantities in 1938, very little information was available about the sources upon which the people of the country depended for their economic life. It could be said that most of the people were engaged in the original pastoral-agricultural economy which was largely on a subsistence basis. The people of the Eastern Province depended largely on the cultivation of dates. The fishing villages of Dammam and Al-Khobar on the Arabian Gulf were supply centers of fish for the area. In Najd, sheep, horse and camel husbandry and some date cultivation provided the livelihood of the people⁸.

⁷Worldmark Encyclopedia of the Nation, Asia and Australasia (New York: Worldmark Press, Inc. Harper and Row, 1968), pp. 296.

⁸John B. Philby, Arabian Jubilee (New York: The John Day Co., 1953), pp. 215.

In addition to the subsistence economy, there continues to be the monetized sector based primarily on the traditional annual pilgrimage of Moslems to the holy places of Mecca and Medina, which have long provided an important contact with the outside world. Hejaz was considered the richest area of the country because the origin of money income was largely foreign exchange⁹. This area relies heavily upon imports of food and clothing to meet its needs¹⁰. In recent years the number of pilgrims has jumped from about 50,000 in 1946 to more than 300,000 in 1966. Table 1 shows the number of pilgrims entering Saudi Arabia per annum from 1955 to 1967. Diagram 1, shows the number of pilgrims in selected years from 1936 to 1966.

Before the occupation of Al-Hejaz in 1926¹¹, the government revenue did not exceed 150,000 pounds in gold sterling annually. After 1926, a revenue of five pounds in gold sterling was collected from each pilgrim, which equalled 45 British pounds after

⁹This income varies from year to year depending upon the number of pilgrims, but averages to about \$35 million in recent years. This income is mainly a revenue for the government collected from each pilgrim.

¹⁰Philby, op. cit., pp. 165.

¹¹After defeating Husayn, the Sheriff of Mecca, and occupying Hejaz and Asir Provinces on Friday, January 18, 1926, King Abdulaziz Ibn Saud was proclaimed king of Al-Hejaz, Najd and the other parts. This marks the beginning of the kingdom of Saudi Arabia.

TABLE 1

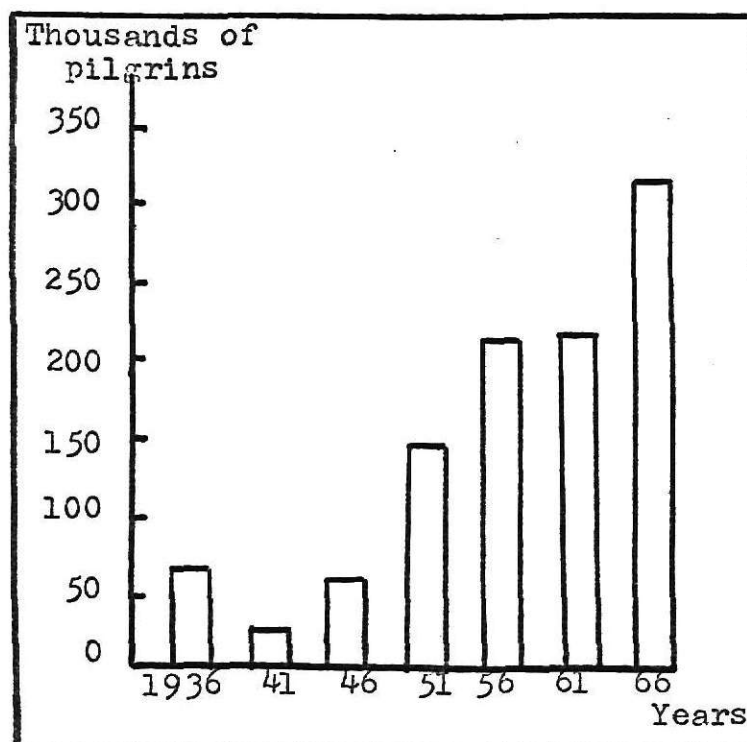
NUMBER OF PILGRIMS ENTERING SAUDI ARABIA PER ANNUM
FROM 1955 TO 1967 BY DIFFERENT MEANS OF TRANSPORTATION

<u>Year</u>	<u>Means of Transport</u>			
	<u>Sea</u>	<u>Air</u>	<u>Land</u>	<u>Total</u>
1955	124,087	31,141	15,494	170,722
1956	114,317	43,758	57,490	215,565
1957	122,169	32,047	52,183	206,399
1958	114,452	31,724	58,227	204,403
1959	128,883	50,825	86,392	266,100
1960	149,834	51,030	85,084	285,948
1961	92,943	54,480	69,032	216,455
1962	80,840	60,261	56,040	197,144
1963	105,604	85,369	69,311	260,284
1964	128,498	83,478	71,343	283,319
1965	101,406	90,980	101,732	294,118
1966	107,078	107,070	95,757	316,226
1967	83,984	119,184	115,339	318,507

Source: Table XII, Annual Report of 1967, Saudi Arabian Monetary Agency, Jeddah, Saudi Arabia.

DIAGRAM 1

NUMBER OF FOREIGN PILGRIMS ENTERING SAUDI ARABIA
IN SELECTED YEARS: FROM 1936 TO 1966



Source: Tables 3-32, Statistical Year Book of 1967, Ministry of Finance and National Economy, Riyadh, Saudi Arabia.

the abandonment of the gold standard. This, together with revenues drawn from high import duties, raised government revenues to about four million pounds in gold sterling¹².

Oil: After a prolonged negotiation, an agreement was reached in Jeddah on May 29, 1933, between the Saudi Arabian Government and the Standard Oil Company of California, United States, to give the company a concession to search for oil in the eastern part of the country with an estimated area of 355,000 square miles¹³.

Oil was discovered in commercial quantities in October 1938. In that year the company produced 495,135 barrels of crude oil. Production from that time continued to increase year after year at an average rate of nearly 50 percent annually between 1946 and 1952¹⁴.

Oil production has increased from 0.5 million barrels in 1938 to 1.0238 billion barrels in 1967. Table 2 shows the annual production of crude oil in selected years from 1938 to 1967 by companies. Diagram 2 shows the annual production of crude oil from 1960 to 1966.

Oil revenue has increased from \$3.2 million in 1939 to

¹²The Impact of Petroleum on the Economic and Social Life of Saudi Arabia, (PETROMIN Riyadh, Saudi Arabia 1963). pp. 3.

¹³Aramco Handbook, op. cit., pp. 117.

¹⁴The World Bank, op. cit., pp. 2.

TABLE 2

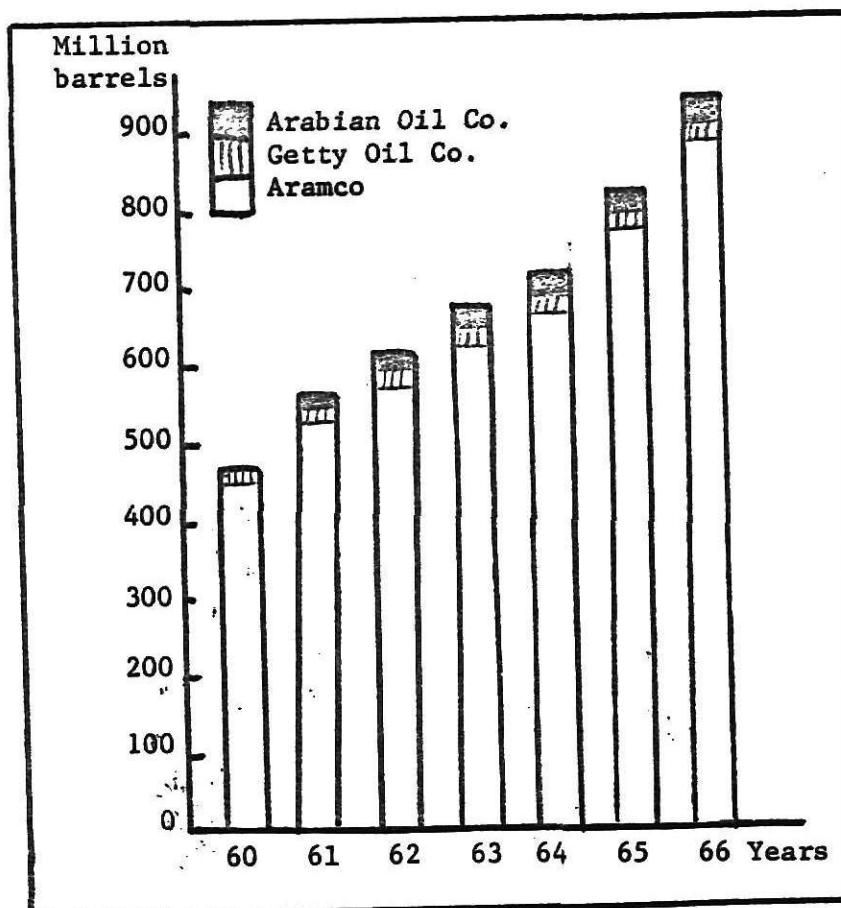
ANNUAL PRODUCTION OF CRUDE OIL IN SELECTED YEARS
FROM 1938 TO 1967 IN MILLION BARRELS (BY COMPANY)

<u>Year</u>	<u>Aramco</u>	<u>Getty Oil</u>	<u>Arabian Oil</u>	<u>Total</u>
1938	0.5	-	-	0.5
1946	59.9	-	-	59.9
1951	278.0	-	-	278.0
1952	301.9	-	-	301.9
1953	308.3	-	-	308.3
1954	347.8	3.0	-	350.8
1955	352.2	4.4	-	356.6
1956	360.9	5.8	-	366.7
1957	362.1	11.6	-	373.7
1958	370.5	14.7	-	385.2
1959	399.8	21.2	-	421.0
1960	456.4	24.9	-	481.3
1961	508.3	28.7	3.7	540.7
1962	555.0	33.7	11.0	599.7
1963	594.6	33.1	24.1	651.8
1964	628.1	34.4	31.8	694.3
1965	739.1	32.6	33.1	804.8
1966	873.3	30.2	46.5	950.0
1967	948.1	25.1	50.6	1,023.8

Source: Table VII, Annual Report of 1967, Saudi Arabian Monetary Agency, Saudi Arabia.

DIAGRAM 2

ANNUAL
PRODUCTION OF CRUDE OIL IN SAUDI ARABIA
BY COMPANY, 1960 TO 1966 IN MILLION BARRELS



Source: Table 2 above.

\$909.1 million in 1967. Table 3 shows the increase in oil revenue in selected years from 1939 to 1967. In 1967, the Arabian American Oil Company, known as Aramco, was the largest oil producer in Saudi Arabia, and its share was 948.1 million barrels out of a total of 1.0238 billion barrels. The Arabian Oil Company, a Japanese venture, was second with 50.6 million barrels. Getty Oil Company, which started oil production in 1953 ranked third with 25.1 million barrels. The rapid increase in oil production and the resulting increase in revenue from this source have resulted in many changes in the economic, political, and social life in Saudi Arabia in a relatively short span of time.

Agriculture: Although Saudi Arabia is mainly non-agricultural, some agriculture is possible in the highlands of Asir, in the adjacent highland of Southern Hejaz, in the coastal plain of Asir and its northward extension in Hejaz, and the oases. These areas represent at most five percent of the total land area of the country. A further increase in the arable land depends heavily on the development of water resources, the greatest problem in the country. Farming techniques are still primitive. Dates, millet, and some wheat are the main crops, with dates comprising the staple food item of all but the urban population. Average annual production of dates between 1960 and 1964 amounted to 167,512 tons of which 30,029 tons, the largest portion, was raised in the Medina region¹⁵. In recent years, increased

¹⁵Statistical Yearbook of 1967, Ministry of Finance and National Economy, Saudi Arabian Government (Riyadh, Saudi Arabia, 1967). p. 141.

TABLE 3

OIL REVENUE BY SOURCE IN SELECTED YEARS FROM 1939 TO 1967

(Million U.S. Dollars)

<u>Year</u>	<u>Aramco</u>	<u>Getty Oil</u>	<u>Arabian Oil</u>	<u>Auxirap</u>	<u>Total</u>
1939	3.2	-	-	-	3.2
1946	10.4	-	-	-	10.4
1950	56.7	-	-	-	56.7
1955	338.2	2.6	-	-	340.8
1956	286.8	3.4	-	-	290.2
1957	286.5	9.8	-	-	296.3
1958	287.4	10.2	-	-	297.6
1959	295.3	15.3	2.5	-	313.1
1960	312.8	18.4	2.5	-	333.7
1961	352.2	22.9	2.5	-	377.6
1962	381.7	25.0	3.0	-	409.7
1963	571.1	23.0	13.6	-	607.7
1964	482.1	23.7	17.4	-	523.2
1965	618.4	23.8	20.5	-	662.6
1966	745.5	20.6	22.3	1.3	789.7
1967	859.4	17.8	31.8	0.1	909.1

Source: Table VIII, Annual Report for 1967, Saudi Arabian Monetary Agency, Saudi Arabia.

attention has been given to the development of water resources for agricultural production. Food and Agricultural Organization of the United Nations (FAO) is assisting the development of irrigation projects and advising on the improvement of crop practices. The development budget for the fiscal year 1967-68 was SR380.3 million for agriculture, livestock, and water resources development as against SR 25.0 million in the 1961-62 budget¹⁶.

Transportation and Communication: For centuries, the camel, with an average speed of two and one-half miles per hour, was the only means of transportation in the country. Because of the deserts, it is difficult to maintain highways; however, motor travel is gaining in importance these days. In 1956, there were slightly over 1000 miles of asphalt roads, and by 1965 this had increased to 2,177 miles. In 1956 there were 23,400 automobiles and 29,000 commercial vehicles. In 1964, the total number of registered vehicles was 77,864, consisting of 31,560 trucks, 27,608 private cars, 14,812 taxicabs, and 3,864 buses¹⁷.

The government railroad between Riyadh and Dammam was completed in 1951. The distance covered by the railroad is 357 miles with seven main stations. The railroad cost \$50 million,

¹⁶Annual Reports of 1967, Saudi Arabian Monetary Agency, op. cit., pp. 55-57.

¹⁷Statistical Yearbook of 1967, Saudi Arabian Government, op. cit., p. 188.

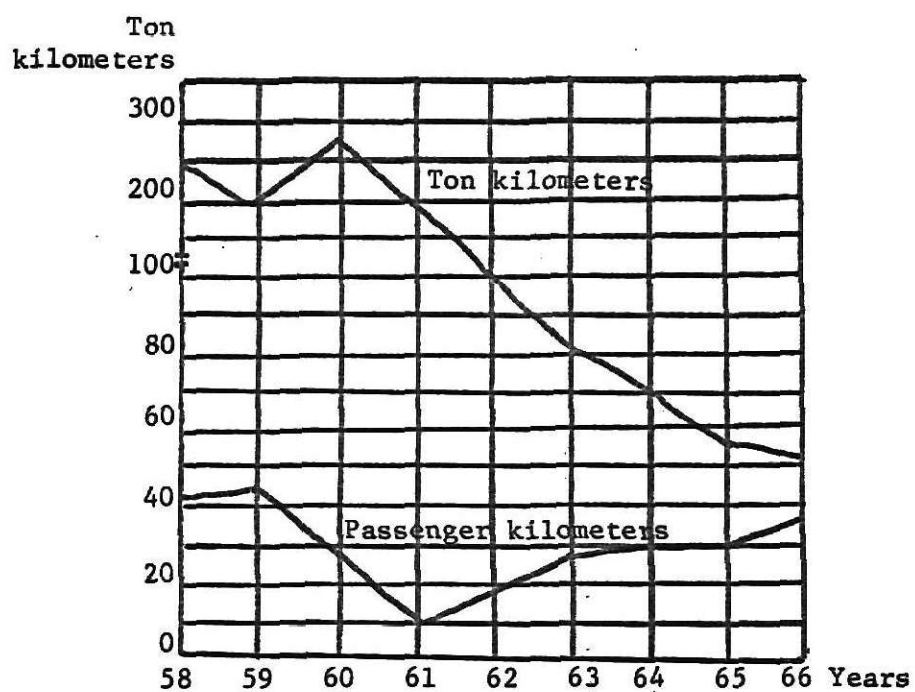
and has been used chiefly for transporting freight and commuting workers. The total number of rolling stock was 48 pieces in 1956. With the completion of the cement factory in Al-Hufuf in 1961, the railroad was extended to that city. The Hejaz railroad, connecting Damascus, Syria, and Medina, was destroyed by T. E. Lawrance during the 1 st. World War and has not yet been restored for political reasons. Diagram 3 shows the freight and passenger traffic between the years 1958 and 1966. Due to unsatisfactory railroad management until 1961, passenger traffic declined, but it subsequently increased after managerial improvement in 1961.

The government-owned Saudi Arabia Airlines, which is operated by the Trans World Airlines of the United States, serves most of the country's major cities and towns. Also it has regular service to most of the Middle Eastern countries, Pakistan, and recently to some European countries. The airlines has 35 aircraft mainly Boeing 720's, Douglas DC-9's, Douglas DC-6A1B's, and Convair 340's. In 1966, 514.7 million operational seat miles were flown by the air lines¹⁸. In 1962, the Saudi government took over the operation of Dhaharan airport which had been operated by the United States Air Force since 1946. Because of the vastness of the country and the nature of the topography of the land, air transportation was developed much earlier than other modes

¹⁸Statistical Yearbook of 1967, op. cit., p. 120.

DIAGRAM 3

MOVEMENT OF GOODS AND PASSENGERS BY RAILWAYS
FROM 1958 TO 1966



Source: Table 6-29, Statistical Yearbook
of 1967, Ministry of Finance and National
Economy, Saudi Arabia.

of transportation. Map 2 shows the land and air transportation routes, which existed in the country in 1965.

Ports: There are two main ports on the Red Sea, Jeddah and Yanbo, and two other ports on the Arabian Gulf, Dammam and Ras-Tannurah. In 1963, 903 ships called at Jeddah Harbor and 330 at Dammam. Ras-Tannurah is designed for tankers carrying crude oil for export. Yanbo Harbor which is 270 miles north of Jeddah, was formally dedicated in 1966 and serves pilgrims and commercial traffic for the northern part of the country¹⁹. Diagram 4 shows the cargo unloaded in Jedda and Dammam ports between the years 1960 and 1966.

Trade: Domestic and foreign trade increased rapidly after the expansion of oil production and the improvements of transportation. Imports for the western part are received at the Red Sea port of Jeddah and transported in trucks to Hejaz and Asir²⁰. Mecca and Jeddah are the main distribution centers in the western part of the country. Jeddah, where all the banking houses have their main offices, is also the commercial center of Saudi Arabia. In addition, the four insurance companies and the 26 foreign airlines operating through Saudi Arabia are based in Jeddah.

Imports for the eastern provinces are received at the port of Dammam. Goods to the interior cities are transported by rail-

¹⁹Ibid., pp. 192-193.

²⁰Hejaz province has lived quite long on external trade and producing services for pilgrims-especially in Mecca, Jeddah, and Medina.

MAP 2
ROAD MAP OF SAUDI ARABIA
1965

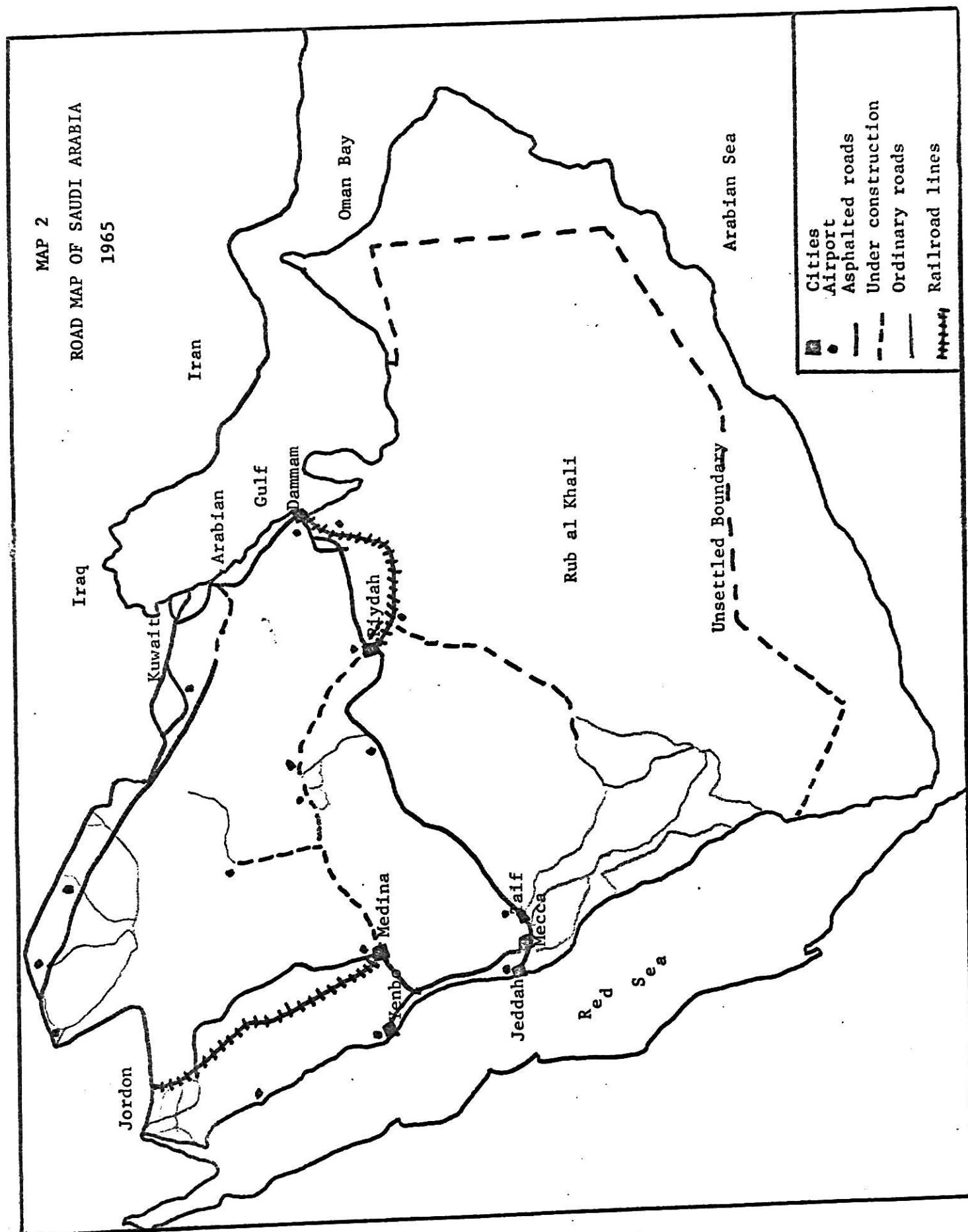
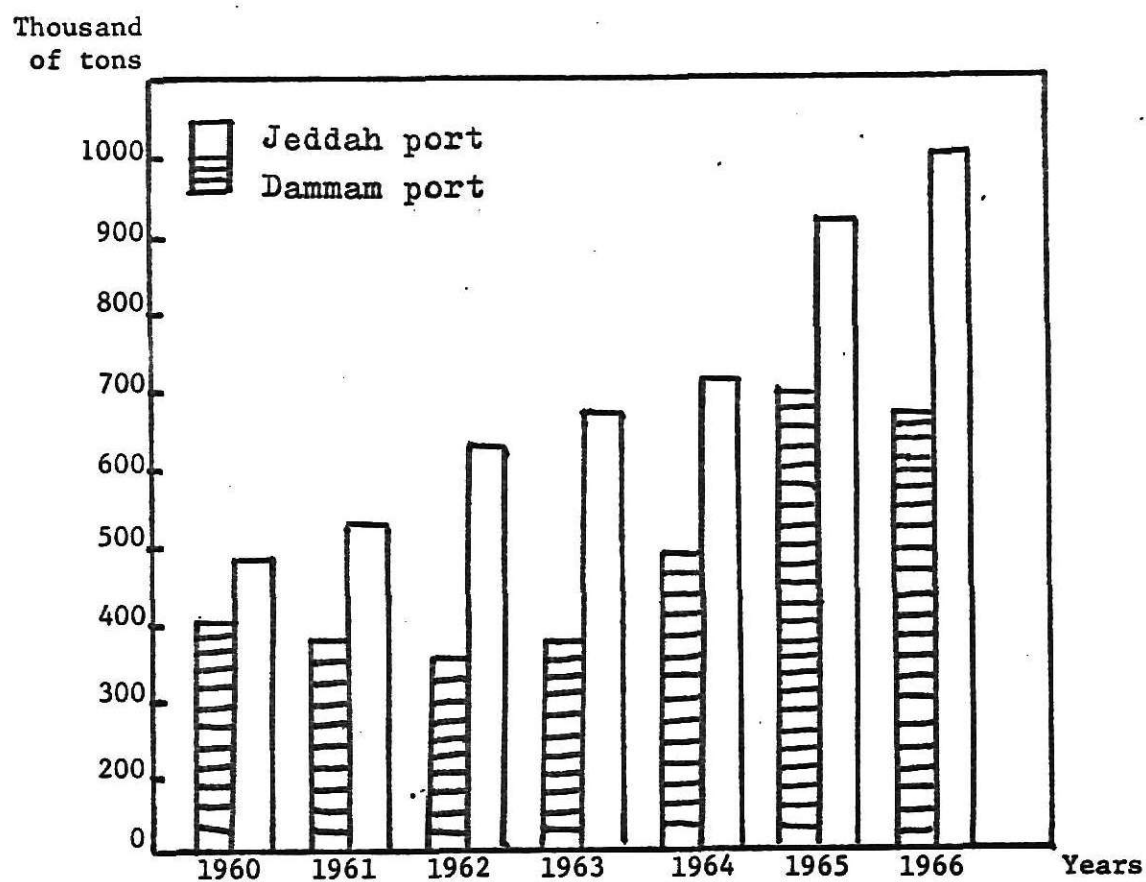


DIAGRAM 4

CARGO UNLOADED IN JEDDAH AND DAMMAM PORTS
FROM 1960 to 1966



Source: Tables 6-10, Statistical Yearbook of 1967.

roads and highways. Table 4 and Diagram 5 show the total exports and imports in terms of millions of riyals.

Weekly markets are held in villages and small towns. In the larger cities, there are department stores, bazaars, shops, and supermarkets. The shopkeepers buy their goods from wholesalers and importers. Larger stores import directly and sell to the public in the major cities.

Money has been in use in the country for a long time. The Saudi riyal of 20 quirsh, with a par value of 157.5 miligrams of fine gold, is the official currency of the country. The official exchange rate is \$0.22 per riyal²¹.

Prior to the development of the oil industry, foreign trade was mostly with the western world and it formed only a small portion of the total trade of the country. This situation changed after the Second World War, and the country now depends heavily on foreign trade. There have been no foreign exchange or import restrictions, and the level of imports is determined by the market demand. In recent years, government expenditures and personal incomes have increased steadily. Table 4 indicates the manner in which the exports and imports have been changing during the years 1955-56 to 1967-68.

During 1967, total imports, which amounted to SR 2.288 bil-

²¹Thomas W. Shea, "The Riyal: A miracle in money", Aramco World-Magazine, Jan. 1968, pp. 26-33.

TABLE 4

VALUE OF EXPORTS AND IMPORTS IN MILLIONS OF
RIYALS FROM 1955-56 TO 1967-68

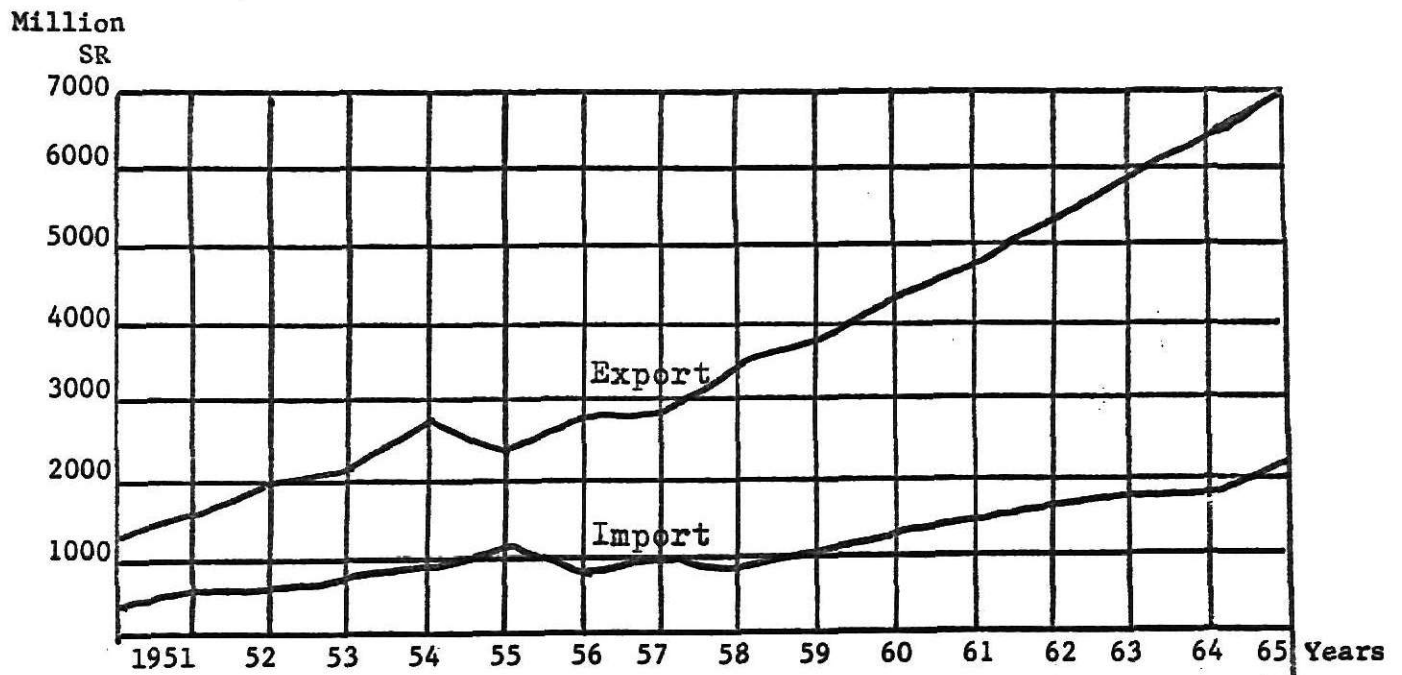
<u>Year</u>	(Million riyals)	
	<u>Exports</u>	<u>Imports</u>
1955/56	2,672.3	1,018.6
1956/57	2,470.0	1,072.8
1957/58	2,914.9	877.9
1958/59	2,947.9	964.7
1959/60	3,316.5	917.6
1960/61	3,888.5	1,052.9
1961/62	4,231.0	1,155.2
1962/63	4,631.7	1,266.0
1963/64	5,597.2	1,357.7
1964/65	5,984.4	1,692.7
1965/66	6,838.4	2,058.4
1966/67	7,654.9	2,288.2
1967/68	7,605.7	2,241.5*

Source: Table II, Annual Report, op. cit., 1967.

Note: From 1954 to mid 1959 the official exchange rate was 3.75 SR to a U. S. dollar. Beginning from mid 1959 the official rate has been 4.5 SR per U. S. dollar.

*Provisional.

DIAGRAM 5

VALUE OF IMPORTS AND EXPORTS OF SAUDI ARABIA
1951 TO 1965

Source: Table 7-5, Statistical Yearbook of 1967, Ministry of Finance, Saudi Arabia.

lion, can be broken down into the following major categories²².

Foodstuffs	SR 693 million
Building materials	SR 305 million
Textiles and clothing	SR 148 million
Machinery equipment	SR 694 million
Chemical products	SR 118 million
Miscellaneous	SR 330 million

The U. S. has provided 21.8 percent of the total imports and western Europe 34.6 percent. Diagram 6 shows the imports and exports to different countries.

C. The Problem

From this general background, it is easy for one to understand that oil production forms the backbone of the country's economy and forms the greatest source of governmental income²³. The production and prices of oil are subject to exogenous factors like the demand and supply conditions in the importing countries. Under these conditions the economy of Saudi Arabia is highly vulnerable. The shortcomings of specialization in one or few products have been widely discussed by several renowned economists²⁴. To cope with this problem the diversification of industry and the planned development of various sectors of the economy are essential.

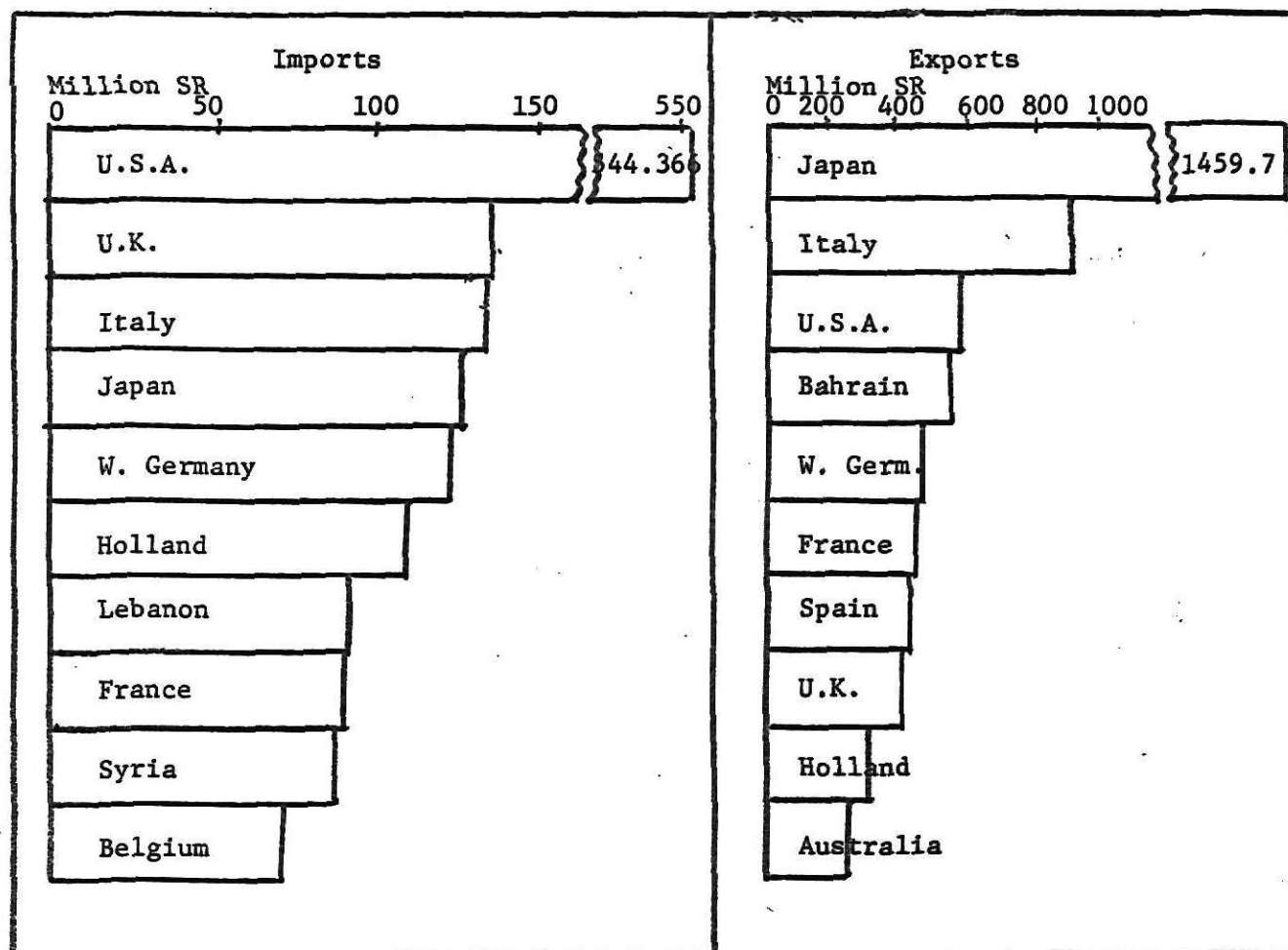
²²Statistical Summary, Saudi Arabian Monetary Agency, (Jeddah, Saudi Arabia, 1967). pp. 6.

²³Revenues from oil represent 72 percent of government revenues for 1967-68, and about 50 percent of the estimated gross national product.

²⁴Meier, R. L., Development Planning, (New York: 1965), p. 22.

DIAGRAM 6

EXPORT AND IMPORT OF THE
TEN LEADING COUNTRIES WITH TRADING RELATIONSHIPS
WITH SAUDI ARABIA FOR THE YEAR OF 1967



Source: Table 7-8, Statistical Yearbook of 1967, Ministry of Finance, Saudi Arabia.

The development of the industrial sector may be considered necessary for diversification and the maintenance of a high and stable rate of economic growth. The benefits of industrialization are numerous: industrialization helps in raising national income; it helps in expanding the employment opportunities; and it opens new channels for investment of idle capital, which is very important for a country like Saudi Arabia. In addition, it has an indirect effect on activities in other sectors of the economy. Furthermore it induces a social and cultural breakthrough from the traditional mode of living which has dominated the country for centuries²⁵.

In Saudi Arabia, similar to other developing countries, a high priority is placed on rapid industrial growth because it is recognized that expansion of industry is the most dynamic factor in economic development. Furthermore, the country has only a very small percentage of its total land area that can be used for agricultural purposes. In addition to the problem of the availability of arable land, lack of irrigation facilities has further aggravated the problem of agricultural development.

Under the circumstances mentioned above, it is not out of the way to lay stress on industrialization rather than on agriculture.

Several supporting factors in the argument for the indus-

²⁵Hambridge, G., Frederick A. Praeger, Dynamics of Development, (New York: 1964) p. 142.

trialization of Saudi Arabia can be indicated. The political and social environment in Saudi Arabia and the past experience of the developed countries has led to an unwavering belief that industrialization is the only solution to the problems of the developing countries. National pride and prestige make the Saudi Arabians believe that industrialization is a symbol of a modern state. It is believed the capital and other resources that are readily available in Saudi Arabia will be more productive in industry than in other sectors of the economy. As a result it would be possible to achieve a higher rate of economic growth which in turn results in higher per capita income and higher standards of living. There is less risk involved in industry as compared with producing primary products where the risk rising from price fluctuations is more common. For example, during the 1930's the depression of the advanced countries was reflected in low prices for primary products, with an inelastic supply and a drastic drop in demand.

There is a desire for economic independence due to the fear that manufactured imported products from the advanced countries may be cut off because of war, depression, or economic policy. In this connection it is needless to mention that Saudi Arabia has suffered during the Second World War and during the Suez crisis in 1956 for want of imported products. At present, due to June war of 1967 with Israel, and the possible continuation of the same, the impact on the imported products is difficult to

predict.

The introduction of industry is expected to lead both to further industrialization and to the improvement of agriculture.

But, questions arise as to how fast and how far a country like Saudi Arabia should go in the process of industrialization. Some of the answers depend upon the country's resources for production. In this respect, Saudi Arabia enjoys certain advantages over most of the developing countries, which makes its efforts less difficult.

The most important of the advantages that Saudi Arabia has is a sizeable recurring foreign exchange income that can be devoted to the development of the country and the welfare of its people. It also has a cheap and abundant power supply in the form of crude oil and natural gas which can be made available by the use of pipelines. The continuous increase in government expenditure and personal income lead to an increase in the demand for manufactured goods. The availability of large sums of personal savings which have been deposited in the domestic and foreign banks is important, as is the availability of natural and mineral resources like marine fishing, iron, copper, gold and silver.

Thus, there appears to be both a need for and the possibility of industrial development in the country. More discussion of protective tariff will be given in the chapter dealing with pro-

blems associated with industrialization in Saudi Arabia.

D. Definitions of the Terms

According to the United Nations "manufacturing is defined as the mechanical or chemical transformation of inorganic or organic substances into new products whether the work is performed by power-driven machines or by hand"²⁶. However, the definition of manufacturing for the purpose of this study includes only manufacturing of finished products using power-driven machines. Thus, manufacturing is used in this study to mean the output of finished products using power-driven machines.

The manufacturing performed by hand will be considered handicrafts.

Further, the manufacturing industries, for purposes of easy and clear presentation, have been dealt with under the following sub-groups: heavy industry, medium industry, and small industry. Heavy industry is that which employs more than 150 persons on its payroll, and is usually characterised by a large capital investment. Under this group are included industries petro-chemical, iron and steel, fertilizer factories and so forth. This type of industry generally involves participation by the government because of heavy capital. Medium-Scale industry employs anywhere

²⁶United Nations, Statistical Office, Indexes to the International Standard Industrial Classification of all Economic Activities, Statistical Papers, Series M, No. 4, Rev. 1, Add. 1. (New York: 1959), pp. 22.

from 25 to 150 persons on its payroll and is usually characterised by using comparatively less capital than heavy industry. Industries under this group include cement factories, gypsum factories and so forth. This type of industry is generally owned by the private and public corporations and co-operatives.

Small-scale industry generally employs fewer than 25 persons and involves small capital requirements. This could generally be financed by a single individual or by a group of two or more. In this group are the furniture factories and building materials like wood-work, bricks, and so forth.

II THE INDUSTRIAL STATUS BEFORE 1960

A. The 1940-1950 Period

During this period there was no significant industrialization except for the oil industry, which was the first modern industry to be established in the country. Prior to 1940, there were some handicrafts centered around the major cities. These handicrafts supplied gowns, shoes, and the carpentry and bricks needed for construction of houses and other structures. Many parts were quite isolated from others because of the lack of adequate motor transport and other transportation to cover long distances¹.

Even the oil industry was not important in the Saudi Arabian economy until after the Second World War. The annual revenues from this source of oil did not exceed \$3 million from 1939 to 1945. This amount increased from \$3 million in 1945 to \$10 million in 1946, and then to \$22 million in 1947. Since 1947, the annual revenue from the oil industry has been increasing steadily. Table 5 shows the crude oil production and royalties between 1939 and 1949.

A second important step in the industrial development in Saudi Arabia came in 1944 following the construction of a refinery in Ras Tanura. The company (Aramco) had to construct the refinery in accordance with an agreement with the government

¹Philby, Saudi Arabia, op. cit., pp. 316.

TABLE 5

CRUDE OIL PRODUCTION AND ROYALTIES FROM 1939-1949

<u>Year</u>	<u>Barrels of Crude Oil</u>	<u>Royalty payment million dollars</u>
1939	3,933,902	\$ 3,212,565
1940	5,074,838	4,661,001
1941	4,310,110	3,448,571
1942	4,530,492	3,414,326
1943	4,868,184	1,317,520
1944	7,794,419	3,204,270
1945	21,310,996	3,618,170
1946	59,943,766	10,408,531
1947	89,851,646	22,341,998
1948	142,852,989	35,316,594
1949	174,008,629	39,831,089

Source: Ministry of Petroleum and Mineral Resources, Riyadh, Saudi Arabia. The Impact of Petroleum on the Economy (and Social Life) of Saudi Arabia, October 1963, p. 9.

of Saudi Arabia. In 1944, the crude oil piped to refineries amounted to 352,946 barrels. This figure jumped to more than 29 million barrels in 1946 (i.e., 80,000 barrels per day). In 1949, 46,270,083 barrels of crude oil were refined. The refined products produced in 1949 were as follows:

	<u>Barrels</u>
Regular gasoline	10,915,120
Kerosene	2,513,878
Diesel oil	11,940,597
Fuel oil	18,419,192
Total	<u>43,788,787</u>

Most of the quantities of refined products were destined for export to countries lacking refineries. Thus additional markets were created for the Saudi oil, which resulted in the increase of its total exports. A smaller part of the refined products, however, was destined for local consumption.

In order to process the crude oil produced and make it ready for export, the company had to construct many pipe lines for collecting the oil from the wells and for the terminal at Ras-Tanura. Two submarine pipelines, however, were laid in 1945 between Dammam and Rifa' in Bahrain Island to feed Saudi crude oil to the refinery. The two lines were 33.5 miles in length and 12 inches in diameter with a total capacity of 200,000 barrels per day. Deliveries through these lines totaled about 13.3 million barrels in 1945, and increased to 44.8 million barrels in 1949².

²The impact of petroleum on the economy, op. cit., pp. 10.

In December 1950, the 1068 mile pipeline between Abqaiq and Saida, Lebanon, was finally completed. The pipe line passes through Saudi Arabia, Jordon, the Syrian Arab Republic and Lebanon. The main pump station located at Qaisumah Rafha, Badanah, and Turaif, all in Saudi Arabia, provided an initial capacity of 320,000 barrels per day³.

When the Second World War began, certain markets were closed; consequently, crude oil production went down from 5,074,838 barrels in 1940 to 4,310,110 barrels in 1941. Production did not return to the 1940 level until 1944. Because the Saudi Arabian government depended heavily on the royalties derived from the production of oil during the above period went down, the government had to face many important economic problems. As a result of this and several other experiences similar to this, the government of Saudi Arabia has aimed to industrialize the country to diversify production and create a stable and sound economy.

The increase in the amount received in royalties is closely associated with the increase in the government budget. However, want of adequately trained and qualified administrative personnel retarded progress. For example, the only ministries in existence in 1948 were the Ministries of Finance and Defence.

The Saudi Riyal was then equal to the Indian Rupee with a silver content of 0.34375 ounces. Its value in terms of U. S.

³Aramco Handbook, op. cit., pp. 148.

dollars or British pounds fluctuated widely and did not have a stable value in terms of these currencies.

Government income from oil in 1948 was 65.2 percent of total income, while its income from customs constituted 11.1 percent of the total income, and that of pilgrims' fees constituted 23.7 percent. The receipts in 1948 and 1949 were small enough to discourage any government plan for economic and social development. As the figures indicate, the amounts in the previous budget are small and indicate expenditures that barely satisfy the financial needs of a government in the modern world. The contribution to socio-economic development by the government was noticeable, in spite of the small amount of receipts from oil.

It was probably not until 1946 that oil income exceeded other sources of government income such as the customs or pilgrimages. Oil income has set the initiative for conceiving a wide plan of development in the future based on the expectation of a growing income from oil and on economic stability from this new flow of money. Oil brought with it a feeling that many things could be done. If income from oil in a certain year did not meet expectations, the government could resort to borrowing on the strength of the big oil assets.

The oil industry contributed largely to a considerable amount of trained labor, while the development of the pilgrimage facilities and the improvement of health and education among the

TABLE 6

BUDGET ESTIMATES
NOVEMBER 1947 - NOVEMBER 1948 IN
SAUDI RIYALS

Receipts:

Oil exploitation (royalties and rental)	140,000,000
Customs	25,000,000
Other receipts	49,587,000
Total	<u>214,587,000</u>

Expenditures:

Royal family and related expenditures	26,831,000
National security (Ministry of Defence and other)	75,831,000
Major civilian departments	41,842,000
Public service	15,415,000
Debt service	6,260,000
Other current or capital expenditures	48,600,000
Total	<u>214,587,000</u>

Source: Ministry of Petroleum and Mineral
Resources, Riyadh, Saudi Arabia, op. cit., p. 13.

public could be greatly attributed to independent government initiative quite apart from the oil industry and its income.

The oil industry had a direct effect on the status of labor in the country. For the first time, a large portion of the population was able to work in one big industry and thus a new group of oil workers emerged whose activities varied widely from truck driving to pipe welding. They were paid higher wages than other industries such as construction. In 1948, the number of Saudi Arabians working for the Arabian-American Oil Company was 12,226 representing 60.4 percent of the total number of the companies employees. This figure includes 6,247 Saudi employees that were added in that year alone⁴.

The emergence of this labor class with its added purchasing power created a new demand for imported manufactured goods. It also set a standard for other workers and employees who aspired to acquire the same income and living status. The lack of locally trained workers led to the immigration of foreign workers whose wages were almost equal to that of Aramco employees. The government also had to pay higher wages and salaries and other businesses were required to do the same. Thus a chain of raising wages and salaries were created.

During this period the only paved road in Hejaz was the road between Jeddah and Mecca. Another important road was the Jeddah-Medina road which was 239 miles, but it was not yet paved.

⁴Ministry of Petroleum and Mineral Resources, op. cit., pp. 14.

Another road, 600 miles long, ran between Jeddah and Riyadh. This road was also not paved because there was not yet enough transportation to justify asphaltting.

With the exception of the Jeddah-Mecca road, the best roads existing then were those constructed by Aramco. They connected the Dammam and Dhahran area and various other centers of oil works and terminals. Although they were not yet asphalted, they were made of gravel and covered by crude oil.

The surveying for the purpose of constructing the government railroad between Riyadh and Dammam began in 1946. The work was finally completed in 1951 with the linkage of the main line. The railroad runs 357 miles and has seven main stations. The construction of the railroad cost about \$50 million.

Jeddah, the most important port in the Red Sea during this period, served mainly pilgrims and the movement of imported products to the western parts of Saudi Arabia. On the Arabian Gulf, the most important ports were Al-Khobar and Ras-Tanura, which were used to handle all the equipment by the Arabian-American Oil Company. Other ports were Dammam, Qatif, Tarut, and Jubail, which, however, were not modernized.

Towards the end of this period, on September 17, 1951, a contract was signed with the Mackay Radio and Telegraph Corporation to supply, design, and install radio equipment to transmit messages between Jeddah and New York, North Africa, Paris, and Rome.

Unfortunately, very little information is available about health and educational institutions for this period. With the exception of the Dhahran Hospital that was built by Aramco in 1948, it appears that very little work was done in these fields.

In general, it could be said that the needed infra-structure for economic development had been created during this period which in turn helped the industrial growth during the next period from 1950 to 1960. The creation of a new transportation and communication network increased the market size for local industries and connected the separate parts of this large country. The establishment of educational institutions led to the increase of skilled labor and created an intellectual class which demanded a higher standard of living and a new pattern of consumption which used more manufactured products.

B. The 1950-1960 Period.

Several developments took place in the public sector of the economy during this period. Several schools and hospitals were built by the government. Highways were constructed, new communication lines were initiated, and various industries appeared for the first time. It is rather difficult to trace with detailed accuracy the effect of the oil industry on these developments, and to what extent the government, with its receipt of oil income, stimulated the development activities. It is perhaps safe to say that the government helped a great deal in several phases

of development, which in turn induced the growth of local industries.

The oil industry has certainly exerted a great deal of influence on the development of a new group of skilled workers and the construction of roads in the Western Province. The government has had a major impact on the construction of schools, hospitals, new roads and communication lines. The flow of income provided originally by oil created new purchasing power and savings that induced industrial and agricultural production to grow more rapidly.

Table 7 gives the number of students in different schools during the years 1958-59 and 1959-60.

In percentage terms the increase in the number of students at the various educational institutions between the years 1958-59 and 1959-60 was 6.32 percent per annum. This could be considered as a good sign of improvement in the field of education. The schools were for males. During the 1960's, the government initiated a new plan for educating girls. Schools for girls of other nationalities were already in existence and numbered 33 in 1960. Of the 51 schools in 1960, only 18 were government schools. Of the 11,757 students, only 5,204 (less than 50 percent) were enrolled in the government schools.

Several steps were taken by the government to improve the hospital facilities. New hospitals were added and more physicians were hired. The number of admissions to hospitals was

TABLE 7

NUMBER OF STUDENTS ATTENDING SCHOOL
DURING YEARS 1958-59 AND 1959-60

<u>School</u>	<u>1958-59</u>	<u>1959-60</u>
Elementary	93,724	95,960
Intermediate	3,912	4,466
Intermediate Secondary	1,737	1,908
Secondary Schools	698	798
Institute of Theology	304	337
Old Schools (Elementary)	1,668	2,683
Industrial Intermediate Schools	641	867
Adult Education	5,183	7,168
University Colleges	136	188
Riyadh University	64	211
Religious Colleges	1,811	2,026

Source: Table 2-2, Statistical Yearbook of
1967, op. cit., p. 44.

increased. In addition to hospitals, a number of medical centers to promote better health practices were opened. In 1958 the number of clinics, and medical centers in Saudi Arabia was 3,349 and 51 respectively. In 1959, the number of physicians, nurses, pharmacists, and other medical specialists employed by the government was 249, 550, 15, and 198 respectively. The number of patients entering the hospitals for treatment increased from 29,510 in 1958 to 35,755 in 1960.

In June 1954 the Department of Roads was founded by the government. In later years it was annexed to the Ministry of Transportation and Communications. When this department was founded only 237 kilometers of asphalted roads had been completed, including 35 kilometers for pilgrimage roads, 72 kilometers between Taif and Hawiyyah airport, and 100 kilometers of the Jeddah-Medina road.

A number of developments took place in several ports in the country. In Jeddah, a pier was built on steel piles that jut out 380 meters from the customs island. The depth of the berth alongside the northern part is 31 feet and along the southern part 29 feet. There is a fixed crane capable of hoisting a load of 50 tons and 12 mobile cranes of 3 tons capacity each. The port is self-supporting in matters of current accounts, and the port authority has a large degree of autonomy. It owns 11 lighters (barges) capable of loading 70 to 400 tons which operate between the ships and the pier. In Dammam, the new project of King Abdul-Aziz port commenced on July 1, 1959,

with the aim of extending the old facilities. Work was completed on July 1, 1961, and cost \$15 million.

Between 1950 and 1960, there was appreciable improvement in the field of communication. The projects were executed by the Post Office, Telegram and Telephone Department in the Ministry of Transportation and Communications.

Developments in the fields of education, health, transportation and communication, involving heavy capital investments on the part of the government of Saudi Arabia, formed the basis for the industrialization during the period 1950 to 1960, as well as the period following 1960.

In 1954, there were only five industrial companies with an estimated total investment of SR42 million or more. Four of these companies were financed by domestic capital and the fifth by mixed capital (domestic and foreign)⁵.

In the period prior to the 1960's, industrial enterprise was mainly associated with private initiative which commanded only a small amount of capital and organizational ability. Hence, the structure of the industry was characterized by small and medium scale consumer goods industries. Industries played a very limited part in the development programs of the country at that period.

During the period between 1950-60, the country experienced

⁵United Nations, Industrial Development in the Arab Countries, (New York: Department of Economic and Social Affairs, 1967), pp. 112.

a steep rise in its revenues from oil and this increased revenues from oil led to increased government expenditures in various sectors of the economy, which in turn resulted in an increased demand for consumer goods. The increased demand encouraged the import of consumption goods from other countries.

In fact, external trade induced comparatively little internal development in this period. It is apparent that after Saudi Arabia had become a part of international economy in the 1940's, its production did increase, but mainly in the direction of exports of crude oil only.

To explain this situation, some argue that for almost all of the developing countries, foreign trade has frequently been much cheaper and easier than internal trade, and their devotion to international specialization has often been much easier and earlier than specialization among regions within their own countries⁶.

This has been true in Saudi Arabia because, on the demand side, the expansion in exports of crude oil was induced by the growth of demand in the developed countries; on the supply side, the movement of resources within the country raised the output of exports. In this case foreign trade caused a shift of resources to specialization in production of crude oil

⁶K. E. Berrill, "International Trade and the Rate of Economic Growth", Economic History Review, April 1960, pp. 352.

for exports.

A very large part of the new purchasing power created by the income derived from oil was directed towards importation of consumer goods rather than investment goods for development.

In the same time, many of light consumer goods were imported rather than produced locally at cheaper costs and hence supplied at cheaper prices.

Table 8 shows the income derived from the export of oil and the amount spent in importing consumer goods.

In spite of the increase in consumer goods imports during this period, private small scale industries appeared for the first time and industrial activities in the country made some progress. Many new industries appeared, most of which were small and medium scale consumer goods industries with private ownership. The products produced by these newly established industries could satisfy almost all of the local demand. The establishment of cement factories, date processing, soft drinks manufacturing, and printing industries can be considered to fall in this group. A good beginning was also made in the field of organized large scale industries by erecting and putting into operation a cement factory in Jeddha with a capacity of 200 tons per day by 1960.

Table 9 gives the number of industries organized during the period between 1950-60, capital invested, and the productive capacity of each factory.

TABLE 8

INCOME DERIVED FROM THE EXPORT OF OIL
AND VALUE OF IMPORTS BETWEEN 1951 AND 1960

<u>Year</u>	<u>Value of imports (in million riyals)</u>	<u>Income from oil export (in million riyals)</u>
1951	351.2	426.1
1952	436.2	790.0
1953	485.5	636.2
1954	754.7	880.5
1955	1018.6	1268.3
1956	1072.8	1074.4
1957	877.9	1077.7
1958	964.7	1107.4
1959	917.6	1407.6
1960	1052.9	1584.9

Source: Saudi Arabian Monetary Agency, Annual Report of 1960.

TABLE 9

NUMBER OF FACTORY UNITS ORGANIZED IN MANUFACTURING SECTOR
BETWEEN 1950-1960 BY INDUSTRY, ESTIMATED CAPITAL
INVESTMENT AND PRODUCTIVE CAPACITY

<u>Number of factory units</u>	<u>Type of industry</u>	<u>Estimated capital investment (in million SR)*</u>	<u>Estimated pro- ductive capacity</u>
2	Cement	70.00	900 tons per day
1	Gypsum	12.00	100 tons per day
3	Mud bricks	0.25	1.2 million pieces per year
175	Cement bricks	1.90	91,000 bricks per day
48	Tiles and marbles	2.30	50 million pieces per year
7	Truck frames	0.73	480 units per year
9	Wooden furniture	1.70	700 cubic feet per month
5	Metallic furniture	2.34	. . .
5	Bread ovens (big)	0.90	17.5 tons per day
7	Confectionary	0.45	1900 tons per year
1	Date packing	0.50	2.0 tons per day
25	Tanning	0.17	37,200 pieces per year
15	Soft drinks	16.00	63,400 bottles per hour
39	Ice	5.00	800 tons per day
24	Printing press	8.00	2,200 tons paper per year
2	Paper packaging	1.00	810 tons per year
2	Laundries (big)	1.50	15 tons per day
3	Plastic products	2.14	. . .
1	Tents	0.40	. . .
1	Gases	1.26	. . .

Source: Ministry of Petroleum and Mineral Resources, op.
cit., p. 16.

* This estimated capital investment is equal to the initial
value of assets in each unit.

III INDUSTRIAL POLICY IN THE 1960'S

A. Development Strategy:

In 1960, the year marking the end of financial difficulties that had strained the economy during the second half of the 1950's, the government began to give considerable attention to the formulation of development policy. The first step the government took was the establishment of the Economic Development Committee, which invited the World Bank Mission to explore the possibilities of economic development in the country¹.

During the same year, efforts were made to set up planning machinery, and as a result the government established a Supreme Planning Board. Later this was replaced by the Planning Commission. The program of economic development became an important factor in the economy. The attack on the problems of development was made mainly on two fronts - the growth strategy aimed at a steady expansion in the outlays earmarked for development plans and the development expenditures directed mainly towards providing the necessary infra-structure needed for the development.

On the one hand, the human resources were to be strengthened through efforts in the field of public health and education, and on the other hand, water, power, transport, and communication

¹World Bank, op. cit., p. 16.

facilities were to be developed.

The government proposed to assist private enterprise directly by setting up financial institutions, by providing special concessions and facilities for agriculture, and by promulgating the necessary legislation to assist the development programs. Considerable progress was made in these fields.

Thus, the main features of development strategy in the country, as reflected by the pattern of developmental expenditures, were: improvement of human resources and equalization of economic opportunities through free education and health facilities; rapid extension and improvement in the transport and communication network, particularly roads, to reduce transport costs and increase industrial and social development; investigation and development of water resources to remove the acute shortage of water which seriously impedes both agricultural and industrial development; over-all development of towns through large grants to municipalities and major urban water and electric supply projects; and industrial development through the government agencies in close association with the private sector, with special emphasis on large capital-intensive industries favored by the special natural resources endowment of the country².

After 1960, the government adopted an industrial policy consistent with the economic and social conditions of the country.

²Annual Report of 1961, op. cit., pp. 7.

This policy encouraged the expansion of the industrial sector as a means of accelerating economic development. Industrial and commercial activities were left mainly to the private sector, which owned sufficient financial resources and exhibited a mounting interest in investing in the industrial enterprises.

As a preliminary step, the state was to undertake, either independently or in co-operation with local or foreign investors, the establishment of strategic and vital industries in which the private sector is unlikely to invest alone in the short run, either because of the huge size of the undertakings or because of the technical complexities involved. The budget allocation for the development projects has increased steadily since 1960, as shown in Table 10 and the subsequent diagrams.

It can be seen from the table that the budget allocation from the government for development projects increased steadily from 1961 to 1967. These figures were collected from different annual reports of the Saudi Arabian Monetary Agency to present a comprehensive picture of the development expenditures and their trends.

Diagrams 7, 8, and 9 give a clear and comprehensive picture of the development allocations for the period 1961-62 to 1966-67.

B. Industrial and Commercial Legislation

The most significant development providing encourage-

TABLE 10

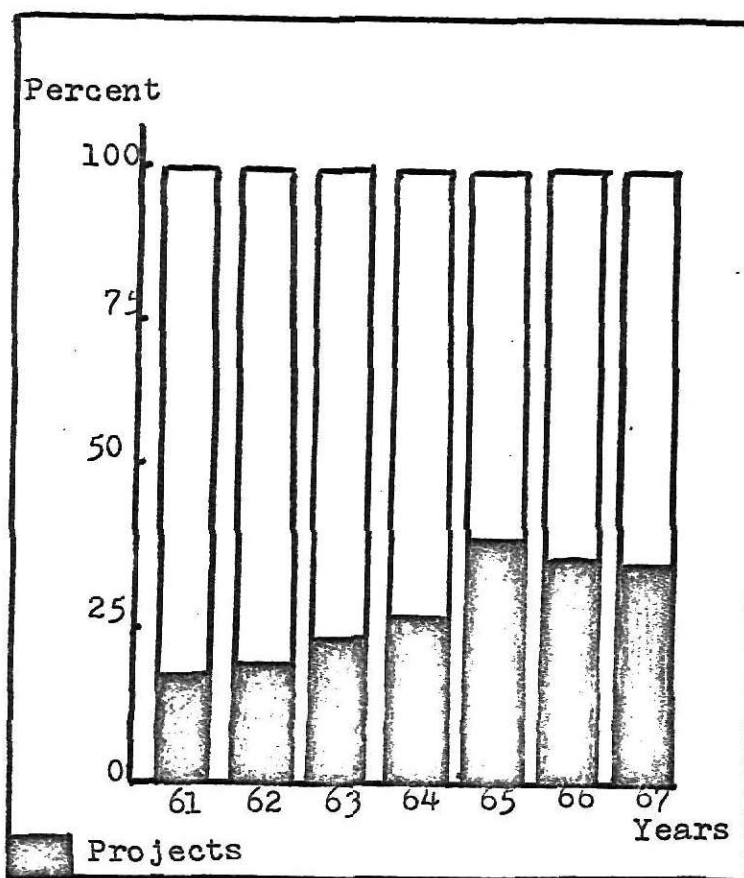
DEVELOPMENT BUDGET 1961- 1967

	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>
Transport and Communication	106	145	196.9	417.7	506.3	732.0	709.2
Agriculture, livestock and water	25	34	86.6	149.0	203.8	251.0	380.3
Petroleum and minerals	--	20	23.3	94.7	90.8	50.1	49.1
Industry and commerce	--	--	8.7	7.9	13.7	20.9	11.6
Labor and social affairs	--	12	6.2	14.4	19.0	13.8	11.1
Education	15	36	60.8	74.1	120.1	141.6	91.2
Health and red crescent	13	12	16	23.5	28.1	26.3	21.8
Municipalities	50	92	110.4	197.2	231.7	284.0	247
Holy mosques	40	40	40	65.9	40.1	20	15
Hajj affairs	--	--	1.9	15.6	21	34.8	17
Information	--	--	--	--	40.4	85.0	72.4
Others	--	--	--	--	337.6	327.5	905.0
Less: expected short full	--	--	--	--	--	--	-100
Total:	400	550	701.6	1,205.2	1,661.6	1,988.0	2,430.8

Source: Annual Reports from 1961 to 1967, Saudi Arabian Monetary Agency, Jeddah, Saudi Arabia

DIAGRAM 7

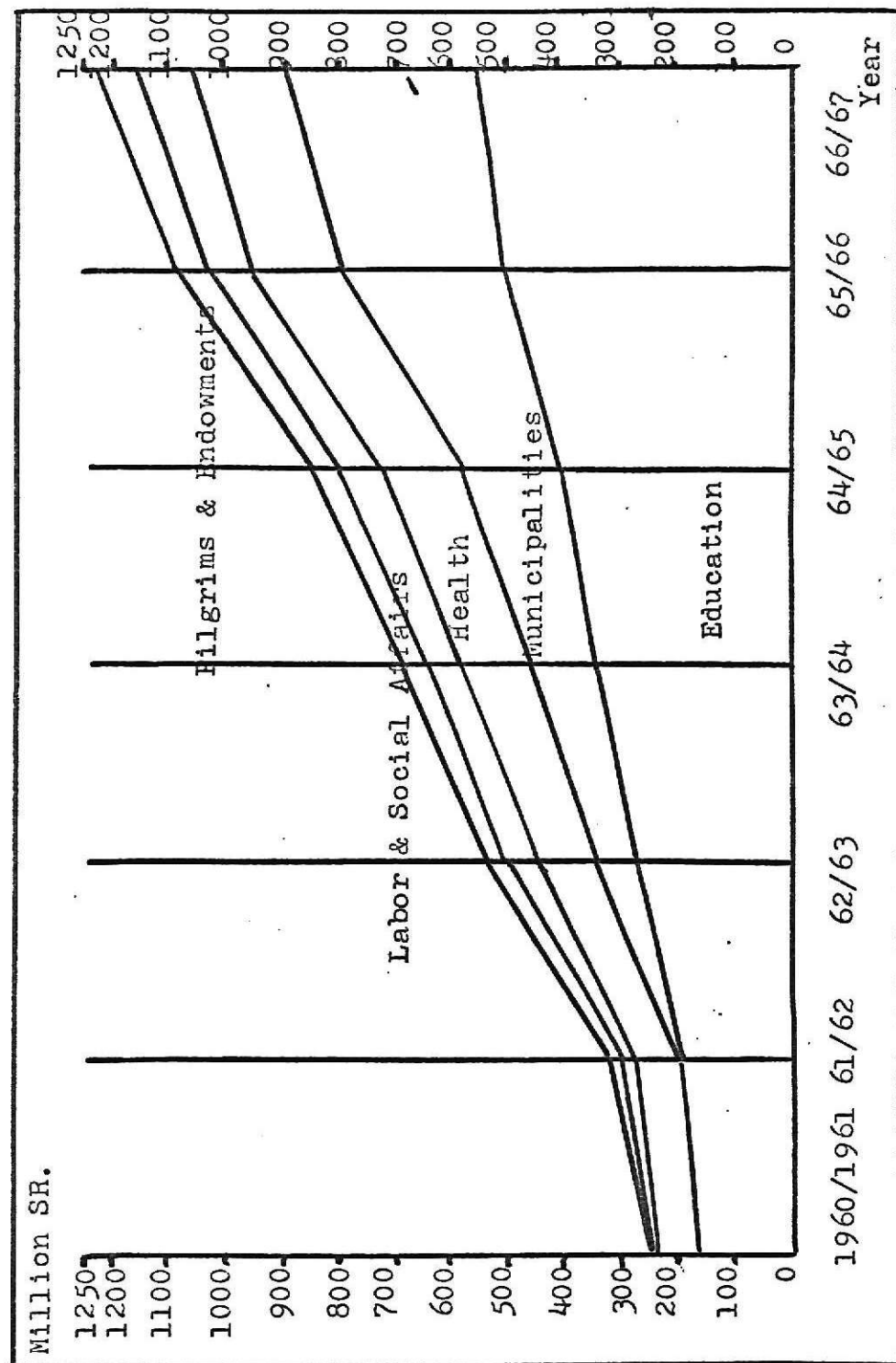
EXPENDITURES ON DEVELOPMENT PROJECTS AS A
PERCENT TO TOTAL GOVERNMENT EXPENDITURES
1961 - 1967



Source: Tables 9-1 and 9-7, Statistical Year Book of 1967.

DIAGRAM 8

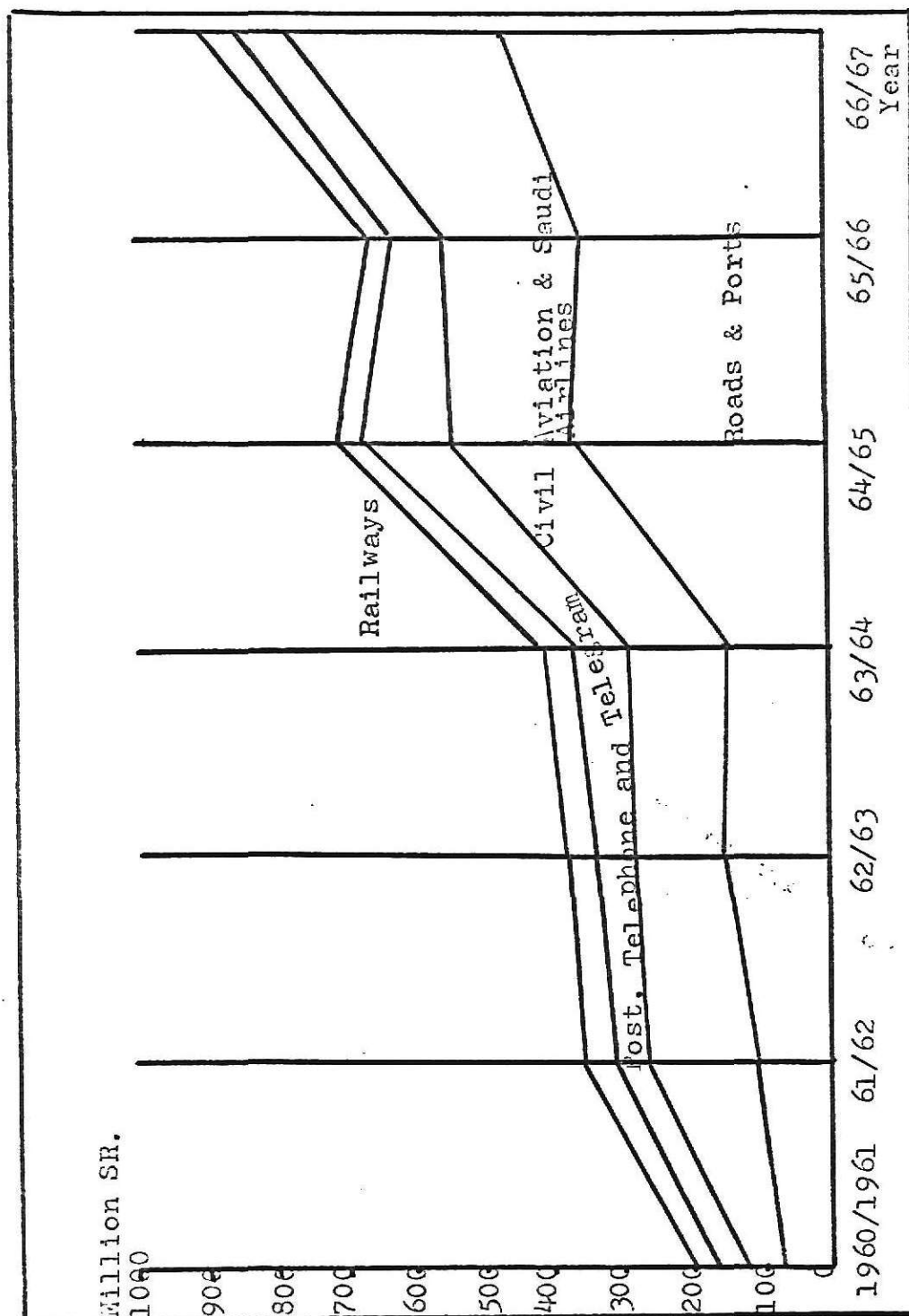
BUDGET APPROPRIATIONS FOR SOCIAL SERVICES,
1960/1961--1966/1967



Source: Table 3-1, Statistical Yearbook of 1967, Ministry of Finance,
Saudi Arabia.

DIAGRAM 9

BUDGET APPROPRIATIONS FOR COMMUNICATIONS 1960/1961--1966/1967



Source: Table 6-1, Statistical Yearbook of 1967, Ministry of Finance, Saudi Arabia.

ment for industrial investment by the private sector was the issuance of the Royal Decree in May 1962 containing the "regulations for the protection and encouragement of National Industries"³. The main concessions extended to the industrial sector under this decree were: (1) exemptions from the payment of customs duties on machines, tools, equipments, spare parts, and packing materials imported for use by the industrial establishments, subject to recommendations by the Ministry of Commerce; (2) exemptions from the payment of customs duties on imported primary raw-materials, semi-processed materials, and containers of various types, provided such materials are not available in the country; (3) state land for nominal rents for factories and employees living quarters in industrial estates to be set up outside the municipal limits; (4) implementation of all or any of the following measures to protect locally produced goods: (a) prohibiting or imposing quotas on the import of goods that are similar to the one produced locally, (b) increasing tariffs on foreign imported goods similar to the one produced locally, (c) providing various forms of financial assistance to local industrial establishments; (5) exemption of export duties and all other taxes on the products exported from the country, by means of Royal Decree based upon Council of Ministers decisions; and (6) the creation of an industrial technical office within the

³The Royal Decree was issued by King Saud Ibn Abdulaziz.

Ministry of Commerce and Industry to screen proposals for new industries which are submitted to it and recommend appropriate action under the provisions of the regulations. The Minister of Commerce and Industry is empowered to implement these suggestions⁴.

In July 1962, a revision of tariffs was made. Several important commodities which were not produced locally were exempted from customs duties. Reductions ranging from about 16 percent to 50 percent were introduced in rates applicable to canned foods, fans, finished iron goods, sewing machines, automobile spare parts. Increases were made in the tariff rates applicable to products that could be produced locally, like readymade textile goods, tiles, marble, cement and gypsum. The object of increase in tariffs on certain goods was to protect the domestic industry from foreign competition.

On November 22, 1963, a public board for petroleum and minerals was established as an autonomous body and was affiliated with the Ministry of Oil and Mineral Wealth. In addition to producing and refining oil, this organization undertakes the processing at various stages of the mineral industry and assists in the expansion of other industries that depend on oil, natural gas, and minerals⁵.

A new foreign investment law was approved by Royal Decree

⁴The Annual Report, op. cit., 1963, pp. 16-17.

⁵The Annual Report of 1963, op. cit., 1963, pp. 16-17.

number 35, dated February 24, 1963, which replaced the decree of 1957⁶. The new decree resulted in liberalized policies on foreign investments. Although foreign investment in Saudi Arabia is not a necessity, such investments in domestic industries may achieve two objectives: they may attract and encourage domestic capital to enter the industrial field, and they may pave the way for the importation of technical and managerial know-how.

The 1963 Decree contains the following provisions: (1) the extension to foreign capital invested in development projects of all privileges enjoyed by national investors, and the decree also included a class for protecting and encouraging the national industries; (2) the exemption of foreign capital invested in development projects from income and corporate taxes for a period of five years beginning with the commencement of production, provided that national capital participation is not less than 25 percent of the total capital invested in the enterprise and remains so during the period of exemption; (3) the Ministers for Foreign Affairs and Interior would grant foreign investors, their employees, and laborers the necessary entry and exit visas and residence permits at the request of the Ministry of Commerce and Industry; and (4) the petroleum and mineral industries were excluded as these were covered by a specific law relating to them⁷.

⁶Ibid., pp. 21.

⁷The Annual Report of 1963, op. cit., pp. 9.

IV INDUSTRIALIZATION DURING THE 1960'S

A. PETROMIN and its Role in Industrial Development

In accordance with the policy of developing the economy by diversifying the sources of national income through the exploitation of the various abundant national resources and fully exploiting the huge petroleum wealth, the government established on November 30, 1962, the General Petroleum and Mineral Organization, henceforth referred to as "PETROMIN". The organization, with its headquarters in Riyadh, the capital of Saudi Arabia, was to participate in various industrial and commercial activities connected with petroleum and minerals with the purpose of promoting, developing and improving the petroleum and mineral industries, petroleum and mineral products and by-products as well as related industries.

This organization has the following role in industrial development: the implementation and administration of public petroleum and mineral projects in the country; the importation, directly or through the agents, of the mineral needs of the country; the preparation, on its own or through the others, of both theoretical and practical oil and mineral research studies, as well as actual operations entrusted to it by the government, with regard to searching for, producing, refining, purchasing, selling, transporting, distributing and marketing petroleum and minerals at home and abroad; co-operation with private companies and organiza-

tions undertaking petroleum or mineral activities in order to facilitate prospecting, exploration, exploitation, distribution and marketing; and the establishment of companies or enterprises at home or abroad. The organization will participate in the capital of these companies with the purpose of engaging in all phases of the industry of petroleum and minerals and their derivatives and by-products including trade transactions, transportation, sales, distribution and marketing.

The financial assets of the organization consist of funds contributed by the state treasury, loans which the Saudi Arabian Monetary Agency may place at the organization's disposal, all the movable property and real estate under its administration, and the loans contracted by the organization and the income realized from engaging in such commercial or industrial activities as may fall within the scope of its objectives.

The major financing of the projects undertaken by PETROMIN is contributed by the state treasury, but, in addition, financing is provided by private sector participation, joint-stock companies, and loans from international institutions.

As the largest industrial agency in the country, PETROMIN has faced various administrative problems. In 1964, the government established the College of Petroleum and Minerals in Dhahran to provide specialists to meet the increasing needs of the country for trained personnel. This college is expected to become a university in 1970, and will include an institute for higher

studies and accommodate no less than 2500 students. Already the college has a highly qualified staff of teachers of different nationalities. Many of the early problems of PETROMIN in finding personnel has been overcome during the past six years by establishing a number of successful training programs for its employees at home and abroad. Furthermore, PETROMIN includes an obligatory provision in all agreements with foreign companies that these companies will train the Saudi employees on the companies' projects so they can assume administrative and technical positions.

Table 11 shows the number of projects and the estimated capital outlay for the projects with PETROMIN for the period 1965-75.

B. Refining and Petro-Chemical Industries

Since oil refining is an important basis for the establishment of an integrated petroleum industry, it was natural for PETROMIN, which possesses the concession for marketing and distributing petroleum products throughout the country, to consider establishing refineries of its own. In preparing its study of the economic feasibility for the construction of the refinery, PETROMIN sought the help of Universal Oil Products Company, one of the major international companies specializing in this field. The firm recommended that the refinery be established with a production capacity of 12,000 barrels per day, using crude oil

TABLE 11

CLASSIFICATION OF PROJECT, NUMBER OF PROJECTS
AND ESTIMATED CAPITAL OUTLAY FOR THE PETROMIN PROJECTS
FROM 1965-75

<u>Classification of project</u>	<u>Number of projects</u>	<u>Estimated capital outlay in millions of SR</u>
Oil and mineral exploration	9	679.5
Oil refining and marketing	9	234.1
Fertilizers and petro-chemical industries	7	1,340.0
Iron and steel industries	7	206.3
Other industries	3	48.5
Total	35	2,508.4

Source: Table 2, United Nations, Industrial Development in the Countries of the Middle East, 1967, op. cit., p. 44.

produced by Aramco. This firm also prepared the specifications and technical plans for the refinery. In preparing these specifications, provision was made for sufficient flexibility to enable the refinery to produce various quantities to meet changing market conditions.

PETROMIN offered tenders internationally for the construction of the refinery and a number of major companies participated. The contract was awarded to the Japanese company Chiyoda. Chiyoda concluded the contract with PETROMIN on March 22, 1966, and undertook to build the refinery within a period not exceeding 20 months from the date of the execution of the contract. The refinery was completed as scheduled, and during the first few months it was successfully completing its preliminary tests in preparation for full capacity production.

The Jeddah Oil Refinery: Several reasons led to the selection of Jeddah as the site for PETROMIN's first oil refinery: the consumption of petroleum products in the western province alone is almost 50 percent of the total consumption of the country; Jeddah is located on the seashore, thus the easy transportation of crude oil from the Ras-Tanura terminal in the eastern province to the refinery is assured; since the Saudi Arabian Refinery Company had been granted - prior to the establishment of PETROMIN - a license for the construction of an oil refinery in Jeddah, a Royal Decree was issued on July 2, 1967, authorizing PETROMIN and Saudi Arabian Refinery Company to form a company

that would own the refinery, with PETROMIN owning 75 percent of the total shares of this company.

The Riyadh Oil Refinery: PETROMIN's Board of Directors decided to construct a refinery in Riyadh at an estimated cost of 100 million SR and a production capacity of 15,000 barrels per day. The refinery was to get its oil supply for the Khurais field, which is not far from the city of Riyadh. The Riyadh refinery met the petroleum product needs of the entire central province where consumption of petroleum products increased greatly owing to the rapid development of industry, agriculture, and construction.

The Saudi Arabian Tanker Company: To achieve an integrated oil industry in the country, PETROMIN decided to establish an affiliated tanker company which would undertake the transportation of crude oil from the eastern province to the Jeddah refinery and thus form the nucleus of a fleet of tankers enabling PETROMIN to enter international oil transportation.

The company transports crude oil to the Jeddah refinery and carries refined products to various parts of the country - especially remote areas which are difficult to reach by land routes.

The Saudi Arabian Fertilizer Company: Next to oil, the most important source of natural wealth in the country is natural gas. In the past, the released gas was disposed by burning. But when the uses of natural gas as a source of energy and as a

raw material in petro-chemical industries became apparent, quantities of it began to be utilized in oil production operations, and in supplying the necessary energy for a number of industries which were established in the eastern province of the country. However, a large part of the released natural gas was still going to waste. When PETROMIN was established, it possessed a number of studies indicating the possibility of utilizing natural gas in a number of industries, such as manufacturing of fertilizers, plastics and sulfur. In the light of these studies, PETROMIN worked towards the establishment of these industries, beginning with a chemical fertilizer industry.

Upon concluding the agreement in December 1964, with Occidental Petroleum Company and the International Ore and Fertilizers Company, PETROMIN decided to establish a plant in Dammam to produce 1,100 tons daily of urea fertilizer and 35 tons of raw sulfur per day. It was also decided to establish the Saudi Arabian Fertilizers Company for this purpose. Royal Decree number 13 of September 7, 1965, was issued to establish this company with a nominal capital of 100 million Saudi riyals divided into one million shares, providing that the concession of the company would be 30 years from the date of issue of the Royal Decree. PETROMIN placed 49 percent of the shares of public subscription by the citizens of the country while it retained

51 percent of the shares¹.

The demand by Saudi nationals for shares in this company was so large that within a short period all the shares placed for public subscriptions were covered. The total value of investment necessary for the establishment of this project exceeded 200 million SR. Therefore, the company sought the remaining amount needed through loans from international banks. This helped to introduce the company's name in world markets.

The contract for building the fertilizer plant was awarded to the chemical construction company, CHEMICO. The contract was signed on September 24, 1966. The plant is to be completed by the end of 1969.

The PETROMIN Sulfur Company: The idea of setting up a project to produce raw sulfur in the country goes back a number of years. Most of the studies conducted in the past on the utilization of natural gas in the country indicated the necessity of sweetening or desulfurizing the gas before it could be processed. Many difficulties, however, stood in the way of carrying out the project for a number of years. Among these were the conditions of the world sulfur market which did not improve until 1963. By then a number of factors had led to a rapid and unexpected increase in the demand for sulfur which world suppliers were unable to meet. The continuous improvement of sulfur on the world market and the growing need for the utilization of the

¹Progress Report, General Petroleum and Mineral Organization, (Riyadh, Saudi Arabia: 1968). pp. 45.

natural gas led PETROMIN in 1965 to study a project for the establishment of a plant in Abqaiq with a production capacity of 300 tons per day, to sweeten the gas produced at gas-oil separator plant number one².

The year 1967 could be considered a turning point in the history of this project. PETROMIN reached an agreement with an American company, Occidental Petroleum, for cooperative study and work on the project and participation in financing, administration and world marketing operations. A further agreement was reached in October 1967, between PETROMIN and the Occidental Petroleum Company on the establishment of a plant in Abqaiq for the production of sulfur. It was decided that the plant should produce an average of 500 tons of liquid sulfur per day which will be processed into flaked sulfur and transported by railroad to Dammam for export. This plant is the seventh largest in production volume of its kind in the world, and is scheduled to start production at the end of 1970.

The project for the establishment of petro-chemical industries in the country which is nearest to realization is the one on which agreement was reached with an Italian company (ANIC). Other studies prepared by PETROMIN are to establish a polyphenyl chloride industry. These plans promise to fulfill the policy of fully utilizing the huge quantities of available

²Ibid., pp. 50.

natural gas.

C. The Mineral and Mining Industries

The Arab Peninsula has been known since ancient times to contain a variety of rare and precious minerals. The ancient Arabs extracted gold and other minerals from various areas in the peninsula. However, in modern times, the only exploitation of mineral resources in the country was the mining of gold in al-Mahd area by the Saudi Arab Mining Syndicate. Since this time, the policy of the nation has been directed towards drawing up plans and programs which aim at discovering minerals, and expediting their exploitation to widen the base of industrial and development projects and to diversify the sources of the national income.

The study prepared by the Saudi Board of Directors of Mineral Resources show that more than 30 kinds of metallic and non-metallic minerals have already been discovered. Iron, copper, gold, silver, zinc, phosphate and barite in addition to granite, gypsum, marble, salt, silica, and asbestos will be exploited in the near future. However, PETROMIN has given priority to the creation of a steel and iron industry because of the huge iron ore deposits found in a number of areas of the country.

The Iron and Steel Industry: Iron deposits in the country occur mainly in three areas. Wadi Sqwawin is near the gulf of Aqaba and contains the richest iron ore deposits in the country.

The ore contains about 40 percent hematite iron and most of the ore is located in an area of 26 kilometers long, two kilometers wide, and is about 20 kilometers from the sea. Wadi Fatimah is located about 40 kilometers from Jeddah. The quantity of iron ore present is estimated at approximately 50 million tons and is of medium quality. Jabal Idsas contains magnetite iron ore of high quality and the estimated deposits is about 6.5 million tons.

The existence of these vast iron ore deposits was sufficient reason for PETROMIN's efforts to create an integrated national iron and steel industry with its headquarters in Jeddah.

Since the mining of iron deposits requires more technical and professional skills and more study and research than the manufacturing activities and operations, PETROMIN proceeded in stages. Stage one was the production of bars, angles and sheet iron for building purposes from imported steel billets. The second stage consisted of the production of steel billets and the mining of iron ore deposits in Wadi Fatimah. The third stage was smelting and producing steel ingots. These three stages will complete integrated national iron and steel industry in the country.

In addition to these three main stages, there are a number of auxilliary stages which include plans for the establishment of a steel rolling mill in Riyadh (in addition to the Jeddah steel rolling mill), a plant for the production of pipes, and a

plant for the production of sheet iron. PETROMIN is expected to implement auxilliary stages while the second main stage of the iron and steel industry referred to above is carried out.

The Steel Rolling Mill: The steel rolling mill was constructed in Jeddah in the western province of the country. The construction was preceded by large scale studies of the local market and the markets of the neighboring Arab countries to determine the kind of products that the plant must manufacture in its first stages of operation.

These studies revealed that the consumption in the country and in the neighboring countries of reinforcement rods, sheet iron, angles and squares was continuously increasing, because of the rapid development of this area. Accordingly, it was decided to construct the steel rolling mill in Jeddah with a maximum annual capacity of 45,000 tons. Decision was taken in line with the policy of the government to create an integrated iron and steel industry in gradual stages, each forming the basis for the following stage and providing for the gradual training of labor.

The layout of the steel rolling mill was planned to allow for future expansion. The specifications for the mill's equipment and machinery were the subject of an international tender in which a group of well known companies participated. The offer made by the British Robertson Company was accepted. In June 1964, a contract was signed with this company for the

manufacture, shipment and installation of the mills machinery and equipment and for the operation of the plant. Furthermore, the British company undertook to train the necessary number of Saudi technicians in the administration and operation of the mill.

In May 1965, a contract was concluded with the British company, Richard Costain, to carry out the civil engineering work related to the mill and to import a water treating unit and its circulatory system, a standby generator, a weigh bridge and air-conditioning units for the administration building. The sub-contract for the electrical engineering work was awarded to the British General Electric Company.

The plant was designed for an annual production capacity of 30,000 tons for two work shifts, and 45,000 tons for three shifts, to produce reinforcement wires, reinforcement rods, sheet iron, and angle iron.

The construction of the mill and the installation of its machinery and equipment were completed according to the plan and on November 25, 1967, the first reinforcement rods, sheet iron, and angles produced in the mill were introduced on the local market and exceed the quality of similar imported products.

V PROBLEMS ASSOCIATED WITH INDUSTRIALIZATION IN SAUDI ARABIA

In spite of these industrial developments, there were many difficulties faced by domestic industries. Mr. E. S. Penn, Industrial Economist for the United Nations, who investigated the status of industry in Saudi Arabia, indicated that:

The present unsatisfactory state of several industries in the country is due to a complex set of causes. Several industrial establishments are having operational difficulties owing to the lack of detailed knowledge and experience in the various technical aspects of production, and some others are having marketing difficulties, all with the financial and communication problems⁷.

But, even with the existing state of communications, there are reasonably attractive possibilities for a number of new small and medium scale industries, if they can obtain the needed tariff protection and technical know how. For example, some of the production units like cement, macaroni, and furniture manufacturing which hold a promising future are not able to survive against competition from the imported products. In fact, this has resulted in excess capacity in these manufacturing industries. The tariff issue will be discussed fully below in the next part. Table 12 shows the average capacity utilization of the various manufacturing industries in Saudi Arabia in 1960.

It can be seen from Table 12 that heavy surplus capacities exist in all three provinces in all industries. However, capa-

⁷E. S. Penn, A Report Concerning Industries in Jeddah, (Central Planning Organization, Riyadh, Saudi Arabia, 1961), pp. 21.

TABLE 12

GENERAL SURVEY OF AVERAGE UTILIZATION
OF PLANT CAPACITY FOR 1960

<u>Industry</u>	<u>Percent of plant capacity utilization*</u>		
	<u>Eastern province</u>	<u>Central province</u>	<u>Western province</u>
Cement plant	**	*	85
Concrete bricks	60	25	100
Clay bricks	--	--	70
Concrete pipes	30	0	50
Tiles and marble plant	50	30	50
Steel construction	30	25	50
Machine shop	85	100	100
Foundry	0	--	20
Copper rolling mill	**	20	--
Tin can factory	--	--	16
Galvanizing	--	--	10
• Automobile mechanics	--	50	60
Automobile body construc-			
tion	30	30	35
Sun shield manufacture	30	--	25
Carpentry	40	10	50
Steel furniture manufacture	50	--	20
Flour mill	--	0	30
Bakery	90	0	80
Macaroni manufacture	--	--	11
Manufacture of sweets	--	--	45
Date packing	10	--	100
Dairy	--	30	1
Leather tanning	85	--	40
Beverage industry	65	33	43

Table 12 continues on next page

Table 12 continued

<u>Industry</u>	<u>Percent of plant capacity utilization*</u>		
	<u>Eastern province</u>	<u>Central province</u>	<u>Western province</u>
Ice plant	50	50	50
Shoe factory	0	--	10
Soap factory	--	--	0
Paper bag production	50	--	40
Printing press	45	35	55
Plastic molding	--	--	0
LPG filling station	14	7	4
Oxygen plant	--	0	7
Acetylen plant	--	--	12
Carbon-di-oxide plant	--	30	--
Tire re-capping	--	--	25
Laundry	100	***	30

Source: General Survey Report on the Development of Industry in Saudi Arabia, 1961, pp. 27-28.

* Plant being planned
 ** Plant under construction
 *** Very small trade
 -- No plant in this province

* The normal capacity of the plant is one shift a day for 8 hours work for 6 days every week.

city utilization is lowest in the central province.

The reasons for the surplus plant capacities are: lack of appreciation of the liquidity status combined with the effort of the investors to acquire the most modern equipment; lack of knowledge of domestic demand; lack of adequate cost structures; lack of understanding of the plans of potential competitors; insufficient advice to investors (advice is usually given only by the manufacturer of the equipment, who naturally is interested in selling large units).

A. Tariff Protection

It has been argued that tariff protection can be an effective means of stimulating the development of industry, if the industry is well suited to a country but finds it impossible to get started unless it is sheltered for a time from the blast of competition from established foreign producers. In this case the only advantage possessed by the foreign industry is that of an early start⁸.

Before the issuance of the Royal Decree in 1962 which contained the "Regulation for the Protection and Encouragement of National Industries", the main cause for the slow growth of the domestic industries was found to be the lack of adequate tariff protection. This fact was realized by the World Bank Mission

⁸P. T. Ellsworth, The International Economy (New York: The Macmillan Company, 1964), pp. 220.

which visited the country in 1960. The World Bank Mission suggested that domestic industries be granted temporary tariff protection against competition from imports of similar goods⁹.

The fact that the country depends heavily on imported goods caused the people engaged in the importing business to assume a dominant marketing position and extend their influence in different directions. Furthermore, this group exerted heavy pressure on the government to prevent it from imposing any kind of restrictions on imports until 1962.

The result was that the new producers found their market full with competing foreign goods. Thus they had to start on a small and uneconomic scale, and could not meet the low costs of their competitors and even when they did the importers lowered their prices and sold the goods below cost to get rid of domestic producers. But with the shelter which could be furnished by tariff protection, domestic producers can expand gradually until they can confront foreign producers on an even footing.

In more technical terms, growth, as the years go by, permits the new producers of Saudi Arabia to acquire internal economies of scale which are unattainable in the infant stage of development.

Furthermore, external economies, or those economies that accompany the growth not of a single plant but of an entire

⁹The World Bank, op. cit., pp. 15.

industry, are also at stake. As more domestic firms enter the field, the labor force grows and becomes able to supply specialized workers to fill vacancies of foreign labor gradually; service and repair establishments arise to provide their specific contributions; research may be taken over by a special agency, and so on. All these developments help to bring costs down and to hasten the day when the infant industries become mature and capable of standing on their own feet¹⁰.

The Royal Decree of 1962 did not ignore the fact that protection should only be granted to industry which is clearly suited to the country's factor endowment, market prospects, and facilities for obtaining raw materials, so that it can reasonably be expected to stand on its own feet. The Decree required "the creation of an industrial technical office within the Ministry of Commerce and Industry to screen proposals for new industries which are submitted to it and recommend appropriate action under the provisions of the regulations"¹¹.

There have been many arguments supporting the idea of tariff protection in developing nations¹². Among these arguments, one

¹⁰ Jacob Viner, International Economics (Glencoe: The Free Press, 1951), pp. 109.

¹¹ See page 54.

¹² For example see: H. G. Johnson, International Trade and Economic Growth (London: George Allen and Urwin, 1958), Staffan B. Linder, Trade and Trade Policy for Development (New York: Frederick A. Praeger, 1967), Gerald M. Meier, The International Economics of Development: Theory and Policy, (New York: Harper and Row, 1968), H. W. Singer, International Development: Growth and Change, (New York: McGraw-Hill Company, 1964).

that has frequently been prominent urges the diversification of the economy as a goal. An economy similar to Saudi Arabia which specializes on a rather very narrow range of exports and depends upon others for a much wider range of imports is very unstable. For Saudi Arabia the export of one commodity account for over 90 percent of its total exports. Thus, it is subject to the recurrent shock of world wide depression and to serious economic disruption in the event of wars or of major industrial and technological changes involving the substitution of synthetic for natural materials.

These disturbances could be avoided or minimized if the nation deliberately set out, through protection, to create a more balanced economy. Insulated from these outside disturbances, the country would gain more in the long run from greater stability than it would lose from the higher cost of its protected production.

This argument has a strong popular appeal, especially in Saudi Arabia, because everyone prefers a balanced to unbalanced economy, safety to danger; and national pride is stirred by the thought of being economically independent. Moreover, there is no denying the fact that between World War I and World War II the international economy was very unstable and that these wars, by cutting off markets and sources of supply for many years, seriously disrupted the economies of many countries. In addition to that the Suez war and the June 1967 war in the Middle

East did the same thing for Saudi Arabian economy.

Some also argue that even if there is some cost in sacrificing the gains from specialization, the developing countries will still realize a net gain by way of inducing a higher rate of development if they follow policies of import replacement and deliberate industrialization. It is also maintained that instead of waiting for the transmission of development through trade, developing countries would be better off if they directed their own development towards an expansion of output for their domestic market¹³.

Thus, to encourage domestic industries through tariff protection, all industrial enterprises might be exempted from the payment of customs duties on the imported machines, spare parts, and raw materials. Besides, tariff rates on the imported finished goods might be raised somewhat to protect the domestic industries against the imports of foreign goods. Failing to do this and expecting that newly established and comparatively small industrial units would be able to stand competition under such conditions would not be logical. On the other hand, protection to domestic industries continuing longer than necessary for healthy growth may result in higher costs of production and/or excess profits to local industries. This may lead to adopt inefficient production techniques and weaken the effort for further industrial

¹³Singer, op. cit., pp. 161.

growth. As the primary objective of economic development is the welfare of the people, any undue protection defeats its own purpose. The protection has to be moderate and reasonable to safeguard the interests of both the industry and the consumers.

The theoretical basis for protective tariffs as summarized in the Arthur D. Little report on industrial development program for Peru is equally true for Saudi Arabia:

The great traditional argument for tariff protection for industrial development is the 'Infant Industry Argument'. In a simple way this argument may be described as follows: a country may well be suited to produce economically a certain article which is presently being imported. It is difficult, however, for a producer in the country to make the item economically at first because of lack of experience, lack of trained workers, and the underdeveloped nature of the market. It is argued that under these circumstances a government interested in developing local manufacturing should grant tariff protection so that the new local industry can be established and be profitable during the first few years while it solves its problems, trains its workers, and develops its markets. It is implied in this argument that the need for the tariff will be temporary and that it will be withdrawn as soon as the new industry reaches normal levels of efficiency. It will then be able to stand on its own feet and meet foreign competition without tariff protection⁹.

Thus the "infant industry argument" assumes that the particular industry to be protected has the ability to compete within a reasonable length of time. Also, the "infant industry argument" makes the greatest sense in situations where a local manufacturer may have access to a very large market once he has achieved reasonable efficiency in production. He will then be able to exploit economies of scale. This was the situation in

⁹Arthur D. Little, Inc., A Program for the Industrial and Regional Development of Peru, (Cambridge, Mass., 1960), p. 21.

the United States prior to industrialization.

A somewhat related and probably more important argument for tariffs in a developing country is the "young economy argument". In brief, this argument holds that the new industries in a developing economy find it difficult to be competitive at first, not because of inefficiencies within the particular plant but rather because of the nature of the economy itself. As such, it is necessary to encourage and stimulate the establishment of a wide range of manufacturing enterprises, each of which by its own growth will contribute to solving the problems which stand in the way of all industrial development. It is argued that the price which must be paid to start the momentum of development is a tariff which will raise the profitability of manufacturing industries generally to the point where a significant number of new ventures will be started.

B. Financial Problems

There is no organized means for private or public institutions to channel national savings for productive investments. Mr. E. S. Penn of the United Nations has the following observation to make on this point:

To sum up I wish to reiterate that the creation of a development financing institute to be initiated and participated by the government is urgent in the installation and operation of industrial projects¹⁰.

Obviously this financial institute will not function satis-

¹⁰E. S. Penn, op. cit., p. 15.

factorily unless it is supplemented by the establishment and coordination of other related services similar to advisory service for production and management to diagnose the problem of each industry. Market research services to study the trend in the demand and supply of commodities must be established. If such services are not introduced simultaneously with financing institutions, industrial development improvement will be moving without direction and private funds will not be made available for participation in domestic industrial development.

The laws of the country, based on the religion of Islam, do not permit the operation of the interest rate. As a result there are no public debt operations, and banks do not have time deposits and savings accounts. This fact causes large personal savings to be held idle or placed in demand deposits in banks in Switzerland and New York. This causes financial difficulties for domestic industries. There are also considerable investments in commercial ventures, especially in real estate in Lebanon, the United Arab Republic, and other Middle Eastern countries. In industry, financing with internal savings was predominant in the country for a long time.

Financing of industries with borrowed capital was restricted for the following reasons: charging of interest on the borrowed money is not officially allowed; the problem of credit guarantee is still unsolved in the absence of a law of contract for the regulations of contractual relations.

The borrowing of capital is possible only for short periods extending up to 12 months in the form of strict personal credit. The presentation of balance sheet, bank references, and one or two surities in the form of first class business undertakings is of secondary importance. Due to the absence of legal economic regulations and the prohibition of charging interest, short term financing through secured credits is impossible.

Long term capital borrowing is still not completely developed due to the absence of a stock market and corresponding institutions. The shares issued up to now are in the firm's hands. There is an absence of a bond market, due to the lack of interest incentive and the prohibition of realization of profits without risks. This kind of security has not yet been used as a means for long term financing.

The nature and methods of depreciation of invested capital and the knowledge that depreciation sums are cost factors affecting the price of final products are unknown to a good number of entrepreneurs in the country. Therefore, all these problems have caused many financial difficulties for industrial development in the country.

At the same time, there are no means by which a shareholder in a joint stock companies can easily find a buyer for his shares as a person desirous of selling shares of any particular company cannot get in touch with buyers of such shares except through direct

personal contact. Also there is no possibility of establishing a stock exchange in the country in the near future because the present volume of joint stock company shares would not justify any such attempt at the present time. Nevertheless, in the general interest of industrial development, some means must be devised by which prospective buyers and sellers of shares are brought together. Such an arrangement will encourage investment in industrial shares by facilitating their marketing.

C. Manpower Problems

In the industrial plants the activity of Saudi Arabians is mainly confined to the management of plants as owners and partners or members of the board of directors, and the supplying of light physical and unskilled labor.

Generally Saudi Arabians are not prepared to offer heavy physical work and services, and as a result, this work is done mainly by foreigners as shown in Table 13.

The labor legislation in Saudi Arabia which restricts the immigration of foreign skilled and unskilled workers has given rise to a shortage of workers. Because of this, the wages paid to the unskilled Yemenites, Hedramauts and Sudanese are considerably higher than those paid in their own countries. Saudi Arabians in general receive higher wages for lighter physical work than foreigners doing heavier work. Although the productivity of the Saudi Arabians is low, and though they often move from their jobs, they are paid higher wages. This is mainly

TABLE 13

COMPOSITION OF MANPOWER IN INDUSTRY IN 1962
(BY NATIONALITY)

Country	Type of activity	Average wage SR per month	Productivity	Average working period
Northern Europe	Mainly mental	over 2,000	---	2 years
Italy	Mental, skilled, physical	over 1,500	---	4 years
U.A.R. Lebanon	Mental, skilled, physical	over 1,500	---	4 years
Palestine	Mainly skilled, physical	over 600	Good	Mainly permanent
Yemen	Heavy physical	under 200	Very good	1-2 years
Hedramaut	Heavy physical unskilled	under 200	Very good	Mainly permanent
Sudan	Medium physical unskilled	under 200	Medium	Permanent

Source: General Survey Report on the Development of Saudi Arabia, op. cit., p. 31.

due to the fact that the native population is willing to work only for wages above a certain minimum because the population of Saudi Arabia has not yet become accustomed to routine work such as that of an industry.

Since foreign workers stay in the country for short periods, a large part of their earnings are sent to their families at home. Thus a considerable part of the wages and salaries paid by industry is not turned back into the country's economy.

Thus, Saudi Arabian industry must pay considerably more for salaries and wages than industries in other countries that are competing with the domestic industries, and more money is flowing out from the country for the import of foreign goods and foreign manpower. The high wages are caused by shortage of trained manpower and the government's heavy expenditure on public work and high salaries for the government officials.

More than half of the population are nomadic or semi-nomadic Bedouins. These people are not accustomed to city life and thus do not like to hold routine jobs. Thus, the manpower resources are very limited and technical know-how and managerial skills, especially in the industrial sector, are lacking. But it should be mentioned here that this problem is temporary because there are hundreds of students who have been sent to West European Countries and the U.S.A. and they will in the near future increase the needed highly skilled manpower for industrial development. Within the country there

are three universities, an engineering college, many industrial schools, and the college of petroleum and minerals. In addition there is an increasing number of elementary and high schools. All will help to solve manpower problems in the near future.

CONCLUSION

The year 1938 could be considered as the turning point in Saudi Arabian history because during this year oil was discovered in commercial quantities and a modern refinery was set up. Since oil was the only important product produced in the country, the country depended heavily on imported products. Furthermore, following the discovery of oil and the establishment of the refinery, urbanization took place, and this resulted in the movement of the agricultural population to cities to find gainful employment. As a result, the country that had depended on imported industrial products faced the problem of importing even the agricultural products from other countries.

Because of the scarcity of water, agriculture will necessarily play a limited role in developing the economy. Industrialization must play a major role. This report has briefly discussed the problems of industrialization, and the present extent of industrial development. However, if one looks at the future of industry in the country's economy, it is clear that the Arab countries must cooperate for a concerted and planned development to avoid problems regarding the gainful use of available resources and of marketing. Saudi Arabia is blessed with rich deposits of natural and mineral resources. It is the limited availability of trained personnel to man the development projects which seems to deter development. Therefore, I am of the opinion that the people concerned with plan-

ning for development should not only concentrate on the industrial development, but they should also concentrate on the development of the local skilled labor by expanding the existing training facilities. If this is done, I am sure that the country will achieve its objective of diversifying the economy through industrialization.

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INDUSTRIAL DEVELOPMENT IN SAUDI ARABIA

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AN ABSTRACT OF A MASTER'S REPORT

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The purpose of this study is to investigate Saudi Arabia's industrial development since 1940.

Since Saudi Arabia is one of the developing countries, it has almost the same problems as any other developing country in Asia or Africa. However, Saudi Arabia has a unique position among them which distinguishes it from other developing countries. Because of its oil production, the country has a sizeable foreign exchange income which can be diverted to the development of the country. At the same time it does not have the problem of high population density facing many other developing countries.

Before discussing industrial development, some idea has been given about Saudi Arabia in general and its economy in particular. This study is mainly a survey of the literature and history with an emphasis on the process of industrialization during the past twenty five years.

The development of industries in Saudi Arabia can be considered an essential means for diversification and maintenance of a stable rate of economic growth because it is well recognized that the expansion of industry is the most dynamic factor in economic development today.

Furthermore, the country, being largely desert, has only a very small percentage of its total land area that can be used for agriculture because of the lack of irrigation facilities and the scarcity of water. Under these circumstances, it is important

to stress industrialization, especially when the country is rich in petroleum and mineral deposits.

Even though the country did not start its organized industrial development until the late 1960's, it is progressing very rapidly in this field and the expansion in other sectors of the economy is satisfactory.

Since 1960, considered a turning point for industrialization in Saudi Arabia, the government has given increasing attention to economic development in general and industrial development in particular. The main objectives of development policies is to decrease the dependence on one source of income by diversifying the economy through the exploitation of the various natural resources and potentials of industrial development.

The establishment of the general petroleum and mineral organization (PETROMIN) in 1962 was a logical step for acceleration of industrial growth. The strategy of this organization was not only to develop industries to satisfy the local market but also to export manufactured goods to other countries. Seemingly, the most significant limitation on industrial development in Saudi Arabia is the lack of adequately trained manpower, but this can be overcome by general education and by increasing the number of training centers.

The conclusion of this study is that there is both a need for and the possibility of industrial development in Saudi Arabia.