

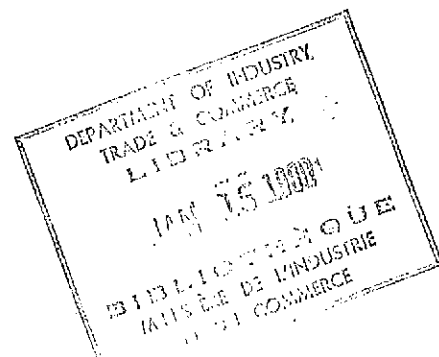
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DEPARTMENT OF INDUSTRY,
TRADE AND COMMERCE
OPPORTUNITIES FOR CANADIAN EXPORTS
TO SAUDI ARABIA

A REPORT FROM

Woods, Gordon & Co.

MANAGEMENT CONSULTANTS



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JANUARY 1975

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January 21, 1975

Director
Special Projects Branch
Department of Industry,
Trade & Commerce
Ottawa, Ontario
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Dear Sir:

We are pleased to present our report on Opportunities for Canadian Exports to Saudi Arabia, following our visit to the Kingdom in October/November 1974.

Several things which we learned immediately after arrival in Saudi Arabia have had a major influence on our investigations and report:

1. Preparation of the Second Development Plan for the Kingdom is behind schedule. There is no official approval yet for overall targets or for the proposals of individual Ministries. Hence the Central Planning Organization and people in the Ministries were particularly reluctant to provide specific figures or information. However they were very willing to talk in general terms and we were able, we believe, to obtain a good knowledge of the main directions of development if not always of their precise size.

(ii)

2. The Saudi emphasis is on development using outside technology and expertise. They are looking for package projects in which participants will supply the full range of physical inputs, services and training required. Their preferred means are joint ventures in which Saudis contribute mainly capital and local knowledge, and expatriates mainly people and skills.

While the Saudis still need the traditional types of exported goods and services, they wish new forms of interchange.

Participation by Canada and Canadians in Saudi Arabian development will depend on the extent and speed with which we are willing to adapt to these new requirements.

3. Besides the supply of goods and services by the Canadian private sector through established channels and procedures, the Saudis explicitly requested a response from the Canadian Government regarding fields and programmes in which Canada is particularly qualified to meet Saudi needs and in which Canada, by arrangement, would be given a privileged position.

This was almost the first point made to us by Dr. Badr, the Vice-President of the Central Planning Organization, at our initial meeting in the Kingdom and he stressed it again at the final meeting. We elaborate further on this in Section 2 of the report and offer some suggestions (in light of Saudi requirements and Canadian capabilities) as to fields and mechanisms.

For the moment, however, we wish to emphasize that Canadian participation in developments in Saudi Arabia will again depend on our success in adapting to the new circumstances.

The foregoing illustrate that the Saudi Arabian situation is unique. The Kingdom is free from the financial constraints that other developing countries have; hence the Saudis are determined to obtain and instal whatever is needed for a modern, developed economy. At the same time it does not have the organizational and institutional arrangements of a developed country; it thus is looking for new methods of supply of goods and services which will be broader than traditional arrangements.

In light of these special circumstances we have described the main lines of development, have provided data on these wherever possible, and have identified principal areas of opportunity that will warrant further, early exploration. The information presented in our report will, it is hoped, create a climate of interest among Canadian firms and businessmen in responding to the opportunities that are open. As well, and in recognition that the underlying objective of the study is to formulate an export strategy, we have raised matters and issues for the Department to consider in formulating its policy and programmes.

It has been a pleasure to carry out this assessment on behalf of the Department and we look forward to assisting in any way we can in the future development of Canadian exports and trade relations with Saudi Arabia.

Yours very truly,

Woods, Gordon & Co.

OPPORTUNITIES FOR CANADIAN
EXPORTS TO
SAUDI ARABIA

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- B. Commercial Matters
- C. Map of Saudi Arabia

ATTACHMENTS

A. FINANCE AND NATIONAL ECONOMY

- Statistical Yearbook, 1973
- Regulations for Income Tax, Zakat and Stamp Duty, and the related decrees, resolutions, notices and circulars
- Law #43 - year 1973 - Concerning the Investment of Arab and Foreign Capital and Free Zones

B. INDUSTRIAL STUDIES AND DEVELOPMENT CENTER: FILE

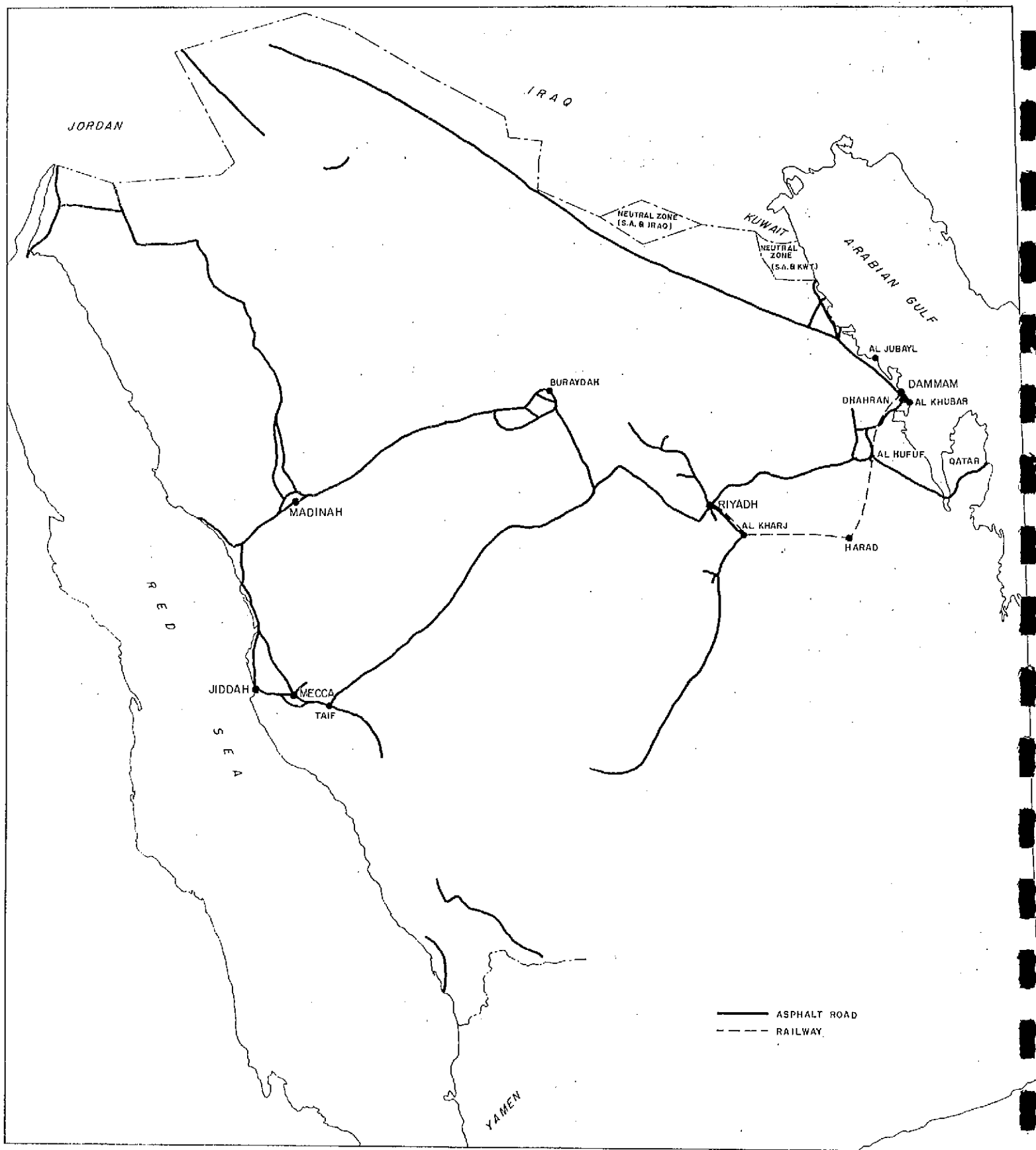
- Regulations for the Industrial Development Fund
- The Industrial Studies and Development Centre in the Service of Industry
- Guide for Industrial Investment in Saudi Arabia - 1972
- List of Priorities for the Industrial Studies and Development Centre - 1974
- Statement of the Industrial Policy of Saudi Arabia
- Industrial Opportunities in Saudi Arabia

C. INDUSTRY AND COMMERCE: FILE

- Statement of Licensed Factories 1973-74
- Regulations for the Protection and Encouragement of National Industries
- Pre-Feasibility Study on Manufacturing of Household Electrical Appliances - March 1973
- The Possibility of Manufacturing Refrigerators in the Kingdom December 1972
- Report on Projections for the Manufacturing Sector for the First Five Year Plan 1970-71 to 1971-75

D. DIRECTORATE OF MINERAL RESOURCES: FILE

- Draft of the Sectoral Plan of Mineral Resources for the Second Development Plan
- Mining Code of the Kingdom of Saudi Arabia
- Mineral Locality map of the Arabian Shield: metalliferous minerals
- Mineral Locality map of the Arabian Shield: industrial minerals and dimension stone: marble and others
- Lists of Maps and Reports of the Ministry of Petroleum and Mineral Resources and the Directorate General of Mineral Resources.



1 BACKGROUND AND OVERVIEW

1.1 General

Saudi Arabia has enormous wealth, the desire and intention to develop, and very large potential as a market for Canadian goods and services.

The scale of development being considered by the Saudis, and the size of programmes and individual projects, are so large as to give rise to some disbelief. Unquestionably a degree of scepticism is in order, especially regarding the timing and speed of development. But there should be no illusion that development will not occur. There is going to be a shift of real resources to Saudi Arabia to parallel, in some measure, the shift in financial resources which is underway.

The last year of higher oil prices intensified a process which was already occurring. Saudi Arabia, particularly in the last five years, has been laying the foundation for broad-scale economic development. Among the specific steps taken have been:

- economic planning advice by a team from the Stanford Research Institute
- an extensive series of major studies by large international consulting firms (ADL, Bechtel, EIU, Italconsult, ILACO, Norconsult, SCET, Doxiades) covering socio-economic characteristics, regional planning, urban planning, transport, petrochemicals, major industries, etc.
- the beginnings of a series of major, developmental works by international engineering firms
- statements of policies and incentives for development in e.g. industry and mining
- increase in the training of Saudis abroad (numbering 2,372 in 1972-73 and growing yearly)

These reveal a number of features of the Saudi development process:

- recognition of the need for expatriate assistance in planning and development, and a welcoming of foreign participation in operations
- a shortage of skilled, experienced Saudi administrators and managers, causing extensive use of Arabic-speaking non-Saudis (Egyptians, Syrians, Palestinians, Yemenis, Pakistanis) and of other expatriates
- a mixed general-planning and private enterprise approach to development, with a strong orientation toward private initiative as a result of the strict Saudi interpretation of the Muslim religion and culture
- inclination toward capital-intensive projects, without the concern for employment creation and foreign exchange savings that are significant matters in almost all other developing countries
- a desire for "package" projects or programmes which will provide all the needed elements and not just part of what is required, and which will include training as a matter of course.

As to specific needs for development, the Saudi answer is that they "need everything and wish people to offer them everything"; the question Canada and Canadians should ask is not what do the Saudis want, but what are we willing and able to provide in light of their great range of requirements.

To bring this into more concrete terms, we outline in later sections of this report the kind and size of developments in prospect to 1980 in individual sectors of the Saudi Arabian economy. These assessments give a measure of the potential in each sector; they also include comments on the competitive situation and on Canada's supply capability, insofar as these can be identified. More general conclusions are given in the remainder of these two introductory sections.

TABLE 1.1

SAUDI ARABIA

PROJECTION OF GROSS DOMESTIC PRODUCT
IN 1969 - 70 PRICES

	Targets for 1979 - 80			
	GDP		%	% p.a. Growth Over '74 - '75
	SR Millions		Share	
	1974-75	1979-80	1979-80	
Agriculture, Forestry, Fishing	1,158	1,408	2.5%	4.0%
Crude Petroleum and Natural Gas	23,111	34,691	60.7	8.5
Other mining and quarrying	74	127	0.2	11.5
Petroleum refining	1,582	2,019	3.5	5.0
Other Manufacturing	748	1,472	2.6	14.5
Electricity, Gas, Water	462	870	1.5	13.5
Construction	1,479	2,911	5.1	14.5
Wholesale and Retail Trade, Hotels and Restaurants	1,567	2,018	5.3	14.0
Transportation, Storage, Communication	2,170	4,364	7.6	15.0
Ownership of Dwellings	872	1,304	2.3	8.0
Finance and Business Service	500	692	1.2	9.0
Community, Social and Personal Services	290	475	0.9	9.0
Sub-Total, Private	34,013	52,351	93.4	9.4
Public Administration and Defence	1,559	2,398	4.2	9.0
Education	624	1,099	1.9	12.0
Health	145	291	0.5	15.0
Sub-Total, Public	2,328	3,788	6.6	10.2
Total GDP	36,341	56,139	100.0	9.5
Non-oil GDP (excluding crude petroleum and refining)	11,596	20,429	35.8	12.0

Note: Approximately SR 3.5 = \$1.

1.2 Economic

The Second Development Plan for Saudi Arabia, for the period 1975 - 1980, is in the final stages of preparation and was not available at the time of our visit. Individual Ministries are still submitting their draft plans to the Central Planning Organization for consolidation and integration; this will be completed about February, 1975 after which there will be final Departmental agreement followed by approval by the Council of Ministers (the equivalent of the Canadian Cabinet) about mid-1975.

It will be desirable to review the actual Second Plan when it is settled on. However, an indication of the general direction and broad magnitudes for development in the period is available from the Guidelines for the Plan, prepared by the Central Planning Organization in 1973.

This considered four alternative development strategies. In view of the very rapid growth in oil revenues, it appears that the strategy adopted will be the most ambitious one which proposes to follow economic and social objectives simultaneously. Under this strategy there would be "diversification of the economy and improvement in its efficiency," together with emphasis on broader distribution of income, welfare, municipal development, social services, education and health. The rate of growth in overall Gross Domestic Product would be 9.5% and in non-oil GDP (just over one-third of the total economy) 12.0%. Per capita GDP would rise from SR 3,900 (approximately \$1,100) in 1974-75 to SR 7,000 (some \$2,000) in 1979-80.

Details of projected growth by sector are shown in Table 1.1, opposite, from which it will be seen that growth is broadly-based,

reinforcing the earlier comment that there are supply opportunities in all fields. Almost all non-oil sectors are projected to grow at rates close to, or above, the 12% average; at this rate, activities double in just over 6 years. The important exception is agriculture in which it takes a longer time to bring about shifts and changes; it can be inferred, therefore, that imports of agricultural products will continue to be very important in the next 5 years.

One point not fully evident from the table but brought out later in the report, is that the nature of development in the next five years is going to be heavily infrastructural rather than consumer-oriented. The principal tasks will be the establishment and improvement of the physical and social framework of the country. Average per capita incomes will continue to be low, although a widening of income distribution will have started. The major part of the people will continue to be rural and illiterate, but both urbanization and universal education will be under way. It must be recognized, moreover, that the size of the Saudi consumer market is limited by the smallness of the population; the 1974 Census is expected to report around 5 million people.

The general conclusion is that Canadian suppliers of goods and services connected with basic development will have a stronger market to start with; Canadian suppliers of consumer-oriented goods and services (whether made in Canada or in Saudi Arabia) will have greater opportunities in the 1980's. Re the latter, however, it must be stressed that marketing channels for consumer products are open now, major international brand names are already established in the Saudi market, and anyone wishing to participate to a major extent in the

TABLE 1.2

SAUDI ARABIA

BUDGET ESTIMATES FOR 1974 - 75

Million Rials

	Estimates 1974 - 75	Estimates 1973 - 74	Increase
<u>Revenues</u>			
Total	SR 98,247	SR 22,810	SR 75,437
<u>Expenditures</u>			
National Guards	1,296	649	647
Ministry of Defence and Aviation	8,813	5,408	3,405
Ministry of Interior	2,308	1,294	
Secretariat for Municipal Affairs	4,294	1,933	3,375
Ministry of Finance:			
Fund for Developing Countries	3,010		
Real Estate Development Fund	160		
Customs, Statistics, General	2,052	1,340	3,882
Ministry of Communications:			
Roads and Ports	3,379	1,813	
Telegraph and Telephone	1,051	412	
Posts and General	128	57	2,276
Ministry of Education	3,135	1,943	1,192
Ministry of Health	1,163	583	580
Ministry of Agriculture and Water	1,303	1,032	271
Ministry of Labour and Social Affairs:			
Social Security	464	92	
Other	196	121	458
Ministry of Commerce and Industry:			
Commerce and Supply	48	60	
Industry and Electricity	116	30	74
Ministry of Foreign Affairs	226	153	73
Ministry of Information	322	250	72
Public Works Department	136	83	53
Ministry of Petroleum and Mineral Resources:			
Petroleum	104	79	
Mineral Resources	108	96	37
Contribution to Pensions and Social Security	604	291	313
Public Organization Subsidy	989	434	555
Emergency Expenses	602	201	401
General Reserve	2,000	452	1,548
Emergency Projects	1,000	-	1,000
General Investments Fund	3,000	2,552	458
External Subsidies	988	-	988
Foodstuffs Subsidy	800	-	800
Other	1,948	453	1,475
Total Expenditures	45,743	21,810	23,933

Note: Approximately SR 3.5 = \$1.

market later would be well to consider an early entry, even if only on a limited scale.

Further insight into Saudi development intentions is given by the Budget Estimates for 1974-75 shown in Table 1.2, opposite.

The first point is the very large surplus of revenues over expenditures which has opened up, even after making provision for every type of expenditure, special fund, and reserve that might possibly be required.

Defence is the largest single Ministry, followed by Interior including the Secretariat for Municipal Affairs. The Ministry of Communications is also large, with substantial increases over last year for Roads and Ports, and Telegraph and Telephone. Education has become a much larger Ministry in terms of expenditures, and Health and Agriculture to a lesser extent.

These are the Ministries for which the greatest budgetary increases have been granted, revealing the sectors of major initial concentration in the Government's development programme - Municipalities, Communications, Education, Health, Agriculture. Other Ministries continue to have important functions but to grow at lesser rates.

1.3 Training

Without the official Second Development Plan it is difficult to convey the scale of what Saudi Arabia is contemplating over the next few years. Authoritative estimates relating to education and training requirements have been made, however, which give insight into overall requirements in these respects. They are important also in

TABLE 1.3

SAUDI ARABIA

PROPOSED TRAINING PROGRAMMES AND PROJECTS
AND THEIR INVESTMENT COSTS
1975 - 76 TO 1979 - 80

<u>Ministry</u>	<u>Number of Programmes</u>	<u>Investment Cost SR Millions 1975 - 76 to 1979 - 80</u>
Ministry of Health	2	40.3
Ministry of Labour and Social Affairs	2	128.8
Ministry of Information	2	2.5
Ministry of Agriculture	4	10.3
Ministry of Communications	3	35.0
Central Planning Organization	3	-
Other	3	27.2
Ministry of Education	8	2,388.0
Girls' Education Administration	3	1,429.5
University and Higher Education	<u>8</u>	<u>644.0</u>
	38	4,705.6

Comprising 122 Projects

Source: IBRD Human Resources Development Mission Draft Report, August 1974

Note: Exchange Rate is approximately SR 3.5 = \$1.

illustrating needs in construction and equipment, and in suggesting direct involvement by Canada in the training processes.

A World Bank Human Resources Development Mission in 1974 evaluated Saudi manpower and training requirements and reported on a Recommended Program and Projects in August, 1974. While this report was a confidential draft for discussion only, and does not constitute government policy, it does illustrate the magnitude of what needs to be done and the kind of effort needed to realize development objectives.

In short, the report recommended a massive programme of:

- expatriate teams of consultants, to advise, support, provide on-job training, carry out training programmes and arrange foreign training programmes
- foreign training for Saudis who would replace expatriates by the end of the plan.

The make-up of the recommended programme is shown in Table 1.3, opposite. The total investment cost of SR 4,725 millions (about \$1,350 million) includes the construction, equipping and furnishing of:

730,000 school places (146,000 a year)
10,000 boarding places
1,000 housing units
120 mobile units

Average unit costs per place at 1974 prices were taken at:

	<u>Boys</u>		<u>Girls</u>	
Elementary	SR	4,300	SR	4,300
Intermediate		6,600		6,300
Secondary		10,000		7,800
University		27,000		18,000 (Higher:non-U)
Labour Centres				12,000
Community Centres				11,000
Mobile Unit		100,000		300,000
Housing/Unit				100,000
Boarding Place/Unit				60,000

Besides the enormous building and equipment programme there is provision for 1,060 man years of expatriate consultancy services to be drawn from institutions and organizations of high quality and, in consequence, valued at relatively high rates of SR 200,000 - 250,000 per man year. (These rates include travel and transportation, social insurance, leave, rent allowance, etc., but do not include medical expenses, family travel, nor income taxes.)

In addition, there would be 2,750 man years of Fellowships Projects for Saudis being trained abroad.

Clearly the scope for participation by Canadian contractors and suppliers of equipment and furnishings is large. Reference to these opportunities is made again later; they are obviously important, considering the school supply situation in Canada and the declining Canadian educational market.

But one further possibility - the ability of Canada to become directly involved in the training process through taking Saudis into Canadian institutions and by sending Canadians to the Kingdom to teach Saudi students and teachers - is also most important. This is a major way in which Canada can become better known in Saudi Arabia,

laying a basis for greater participation and interchange in other aspects of the country's development. Saudi Arabia has several thousand students abroad at present of whom, we were told, only four are in Canada. Saudi authorities strongly suggested a major effort by Canada in the training field, in our own interests as well as to help them satisfy their very large needs. This would require involvement of universities, community colleges and private businesses.

2 OPPORTUNITIES FOR CANADA

2.1 General

The foregoing overview has highlighted several aspects of Saudi Arabia's development plans that will be particularly important during 1975-80 and in which supply efforts by Canada could have greatest potential. These are:

- the emphasis in this period will be on infrastructure, and the principal tasks will be the establishment and improvement of the physical and social framework of the Kingdom
- principal Ministries and fields, as indicated by budget spending intentions, are:

Municipal
Transportation
Telecommunications
Education
Health
Agriculture

- large petrochemical and heavy-industry projects are also to get underway during this period, with the object of using the 5 billion cubic feet per day of gas that is now being wasted
- potential is greatest for supply of goods and services by:
 - engineering consultants
 - management consultants
 - education and training agencies
 - contractors
 - project managers
 - major companies providing a range of design, operating and training functions
 - machinery and equipment suppliers
- demand for food-stuffs and consumer products is expanding rapidly and will become very much greater during the 1980's. Potential suppliers should move to enter the market early, either through exports and establishment of a commercial position using local agents, or through a joint venture for local manufacture, or both.

In later sections of this report we present more detail on potential opportunities in individual sectors, and discuss what appear to be specific opportunities for Canada in light of the competitive situation and our apparent supply capabilities.

Prefacing that discussion, it needs to be observed that there are several major factors affecting participation in a substantial way by Canada:

- we are late arrivals, preceded by international consultants, contractors, businesses, and traders, from all the main industrialized countries
- competition will be severe in this new market particularly from countries seeking bilateral arrangements involving supplies of oil
- the scale of the major infrastructural, industrial, and social projects is beyond the capability of almost all individual Canadian companies
- as has been noted, the Saudis want package deals which go beyond even the limits of traditional turnkey projects (e.g. an equipment supplier may find he would have to organize the bringing into operation of a complete plant, including building, training etc.)
- trade through regular commercial channels will be important for food-stuffs, consumer semi-durables and durables, and machinery and equipment for light industry; the markets, though small, are developing rapidly. However, the orientation in Saudi development is toward domestic manufacture of such products for their own, and possibly adjacent, markets. Canadian suppliers can expect to be faced with having to consider joint ventures with a Saudi partner, in which the former would provide some capital, all the technology and expertise, and training.

Under these circumstances, Canadians will have to show new initiatives and forms of organization if they are to perform effectively.

The remaining parts of this section review, in summary form, the projects and programmes that are in prospect on the basis of

TABLE 2.1

SAUDI ARABIAPROJECTS IDENTIFIED AND CAPITAL COSTS1975 - 1980

	<u>Number of Projects</u>	<u>Projects for which Capital Estimates Available</u>	
		<u>No.</u>	<u>Capital Estimate \$Million</u>
Energy	16	5	\$4,390
Transportation	22	6	5,080
Communications	14	2	20
Agriculture	9	4	70
Mineral Resources	6	-	-
Construction	12	4	4,800
Health	7	2	27
Education	7	7	4,800
Industry	<u>14</u>	<u>3</u>	<u>22,250</u>
Total	<u>107</u>	<u>33</u>	<u>\$41,437</u>

Note: Cost estimates are in 1974 constant dollars.

information available to us. Projects are individual items of work, of narrow or broad scope, that we identified as being a part of developments during 1975 - 80 as now foreseen. Programmes refer to areas of concentration in which Saudi needs are great and Canadian capabilities apparently best suited, and in which proposals by the Canadian Government - as requested by the Saudi Government - appear most appropriate. In discussing both of these, suggestions are made for actions to be taken or further assessments to be made, in order to advance matters. These suggestions are put forward to assist the Department toward developing an export strategy vis-a-vis Saudi Arabia - the underlying objective of this study.

2.1 Projects

Table 2.1, opposite, summarizes the project opportunities identified and detailed subsequently in the following sections. In total, we have identified just over 100 projects in a wide range of fields.

Capital estimates for 33 of these projects were available or could be developed, and amounted to just over \$40 billion for the period 1975-80. There are several grounds for considering these estimates, both as to number of projects and costs, as being conservative:

- in certain cases, projects were identified only for one of the regions of Saudi Arabia, but will be going on throughout the Kingdom
- development plans or estimates were better formulated for some sectors (energy, transportation, construction, education, industry) than for others (communications, agriculture, mineral resources, health).
- commercial and tertiary service activities are understated

- the cost estimates generally relate to capital costs for buildings and equipment only, and do not necessarily reflect consulting, technology and management fees which will be considerable.

On the other side it can be argued that accomplishment of a development programme of the size illustrated by these kinds of numbers cannot be done in 5 years and, even conceding the amounts, the time period will be longer. As well, there may be double counting of e.g. machinery, in both projects and import projections.

The basic point is of course, that the scale of development and its scope are going to be very great indeed. To obtain an overall estimate it seems appropriate to presume similar magnitudes of cost in projects for which estimates are not available as in those for which estimates have been developed, and to allow for some stretch-out in completion times.

On this basis, then, some \$120 billion may be taken as representative of the total cost of the projects to be undertaken. This could mean as much as \$90 billion as the value of goods and services to be bought by Saudi Arabia from outside the Kingdom in 1975-80 - about \$15 billion a year over six years.

Drawing on the information in the detailed tables, we have categorized the 107 identified projects as to whether they constitute a market for particular types of services or goods, using the broad categories of:

- engineering consultants
- management and other consultants
- contractors (including construction, operations, technology, training etc.)
- exporters of consumer goods
- exporters of materials and machinery

SAUDI ARABIAPROJECTS IDENTIFIED BY SECTOR OF OPPORTUNITY

	<u>Engineering Consultants</u>	<u>Management and other Consultants</u>	<u>Contractors</u>	<u>Exporters of Consumer Goods</u>	<u>Exporters of Materials and Machinery</u>	<u>Table and Reference Page</u>
<u>Energy</u>						
Oil	3	1	2		2	T. 3.1 P. 29
Gas	3		2		2	3.2 31
Electricity	9	2	5		6	3.4 35
<u>Transportation</u>						
Road and Road Transport		1	1		1	4.1 40
Rail and Rail Transport	1	2			2	4.2 43
Ports and Shipping	1	1	1		1	4.4 47
Airports and Civil Aviation	1	1	3		3	4.5 51
<u>Communications</u>						
Telecom and Telephones	5		9		9	5.3 57
Broadcasting and TV	2		2		2	5.5 59
<u>Agriculture</u>	8	7	2	2	3	6.4 66
<u>Mineral Resources</u>	4	3	2			7.1 72
<u>Construction</u>						
Municipal	3	1	3		3	8.2 79
Building	5	2	7	4	4	8.4 84
<u>Health</u>	3	4	3	2	3	9.2 91
<u>Education</u>	7	6	6		6	10.3) to 96 10.8)
<u>Industry</u>						
Hydrocarbon and Heavy	3		3		3	11.2 100
Other Industry	10	5	9	4	9	11.7 110
Total Projects	68	36	60	12	59	

Table 2.2, opposite, records the results, and provides table and page references to the appropriate sections of the report.

Two important points are evident.

- for each broad category of services, there are projects extending through the range of sectors and fields
- within individual projects there can be requirements from several service categories.

These indicate that the range of opportunities are widespread for individual service fields and that individual projects need input from a range of service areas. In view of these interrelationships, success in providing one kind of service can open the door for another. Going even further, grouping of service areas for a particular project will enhance the chance of success; this underscores the Saudi desire for "package" projects in light of their lack of management and administrative skills.

Regarding the potential available for Canada within the total estimated requirement of \$90 billion in 1975-80, we began our assessment of this in individual sectors by attempting to put a dimension on Canadian capabilities in relation to Saudi requirements and the competitive situations prevailing. We quickly concluded, however, that this approach was not productive because of the uniqueness of the situation regarding Saudi Arabia: being a large, new market with a wide range of requirements, the extent of supply by Canada will depend on the efforts and adaptations we are willing to make in order to participate in this market.

The amount of business for Canada will depend greatly on our own efforts to orient our capabilities to the Saudi market. The

size of the potential indicates it would be worthwhile; at $2\frac{1}{2}\%$ of the total estimated business, the amount for Canada in 1975-80 would be \$2.25 billion, or \$375 million a year.

Canadian efforts in Saudi Arabia can be assisted by new initiatives by the Department of Industry, Trade and Commerce. In general, there will be need for a major information effort to make Canadian industries and institutions aware of the magnitude and nature of opportunities open in Saudi Arabia. There will also be need for the Department to take an active, leading role in bringing together private and public resources and applying them in the Saudi Arabian market.

We present certain suggestions along these lines below; it is convenient to separate the suggestions for projects from those for programmes although, in practice, they may form part of one overall strategy. We are aware that the Department may already have recognized and given consideration to many of the things we say, perhaps at a more detailed level of assessment. Nevertheless, we consider it useful to bring a number of matters together for consideration with respect to this single, major, new market. It is possible that they could have wider applicability also.

Suggestions for initiatives with respect to projects constitute largely a modification or reorientation of existing arrangements.

1. The provisions of the PEMD programmes should be made more widely known.
2. Companies and groups should be encouraged to visit Saudi Arabia and PEMD should provide for more-than-normal expenditures (in terms of time and number of trips) to break into this

new and unstructured market. Outgoing missions should also be encouraged, but with definite sales proposals to make, rather than displays and provision of information.

3. PEMD procedures for consortia among small companies should encourage temporary groupings for exploration purposes, and provide as much assistance as possible in this regard. A sample kit for consortium formation, including an outline draft agreement among members, should be prepared by the Department.
4. Emphasis should be on formation of consortia, by large companies and firms as well as medium and small. With the scale of projects in Saudi Arabia, large groupings are necessary. This applies to consulting engineers, management and other consultants, contractors, operating companies, and exporters.

We are aware that the desirability of such groupings has been known and discussed for some time, e.g. trading companies for exports, consortia for UNDP and World Bank financed projects, groups of contracting and operating firms. The Saudi Arabian situation reinforces this need. We suggest that a major initiative is necessary to stimulate action and that this must come from the Department.

5. Liberalization of financing and insurance arrangements should be contemplated by the Export Development Corporation:
 - insurance against delay in payment for goods arising from late arrival due to port congestion, and against extra costs of demurrage
 - insurance against delay in payment by a Saudi importer or by a Saudi Government Department

- some financial protection against sudden, unwarranted dismissal from a contract and expulsion from the country.

These may be difficult to provide for. However they do refer to actual situations which have caused severe distress to companies and can be disincentives to new entrants.

6. A new financial mechanism to assist Canadian firms to build or assemble, in Canada, plant capacity or skilled people, to supply large requirements of goods or services to Saudi Arabia under long-term contract. Possibly the Department should consider this or, alternatively, should try to negotiate with the Saudis the provision of such financing for such operations.

This may not be very significant in the immediate future, since the recession now underway and in prospect for the next year or more is releasing Canadian capacity and resources. But looking longer term, diversion of these resources to the Saudi Arabian market would be assisted by arrangements to expand capacity later to supply traditional markets and to maintain continuity in the Saudi Arabian market.

7. Strengthening of the Commercial section in the new Canadian Embassy at Jeddah, by the early addition of one - or better two - commercial officers. The task of providing commercial assistance is more difficult than normal in a newly-developing, unstructured market which lacks the normal range of financial, commercial and trading institutions and

relationships. There is also the dual private/public framework to be covered both within Saudi Arabia and from Canada. The job is, and will be, much too large to be handled by one man, highly competent though the existing officer is.

2.3 Programmes

During our initial meeting in Saudi Arabia, with the Vice-President of the Central Planning Organization, ~~he~~ stated that the Saudi Government was expecting the Canadian Government, as a follow-on to our visit, to assess Saudi Arabian needs, to examine Canada's potential and capabilities and, based on what we could actually do, to make a proposal for programmes in areas particularly suitable for Saudi Arabia and for Canada.

He went on to say that he was not talking about projects or trading opportunities for which there already were established channels and procedures, including competitive bidding and tendering. Rather he was looking for programmes that would not be governed by the regular procedures but which could become a special arrangement between the two countries. Consideration of what Canada wanted from Saudi Arabia would be a part of such arrangements. He mentioned the British as an example of the programme approach: a recent mission from Britain had presented an integrated bilateral industrial development programme which was now being considered by the Council of Ministers.

Dr. Badr returned to this subject at our final meeting with him and mentioned approvingly the recent actions of a mission from West Germany which had also made concrete proposals. Fields of interest

(as reported later on a Saudi radio broadcast) were investment policy, automotive engineering plants, energy and chemical industries, iron and steel foundries, building construction, and agriculture. Six Saudi-German work committees were exploring the details of the co-operation.

In response to a query about possible overlap of proposals by different countries, he said that this would not be a concern. Canada should decide what it could best do and then develop a proposal on that basis. The approach should be aggressive, "this is what you need: this is what we want to do", rather than passive "this is what we have; what do you want". There was no need for further reconnaissance surveys or general studies; the Saudis looked now for action, by people with definite propositions to make.

On the basis of these views from Dr. Badr, we considered during our visit which fields might be best suited for this programme approach in light of Saudi requirements and our understanding of Canada's general supply capabilities. In this latter respect, we could not take the supply capabilities as being fixed and unchangeable, but tried to visualize what might be feasible and reasonable in light of Canadian underlying strengths and positive responses by industry, institutions and governments.

The following are the fields we consider worth evaluating for programmes, together with some of the essential components in the individual fields.

1. Construction. The Saudi need is great, and construction will be a bottleneck impeding all development plans unless new approaches are taken. Canada has capability and could

take the initiative in:

- new technology for prefabrication, especially in concrete and cement for buildings
- supply of prefabricated structures (buildings, houses)
- supply of expertise in developing new towns and sites
- conduct of engineering works for municipal development
- assisting the Saudi construction industry

A programme in these fields could require arrangements for the following elements:

- companies with new technology
- companies with prefabricated structures
- experts from CMHC and large development companies
- consulting engineering firms.

These would need to be brought together in groups or consortia.

Also, there could be outgoing missions for display of Canadian expertise and presentation of products. (For instance, the Saudis could be highly impressed by assembly in a matter of days of a prefabricated structure from a container air-freighted by a 747 or 1011.)

Proposals being presented on such missions should be documented by performance data for climatic conditions similar to Saudi Arabia, and contain comparative costings versus other materials and construction methods.

Assembly and organization of such a programme would clearly require initiative and co-ordination on a major scale. Further information is presented in Section 8.

2. Training. Our report documents the large training efforts required by the Saudis (Section 10) in a wide range of fields.

There will be two aspects to participation:

- provision of experts to work in Saudi Arabia
- arrangements in Canada to train Saudis in a wide range of disciplines at universities, community colleges, and in Canadian companies.

Arrangements would have to be developed to interest Canadian institutions, consultants and private companies in both respects. Government Departments should be involved that have connections with training and education, e.g. the Secretary of State and The Department of National Health and Welfare. CIDA has a developed network of training arrangements and mechanisms that could be utilized. Approaches will be necessary to educational associations (the AUCC), to Provincial Governments, and to individual institutions.

There is no doubt that provision of education and training assistance will be most advantageous, if not mandatory, to obtaining business in all service areas.

3. Agriculture. This again is a field where major transformations will occur in Saudi practice and where substantial external assistance is looked for. Canada's capability seems eminently suited in this regard. More information is provided in Section 6.

The Ministry of Agriculture, in co-operation with the Department, could play a major role in developing a programme for the agricultural field.

There already exists the joint programme for expanded marketing of Canadian agricultural products; the impact of this could possibly be intensified in ways mentioned earlier for the PEMD programmes. As well, this could provide a basis for more extensive developments sponsored by the two Departments.

Canadian universities could be involved e.g. Guelph and MacDonald. A number of private Canadian companies are already exploring or starting beef and dairy operations in Saudi Arabia: their efforts could be brought together and integrated through some consortium arrangement. Agricultural associations, and expertise in Provincial Government Departments, are available for use.

Again, substantial initiative and co-ordination would be required.

4. Minerals. The Saudis have an active mineral programme and wish external participation and assistance in all phases as their mineral position develops. Canada's expertise over the whole field, from prospecting to smelting, will be appropriate; an early entry will facilitate later participation. Further background is available in Section 7.

The Department of Energy, Mines and Resources, in co-operation with the Department, could develop a programme for the minerals sector. A recent publication of EMR, "Canadian Mineral Aid and Private Investment in the Developing Countries, MR143, May 1974" points out the role this Department has been playing, along with CIDA, in developing countries. There

would seem to be at least equal reason for the Department to play a similar, or expanded, role in Saudi Arabia which can pay for services.

The minerals, mining and processing expertise possessed by private Canadian companies is known and appreciated by the Saudis. Grouping of these capabilities within an overall programme could be of major interest to them.

5. Communications. Telecommunications is a major field for Saudi Arabia and one in which Canadian experience and expertise seems particularly suited. The same is true for transportation. Details of Saudi requirements are presented in Sections 4 and 5.

Once again, substantial Canadian capability is available and is now being applied externally in aid and internationally funded loan projects. Assembly of the private and public components in programme form for the Saudi Arabians should be possible.

The Department of Communications, along with the Department, could work to develop a programme in telecommunications, and the Department of Transport similarly for transportation.

In addition to the foregoing, we wish to mention opportunities open to Canada in providing short-term, high-level advisory teams for particular sectors. These would assist the Saudis in their policy, planning and methods of implementation, and could be "door-step" projects for further Canadian participation later. Fields where such missions would be appropriate include electricity, standards, construction, mining,

education, health, agriculture, and banking. Involvements of these kinds would require a definite invitation from the Saudis; however, rather than wait to be invited we could better identify in which fields we would wish to offer this service, and then proceed to do so.

The foregoing attempts to record briefly the thoughts and suggestions we have arising from our visit. We mentioned at the beginning that we came to the conclusion that there would need to be active participation by the Department in assembling the components for programmes. As will have been evident, we visualize as another important element of this process the active involvement of the expertise residing within appropriate other Federal Government Departments.

The form of arrangements could perhaps be such as to involve the Government in formulating and mounting programmes, but leaving their implementation in private hands. This, and many other matters, are of course for consideration later if the policy is to proceed with programmes.

The decision as to whether to undertake programmes is a major policy one. The initiative in these respects by the Saudi Arabians was commented on recently (The Economist, November 30, 1974) as follows:

So what the Saudis would like most from the industrialized world is a series of bilateral deals in which individual governments would act as brokers, rounding up the right firms for an agreed number of projects and helping to see that the job is done properly and on time - with penalties if it is not. In exchange, these industrialized countries would benefit from increased exports and would be given long-term deposits of Saudi funds and assured allocations of oil. The deal looks so attractive to western countries that the Saudis are surprised and disappointed to be told that Western governments do not have such leverage over private firms.

Such involvement by the Canadian Government would require it to expand its role vis-a-vis private businesses in ways which it has, apparently, not undertaken up to now. For instance, it could mean the Government actively taking the lead in forming consortia of companies or consultants, rather than exerting suasion, as now. (There is precedent for such action in other countries which have central foreign tendering organizations). Similarly, active involvement could imply some degree of financial and contractual responsibility on the part of the Government.

Such a changed role for the Government appears necessary if it is to respond affirmatively to the Saudi Arabian request for programmes; indeed, it may have wider applicability to future trading conditions generally.

A number of specific assessments would be needed to enable the Department to establish its policy and choose fields for programmes:

- review Saudi potential as indicated in this report
- assess Canadian supply capability at a more detailed level than it has been possible for us to do, with appropriate involvement of companies, firms, associations, institutions, and government departments
- review experience with the Canadian Commercial Corporation and defence production facilities, as intermediaries between final buyers and individual suppliers
- assess the role that crown corporations (e.g. Polysar) might play
- evaluate the assistance and methods used by competing countries (U.S., U.K., Germany, France, Japan) to their nationals in terms of:
 - export insurance
 - financing of export inventories

- new equipment technology
- training of people
- tax write-offs
- shipping support

These are some of the elements underlying a decision to go ahead and choice of field(s). After this, and presuming an affirmative answer, the following is a tentative mechanism for programme development and presentation, as discussed by the Commercial Secretary and ourselves following the final meeting with Dr. Badr:

1. Ottawa to:

- approach interested companies and institutions
- involve Government Departments as leaders in bringing the parties together
- establish a prime contractor
- develop, with the parties, the details of a possible programme
- determine additional information needs

2. The Commercial Secretary to develop additional information through:

- Dr. Badr
- the appropriate Saudi Ministry or Agency

3. Ottawa and the parties to:

- prepare final draft proposal for programme
- submit to Dr. Badr/Ministries
- submit suggested meeting programme

4. Ottawa and the parties to:

- visit Saudi Arabia for meetings
- prepare final proposal on site and after return to Canada.

Such arrangements for programmes would likely be separate matters from the Trade Agreement which, we understand, is now being discussed with the Saudi Arabian government.

The suggestions above for programmes, together with those presented earlier under projects, constitute the kind of steps which need

to be taken, it appears to us, for Canada to participate actively in the Saudi Arabian market.

3 ENERGY

3.1 OIL

3.1.1 Background and Present Situation

The responsible agency in Saudi Arabia is Petromin, under the authority of the Ministry of Petroleum and Mineral Resources.

Principal sources of information were:

Sheikh A. Zaki Al-Yamani	Minister Petroleum & Mineral Resources
Mr. Mustafa Al-Hejailan	Industrial Development Central Planning Organization
Mr. Jamil Y. Khayat	Eastern Region Representative Petromin
Mr. Peter B. De. T. Rooke	Engineer-Constructor Bechtel Corporation
Mr. Bahad Azee	Manager Petroship

It is not intended to present, here, data or comments relative to the general oil situation of Saudi Arabia: this is documented elsewhere and is not the focus of the present study. Rather, the purpose is to highlight changes relating to oil which could be important for Canadian supply of goods and services.

The main changes are as follows:

- i) expansion in refining capacity to meet growing domestic demands
- ii) expansion in refining capacity so as to provide feedstocks for a domestic petrochemicals industry
- iii) expansion in refining capacity so as to become a supplier of refined products, as well as crude, to external markets

- iv) shift in location of refining capacity to the West Coast (Red Sea) rather than concentration on the East Coast (Arabian Gulf)

3.1.2 Development plans

Refinery capacity on the East Coast (Dhahran) and on the West Coast (Jeddah) is being expanded to meet domestic requirements for refined product and, on the East Coast, will be further expanded to provide feedstocks for the planned petrochemicals industry there. Also, a refinery is being constructed near Riyadh to supply requirements in the Central Region. Mobil Corp. has just been granted a contract of \$40 million for the construction of a lubricating oil plant.

The intention also is for Saudi Arabia to become a supplier of refined products, as well as crude, to external markets. The Saudis wish to change the existing pattern of refining operations located close to final markets and, in their case, have at least some of the refining carried on at the supply source. There are resulting shipping implications - construction and operation of very large and intermediate-sized carriers for products rather than for crude - which are discussed further in section 4.3. It is possible also, as has been mentioned in the Western press, that the Saudis may wish to enter distributing and retailing operations in user countries.

We were told that a study had shown that it would be preferable to ship crude by pipeline to the West Coast, refine it there, and ship it via the Suez Canal to Europe, than to refine it on the East Coast and ship it round the peninsula to the Canal and final destination. The feasibility of such a pipeline is now being studied by Mobil Corp.;

TABLE 3.1

OPPORTUNITIES FOR CANADA

		<u>Status and Size</u>
A	Building a multipurpose (oil, gas, crude) pipeline between the Eastern producing region and the West - 800 miles	Under study
B	Building refineries in the Western region able to process 2 to 3 million barrels per day by 1987	4 to 7 Refineries 0 to 12 Years
C	Establishing distribution and retailing operations for oil and its derivatives, in user countries. Need engineering, marketing and general consultants.	Possibility

its terminus has not been chosen yet, but could be at one of several locations north of Jeddah that are suitable for deep-water ports. This whole prospect is, of course, contingent on a political settlement which would assure restoration of the Canal to the position of a secure waterway. At present, it is thought that the canal will open during 1975; following dredging, it will handle ships of 150,000 DWT.

3.1.3 Opportunities for Canada

The oil operations in Saudi Arabia have been a substantial purchaser of goods and services for some time. Purchases by Aramco, the principal operator, are arranged through Aramco's offices in the United States, Europe, and Saudi Arabia. Aramco has also followed a policy of assisting local suppliers of goods and services to become established as manufacturers or as importers. Canadian participation in these markets has, we understand, been limited, although a Canadian supplier of lubricants has recently achieved success following a visit. Purchasing channels may change when Aramco is finally taken over by the Saudi Arabian authorities which is expected to be in the near future. Entry into this market will, however, require as much or greater efforts than in the past. Given the position of established competition, we cannot regard it as an early major opportunity for Canadian suppliers.

Rather, the best opportunities may lie in the developments now in prospect, and the principal ones are listed in Table 3.1, opposite. The size of these possibilities and their precise extent is still indefinite. Moreover the competitive position of operators who already have established positions in Saudi Arabia suggests that it would not be easy for Canadian

firms to undertake these projects as prime contractors. However, entry may well be possible for Projects A and B on a sub-contract basis or as suppliers of equipment for different parts of the operations. It will be necessary for interested companies to establish close contacts with major contractors, such as Bechtel and Mobil.

Project C could be a possibility for engineering and marketing consultants, but this project is indefinite and only a long-term possibility.

3.2 GAS

3.2.1 Background and Present Situation

Petromin has the responsibility for gas, under the authority of the Ministry of Petroleum and Mineral Resources.

Main sources of information were:

Sheikh Ahmed Z. Al-Yamani	Minister Petroleum and Mineral Resource
Jamil Y. Khayat	Eastern Region Representative Petromin
Mr. Yussaf Suleimen	Industrial Development Petromin

Natural gas in Saudi Arabia is "associated", i.e. is a function of oil output with an average gas/oil ratio of 500 standard cubic feet per barrel of oil. The current usage is 400 mcf per day in:

- reinjection for pressure maintenance
- electric power plants through gas combustion turbines and conventional steam boilers
- feedstock utilization in LPG and fertilizers
- thermal heating in cement, glass bottle, and lime-making operations.

TABLE 3.2

OPPORTUNITIES FOR CANADA

		<u>Status and Size</u>
A	Building recovery system carrying gas from the wells to desulphurization plant)))))
B	Building and operating a desulphurization plant - gas collection - desulphurization - treatment - distribution) 1977) \$4.2 billion)))
C	Transmission lines for treated gas to using industries and export shipment points))

The single most important fact about this gas is that over 3 billion cubic feet per day was being flared in 1973 and, according to the Guidelines for the Second Development Plan, this wastage will exceed 5 b.c.f. by 1975.

3.2.2 Development Plans

It is therefore intended that there be a major programme for gas utilization in a petrochemical industry located at El Jubail on the East Coast (see Section 11.1), as an energy source, and for shipment as NLGS. As a prerequisite there needs to be a major programme for gas recovery, for desulphurization and for subsequent processing stages.

Studies of requirements to bring this about are being conducted by Texas Eastern Transmission Corp. It is desired to start the gas collection system by 1977 and major external assistance in gas transportation and desulphurization will be required. The capital cost of the total project is estimated at \$4.2 billion.

3.2.3 Opportunities for Canada

In distinction to oil, it appears that gas collection and treatment will be a field for major new investment and projects over the next ten years or so. Table 3.2, opposite, indicates the components of the gas project in prospect. The desire of Petromin is that the project start in 1977 although, in practice, this may be somewhat later.

The scale of the overall project may be such as to be beyond the capabilities of a purely Canadian consortium, but with Canada's capability in gas collection and transmission and in desulphurization

plants it would seem that we could play a major part as sub-contractors and possibly as suppliers of equipment.

This overall project is unquestionably worth pursuing by interested Canadian industry and the Canadian Government. Only a small amount of its potential value to Canada may materialize before 1980.

3.3 ELECTRICITY

3.3.1 Background and Present Situation

The Electric Services Organization is responsible for electricity, under the authority of the Ministry of Commerce and Industry.

Main sources of information were:

Mr. Mustafa Al-Hejailan	Industrial Development Central Planning Organization
Mr. Abdullah Shatta	Director General Electrical Services Organization

The size of the country, the relative dispersion of the population, and the governing economic philosophy, have all influenced the systems and arrangements for electricity generation and distribution. There are over 100 operations, of varying sizes, not interconnected, and run as private utility companies. As observed by the Guidelines for the Second Development Plan, this has resulted generally in small scale operations, excessive standby capacity, and high unit costs. Growth in capacity and utilization has been over 15% a year recently.

3.3.2 Development Plans

The Electricity Services Organization has carried out a study of growth in potential loads during 1975-80 which provides a

TABLE 3.3

SAUDI ARABIA
ESTIMATES OF LOADS AND
GENERATING CAPACITIES 1975 - 80

	Megawatts						
	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
<u>Western Region</u>							
Installed Capacity	245	320	350	410	470	650	890
Loads	170	220	250	300	330	400	490
<u>Central Region</u>							
Installed Capacity	155	190	270	360	485	490	515
Loads	95	125	175	210	270	350	415
<u>Northern Region</u>							
Installed Capacity	19	20	20	22	28	28	35
Loads	8	9	11	13	15	17	19
<u>Southwestern Region</u>							
Installed Capacity	15	19	21	23	49	65	73
Loads	1	8	10	13	28	35	40
<u>Eastern Region</u>							
Installed Capacity	650	850	1,000	1,470	1,570	1,670	1,770
Loads	520	690	800	1,200	1,300	1,400	1,600
<u>Total, Saudi Arabia</u>							
Installed Capacity	1,084	1,396	1,661	2,285	2,602	2,903	3,283
Loads	799	1,052	1,246	1,736	1,943	2,202	2,559

consolidated picture of domestic and industrial power requirements for the Kingdom as a whole and in the individual regions.

The data are shown in Table 3.3, opposite. Very rapid expansion is projected, by approximately threefold over the next six years, with main growth occurring in the Western Region (centred on Jeddah), in the Central Region (centred on Riyadh), and in the Eastern Region (centred on Dharhan, Dammam and Alkhobar, and the industrial complex being planned for El Jubail). An example of the expansion planned in major urban centres is available for the Western Region from the Socio-Economic Study by Italconsult dated August 1974. Expansions in prospect are:

Jeddah	100,000 KW by SNEC up to 1980 68,500 KW by SUDA up to 1977
Mecca	77,000 KW
Taif	Programme under elaboration
Medina	13,650 KW up to 1977

Similar programmes will be underway in other major centres although details are not available.

The intent in the Second Development Plan is to move toward making electricity available in all towns and villages in the Kingdom, and a series of electrification programmes have been drawn up:

- i) Rural electrification Programme. Nine projects in three groups of three projects each are to be carried out in 1975 - 76 at a total cost of about \$25 million; there will be public tender invitations. Projects for the following three years are under study and will cost some \$40 million.

ii) Programme to Extend Existing Services to Nearby Centres.
This is a relatively small programme extending over several years at a total cost of \$4 million or so.

iii) Quick Programme. This is to electrify villages on or near main roads, and faraway villages not within other programmes. In the first stage, 38 villages on main roads will be covered at a cost of about \$7.5 million. Subsequent stages will cost \$15 million.

iv) Programme for Interconnection. Detailed studies have been carried out of areas which could benefit from a central power station and a HV transmission network. At least five projects have been identified:

- Wadi Gizan: 1,400 sq. km: three stages in 1975 - 1982: cost \$35 million
- Asir: 4,000 sq. km.: four stages in 1975 - 1984: cost \$40 million
- Al-Bahrah: 1,000 sq. km.: three stages in eight years starting mid-1974: cost \$8 million
- Al-Karj: two stages in four years starting mid-1974: cost: \$6 million
- Quassim: Project over 21 years: cost \$35 million

These interconnection programmes represent first steps in integrating electricity operations in the Kingdom. However, there has been no policy decision yet to remove the operations from private hands. Instead there may be establishment of a semi-autonomous National Electricity Authority which would provide a central planning and development mechanism, and would further standardize systems and equipment as it is doing to some extent at present.

Only after several years would there be consideration of interconnection between regions to form a national grid. There are policy as well as operational considerations here, but it does seem

TABLE 3.4

OPPORTUNITIES FOR CANADA

		<u>Status and Size</u>
A	Export and install electricity generating and distributing equipment (generators, transformers, wiring, converters, transmitters) for expansion in larger centres of the Central and Eastern Region as well as main centres of the Western Region: Jeddah, Mecca, Taif and Medina.	1975 - 1980
B	Export and install electricity generating and distributing equipment (generators, transformers, wiring, converters, transmitters) for village programme.	1975 - 1976 \$2.5 million
	Supervision and technical assistance of experts for villages electrification:	
	8 villages in 1st year	
	12 villages in 2nd year	1977 - 1980
	60 villages in 3rd, 4th, 5th year	\$40 million
C	Equipment supply, installation and supervision necessary to extend services to nearby centres.	1975 - 1980 \$4 million
D	Equipment supply, installation and supervision necessary to electrify villages on or near main roads and far away villages not within other programmes (38 villages).) 1975 - 1980) \$7.5 million;) 1980 - 1985) \$15 million
E	Export of equipment and installation of central power stations and high voltage transmission networks in a number of areas: provision of supervision and technical expert assistance:	
	1. Wadi Gizan project (1975 - 1982)	\$35 million
	2. Asir project (1975 - 1984)	\$40 million
	3. Al-Bahrah project (1974 - 1982)	\$ 8 million
	4. Al-Karj project (1974 - 1978)	\$ 6 million
	5. Quassim project (1975 - 1996)	\$35 million
F	Interconnection of regions to form a long distance transmission grid: study by consultants.	Possibility for 1976
G	Supply of towers for interconnection of the regions; experts required for towers design and operation.	1980
H	Consulting services to set up a National Electricity Authority: planning, development and standardization of systems and equipment.	Possibility for 1975
I	Expert advice in connection with transfer of electricity from private to public responsibility.	Possibility for 1976

that this is the direction in which the Electricity Organization will be moving. It expressed considerable interest in Canadian experience and practice in long-distance power transmission.

3.3.3 Opportunities for Canada

Summary information regarding the projects that are in prospect, so far as they are known, is shown in Table 3.4, opposite.

With Canada's good supply capability in electricity generating equipment, it would appear that we have substantial potential in the projects listed under A, expansions in capacity in the main urban centres throughout the country. No estimate is at present available as to the magnitude of this overall business.

Regarding projects B, C and D for electrification mainly in rural areas, we understand that this has already been looked at by a Canadian consultant but the opportunities did not appear favourable because of the fragmentation of the schemes and the relatively small scale of each scheme.

Project E, however, constitutes a group of individual interconnection projects within sub-regions and represents an initial step toward larger groupings of electricity supply operations. The individual projects are sizeable and this aspect of electricity transmission over long distances is one in which Canadian capability is known and appreciated. It would appear that there is excellent potential for Canadian capability in the individual projects listed under E.

The succeeding stage, mentioned under F, would be a move toward a long-distance grid throughout the Kingdom. As mentioned earlier

there is considerable knowledge of Canadian capability in this area and an expressed wish to draw on this capability when the time was appropriate. We are informed that initial consideration of this is unlikely before 1976, but follow up and offer of assistance should likely be made before that time. Were such a program to go forward, it is likely that project G would materialize, perhaps around 1980. Canadian capability in supply and design of towers and other transmission equipment was particularly mentioned by the Saudis.

Projects listed as H and I are somewhat more indefinite, relating to the possible establishment of a National Electricity Authority and maybe the eventual transfer of electricity from private to public responsibility. In both of these areas, we were asked about Canadian practice and experience. It could well be that the Saudi authorities would be receptive to some general advice in these matters from a short, high-level policy team from electricity authorities in Canada.

Projects F to I are less immediate, but entry of Canada within Project E would give us an established position vis-a-vis competition for the following projects.

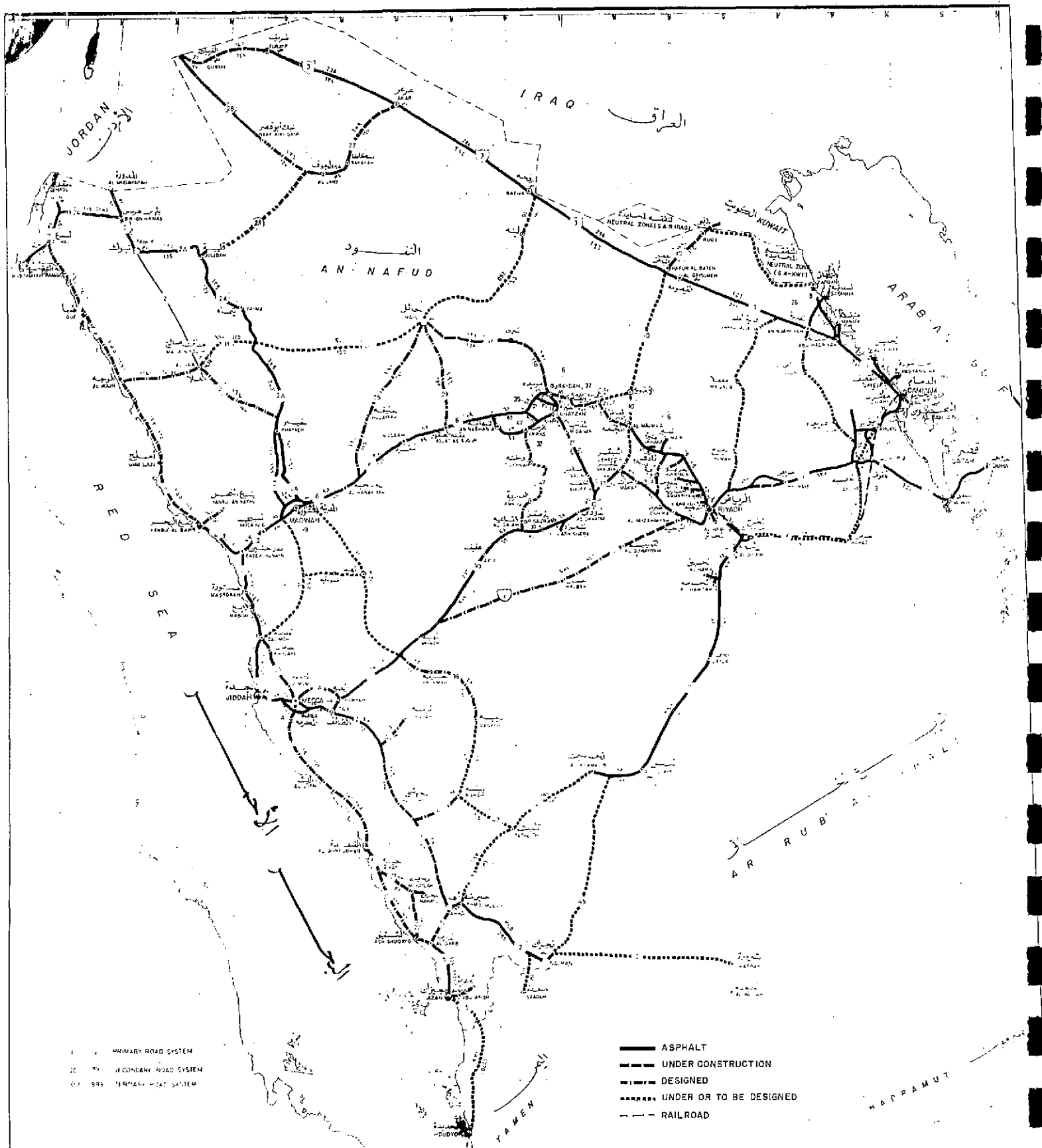
3.4 NUCLEAR

During our meeting with Sheik Al-Yamani, the Minister of Petroleum and Mineral Resources, the subject of Saudi Arabian intentions in the nuclear power field came up.

Sheik Yamani indicated that Saudi Arabia did have a very definite interest in nuclear power as an alternative source, since their oil reserves would not necessarily last forever. He stated that they

were already considering proposals from France and from the United States regarding nuclear reactors but no commitment had been made. On enquiry, he indicated that nuclear capability could be used in a university/research/isotope type of operation but they were thinking of it in concrete applications also, for instance, in desalination plants.

This conversation is reported for further evaluation by the Department.



4 TRANSPORTATION

A major UNDP - IBRD study of the Saudi Arabian National Transport System (SANTS) has been underway for some time by a consortium composed of Hoff and Overgaard (Denmark), Norconsult (Norway), and Systan Inc. (United States). The final report of this study is to be received by the Saudi Arabian Government in December, 1974: it was impossible for our Study Team to have access to it. The following comments are based on earlier reports and on interviews. It will be most important to have access to the final SANTS report as soon as possible.

4.1 ROADS AND ROAD TRANSPORT

4.1.1 Background and Present Situation

Roads are the responsibility of the Roads and Ports Division of the Ministry of Communications.

Main sources of information were:

Mr. Ismail I. Sajini	Transportation and Health Central Planning Organization
Mr. Abdul Aziz Zamil	Deputy Director General Industrial Studies and Development Centre

The road system of Saudi Arabia is relatively restricted but is growing rapidly. As Chart 4.1, opposite, shows, main asphalted roads in the early 1970's were generally confined to the central axis of the country (Jeddah - Riyadh - Dammam) with some offshoots to the north and south. According to the Annual Report of the Central Planning

Organization there were 3,828 km. of main roads in operation at the end of 1971-72 and a further 528 km. were under construction and asphalted.

The road transport system is important for movement of people and goods since railway operations are very limited. Inter-city road transport is in the hands of private operators who own and run their trucks or buses. There are no transportation companies as we know them, nor large fleets of trucks and buses. Choice of equipment and of routes is a matter for private individuals. A wide variety of makes - Volvo, Mercedes, GM, Ford, Japanese - was observed during the visit, with European models seeming to predominate.

4.1.2 Development Plans

The nature of development plans will be better known when the SANTS report is available. However, the September, 1973 Interim Report of the group carrying out the study stated that traffic was growing at 12% per annum and that a car density of about 200 per 1,000 inhabitants is projected for 1990. This clearly implies a major requirement for highway construction.

The programme of road expansion in the Second Development Plan to 1980 is shown in Chart 4.1 and represents, as may be seen, a filling out in connections within the interior and installation of roads along the West Coast.

No change in the institutional arrangements for road transport has come to our attention, except mention of the possibility of establishing a bus company for transport of pilgrims from Jeddah to Mecca, with use of vehicles elsewhere in the other 11 months of the year.

TABLE 4.1

OPPORTUNITIES FOR CANADA

		<u>Status and Size</u>
A	Large scale programs of road construction throughout the Kingdom in 1975 - 80, of which the following are examples for the Western Region:	
	(i) Construction of 1,300 Km. of asphalted roads.	1975 \$5 million
	(ii) Construction of 2,000 Km. of asphalted roads.	1976 - 1980 \$8 million
	(iii) Design of 800 Km. of main roads and 1,300 Km. of secondary roads.	1975 \$8.5 million
B	Consultants in long distance transportation operations to provide expertise in setting up procedures, systems and organizational structures for the operation of the National Saudi Transportation Co. between Jeddah and Mecca.	Possibility

Otherwise there does not appear to be any intention of moving away from a large number of small road transport operators. An opinion was expressed that there was no reason why a dispersed transport system of this kind could not operate at least as well as an integrated, regulated system; experience in Brazil was cited as an example.

It might be mentioned now that transport arrangements within cities are also within private hands with, however, specification by the municipality of routes, fares and types of vehicles. In Riyadh, minibuses made by Nissan, Toyota and other Japanese companies were being used; the equipment was new and clean, and service seemed efficient.

4.1.3 Opportunities for Canada

Table 4.1, opposite, shows the two kinds of opportunities that appear to be developing in roads and road transport during the second-half of the 1970's. As noted earlier the full programme of road construction will only be known from the SANTS survey report but we show projected information for the Western Region as an example of what will be required, using unit construction costs reported as SR 1.2 million per kilometer of road.

The opportunity for Canada to participate in this market is limited. There already are large expatriate contractors, providing design, engineering, construction and equipment. Moreover, our information is that construction works in the nature of roads will be placed increasingly in the hands of local Saudi contractors.

A consulting opportunity appears to be open in provision of administrative and transportation services in the formation of the

new bus company to operate between Jeddah and Mecca. Once again, this could be a door-step opportunity since the formation of this company could be a movement toward a larger scale of transportation operations throughout the country.

Based on our observations, there does not appear likely to be a market in Saudi Arabia for Canadian made highway trucks and buses, nor for municipal buses within cities. Highly competent, international suppliers are already well established in the Saudi Arabian market and despite Canada's ability to produce such vehicles it does not appear that Canada would have any competitive advantage in this market. This adverse competitive situation is likely to be intensified by the commencement of local assembly of trucks in Jeddah, as is reported in section 11.2 of this report.

There is no market yet for off-highway vehicles, but increasing mineral development may create one. Potential suppliers would need to provide performance characteristics for Saudi conditions.

4.2 RAIL AND RAIL TRANSPORT

4.2.1 Background and Present Situation

The responsibility is that of Saudi Arabian Railways Corporation under the authority of the Ministry of Communications.

Principal sources of information were:

Mr. Ismail I. Sajini	Transportation and Health Central Planning Organization
Mr. Yussuf	Assistant Director General Saudi Arabian Railways Corporation
Mr. William L. Hostetler	Industrial Development Department Aramco

There is only one railway line in Saudi Arabia, running between Riyadh and Dammam on the East Coast. The 1972 Report of the Central Planning Organization stated that there were 582 Km of main lines and 125 of branch lines. The rolling stock comprises 25 locomotives, 4 self-propelled cars, 17 passenger cars and 32 other units.

Another railway, running north from Medina into Jordan, has been abandoned since World War One and there are no plans to restore it in view of its proximity to the Israel border. We did not hear anything of a possible rail link between Jeddah and Mecca; rather, as mentioned earlier, our information is that the connection between these points will be by a new bus line.

The Riyadh - Dammam railway is rundown and uneconomic. Its track is in poor condition and is required to go through Al Kharj and Harad. Rolling stock, whether passenger cars, freight cars or locomotives are old and decrepit, and handling facilities are also poor. Fares and charges are regulated at levels that make rail movement of goods unattractive relative to trucks or buses. The railway operation is now almost wholly related to operation of the port at Dammam.

4.2.2 Development Plans

There are no definite development plans for railway operations but there are grounds for considering that something positive may occur.

The Interim Report in September 1973 by the SANTS study team indicated that the present system could not be taken as an indication of the potential for railroad operations in Saudi Arabia; the final report will contain the team's conclusive recommendations.

TABLE 4.2

OPPORTUNITIES FOR CANADA

		<u>Status and Size</u>
A	Consultants to provide an adequate Maintenance System - Consultants in systems design and engineering.	1975
B	Manufacturers of railway equipment and railway consultants to follow up on the final report the SANTS study, and on the implications of the dry port at Riyadh.	1975
C	Follow up on study of railway potential and modernization by A.D. Little.	1976

The Board of Directors of the railroad has decided in principle that rail operations should be assessed on a commercial basis, rather than regarded as a service operation as now. A.D. Little is carrying out a study of railway potential which will be completed before 1976. Following this, approval might be forthcoming by the Board of Directors to transform the nature and scale of railway operations. There is no indication at the present time that there will be subsequent overall approval by the Ministry and by the Council of Ministers. However, some approval for expansion and re-equipping to deal with the great increase in traffic on the East Coast through Damman port and connected with the planned industrial complex at El Jubail appears essential.

A recent decision to open a dry port in Riyadh with full customs facilities there will improve railway operations. The purpose is to speed movement through Damman port and relieve congestion.

4.2.3 Opportunities for Canada

The Chief Engineer of the railway visited Canada in 1973 during a procurement mission for 14 freight cars and switching engines. Canadian companies could not supply in the quantities and types required. He is knowledgeable about Canadian railway operations and appears well disposed to Canadian railway consultants.

Table 4.2, opposite, summarizes potential opportunities for Canada arising from what may be in prospect for the railway operation in future years.

The assistant Director General of the Railways Corporation commented on the bad state of maintenance and maintenance systems at the

present time and indicated they could need assistance in improving what they had. This could be an opportunity for a Canadian railway group or Canadian railway consultants to effect an entry and to commence working with the Saudi Railway Corporation, if the corporation could be asked to express its wishes for assistance in this matter more concretely.

During 1975 we foresee great desirability in manufacturers of railway equipment and railway consultants following-up on the final report of the SANTS study and of the implications of the dry port at Riyadh. Both of these may have substantial implications for railway construction and for expansion in railway equipment.

Similarly there requires to be a subsequent follow-up to the A.D. Little study of railway potential.

4.3 PORTS AND SHIPPING

4.3.1 Background and Present Situation

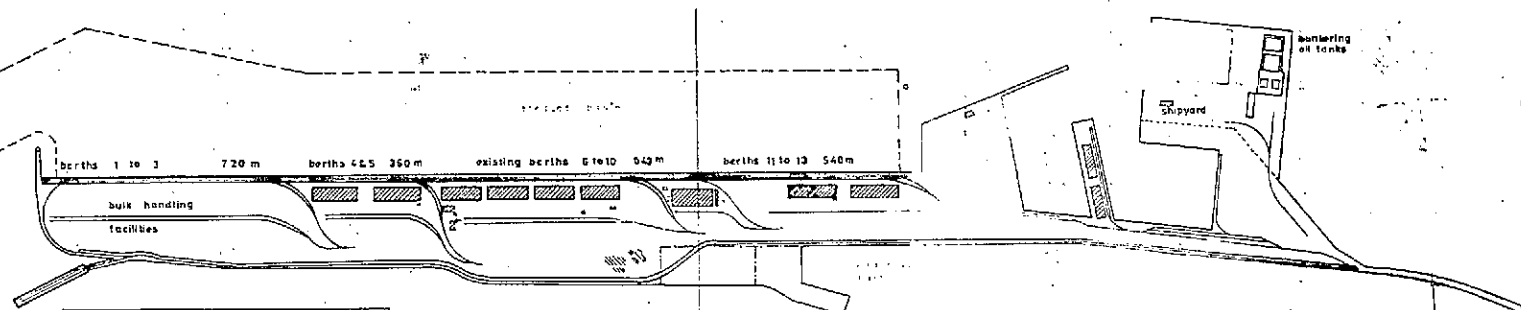
Responsibility is with the Ministry of Communications.

Main sources of information were:

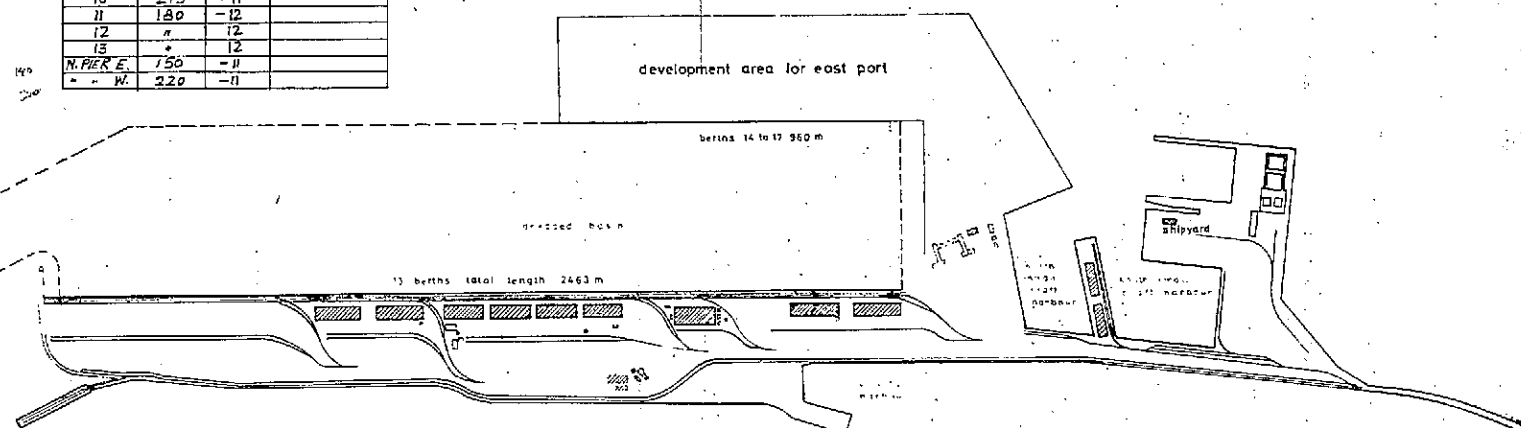
Sheika Ahmed Z. Al-Yamani	Minister Petroleum and Mineral Resources
Mr. Jamil Y. Khayat	Eastern Province Representative Petromin
Mr. Ismail I. Sajini	Transportation and Health Central Planning Organization
Mr. Bahad Azee	Manager Petroship
Dr. Mohammed Sahd	Head, Technical Department Petromin
Mr. Yussuf	Assistant Director General Saudi Railways Corporation
Mr. William L. Hostetler	Industrial Development Department Aramco

DAMMAM PORT IN JANUARY 1970 PRIOR TO DEVELOPMENT

ميناء الدمام في شهر يناير ١٩٧٠ قبل التوسعة

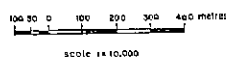


BERTH NO.	LENGTH	DEPTH	REMARKS.
1	240 m	-14 m	
2	"	"	
3	"	"	
4	180	-12	
5	"	"	
6	150	-9	
7	"	"	
8	"	"	
9	180	"	
10	215	-11	
11	180	-12	
12	"	12	
13	"	12	
N. PIER E.	150	-11	
" " W.	220	-11	

DAMMAM PORT AFTER FIRST STAGE OF DEVELOPMENT
(Anticipated Completion 1976)ميناء الدمام بعد المرحلة الأولى من التوسعة
(من المتوقع اكتمال التوسعة عام ١٩٧٦)

DAMMAM PORT 2nd STAGE OF DEVELOPMENT AFTER 1977

ميناء الدمام - المرحلة الثانية من التوسعة بعد عام ١٩٧٧



توسعة ميناء الدمام

سير بروس وايت وولف باري وشركاه
مهندسون استشاريون - لندن والدمام

DEVELOPMENT OF THE PORT OF DAMMAM

Sir Bruce White, Wolfe, Barry & Partners

SKETCH NO. 26/72 B

up dated 12 may 1974

The two main ports of Saudi Arabia are Dammam on the East Coast and Jeddah on the West.

There are separate oil shipment terminals on the East Coast but Dammam is the port for the general cargo needs of the oil operations and their suppliers. Aramco has followed a policy in recent years of assisting the establishment of local contractors, importers and distributors, and aiding construction of their warehouses and commercial buildings. Apart from locally produced items, however, all imports come through Dammam.

Jeddah is a long-established port, handling pilgrims before the greater number of these began to arrive by air, and acting as the main import point for foodstuffs and other products for the Kingdom as a whole. The main importers and merchants of Saudi Arabia are in Jeddah.

All trade of Saudi Arabia, both imports and exports, is in foreign vessels. The SANTS study will be reporting on the desirability of container handling facilities at Jeddah and Dammam.

4.3.2 Development Plans

4.3.2.1 Ports

Development plans are underway both at Dammam and Jeddah.

The programme at Dammam is shown in Chart 4.2. The first stage of development is underway and is to be completed by 1976, after which it is planned to undertake the second stage. We were informed by Aramco that this expansion programme will be adequate to meet cargo

TABLE 4.3

SAUDI ARABIA

PROPOSED TRAINING PROGRAMMES AND PROJECTS
AND THEIR INVESTMENT COSTS
1975 - 76 TO 1979 - 80

MINISTRY OF COMMUNICATIONS

SR 000

Programme #3: Training of Port Personnel

Training abroad in port management, traffic and
operations, and on the job training procedures.

Project A: Training Abroad

16 man years - cost 800

Project B: Domestic Training

Domestic staff: 6 man years 300

Consultants : 22 man years 2,200

Source: IBRD Human Resources Development Mission Draft Report, August, 1974

Note: Exchange rate is approximately SR 3.5 = \$1.

requirements through to 1980. It should be noted that the port and cargo expansion will cause corresponding increases in warehousing and commercial facilities to distribute the increased flow of goods.

With the prospective opening of the Suez Canal, there is increasing interest in port development on the Red Sea. Some expansion is underway at Jeddah but we understand that the programme there is not as fully developed as at Damman. A feasibility study is currently underway on development of 7 smaller ports on the West Coast and will be completed in 1975.

With increased port operations, there will be need for greater numbers of trained port personnel. Table 4.3 opposite shows estimated training requirements as developed by the World Bank Human Resources Mission in its draft report dated August 1974.

4.3.2.2 Shipping

In an interview, the Manager of Petroship outlined a shipping scheme which has been endorsed by AMPTC (Arab Marine Port and Transportation Company) and by the President of Petromin for Saudi Arabia.

This scheme aims to transform Arab countries into shipping nations in 15 years through massive spending for training an Arab merchant marine, for buying ships, and for installing shipyards.

Two maritime academies would be started, one in Algiers (French speaking) and one in Jeddah. The purpose would be to train 40,000 - 60,000 seamen and officers over the next 12 years. Besides equipment obtained externally, there would be a requirement for qualified

TABLE 4.4

OPPORTUNITIES FOR CANADA

		<u>Status and Size</u>
A	Participation in a shipping program on a joint venture basis or on a subcontract arrangement:	\$5 billion 1975 - 1987
	- Building a shipyard with capacities up to 250,000 to 350,000 ton vessels	1975 on
	- Supply of several cargo ships from 15,000 tons up	1975 on
	- Supply of 20,000 to 100,000 ton product carriers for transport of refinery products	1975 on
	- Construction of a Maritime Academy	1975 on
	- Consulting or technical expertise in ship building	1980
	- Training a merchant marine	1978
B	Building or supply of equipment for 20 docking stands in Dammam.	1976 - 1979
C	Building or supply of equipment and material for expansion of port at Jeddah.	1975 - 1980
D	Building or supply of equipment and material for 7 ports in the Red Sea.	1976 - 1981
E	Building and supply of equipment and material for a new port in El-Jubail required for the planned industrial complex.	1976
F	Consulting in all fields of shipping and engineering, marine operations, communications and systems management	1975
G	Provision of training in port management, traffic and operations inside and outside Saudi Arabia.	\$1 million 1976 - 1980
H	Supply of electric cranes and warehouses for cargo unloading at Dammam and Jeddah.	1975
I	Construction and supply equipment for two fishing ports with wholesale markets on the East Coast.	\$5 million 1975 - 1982
J	Consulting expertise to evaluate the marine fish resources in the Arabian Gulf.	\$1 million 1975

instructional staff. All countries would pursue their own shipping and shipbuilding programmes. For these aspects, Saudi Arabia plans to spend \$5 billion over the next 12 years.

Regarding ships, the Saudi Arabian target is to have a fleet of 100 - 200 vessels amounting to 4 - 6 million tons. Included would be purchase and building of 250 - 350,000 ton bulk product carriers to carry the output of the 4 - 7 refineries producing two to three million barrels per day of product on the East Coast; there appears to be a requirement for smaller product carriers up to 100,000 tons also. Government policy is to refine 25% - 30% of Saudi crude and to transport 60% - 70% of this in Saudi ships. The Council of Ministers has recently approved the establishment of a Saudi National Shipping line.

The location for the major Saudi shipyard would be on the West Coast. Jeddah is a possible site but other locations were being looked at. The intent is to have the yard in operation by 1980.

4.3.3 Opportunities for Canada

Table 4.4, opposite, brings together in summary form the main opportunities in ports and shipping which are in prospect for the next five years.

Project A relates to the expressed desire of the Saudi shipping authorities to have five to seven joint venture partners in their programme to bring about a Saudi merchant marine and ship building capability. The size of this prospective programme and its timing can raise doubts on the feasibility of realizing it. Even allowing for some delays, participation by Canada to a substantial extent is unlikely;

the scale of shipyard operations contemplated and the dimensions of the overall programme are beyond what has been the capacity of the Canadian shipping and shipbuilding industry since World War II. However, there may be opportunity for Canadian participation on a sub-contract basis or in supply of particular types of equipment or expertise. It will be well worthwhile keeping in contact with the actual formulation of the programme.

Within the programme also, and prior to the coming into operation of any Saudi shipyards, there will apparently be a requirement for relatively small general cargo ships and for product carriers in the range of 20 - 100,000 deadweight tons. We indicated to the Saudi authorities the capability of Canadian yards to supply such vessels and our success in international markets with such vessels in recent years. They expressed interest and requested that information be sent direct to them by the yards who are interested. In response to a question we indicated that delivery time, with the present order situation, could be two years from Canadian yards but that this could improve depending on actual conditions.

Projects B, C, D and E relate to the building or supply of equipment and material to the port expansions and improvements that are in prospect or underway at Dammam, Jeddah, seven smaller ports in the Red Sea, and the new port at El Jubail connected with the planned industrial complex. Taken together, these represent a substantial opportunity for participation by Canadian expertise in these fields over the next five years.

Projects F and G relate to a more general requirement for services connected with the overall expansion in shipping and ports within the Kingdom. It would appear that there is opportunity for provision of consulting advice in a broad way in these respects. This could be assisted by a provision of training in port management, traffic and operations inside and outside Saudi Arabia by Canadian firms using their home office facilities and expatriates working in Saudi Arabia.

Project H relates specifically to the supply of cranes and dock equipment and buildings for new expansions coming on in Dammam and Jeddah.

Projects I and J relate to a reported expansion in fishing operations on the East Coast in the Arabian Gulf and assistance to bring these operations into existence.

4.4 AIRPORTS AND CIVIL AVIATION

4.4.1 Background and Present Situation

Responsibilities are with Saudi Arabian Airlines and the Ministry of Defense and Aviation.

Sources of information were:

Mr. Nasser Al. Assaf	Deputy Director General Civil Aviation
Mr. Sindi	General Manager Saudi Arabian Airlines
Mr. Ismail I. Sajini	Transportation and Health Central Planning Organization

Saudi Arabia has three international and 17 regional airports, with Jeddah, Riyadh and Dharhan accounting for over 80% of the

total traffic. There is a continuing programme for expansion and modernization to provide more and better air services within the country. Relocation of the Jeddah airport is now underway and a similar project may develop in Riyadh.

The Directorate-General of Civil Aviation has an advisory team from ICAO which assists in planning and in drawing up specifications for contracts. Saudia, the national airline, has been advised and supported by TWA for the last several years and is now an efficient and profitable operation.

4.4.2 Development Plans

There is a continuing airport extension and modernization programme underway, both for the major airports and regional and feeder airports. Purchases of \$35 million worth of equipment in 1973 are forecast to rise to \$70 million by 1979. Main contracts will be for navigation aids and radar; Lockheed has had a strong position as a supplier up to now and is trying hard for these contracts. Other items required are fire-fighters and support equipment; a recent bid by a Canadian supplier was the highest of all. Studies are also underway of inter-airport telecommunications to meet ICAO requirements.

We were advised that the Directorate would be pleased to have more involvement by Canadian suppliers. The Directorate has the names of qualified companies and may either issue open tenders or call for tenders. It can be useful for a company to have an agent but it is not necessary. The first contract is the most difficult to get; afterward it is easier, sometimes on a negotiated basis as a continuation of an earlier contract.

TABLE 4.5

OPPORTUNITIES FOR CANADA

		<u>Status and Size</u>
A	Supply of fire equipment and support items (rescue, safety, etc.).	\$50 million 1975 - 1980
B	Supply airport equipment (navaids, radar, etc.)	1975 - 1980
C	Provide flight simulator and training equipment.	1975
D	Maintain contact with Saudi government for information on future tenders of airport turnkey projects: asphalt, roads, buildings.	1975
E	Supply additional information on Canadian Beaver, Otter and STOL aircrafts.	1975
F	Establish follow up on studies of telecommunications between airports.	1975
G	Supply information on Canadian capability in computerized air reservation systems and associated software.	1975

For new airports, or for new major installations, a turnkey package approach is generally preferred, i.e. a single contract for runway, buildings, service roads and equipment for a new airport, or for a building and supporting items of equipment to go along with a major item of equipment (e.g. a flight simulator).

Re aircraft and their operations, Saudia has a replacement programme based primarily on Boeing aircraft. Over the next 5 years its fleet will grow to: 6-1011s; 6-707s; 4-707s(cargo); 2-727s; 2-737s; 4-F27s. They continue to express interest in the Canadian Beaver, Otter and STOL and requested further information on these. While we understand that much information has already been provided, a further response may assist in keeping opportunities open.

Saudia recognizes the need for an upgraded passenger reservation system but legitimately makes the point that it must wait for expansion in the Kingdom's telecommunications network. They were very interested in Canadian capability in air reservation systems and would welcome information on it.

4.4.3 Opportunities for Canada

Table 4.5, opposite, summarizes the opportunities that appear to be open for Canada and Canadian suppliers in the civil aviation and airline fields.

Projects A and B relate to the continuing requirements for airport operational and support equipment of many kinds and in many of which Canadians have got excellent capability. We have attempted to record the purchasing procedures of the authorities as they were described

to us and their expressions of interest in having approaches made by Canadian companies. Apart from the regular commercial competition, there may be two relatively new circumstances which cause Canadian companies difficulty:

- difficulty in sizing up the local market and competitive situation and in getting the first contract; this can only be overcome through investment of time and effort
- the requirement frequently by the Saudi authorities for supply of equipment as part of an overall package deal including other items such buildings; this may require a rethinking of their approach by Canadian firms.

Project C records another type of equipment that Canadian firms can and are attempting to supply - flight simulation and training equipment. We believe that there is a prospect of success in this area despite the strong position of Lockheed, but the company concerned is encountering some of the package deal difficulties mentioned above and is attempting to provide for them so as to get the prime business that it is interested in. This is the type of approach which appears necessary not only within the airport and equipment field, but increasingly in the Saudi Arabian business situation generally.

As mentioned in Project D, it will be desirable to maintain contact with the Saudi Government for information on all aspects of their expansion programme so as to have the opportunity for supplying to the regional and feeder airports as they are commissioned during the balance of the 1970's.

Project E records the desirability of responding, if possible, again to the Saudi request for information regarding the Beaver, Otter and STOL aircrafts.

Projects F and G relate to two different aspects of inter-airport communications but both are dependent on the general extension of telecommunications capability within the Kingdom. On the one hand there is the intent to install a computerized air reservation system as soon as possible and the request of the Saudi authorities to receive early information on Canadian capability in this regard. Secondly, there is the study now underway of improved telecommunications between airports; this, too, could provide an opportunity for Canadian capability.

5 COMMUNICATIONS

5.1 TELECOM AND TELEPHONES

5.1.1 Background and Present Situation

Responsibility is with the Ministry of Communications.

Main sources of information were:

Dr. Husain Mansour	Telecommunications Central Planning Organization
Mr. Abdullah Shatta	General Director Electrical Services Organization
Mr. Suwailen	Head, Technical Department Ministry of Information

The telecommunications network of the Kingdom is still poorly developed because of lack of comprehensive planning and vigorous implementation, according to the Guidelines for the Second Development Plant. The First Plan contemplated that there would be 150,000 telephones by 1974 - 75 and inter-regional connections by microwave; the number of lines in 1974 was 130,000 and the microwave project is still under study and will not be ready until 1975 - 76.

5.1.2 Development Plans

Programmes are underway to substantially expand telecom and telephone capacity by 1980. The target is 500,000 new lines for a total of over 600,000; this expansion will comprise ten individual installation projects over the next five years.

TABLE 5.1

WESTERN REGION

TELEPHONE AND TELEX EXPANSION

City	1973		1973		1978		1985
	Telex Lines	Phones	Telex Subscribers	Phones	Telex Lines	Phones	Subscribers
Jeddah	200	18,000	50	16,600	400	50,000	89,000
Mecca	50	16,000	-	10,800	150	32,000	46,000
Taif	50	6,000	-	4,800	150	10,000	20,000
Medina	50	5,000	-	4,800	150	10,000	17,500
Yanbu	-	-	-	-	150	2,000	750
Other	-	-	-	-	-	3,000	-
Total	350	45,000	50	37,000	1,000	107,000	173,250

An example of an expansion programme is that for the principal cities of the Western Region which includes 43% of the total urban population in the Kingdom. Table 5.1, opposite, records the programme as reported by Italconsult in its Socio-Economic Study of the region dated August 1974.

Phase I of the long distance system is the main backbone link for Jeddah, Riyadh, Dammam; this project was studied by Norconsult and execution is by an Italian firm. Phases II and III are studies of four main microwave spurs to the north and south of the main coaxial link.

Maintenance and operation of Saouditel, the telephone company, were in the hands of a French firm. Partly because planning and operating responsibilities were separated and partly because of reported poor performance, this arrangement has been terminated. Bell Canada is in contact at the local level and is understood to be interested, provided their requirements as to responsibilities are satisfied.

The Saudis have a high opinion of Canadian competence in this field and are aware of Canadian success in bringing communications to small and isolated communities. They regard the market potential as being very large and speak of 2,000,000 lines by 1990. In their opinion a requirement for 600,000 units, plus replacement and maintenance, is enough to support a local operation, quite apart from the further expansion in prospect.

Other, international, developments include a co-axial connection between Kuwait and Dammam and a microwave and high frequency radio link Dammam-Bahrein. Connections are being made to satellites:

TABLE 5.2

SAUDI ARABIA

PROPOSED TRAINING PROGRAMMES AND PROJECTS
AND THEIR INVESTMENT COSTS
1975 - 76 TO 1979 - 80

MINISTRY OF COMMUNICATIONS

SR 000

Programme #1: Telecom and Broadcast Training Centres

To produce 1,000 Assistant Technicians and 500
Technicians in the plan period

Capital costs: Jeddah Centre	20,000
Riyadh Centre	30,000

Programme #2: Training of Telecom Engineers

To train engineers as specialists for telephone
link operations: 80 for automatic switching,
65 for long distance, 30 for satellite, 30 for
HF, 15 for telex, 10 for frequency control and
10 unspecified:

Fellowships: 125 man years	
Cost	6,250

Source: IBRD Human Resources Development Mission Draft Report, August, 1974

Note: Exchange Rate is approximately SR 3.5 = \$1.

from Taif to the Atlantic Ocean satellite and from Riyadh to the Indian Ocean satellite.

Regarding the ITU proposal for an inter-Arabic telecom network, this is considered to be at the study stage and not yet a serious project. Were it to materialize, the suggestion might be that the central point for such network be in the Southern Sudan.

Table 5.2, opposite, shows the training programme needs estimated by the World Bank Human Resources Mission in its draft report of August 1974.

5.1.3 Opportunities for Canada

Table 5.3, opposite the following page, records in summary form the projects and opportunities for further investigation mentioned above.

There is comparatively little that is definite yet. This reflects the underdevelopment of communications within Saudi Arabia. The fact that plans and programmes are not better formulated constitutes an opportunity rather than a constraint. Canada's expertise in telecommunications is known to the Saudi Arabian authorities and it would appear that a concerted, integrated effort by Canada to suggest a programme of development to Saudi Arabia and to work with it in bringing it about could yield substantial benefits. Competition in this field is undoubtedly strong, but solid proposals from Canada would be welcomed. Training would be an important part of any programme, including fellowships for Saudi trainees along the lines recommended by the World Bank Mission in its draft report.

Given Canada's capabilities, telecommunications is a likely field for a general programme.

TABLE 5.3OPPORTUNITIES FOR CANADA

		<u>Status and Size</u>
A	Supplying 500,000 telephone lines.	1975 - 1980
B	Supplying 1,400,000 telephone lines.	1980 - 1990
C	Direction of all maintenance, service and replacement activities of actual and future lines.	1975
D	Introduction of an inter-regional system.	1975
E	Supplying 500 new telex lines in the Western Region.	1975 - 1978
F	Submitting proposal for establishing a telecommunications network between Arabic countries.	Under study
G	Proposal on a network based on inter-regional microwave system.	Under study
H	Establish follow up on coaxial connection study (between Kuwait and Dammam).	1975
I	Establish follow up on project of two satellite stations in Riyadh and Taif.	1975
J	Training of telecom engineers.	\$1.8 million 1975 - 1980

5.2 BROADCASTING AND TV

5.2.1 Background and Present Situation

Responsibility is with the Ministry of Information.

Principal sources of information were:

Dr. Faysal Bashir	Macroeconomics Central Planning Organization
Mr. Suwailen	Head, Technical Department Ministry of Information
Dr. Husain Mansour	Telecommunications Central Planning Organization

Saudi Arabia in 1972 had 19 radio transmitters and 7 TV stations operated by the Ministry of Information.

Radio broadcasting began in 1949 and comprises 11 medium wave, 7 short wave and 1 FM stations. TV began in 1965 in Riyadh and Jeddah and is still, officially, on an experimental basis only. The station at Dammam is the largest in the Middle East.

5.2.2 Development Plans

In radio, it is intended to expand the number of stations on short or medium wave at two megawatts or above. Equipment requirements will be for power houses, transformers, generators, transmitters and distribution systems. Housing and buildings would be a part of the project and turnkey packages for buildings and equipment combined are required. Interested companies should make their capabilities known. For larger projects, three or four qualified companies would be invited to bid. Smaller projects would mainly go to local tender.

TABLE 5.4

SAUDI ARABIA

PROPOSED TRAINING PROGRAMMES AND PROJECTS
AND THEIR INVESTMENT COSTS
1975 - 76 TO 1979 - 80

MINISTRY OF INFORMATION

SR 000

Programme #1: Broadcasting Training Institute

Training for 50 programme production and 100 technical
operation personnel:

Capital costs	3,000
Expatriate fees in #2	

Programme #2: Training Staff for Broadcasting Services

Project A: On-job training	
Expatriate consultants - 26 man years	6,500
Project B: Training abroad	
Fellowships - 35 man years	1,800

Source: IBRD Human Resources Development Mission Draft Report, August, 1974

Note: Exchange rate is approximately SR 3.5 = \$1.

On TV, they are forming a project for expansion so as to cover all the Kingdom. A move to Colour TV is in prospect: the French system is preferred. Educational TV would be a part of the overall project. Further information on educational TV is presented in Section 10, Education, of this report.

Table 5.4, opposite, records the training requirement estimates made by the World Bank Mission in its draft report dated August 1974.

5.2.3 Opportunities for Canada

Like telecom and telephones, broadcasting and TV is relatively under-developed in Saudi Arabia and the programmes for it are not well formulated. Table 5.5, opposite the following page, records so far as information permits what is in prospect over the next several years.

Educational TV is a field in which Canada could participate actively; considerably more information on training programmes for educational TV use will be found in Section 10 of this report under Training Programmes for Education.

It will be noted here that the World Bank Mission recommended training programmes for broadcast technicians both outside Saudi Arabia and within the country through expatriate experts. Association by Canada with such programmes could provide an entry for our general broadcasting and TV expertise and for our associated equipment capabilities.

TABLE 5.5

OPPORTUNITIES FOR CANADA

		<u>Status and Size</u>
A	Supply radio and T.V. broadcasting equipment such as: power houses, transformers, generators, transmitters and distribution systems.	1975 - 1980
B	Offer consulting services in the engineering of broadcasting buildings.	1975 - 1980
C	Offer special equipment and expertise in educational T.V. (see also section 10 of this report).	1975 - 1980
D	Provide training fellowships in Canada for broadcasting services and training experts to work in Saudi Arabia.	1975 - 1980

6 AGRICULTURE6.1.1 Background and Present Situation

Responsibility is with the Ministry of Agriculture and Water..

Main sources of information were:

Dr. M. Badr	Vice-President Central Planning Organization
Dr. Saadia	Assistant Deputy Minister Ministry of Agricultural and Water
Mr. Peter Duncan	Chief Economic Advisor to CPO Stanford Research Institute
Mr. Mohammed Bakr	Energy and Industry Central Planning Organization
Dr. Faysal Bashir	Macroeconomics General Planning Organization
Mr. Sahel Houmaidan	Agriculture Central Planning Organization
Dr. Frederic Thomas	Deputy Regional Representative United Nations Development Program
Mr. A.A. Zainy	President A. Abbad & A. Zainy

Very little of the land area in Saudi Arabia is suitable for agriculture, as is shown in the following land classification table:

	<u>Million Hectares</u>	<u>Percent of Total</u>
Arable	0.5	0.2%
Permanent grassland	1.7	0.8
Forest and reservations	2.8	1.3
Semi-desert rangeland	140.0	63.6
Desert (barren)	75.0	34.1
Other (cities, roads, etc.)	<u>0.1</u>	<u>-</u>
	<u>220.1</u>	<u>100.0%</u>

TABLE 6.1

SAUDI ARABIA

IMPORTS OF AGRICULTURAL COMMODITIES
ANNUAL 1970 - 73 AND ESTIMATED FOR 1974

1,000 dollars					
Item	1970	1971	1972	1973	1974 ¹
Total	186,180	225,000	254,806	379,430	550,000
Cattle	3,212	3,500	6,500	9,300	14,000
Sheep and goats	17,638	18,400	26,085	35,200	41,000
Meat	6,201	5,434	6,084	10,300	18,500
Poultry, fresh	4,927	4,900	5,900	8,100	15,000
Canned meat	275	290	1,500	1,900	3,800
Milk, condensed, dry, fresh	9,966	5,650	8,100	13,500	21,000
Milk, dry	397	2,900	4,800	8,000	17,000
Butter	2,357	2,400	2,900	3,200	3,500
Cheese and curd	5,233	4,830	4,830	5,100	7,000
Eggs	2,620	3,300	3,700	4,000	5,000
Wheat and flour	26,653	26,610	30,600	50,800	98,000
Wheat	12,790	12,610	13,600	15,800	26,000
Wheat flour	13,863	14,000	17,000	35,000	72,000
Rice	37,044	38,500	30,700	76,000	149,000
Sorghum and other cereals	8,399	10,545	12,545	19,000	21,000
Corn	1,626	1,630	1,800	2,000	3,900
Oranges	5,611	5,600	7,600	8,000	8,700
Other citrus	819	840	852	900	1,100
Bananas	3,007	3,700	4,850	6,500	7,000
Apples	2,358	2,850	3,000	3,100	3,400
Grapes	218	410	460	580	700
Raisins	161	165	190	280	400
Beans and peas	1,338	1,950	2,350	3,700	5,400
Tomatoes	1,585	1,620	1,680	2,100	3,500
Onions	564	618	880	1,000	800
Sugar	7,395	9,962	14,762	27,700	39,100
Coffee	5,326	5,590	6,300	7,700	10,000
Tea	6,327	6,320	6,600	7,400	10,500
Tobacco	415	418	456	670	800
Soybean oil	747	750	1,050	1,800	3,100
Cottonseed oil	456	624	702	2,200	2,400

¹ Estimate

Sources: FAO Trade Yearbooks 1967 and 1972; OECD Commodity Trade 1972; Foreign Trade Statistics of supplying countries for 1973 and ERS

Derived From: US Department of Agriculture Reports

Although cultivable land is only 0.2% of the total land area, agriculture provided employment for 40% of the labour force, and 65% of the total population was rural, in 1969. Per capita disposable incomes were below \$100, however, and growth in output and in incomes has been slow - less than 2½% a year in recent years.

The following are some overall data regarding the pattern of agriculture in the Kingdom, as reported by the Central Planning Organization in 1972:

- i) Field Crops: millet and sorghum are on 257,000 hectares, 57% of the total crop land. Wheat and barley have lesser areas: there is a Mexi-Pak wheat programme whose goal is 40,000 hectares by 1975.
- ii) Livestock: estimates are 270,000 cattle, 2.3 million sheep, 2.0 million goats, 600,000 camels. Alfalfa and clover are cash crops for cattle rearing. Imports of animals and meat have been substantial; the most recent figures are shown in Table 6.1, opposite.
- iii) Dates: there are an estimated 3 million palm trees.
- iv) Vegetables: estimated area is 31,000 hectares, 7% of the cropped area.
- v) Poultry and Eggs: this has grown substantially in recent years:

	<u>1964</u>	<u>1971</u>
Number of farms	34	104
Broiler production (tons)	464	4,634
Egg production (million)	11	43

Domestic production now supplies some 37% of the total market.

- vi) Imports: These have grown much faster than population growth because of rising incomes, changes in taste and in nutritional habits, and urbanization. The pattern of food imports in recent years are shown in Tables 6.1 and Table 6.2, opposite following page. Imports account for about half of total demand.

TABLE 6.2

SAUDI ARABIA

IMPORTS OF AGRICULTURAL COMMODITIES
ANNUAL 1970 - 73

Metric Tons

<u>Item</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>
Cattle ¹	46,464	50,000	56,000	71,000
Sheep and goats ¹	1,039,328	1,100,000	1,270,000	1,440,000
Meat	8,321	7,730	8,980	11,400
Poultry, fresh	7,257	7,000	8,000	8,350
Canned meat	334	350	450	880
Milk, dry	702	4,200	6,000	7,600
Butter	2,713	3,000	2,500	3,700
Cheese and curd	6,493	6,000	6,700	7,400
Wheat	131,557	133,000	154,000	107,000
Wheat flour	166,000	158,000	176,000	195,000
Rice	202,027	220,000	166,500	164,000
Corn	17,896	18,000	20,000	16,000
Sorghum and other cereals	37,996	41,000	46,000	51,000
Oranges	35,298	35,000	36,000	34,500
Other citrus	4,340	4,400	4,700	5,000
Bananas	22,372	28,000	36,000	39,000
Apples	12,341	15,000	17,000	19,000
Grapes	1,067	2,000	2,000	3,100
Raisins	580	600	700	820
Beans and Peas	10,242	13,000	15,000	17,000
Potatoes	13,240	13,500	14,000	15,000
Onions	5,466	6,000	8,000	7,700
Sugar	77,829	94,116	81,615	101,000
Coffee	6,172	6,500	7,000	7,900
Tea	5,617	5,600	5,600	7,200
Tobacco	1,085	1,100	1,200	1,600
Soybean oil	1,195	1,200	1,600	2,100
Cottonseed oil	1,177	1,600	1,800	2,300

¹ Number of head

Sources: FAO Trade Yearbooks 1971 and 1972

Derived from: US Department of Agriculture Reports

vii) Agricultural Credit Bank: This is intended as a source of financing for farmers and has increased the number of its loans from 625 in 1964 to 4,381 in 1970-71. Short-term loans are for seed, fertilizer, irrigation water, labour, and crop marketing costs, with a repayment period of one season: in 1970-71 there were 1,741 such loans for a total value of about \$740,000 or an average of some \$425. Medium-term loans are for well drilling, pumps and engines, machinery, transport, poultry buildings and small packing houses, with a repayment period of 3-5 years: in 1970-71 there were 2,640 such loans for a total value of \$4 million or an average of about \$1,500.

The Guidelines for the Second Development Plan listed the following as factors that are basic to the performance of Saudi Arabian agriculture:

- the small size of farm, averaging less than 3 hectares
- lack of water
- illiteracy of farmers
- lack of technical personnel
- lack of financial resources
- lack of an overall agricultural programme
- easy access to foreign food
- government policy of supporting high urban consumption at low prices

Before going on to discuss these factors further in the context of development plans, mentioned should be made briefly of forestry as an alternative user of land and of fisheries as an additional provider of food products, although little information was obtained on either of these.

The Forestry Division within the Ministry of Agriculture has a programme for aerial survey of the forested and reserved areas, totalling 2.8 million hectares mainly inland from the West Coast. The purpose is to assess a possible land management and forestry programme based on watersheds and use of plantations; this is in the formative stages. There is also some interest in sawmilling operations.

The present situation in fisheries is primitive, with an inefficient and declining fishing operation but a growing demand for fish. A study carried out by ILACO has identified the two alternatives of:

- gradual modernization of the existing fleet, through installation of new equipment and replacement of old vessels with new standardized ships
- establishment of a new, sophisticated fishing fleet, supported by two new fishing harbours each with a small shipyard and a wholesale market.

Information available to us suggested that early decisions and action were not likely regarding fishing, although studies are being made of marine resources and possibilities for development.

6.1.2 Development Plans

We were advised that the overall planning capability within the Saudi Arabian Department of Agriculture was not strong, and our interviews confirmed this. Even so, it would have been useful to have had access to the Department of Agriculture submission to the Central Planning Organization for 1975-80, but this was not possible. The following are comments on individual aspects of the situation as we were able to learn of them from a number of informants.

Water supply and availability is of paramount importance. Four divisions within the Department are concerned with water and in the Second Plan will be continuing active programmes for increased water supply and irrigation:

- the Water Services Division, concerned with water treatment and distribution from aquifers. (In addition, there is a water programme related to desalination plants. This is under the authority of a separate Desalination Plant Division, which has reported plans to erect 25 such plants at a total capital cost of \$4 billion).

- the Water Resources Development Division, to develop new water supplies through drilling and exploration (foreign consultants and contractors are used here).
- the Dam and Irrigation Division, to improve water storage, distribution and utilization.
- the Water Conservation Division, for maintenance of existing wells. In accordance with practice in Saudi Arabia, all maintenance is put out to tender, and well maintenance is handled wholly by Saudi firms.

Besides provision of greater quantities of water, a substantial subsidy programme is used to encourage better farming methods. Input subsidies are paid on fertilizers, machinery, seeds and irrigation; an example of the effect is that imports of fertilizer have increased from 5,800 metric tons in 1969 to 31,300 metric tons in 1972. Such subsidies will be continued and, perhaps, expanded.

Subsidies are also paid to importers of staple food stuffs (flour, rice, sugar) to keep down domestic prices to consumers; however, there are indications that this is not working well (establishment of a National Food Supply Company is being studied), and the form of subsidy can act against the objective of increasing domestic output.

A variety of support services to farmers are provided to greater or lesser extents and there is some commitment to expansion of them in 1975-80;

- the Agricultural Bank is a source of credit to farmers: its operations could have wider coverage possibly through use of mobile units
- extension services in terms of advice or assistance are provided through 63 local offices of the Ministry. However, the scale of service is low, with only 100 or so officers compared with an estimated 3,700 needed on the basis of one extension worker for 50 farmers, and there seems to be little urgency in increasing the numbers.

- there is no organized farm marketing programme. Improvements in the road system are relied on to assist movement of produce, but other than this little is being done to assist marketing. Market places are provided in towns by the Ministry of Municipalities.

There are several training and research institutions, including the College of Agriculture at the University of Riyadh and experimental and research stations in Riyadh, Medina, and Hoffuf in the Eastern Region. Facilities are inadequate, however, and approximately 100 students are being trained abroad in agriculture, mainly at colleges in the United States. The University of North Wales appears to act in a general advisory capacity to the Ministry of Agriculture and plays a major role in dairy operations at the research station in Hoffuf.

The field of animal husbandry is of very considerable interest to Government and private sector people in Saudi Arabia. A substantial and growing market for meat and dairy products exists but is mainly being supplied by imports, due to the fragmentation and inefficiency of domestic operations. The desire is to establish large scale, model operations, and both public and private people are looking for foreign involvement. Such operations will have to encompass the full range of technology since whole new systems of farming, marketing and processing must be created. Integrated, turnkey proposals for establishment of beef and dairy operations are looked for.

Partly associated with this will be technology related to seeds, grain and feed production, storage and distribution. A start on this is being made by the Grain Silos and Flour Mill Organization, an autonomous body reporting to the Minister of Commerce and using Pillsbury

TABLE 6.3

SAUDI ARABIA

PROPOSED TRAINING PROGRAMMES AND PROJECTS
AND THEIR INVESTMENT COSTS
1975 - 76 TO 1979 - 80

MINISTRY OF AGRICULTURESR 000Programme #1: Fellowships for Abroad

1,200 man years for 310 people, of which 200 man years
for post graduate.

Cost	51,250
------	--------

Programme #2: Job Training for Technicians

Existing and new sub-centres, total enrollment 160,
output during plan 260

Costs: Capital	8,500
Consultants	4,500

Programme #3: Tours and Study Abroad

10 man years

9¼ Fellowships	745
¾ Consultants	205

Programme #4: Farm Information Unit

Costs: 12 mobile units @ SR 100,000	1,200
Equipment for information centre	<u>300</u>

Total equipment	1,500
Construction of studios	300
Consultants: 13 man years	3,250
Fellowships: 12 man years	600

Source: IBRD Human Resources Development Mission Draft Report, August, 1974

Note: Exchange Rate is approximately SR 3.5 = \$1.

Corporation of Minneapolis as technical advisor. It is undertaking the construction and operation of flour mills, feed mills and silos in Dammam, Riyadh and Dharaahn, with a total capacity of 300,000 tons of wheat a year. A total turnkey project for Riyadh is to be let in 1974, and turnkey proposals for equipment only for the other two locations will be considered in 1975. The wheat to be used will be hard winter wheat (Canadian/U.S. type). Contracts for supply will be negotiated in early 1976. Besides this initial operation based on imported product, it can be expected that there will be substantial development using domestic grains and this will necessitate extensive foreign expertise and technology.

While in Saudi Arabia, we heard of several sizeable private developments in poultry raising for meat and eggs. The scale of such operations suits them to private development and these opportunities are being pursued by Saudi investors, drawing on foreign expertise as required. There will be an associated growth in demand for poultry food.

Table 6.3, opposite, presents the training estimates for agriculture developed in the draft report dated August 1974 by the World Bank Human Resources Mission.

6.1.3 Opportunities for Canada

The Saudi Arabian requirements for assistance in the field of agriculture and the limited state of existing technology and of formulation of plans for development, constitute major opportunities for participation by Canada.

TABLE 6.4

OPPORTUNITIES FOR CANADA

		<u>Status and Size</u>
A	Agriculture modernization practices as recommended in the Socio-Economic study of the Eastern Region by SCET International:	
	(i) experts and equipment for extension of cultivated land.	\$12 million 1975 - 1980
	(ii) experts and equipment for irrigation works in the Eastern Region	\$4.5 million 1975 - 1980
	(iii) experts in water drilling and aquifer development	1975 - 1980
	(iv) consultants in agriculture marketing and management to improve overall marketing operations in the Eastern Region	\$2 million 1975 - 1980
	(v) experts and programmes for general improvement in agricultural practices	\$10 million 1975 - 1980
B	General projects for agricultural development:	
	(i) planning and advisory consultants	1975 - 1980
	(ii) establishment of agricultural data bank	1975 - 1977
	(iii) advice on National Food Supply Co.	1975
C	Fellowships and training programmes in agriculture.	\$20 million 1975 - 1980
D	Farm support systems:	
	(i) mobile units for expanded operations of Agricultural Bank	1975 - 1980
	(ii) farm information units, including mobile units	\$1.5 million 1975 - 1980
E	Meat and dairy farm developments; contacts with government and private investors.	1975
F	Poultry raising developments; contact with private investors	1975
G	Silos and flour mills:	
	(i) construction and equipment of silos and flour mills	1975
	(ii) supply of 300,000 tons of winter wheat	1976
	(iii) provision of training in Canada	1975
H	Food processing:	
	(i) consultants for programme of growing, grading and canning Saudi fruit and vegetables	1975
	(ii) joint ventures for bottling fruit concentrates and soft drinks	1975
I	Conduct aerial surveys of the forest and reserve areas.	\$2 million 1975 - 1980
J	Construction of 25 desalination plants	\$4 billion 1975 - 1985

A brief summary of some of these opportunities are recorded in Table 6.4, opposite.

Under project A are described agricultural modernization practices as recommended in a socio-economic study for the Eastern Region during the Second Development Plan by SCET International. In total these schemes amount to approximately \$30 million for this region and their nature and relative size can be taken as indicative for the Kingdom as a whole. Clearly there is a great need for external assistance in establishing programmes of these kinds throughout the country.

Project B records in a general form our understanding of the need for planning and advisory consultants to the Ministry of Agriculture, the establishment of a data bank, and advice on the National Food Supply Company which is shortly to be reported on by other consultants. This project area provides an opportunity for detailed involvement with the Ministry of Agriculture in the overall planning and development of Saudi Arabian agriculture, and participation by Canada in these respects would open wider opportunities.

Project C records in summary form the fellowship and training programmes for agriculture put forward by the World Bank Mission and displayed in Table 6.3. Once again, as in almost all of the sectors, ability to provide fellowship training in a foreign country and technical experts in Saudi Arabia will be of major importance in making an impact on this sector in Saudi Arabia.

Project D mentions two farm support systems that are in prospect both involving mobile units; one is for extension of the operations of the Agricultural Bank, and the second for new farm information units. Here again is an opportunity to use imaginatively new technology

in providing agricultural assistance in the Saudi Arabian setting.

Project E is a brief reference to meat and dairy farm developments which are being promoted by both public and private interests within Saudi Arabia, as already described.

Project F similarly refers to the efforts underway in poultry and poultry meat projects and the usefulness of external contacts and assistance.

Project G groups together a series of opportunities connected with the establishment of the new silos and flour mills, and their implications for machinery and equipment, supply of raw material, and provision of training which we understand is underway through the Canadian Grain Institute.

Project H refers to the possibilities for processing either domestically produced or imported produce for consumption in final form within Saudi Arabia. In accordance with the Saudi desire for package projects including all elements, domestic projects should deal with cultivation, growing, grading, processing and distribution. Further reference to food processing is made under Section 11 dealing with food manufacturing operations.

Project I refers to aerial surveys proposed for the forest and reserve areas which could be of importance for Canada with its reputation in forestry.

Finally, Project J relates to the large-scale desalination plant programme.

The foregoing list of project exemplifies the major amount of work to be done in agriculture in Saudi Arabia. This suggests to us

that the field of agriculture is one in which the Saudi request for full-scale programmes of cooperation could be advantageously met.

Apart from private companies, only the University of North Wales is offering advisory services to the Saudis in agriculture, and competition to Canada is not, therefore, particularly strong.

7 MINERAL RESOURCES7.1.1. Background and Present Situation

Responsibilities rest with the Mineral Division of Petromin and the Mineral Resources Directorate within the Ministry of Petroleum and Mineral Resources.

Main sources of information were:

Dr. M. Badr	Vice-President Central Planning Organization
Dr. M. Sahd	Head, Technical Department Petromin
Mr. S. Alhamdam	Director Mineral Division Petromin
Mr. N. Abbas	Mining Consultant Petromin
Mr. M.Q. Assaad	Director Technical Affairs Mineral Resources Directorate

There are two aspects to the mineral resource situation in Saudi Arabia:

- the geology, mapping and prospecting work
- the exploration and exploitation stage

The first of these is carried out by the Mineral Resources Directorate of the Ministry of Petroleum and Mineral Resources, and constitutes a basic programme of surveying, mapping and prospecting. There are two main advisory missions which also contribute technical experts. The U.S. Geological Survey team is responsible for the overall survey work and the equivalent group from the French BRGM (Bureau de Recherche et Geologie Minerale) does more detailed work on selected ores and areas,

sometimes approaching the feasibility study stage. In addition to these, a Japanese team has been given responsibility for establishing the iron ore situation in the Kingdom. We were provided with 1974 maps showing the metallic and non-metallic position in Saudi Arabia on the basis of knowledge existing at that time: these are separate attachments to this report.

Once a mining company is interested enough to proceed to the exploration stage, the Minerals Division of Petromin (the state petroleum and mining corporation) becomes involved along with the Mineral Resources Directorate. The intent is to attract mining companies into mineral development in Saudi Arabia, and interested firms will be provided with all the information that is available and can send in their own people for field inspection. Granting of an exploration license requires a letter of agreement that Petromin can participate on a 50:50 basis in any subsequent exploitation; such a license gives exclusive exploration rights for minerals in a defined area for five years, and this time can be extended. A subsequent mining lease will be given to the mining entity jointly owned by Petromin and the private company. In establishing that entity, the exploration costs of the private company can be capitalized as part of its portion of the equity, and prior costs of Petromin and the Resources Directorate will also be capitalized on their side.

These are the broad outlines of what is required; fuller detail is in the 1973 version of the Saudi Arabian Mining Code which is attached to this report. In conversation we attempted to discuss some of the above general points in more detail but were advised that it would be better to reserve such questions for particular situations. The overriding

Saudi position was positive, oriented to development, and willing to negotiate. Regarding infrastructure, prospective investors could be sure that the Government would provide what was required.

7.1.2 Development Plans

The intent on the survey side is to intensify and speed up the programmes now in hand. The draft five-year plan of the Directorate (of which a copy is attached to this report) visualizes four mechanisms for carrying out additional work:

- increased involvement of existing advisory missions
- engagement of a third mission
- engagement of outside contractors for individual projects
- group contracts under which a firm would assemble and provide individuals with required expertise.

The first of these would increase reliance on existing missions while the third would be limited by the work specification and monitoring capacity within the Directorate. The fourth - the group contract - is now being used, and a Canadian firm is to provide 14 geologists over a four year period. The possibility of a third mission is open.

In addition to expertise in these technical aspects, the Directorate will also require a consultant expert in mining legislation and regulations, and management expertise for administrative training and cost accounting.

The development plans on the exploration and exploitation side are to induce more mining operations in the Kingdom. At present, several opportunities have been taken up:

TABLE 7.1

OPPORTUNITIES FOR CANADA

		<u>Status and Size</u>
A	Preparation of a program for participation in geological assessment of mineral or non-mineral deposits, with the purpose of becoming the third mineral mission to Saudi Arabia.	1975
B	Training of Saudi Arabian mineral technicians and administrators in Canadian mines and processing industries.	1975
C	Contact by individual Canadian mining companies re mineral exploration and, perhaps, eventual exploitation	1975
D	Contracts by Cos. specialized in deep sea mineral exploration and extraction.	1975
E	Consultants expert services in:	
	- Mining legislation and regulation	1975
	- Administrative training	1975 - 1977
	- Cost accounting	1975
F	Specialized Canadian companies to study salt production methods for use in production of chlorine on the East Coast	1975 - 1977

- | | | |
|-------------------------|---|------------------------|
| - Jabal Sayid (copper) | : | Serem/U.S. Steel |
| - Nugrah (base metals) | : | Nippon Mining & Mitsui |
| - Wadi Qatan (Nickel) | : | Arabian Shield |
| - Massene (copper-zinc) | : | Arabian Shield |
| - Zarghat (magnesite) | : | Al Rashid Trading |

7.1.3 Opportunities for Canada

Table 7.1, opposite, outlines the main shape of opportunities for Canada in the mineral resources field within Saudi Arabia.

As indicated in Project A, there appears to be the opportunity for Canada to be established as the third mission concerned with geological exploration and assessment within the country, if we wish to obtain this door-step project.

Project B refers to the desirability of beginning to train Saudi Arabian nationals in Canadian mines and processing establishments so that they can function effectively in their own country. This would provide an entry for Canadian expertise, goods and services later.

Project C records the need for continuing contact by individual Canadian mining companies regarding their own exploration and exploitation interests. We understand that several of the largest mineral companies in Canada are carrying out this contact and it is unquestionable that this will be of material benefit whenever and wherever substantial mineral opportunities develop later.

Project D refers to an expressed wish by the Saudi mineral authorities to hear from Canadian companies interested in deep-sea mineral

exploration and extraction. The Red Sea area is believed to be a major source for underwater minerals.

Project E refers to the recorded need in the Second Development Plan for the Mineral Resources Directorate for consultant expert services in a number of fields and Canada would appear to be in a favourable position to be able to supply these also.

Project F refers to the deposits of salt on the East Coast, their possible use for chlorine production as part of the industrial complex, and the need for technology to assess the best method of salt extraction. Again Canadian expertise may have something to offer in this respect.

Given the Saudi desire for mineral development, the extent of potential competition to Canadian companies considering entry to Saudi Arabia is large. However, Canadian expertise over the whole mining field is second to none and is known to the Saudis. Formation by Canada of a programme regarding minerals in Saudi Arabia would establish us in a privileged position and is therefore suggested.

8 CONSTRUCTION

There are several reasons for giving detailed consideration to the construction sector when assessing general developments in Saudi Arabia:

- construction is a very large activity and will become even more significant
- construction is, and will be, a bottleneck, hindering the achievement of all other objectives unless new technology and new arrangements are applied
- this danger is intensified by diffusion of responsibility for construction among a number of different Saudi Ministries
- Typically, also, construction has been a field for private enterprise in Saudi Arabia, but there is the question whether traditional arrangements can handle the volume of activity in prospect.

Our discussions indicate the need for new approaches and the possibility that construction in Saudi Arabia could be a field of concentration for Canada. Hence the grouping under this heading, and further assessment, of material relating to municipalities and buildings which is not discussed elsewhere in this report. Construction requirements arising from transportation developments have been included in the discussion under Section 4, Transportation. Certain information on building construction can also be found in the training recommendations of the World Bank Human Resources which are presented in the appropriate sections of this report (particularly Section 9, Health and Section 10, Education).

8.1 MUNICIPAL

8.1.1 Background and Present Situation

Responsibility is with the Municipality Division of the Ministry of Interior.

Main sources of information were:

Mr. Abdul Aziz Zamil	Deputy Director General Industrial Studies and Development Center
Mr. Peter Duncan	Chief Economic Advisor to CPO Stanford Research Institute
Mr. Bashir Faris	Economic Advisor Central Planning Organization
Dr. Faysal Bashir	Macroeconomics Central Planning Organization
Mr. Sami Mosly	Municipalities and Water Central Planning Organization
Mr. Hisham Mosely	Private Consultant Public Administration & Relations Consultant
Mr. E.I. Djabidas	Representative in Saudi Arabia Doxiades Associates International

The Municipalities Division is a part of the Ministry of Interior and in 1974-75 has the second largest budget of any Government Department, Defence being the largest.

The Division is responsible for the operation of some 69 existing municipalities through individual Mayors who are appointed rather than elected. It controls the town planning offices in Jeddah, Riyadh and Dammam. It is responsible for sewer and water systems in all municipalities; there are overlapping responsibilities with the Ministry of Agriculture for water supply. Over the past few years it

TABLE 8.1

POPULATION PROJECTIONS
thousands

SAUDI ARABIA

	<u>1969-70</u>	<u>1974-75</u>	<u>1979-80</u>	<u>1984-85</u>	<u>1989-90</u>
<u>Alternative A: Fast Shift</u>					
Main Urban	1,300	2,290	4,040	6,210	8,310
Lesser Urban	410	570	810	1,030	1,190
Rural	<u>3,510</u>	<u>3,340</u>	<u>2,600</u>	<u>1,580</u>	<u>980</u>
Total	5,220	6,200	7,450	8,820	10,480

Alternative B: Slow Shift

Main Urban	1,300	1,830	2,960	4,760	6,680
Lesser Urban	410	530	680	870	1,130
Rural	<u>3,510</u>	<u>3,840</u>	<u>3,810</u>	<u>3,190</u>	<u>2,670</u>
Total	5,220	6,200	7,450	8,820	10,480

CENTRAL REGION

	<u>1973</u>	<u>1980</u>	<u>1985</u>
Urban	617	1,010	1,340
Rural settled	328	276	232
Bedouin	<u>163</u>	<u>89</u>	<u>55</u>
Total	1,108	1,375	1,627

EASTERN REGION

	<u>1973-74</u>	<u>1980-81</u>	<u>1985-86</u>
Urban	391	714	1,086
Rural	199	199	198
Bedouin	<u>59</u>	<u>49</u>	<u>40</u>
Total	649	962	1,324

Sources: Saudi Arabia: Guidelines for the Second Development Plan. Main urban includes Riyadh, Jeddah, Mecca, Taif, Medina, and Dammam - Alkhobar - Dharhan. Lesser urban includes other centres of more than 10,000 in 1969-70.

- : Central Region: SCET International, August 1974
- : Eastern Region: ILACO, September 1974

has commissioned a series of socio-economic, regional master planning, and urban planning studies by a number of international planning firms, including Doxiades Associates, ILACO, SCET International, Italconsult, the Economist Intelligence Unit, Sir Robert Matthew and Associates, and others. Currently the Division is employing 15 international consulting engineering firms or consortia (including a Canadian consortium) on municipal construction, including roads and sewers.

8.1.2 Development Plans

The responsibilities and needs of the Municipalities Division will expand greatly in future years as there occurs a major shift in the population of the Kingdom from rural to urban areas.

Table 8.1, opposite, shows the main changes projected for the Kingdom as a whole and in two of the principal regions. The basic data for existing populations is only approximate because the results of the first full population census will be available only at the end of 1974.

Nevertheless it is evident that there will need to be a major expansion in municipalities and associated services in future years even if it is assumed that the shift to the cities will be slower rather than faster. The bulk of the shift will occur in the Central Region and in the Western Region (not shown in Table 8.1 because data on a comparable basis were not available). In the Eastern Region there will not be so much of a shift as a major influx of population from other regions and abroad into the expanding and new cities which will be required by the industrial development planned there; the rate of urban

population growth on the East Coast is projected at 12% per annum, constituting a formidable planning task.

Two major studies now underway will provide very valuable information when completed. Doxiades International is engaged on drawing up a five-year development plan for all the municipalities in the Kingdom, numbering 85 settlements in total and including specific development projects for each city relating to roads, water supply, electrical supply, sewerage, slaughterhouses, lighting, markets, etc. Doxiades is now completing a draft report and expects to submit its final report in August, 1975. Our discussions with the Central Planning Organization provided an example of the kind of objectives being set for existing municipalities: connection of all city houses to sewerage systems within 2 years, followed by provision of sewerage systems for all houses within 5 years.

Secondly, Bechtel Corporation is assessing the implications and requirements of four alternatives for the industrial complex planned for El Jubail on the East Coast, in terms of labour, infrastructure, housing, water, etc. The outcome of this work will clearly delineate a major, integrated market for construction goods and services. Such an undertaking, moreover, can hardly be left to haphazard private development but will require a large scale integrated effort using new approaches.

Besides the physical requirement for construction within municipal development programmes, there is also a need for improved management and administrative structures and systems. Existing arrangements are already inadequate and the expansion that is in prospect requires

better and strengthened procedures. Even was there to be some devolution of authority from the Ministry to individual municipalities, as has been mentioned, there will continue to be a need for new administrative systems.

8.1.3 Opportunities for Canada

As a first point it should be noted that the broad conceptual planning work for municipal urban development within Saudi Arabia appears largely to have been done already by the major international firms from a number of countries identified. Unfortunately no Canadian group was involved in these planning exercises and this could make participation by Canada in the subsequent stage somewhat more difficult than might otherwise have been the case. However, the sheer volume of the work which needs to be done indicates that it should be possible for Canadian firms and consortia to obtain substantial work in the field of municipal development if they are prepared to put forth the efforts to do so. The observation was made to us by the representative of one of the major international consulting firms that all the firms were working and cooperating very well in terms of exchange of information and coordination among themselves; there was no need for attempts at secrecy because there was ample scope for everyone to obtain substantial business.

The municipal development programme in Saudi Arabia is now moving into the more detailed design and implementation stages and our information suggests that, although there unquestionably will be use of local Saudi contractors and Saudi suppliers in component parts of municipal works, particularly in the smaller towns and villages, there

TABLE 8.2

OPPORTUNITIES FOR CANADA

		<u>Status and Size</u>
A	Municipal works in existing cities, including roads, water supply, electrical supply, sewers, lighting, buildings, etc.	1975 - 1980
B	Sewerage, water supply and other works in smaller towns and villages	1975 - 1980
C	Establishment of completely new municipalities, e.g., in El Jubail, with a full range of services and buildings.	1975 - 1980
D	Consulting assistance in design and installation of municipal information systems, budgets, procedures, operations, controls, etc.	1975 - 1980

will remain the need for involvement of large foreign contractors in operations and of foreign consultants/contractors in design, specification and overall management of individual projects.

Table 8.2, opposite, records in outline form the main structure of the opportunities open to Canadian in the municipalities field during the balance of the 1970's; it might be added immediately that such programmes will unquestionably continue into and throughout the 1980's so that a firm, once established, should have an excellent prospect of continuing business for some time in the future.

Project A refers to the programme for municipal work in the existing cities, a good part of which will be specified by the Doxiades report already mentioned (due in August, 1975). Sewerage and water works will be an important early part of such programmes.

Project B refers to the extension of sewerage and water works subsequently to smaller towns and villages.

Project C mentions what is possibly the most challenging opportunity of all: the establishment of completely new municipalities with all services and buildings e.g. at El Jubail at a possible total cost of \$14 billion. The work which Bechtel Corporation is doing on this will be a guidepost for the future in this location and probably in others as well. Unquestionably Bechtel Corporation, with its own large and diverse resources, will be in a preferred position to take a leading role in subsequent implementation stages. However, the scale of what needs to be done indicates that there will be room for participation by other firms either as associates or sub-contractors for particular

portions of the work. Our discussion with the Bechtel representative indicated that they were aware of this and would be looking for such additional associates at a later stage.

The nature of developments in the municipal field and their scale suggests to us that the municipal field is one in which Canada should consider formulation of a programme vis-a-vis the Saudi Arabian Government. It should initiate special measures to assemble the diverse engineering and consulting resources which, working together, will enable Canadian participation at a much higher level of performance and dollar benefit than would otherwise be possible from fragmented, individual efforts.

8.2 BUILDING

8.2.1 Background and Present Situation

The Housing Division of the Ministry of Finance and National Economy has some responsibilities for housing although these are not clearly located in any Ministry.

Main sources of information were:

Mr. Peter Duncan	Chief Economic Adviser to CPO Stanford Research Institute
Mr. Mohammed Bakr	Energy and Industry Central Planning Organization
Dr. Ahmed Koutb	General Director Saudi Arabian Standards Organization
Dr. Faysal Bashir	Macroeconomics Central Planning Organization
Dr. Bakr	Director of Planning Ministry of Health
E.I. Djabiras	Representative in Saudi Arabia Doxiades Associates International

Within the urban planning schemes drawn up by Doxiades Associates and other consultants, and under the limited influence of municipal and town planning authorities, the building of houses and commercial structures has been undertaken by private enterprise in response to requirements. Other buildings for health, education, etc., have been designed and erected by the Ministries and agencies responsible.

In housing, most building efforts have been directed to the middle and upper-class market. There has only been a limited construction programme for low-cost housing, under the authority of the Ministry of Finance. Estimates in 1971 were that 45,000 new units would be required to overcome the backlog and that there would be an annual requirement of 50,000 by 1975. A programme was instituted in 1971-72 for 2,500 units at a cost of SR 241 million (\$30,000 per unit) including utilities and community services, but progress even at this small scale has been slow.

In general, the building industry situation was described to us as a mess and one which might be best avoided. However, an alternative opinion was that the scale of needs in existing and new cities required a new approach directed particularly toward major projects and using the skills of a developer in the North American sense.

A further important point is that requirements are so urgent that temporary or prefabricated or mobile structures could be required in volume until such time as the domestic construction industry, with foreign assistance, could handle requirements.

8.2.2 Development Plans

The data on population shifts presented earlier indicate the very large demand for new housing that is in prospect. No overall estimates in terms of physical units or values are available beyond the 50,000 new low-cost units per year, mentioned earlier, but unquestionably the need is going to be great.

Traditional Saudi houses were of mud brick construction but this has given way to concrete block and cement structures which are over-designed in terms of their raw material content and which take a very long time to erect. The point was made to us time and time again of the need for prefabrication of building materials in a simple, factory-type operation producing panels or large blocks. Apparently, however, such prefabrication should still be in the traditional materials; wood is not regarded favourably as it is associated with shanties and shacks, and this prejudice is deep-rooted and not easily overcome. Given the scale of need, however, there could well be room for introduction of new material forms on a test and demonstration basis to begin with.

The Guidelines for the Second Development Plan draw attention to a number of institutional changes necessary for an effective housing programme, including:

- financing for both the builder and purchaser
- direct subsidies
- partial site development
- joint ventures between domestic and foreign builders
- restrictions on land speculation
- building permits
- matching credits for housing savings accounts
- land development schemes
- utility and services extension schemes.

TABLE 8.3

SAUDI ARABIA

PROPOSED TRAINING PROGRAMMES AND PROJECTS
AND THEIR INVESTMENT COSTS
1975 - 76 TO 1979 - 80

SR 000

Programme #3: Contractor Development Agency

Responsibility: Department of Public Works

Project A: Establishment of new Agency in Riyadh

3 Units: Technical Assistance Unit
Organization Unit
Finance Unit

Staff of 55, of which 36 professional and technical.
Initially expatriate (Project B), but Fellowships
(Project C) would make it Saudi by end of period.

Capital Costs

520

Project B: Expatriates for CDA

33 persons, 75.5 man years 18,875
19 people in Technical Assistance:
Director, Management (2), Personnel (2),
Accounting (4), Budgeting (2),
Operations (2), Quantity Surveyor (6),
41 man years
5 people in Organization Unit:
Director, Structural (1), Procedural (3),
10 man years
8 people in Finance Unit:
Director, Auditing (3), Loan
Administration (2), Counselling (2),
20½ man years
1 Chief of Mission and Adviser

Terms: Director 4 years, others 2, Peak in year 2.

Project C: Fellowships, in parallel to the Expatriates
39 man years

1,955

Project D: Enabling legislation

Project E: Establish Fund for assistance to Saudi contractors 20,000

Source: IBRD Human Resources Development Mission Draft Report, August, 1974

Note: Exchange Rate is approximately SR 3.5 = \$1.

Besides houses, a great range of other buildings will be required. There will be large expansion in commercial and public buildings in cities as they grow and trade expands. There are major programmes in the fields of education and health, as described in sections 9 and 10. While construction of these new facilities is being thought of in terms of traditional materials, the size of the requirement and its urgency suggests that there is potential for new forms of structures and new materials.

For health, education and other government services in rural areas, moreover, including agriculture, training, libraries, etc., there could be substantial requirements for mobile units.

The development of Saudi expertise in the construction field is of major importance, Table 8.3, opposite, shows the composition and costs of establishing a new Contractor Development Agency, as put forward by the World Bank Mission to its draft report dated August 1974.

8.2.3 Opportunities for Canada

The building field is of a dimension that offers substantial opportunities for Canadian participation.

A major difficulty is the fragmented responsibility for building among the Saudi authorities and an apparent reluctance by any agency or body to assume or to take overall responsibility for building matters. We understand that the Central Planning Organization is continually pressing for such a move. Unquestionably it is needed and it is possible that Canada could assist in bringing about the establishment and formulation of an overall building programme within a more unified responsibility framework.

TABLE 8.4

OPPORTUNITIES FOR CANADA

		<u>Status and Size</u>
A	Preparation and presentation of a Housing Program including items such as:	
	<ul style="list-style-type: none"> - land development - plans for training in human resources - building policy standards, procedures - financial structure and incentives policy - specialized technicians training policy - planning of municipalities and housing department co-ordinator 	1975
B	Building of 50,000 low-cost housing units per year (including utilities and community services).	\$1.5 billion 1975
C	Land development and preparation of building sites in the Eastern Region.	\$1.7 billion 1975 - 1980
D	Building of houses, shops and mosques in the Eastern Region.	\$800 million 1975 - 1980
E	Building in the Western Region 175,000 new dwellings, 50% being low-cost housing.	\$813 million 1975 - 1980
F	Presentation by Canadian companies of prefabricated technology in cement and other building materials.	1975
G	Presentation of Canadian technology in prefabricated and mobile buildings, including documentation of cost and performance savings.	1975
H	Participation by contractors and consultants in development and training programmes for Saudi contractors and construction companies.	1975

Project A in Table 8.4, opposite, refers to this possibility. The description within the project is not meant to be all inclusive but rather to indicate the breadth of activities and matters to be covered in any advisory or assistance capacity for drawing up a housing programme. The level of expertise required in such an undertaking would be that possessed by Central Mortgage and Housing Corporation and by some of the larger Canadian development companies. A joint effort vis-a-vis the Saudi Arabian Government could be very fruitful in terms of results for the Saudi development programme and for participation by Canada in that programme at all levels.

Projects B, C, D, and E refer to specific building requirements for houses and other structures as reported in government reports or in the socio-economic studies carried out by SCET International for the Eastern Region and by ILACO for the Western Region. These projects, although not authorized yet and lacking an implementing mechanism, do illustrate the size of the programme required in these important regions of the Kingdom. Given the situation in the Saudi Arabian building industry and the likelihood that housing work will be carried out by Saudi contractors, these Projects do not represent opportunities for Canada.

Projects F and G relate to the presentation by Canada of its technology in prefabricated cement and in other prefabricated forms of materials and structures, and of its ability in prefabricated and mobile buildings as a whole including documentation of cost and performance savings. There are two aspects to these suggestions: the first relates to the attempt to introduce new technology into a Saudi Arabian setting

using traditional materials as far as possible; the second relates to the attempt to introduce a new type of buildings and structures from Canada into the Saudi Arabian setting and, in part, to overcome the resistance to e.g. wood housing which, as noted earlier, is traditional in Saudi Arabia. We are aware that a number of Canadian companies with particular expertise in these fields have been exploring the Saudi Arabian market and are in touch with the developments there. It appears, however, that their efforts could be assisted by a more integrated approach, and a demonstration mission to Saudi Arabia during 1975 for the building sector could be part of the programme we suggest should be undertaken.

Project H refers to the requirement for participation by Canadian contractors in the training and development of the Saudi Arabian construction and contracting industry. It has some relationship to the World Bank recommendation for the establishment of a Contractor/Development Agency. Once again participation by Canada and Canadians in such training efforts can be a valuable aid to obtaining direct and indirect business.

9 HEALTH

9.1.1 Background and Present Situation

Responsibility is with the the Ministry of Health.

Main sources of information were:

Mr. Husain Sajini	Education Central Planning Organization
Mr. Ahmed Hamad	Director of Statistics Department Ministry of Health
Dr. Bakr	Director of Planning Ministry of Health
Mr. Ali Rashid	Director General Central Department of Statistics
Mr. Ismail I. Sajini	Transportation and Health Central Planning Organization
Prince Faysal	Assistant Deputy Minister Ministry of Education
Dr. Abdullah Aziz	Cultural Attache Saudi Arabian Embassy, New York
Prince Saud	Assistant Deputy Minister Planning Department of Public Health
Dr. Summer Eslan	Head of Hospitals Department of Public Health
Mr. Abdel Elah Buttergy	Planning Department of Public Health

The Ministry of Health is the agency principally responsible for Health matters in Saudi Arabia, although some components are in the hands of other Ministries, including Defence, Interior and Education. Integration of all responsibilities under the Ministry of Health and formation of a Council of Health has been recommended by an advisory

study team from Harvard/John Hopkins/American University of Beirut, but has not been implemented.

The structure of the Health system at the end of 1974 is as follows:

- hospitals: 58 under the Ministry of Health with 9,070 beds; several hospitals under the Ministry of Defence, including one of 4,000 beds now being constructed on a turnkey basis by a U.S. consortium; 2 hospitals under the Ministry of the Interior; a number of small, private hospitals
- dispensaries: 372 operated by the Ministry of Health, staffed by doctors, nurses and paramedical personnel, and providing the major part of non-hospital care
- health centres: 237 in remote areas or larger centres providing first-line care through nurses and assistants.

The number of physicians in 1973-74 is about as follows:

Ministry of Health	1,697
Other Ministries	660
Private Hospitals	240
Private Practice	<u>300</u>
	<u>2,897</u>

It is important to note that only about 10% of these doctors are Saudis, the great majority being from other Arabic or Muslim countries.

The number of paramedical staff in the Ministry of Health at the end of 1974 is as follows:

female nurses	2,373
male nurses	1,657
pharmacists	128
laboratory technicians	439
X-ray technicians	238
pharmacists assistants	677
anesthetists assistants	69
sanitationists	543
other	<u>499</u>
	<u>6,623</u>

Of these, only about 20% are Saudi, the balance being from outside the country.

Besides the American consortium which has been studying the overall health system, British consultants have been involved in specifying standards and specifications for hospitals and clinics.

Administrative and support staff are scarce. The Hospital Corporation of America has a general administrative and maintenance contract for six hospitals with the Ministry of Health.

Health training facilities within Saudi Arabia are limited. There is a School of Medicine at the University of Riyadh with a capacity of under 100 physicians a year. Some 500 Saudis are now studying medicine abroad, mainly in Islamic countries and Europe. Apart from schools of nursing, other training facilities are limited and there is particular need for training in hospital administration and in a wide range of paramedical fields.

9.1.2 Development Plans

A major expansion in health services, facilities and personnel is planned.

The target of the Ministry of Health is to add about 40 hospitals and 2,500 beds, bringing the hospital position to the following by 1980:

		<u>Number of Hospitals</u>
General:		
	400 beds	7
	200 beds	8
	100 beds	4
	50 beds	50
Specialized:		
	300 bed maternity	1
	50 bed maternity	3
	200 bed eye	4
	400 bed mental	4

At the same time there will be a programme of increase in numbers of dispensaries and health centres, and for relocation of these facilities in accordance with changing population and municipal developments.

Continuation of traditional building methods and materials is expected, particularly for hospitals. Opportunity for prefabricated units and new structures is greater for dispensaries and health centres.

The most important focus of effort in the Second Development Plan will be on training. Consideration is being given to expanding domestic health training facilities in the next five years, including the possibility of a new medical school at the King Abdul Aziz University, Jeddah (for which John Hopkins is interested in being the advisor), a new Higher Institute of Public Health in Riyadh, and expansion in nursing and paramedical training facilities. This programme will require major assistance from abroad in the form of experts to form the new schools, and teach Saudi teachers and Saudi students.

Even more importantly, it is desired to expand greatly the number of Saudis being trained abroad as doctors, health administrators, and paramedical specialists. The Saudi authorities have explored the

TABLE 9.1

SAUDI ARABIA

PROPOSED TRAINING PROGRAMMES AND PROJECTS
AND THEIR INVESTMENT COSTS
1975 - 76 TO 1979 - 80

MINISTRY OF HEALTH

SR 000

	<u>1973</u>	<u>1980</u>
<u>Programme #1: Male Health Workers: Output</u>	<u>173</u>	<u>750</u>
Project A: 3 new male health institutes, 550 trainees, 52 teachers each:		
Buildings		19,500
Furniture and equipment		<u>12,000</u>
		31,500
Project B: Fellowships		180
Project C: Fellowships		240
Project D: Consultants for Institutes Man years 82 - cost		20,500
Project E: Fellowships Man years 42 - cost		2,100
<u>Programme #2: Female Health Workers: Increase by 200 p.a.</u>		
Project A: 5 new health institutes, 150 trainees, 14 teachers each:		
Buildings		5,500
Furniture and equipment		<u>3,250</u>
		8,750
Project B: Fellowships		370
Project C: Consultants for Institutes Man years 45 - cost		11,250
Project D: Consultants: New Programmes: Industrial Contracts Man years 121 - cost		22,600

Source: IBRD Human Resources Development Mission Draft Report, August, 1974

Note: Exchange Rate is approximately SR 3.5 = \$1.

possibility of admissions to medical schools through the world (including Canada, U.K., U.S., Australia and New Zealand) but with little success. They wish to pursue the possibility of making special arrangements with foreign universities and community college institutions for training in all health fields. This would include initial intensive training in English and in preparatory science courses.

Such training arrangements would be under the Ministry of Health although the Ministry of Education would be involved also.

The estimates of the IBRD Human Resources Mission reporting training requirements in the health field within Saudi Arabia are shown in Table 9.1, opposite. These also record the number of projects and the estimated capital costs separately for buildings and for furniture and equipment.

9.1.3 Opportunities for Canada

Table 9.2, opposite the following page, outlines the main kinds of projects that might be associated with the development plans in the health field.

Project A refers to the building and supply of equipment for the additional 40 hospitals, totalling 2,500 beds, and Project B mentions the possibility of maintenance and administrative contracts for these new hospitals. Undoubtedly there will be similar requirements in existing hospitals also.

Project C refers to the possibility of supply of prefabricated and mobile structures for health centres and dispensaries, which appears worth investigating.

Project D mentions the likely need for medical and administrative consultants and advisors for the expansions underway in the

TABLE 9.2

OPPORTUNITIES FOR CANADA

		<u>Status and Size</u>
A	Build and supply hospital equipment for additional 40 hospitals totalling 2,500 beds	1975 - 1980
B	Maintenance and administrative contracts for the 40 new hospitals.	1975 - 1980
C	Supply prefabricated health centres and dispensaries.	1975 - 1980
D	Medical and management consultants and advisors for the medical schools of King Abdul Aziz and Jeddah Universities and for the Higher Institute of Public Health in Riyadh.	1975 - 1980
E	Construction and equipping of 8 new health institutes.	\$10 million 1975 - 1980
F	Establish arrangements with Canadian Colleges and Universities to carry out a student training program in medical and paramedical sectors and for hospital administrators.	1975
G	Establishment in Canada of intensive English language training centre.	1976

medical schools and institutes of higher public health. The John Hopkins University from the United States and the American University of Beirut have got an established position in the medical education field in Saudi Arabia and, as noted, British consultants have also been active in this field. Nevertheless, it may be possible for Canadian participation to develop.

The construction and equipping of eight new health institutes, as suggested by the World Bank Human Resources Mission, is referred to in Project E. There would be resident consultant expertise required in association with the establishment of these new health institutions.

Finally, Project F mentions in summary form the possibility of establishing arrangements with Canadian colleges and universities to carry out a student training programme in medical and paramedical fields and for hospital administrators within Canada. This is a most important consideration for the Saudi authorities and any success in bringing about such an arrangement would clearly be beneficial to our other efforts in Saudi Arabia. Associated with this, as mentioned under Project G, would be the need to establish an intensive English-language school in Canada for Saudi Arabian students before they went to their Canadian locations for study.

Overall, the potential for Canada does not appear strong in the health field. As noted, institutions and firms from other countries are already well established as advisors and operators. The major opportunity for Canada would be Project C, supply of prefabricated structures for health centres and dispensaries. Participation in other aspects, including training, would require major new initiatives and efforts.

TABLE 10.1SAUDI ARABIAEDUCATION SYSTEM

	<u>1971-72</u>	<u>1972-73</u>
<u>Elementary</u>		
Boys: Enrollment ('000)	308	331
No. of schools: Urban	628	710
Rural	968	1,096
Girls: Enrollment ('000)		200
<u>Intermediate</u>		
Boys: Enrollment ('000)	51.5	57.4
Girls: Enrollment ('000)		35.0
<u>Secondary</u>		
Boys: Enrollment ('000)	12.6	14.1
Girls: Enrollment ('000)		9.0
<u>Technical Secondary</u>		
Industrial: Enrollment Nos.	765	977
Commercial: Enrollment Nos.	134	321
Agricultural: (under construction)		
Higher Technical		58
<u>University</u>		
Riyadh: Full time enrollment, nos.	2,918	
King Abdul Aziz, Jeddah: enrollment, nos.	742	
College of Petroleum and Minerals, Dharhan, nos.	729	

Source: Annual Report, Central Planning Organization, 1972.

10 EDUCATION

10.1.1 Background and Present Situation

Responsibility is with the Ministry of Education.

Main sources of information were:

Mr. Peter Duncan	Chief Economic Adviser to CPO Stanford Research Institute
Dr. Faysal Bashir	Macroeconomics Central Planning Organization
Mr. Husain Sajini	Education Central Planning Organization
Dr. Bakr	Director of Planning Ministry of Health
Prince Faysal	Assistant Deputy Minister Ministry of Education
Prince Saud	Assistant Deputy Minister Planning Department of Public Health
Dr. Frederic Thomas	United Nations Development Program Deputy Regional Representative

KEY



The structure and size of the educational system in Saudi Arabia is shown in Table 10.1, opposite, drawn from the 1972 Report of The Central Planning Organization. Two important points are evident:

- i) girls' schooling is a comparatively recent development and the number of girls at school continues to be much less than the number of boys
- ii) the size of the educational effort beyond elementary school has been comparatively small.

The Guidelines for the Second Development Plan comment that there continue to be deficiencies both in volume and quality; while the educational system has expanded, the course content is unchanged

TABLE 10.2

SAUDI ARABIA

EDUCATION ABROAD

1972 - 1973

	<u>Islamic Countries</u>		<u>Arabic Countries</u>		<u>Europe</u>		<u>U.S.A.</u>		Total
	Ph.D	Others	Ph.D	Others	Ph.D	Others	Ph.D	Others	
Chemistry, Geology and Physics			13		27	22	15	8	85
Engineering		3	8		4	49	31	223	318
Agriculture			1		35	2	9	2	49
Medical		219	11	69	38	185	4	5	531
Pharmacy					6	1	2		9
Mathematics					10	2	8	11	31
Economics			20		5	6	35	30	96
Accounting					2		11	12	25
Islamic Law			3	20	7	3	3	3	39
Education				3		5	16	89	113
Social Science		5	5	47	25	4	22	20	128
Business Administration				15		1	11	72	99
Archeology				1				1	2
Others		<u>17</u>		<u>404</u>	<u>1</u>	<u>159</u>	<u>3</u>	<u>260</u>	<u>844</u>
Totals	-	244	19	601	160	439	170	736	2,369

Source: Statistical Yearbook, 1973

and the number of practical courses is few. The development of technical education has been slow, but the position at the universities is better. The University at Riyadh has eight facilities: arts; science; commerce; engineering; agriculture; education; pharmacy and medicine. King Abdul Aziz University in Jeddah is expanding since becoming a public institution in 1971 - 72; it has facilities in economics, business administration, and science. The College of Petroleum and Minerals at Dharhan has a fixed student intake of 250 and intends to turn out top-class graduates from faculties of applied engineering, engineering sciences, and science.

Besides expanding education efforts domestically, increasing numbers of Saudi students are being sent abroad for training. Data for 1972-73 are shown in Table 10.2, opposite, and reflect the broad range of skills being sought with particular emphasis on engineering and health, followed by science, education, social science, and business courses. Foreign education is paid for by the Saudi Arabian Government and there is a deliberate policy of fields of study to be followed in the interests of the Kingdom. We understand that the number studying abroad is substantially greater in 1974-75.

10.1.2 Development Plans

The Saudi authorities plan a major programme of educational expansion domestically, as well as increase in number of Saudis trained abroad and recruitment of non-Saudi specialists to work in the country.

The Guidelines for the Second Development Plan give some general background on the scale of effort needed. In 1968, only 8.4% of

employed males had primary school or higher education; over 75% could neither read nor write. By 1990, with a policy of universal education, the number of school children would be 2.5 million compared with 500 - 600,000 in the early 1970's. The need for increase in buildings, equipment and personnel is clearly enormous.

The Guidelines observed that the new plan period is critical for the future structure of primary, secondary and later education, and gave some general objectives for 1980. These form the framework for the detailed expansion programme for education, which has not yet been completed and approved.

The main objectives are:

- i) Elementary: expand to handle 90% of boys by 1980 through a programme of:
 - replacing rented by new buildings
 - teacher training
 - rural programme
- ii) Intermediate: expand to handle 90% of graduating elementary boys through:
 - replacing rented with new buildings
 - expansion in urban and rural areas
 - revised curricula
- iii) Secondary: aim to take 50% of intermediate graduates, through a similar expansion programme
- iv) Girls' Education: have similar expansion programmes as for boys education. Enrollment targets for 1980: elementary 350,000, intermediate 70,000, secondary 17,500
- v) Teacher Training: expanded facilities and teaching
- vi) Technical Education: programmes and facilities to graduate 1,500 students per annum by 1980; expansion of commercial and agricultural programmes in particular
- vii) Universities:
 - Riyadh: new campus near Dariyah
 - : present facilities to go to 8,000 students

College of Petroleum and Minerals: campus to be fully operational: graduate school established

King Abdul Aziz, Jeddah: eventual full time enrollment: 10,000

The full effect of such programmes would only be evident in later years. For example, the Guidelines estimate that the entire labour force will be literate during the 1980's and that there would be 500,000 graduates from intermediate schools during 1980 - 90. Achievement of these results will clearly require major investment in facilities, equipment and personnel.

With regard to construction, the preference will continue to be for traditional structures but prefabrication of some kind will be necessary if building programmes are to be realized and there may well be opportunity for new materials and structures. Doxiades International Associates have been carrying out a study for the Ministry of Education on standardizing school building which should lead to improved construction procedures, lower costs, and the opportunity for bulk ordering and fabrication, although the orientation remains toward traditional materials of construction.

Besides the domestic expansion programme, the Saudi authorities wish to continue sending students abroad, for training and eventual return to replace the expatriates who will be needed in large numbers in the early years. The need for training of health personnel abroad has already been mentioned, but this requirement extends into almost all other fields as well.

10.1.3 Opportunities for Canada

The nature and size of the opportunities open to Canada is perhaps best illustrated through the estimates of educational requirements developed by the World Bank Human Resources Mission in its report dated August 1974. These are outlined in Tables 10.3 through 10.8 which follow. We will not attempt to summarize or comment on the individual projects and programmes: they are self-explanatory.

We do wish to stress, however, that these estimates are not officially approved and adopted as Government policy. The World Bank report was marked "Draft: for discussion purposes only" and may well be overly ambitious in terms of what the Government may finally try to accomplish. However, the estimates are by an authoritative, competent group. They clearly represent the elements of the educational programme required for Saudi Arabia to achieve its general development objectives. It is very possible, of course, that the exact scale or timing within the 1975-80 plan period will not be as described in these estimates.

Construction of educational facilities is not an aspect in which Canada would have a strong position, but there is potential for supply of educational equipment to this large new market, although competition will be severe.

Regarding provision of training, participation by Canada would require a decision by Government, universities, community colleges and other institutions, on what they would provide and what the arrangements with Saudi Arabia would be. This indicates the need for a programme approach by Canada to the Saudis in the educational field.

SAUDI ARABIA

PROPOSED TRAINING PROGRAMMES AND PROJECTS
AND THEIR INVESTMENT COSTS
1975 - 76 TO 1979 - 80

Central Planning Organization

SR 000

Programme #1: Survey of Education and Training Establishments

Consultants (6 month study):

Engineers/Architects 1 ½ man years	400
Building Supervisors 1 man year	100
Operational costs	300

Programme #2: Schools Facilities Norms and Standards Unit

Redesign and construction of buildings and design and
specification of equipment and furniture:

Consultants:

Architects	: 4 man years	1,000
Equipment Specialist	: 3 man years	750
Quantity Surveyors	: 2 man years	500
Facilities Planners	: 4 man years	1,000
Furniture Specialists	: 2 man years	500
		<u>3,750</u>

Fellowships:

7½ man years	450
--------------	-----

Programme #3: Co-ordination and Implementation

Consultants: 9 man years	2,250
Also local staff salaries	

Source: IBRD Human Resources Development Mission Draft Report, August, 1974

Note: Exchange Rate is approximately SR 3.5 = \$1.

SAUDI ARABIA

PROPOSED TRAINING PROGRAMMES AND PROJECTS
AND THEIR INVESTMENT COSTS
1975 - 76 TO 1979 - 80

Ministry of LabourSR 000

	<u>1974</u>	<u>1980</u>
Programme #1: <u>Semi-skilled workers</u> Enrollment	1,140	12,000
Project A: 16 new Vocational Centres, 500 trainees, 57 instructors each:		
Buildings		72,000
Furniture		9,000
Equipment		34,000
		115,000
Project B: 5 Mobile Training Units for metal work training in mining etc. areas 5 Mobile Training Units for literacy training in construction trades		
Costs, including power unit at SR 175,000 e.a.		1,750
Project C: Fellowships 3 man years Costs		180
Project D: Fellowships 19 man years Costs		980
Project E: Consultants 182 man years Costs		27,950
Programme #2: <u>Community Development Centres for Semi-Literates</u>		
Project A: 20 new centres in areas of 20,000 people, for health, medical care, nutrition, literacy, agriculture, animal health, etc.		
Buildings and equipment		12,000
Fellowships: 30 man years		1,500

Source: IBRD Human Resources Development Mission Draft Report, August, 1974

Note: Exchange Rate is approximately SR 3.5 = \$1.

SAUDI ARABIA

PROPOSED TRAINING PROGRAMMES AND PROJECTS
AND THEIR INVESTMENT COSTS
1975 - 76 TO 1979 - 80

Ministry of Education

SR 000

Programme #1: Training, Elementary Teachers, Males

4 Projects to: train 160 teacher trainees
upgrade 60 teacher trainees
train 15 remedial teachers
upgrade Principals and Deputies (trained abroad)

Total cost 20,650

Programme #2: Reform and Expand Technical Education
(Industrial and Commercial)

Project A: 8 new Secondary Technical Schools. Expand enrolments from 2,060 in 1973/74 to about 13,000 in 1979-80, maximum of 14,000 in 1981-82.

Costs: included in Ministry of Education 8.

Projects B,C,D: upgrade professional personnel, directors, staff, and technical teachers.

Programme #3: Agricultural Technical Institute

Upgrade and change curriculum of ATI, now contracted and under construction at Buraydah, teaching accommodation for 550 students, boarding for 240 and staff houses 30.

Capital costs SR 40 Million of which half spent by beginning of plan period.

Consultant costs 7,000

Programme #4: Instruction TV in Intermediate Schools

Project A: Courses abroad for management and professionals
25 persons, 18 man years 970

Project B: Training in use of TV by teachers

Project C: Expatriate team to train ITV staff 32 man years 8,000

Project D: General teacher orientation to use of TV

Project E: Recruitment and training of technicians

Project F: Building of ITV Studio:

Construction 3,000

Receivers and equipment 1,500

Video tape etc. equipment 1,500

Programme #5: Career Awareness and Guidance

For intermediate and secondary schools

Capital costs: 10 mobile units @ 100,000 ea.	1,000
Consultants : 10 man years over 3 years	2,500
Fellowships : 70 man years, 20 in SA, 20 abroad rotating	2,800

Programme #6: Functional literacy campaign

To provide basic literacy and numeracy
Five projects, requiring specific experience and Arabic speaking personnel.

Programme #7: Management Capability in Ministry of Education

Project A: Training abroad of MOE/GEA staff	
Fellowships: 60 man years	3,600
Consultants: 2 Management, 1 education administration, 1 financial 5 man years	
Project B: Establishment of Planning Directorate	
Fellowships : 20 man years	1,000
Consultants: 16 man years, education	4,600
Project C: Reorganization of School Supervision	
Fellowships: 80 man years	2,800
Project D: Reinforcement and training of engineering staff	
Fellowships: 15 man years	800
Consultants: 51 man years, engineering	12,750
Project E: Curricular Development Directorate	
Consultants: 29 man years, education	5,500

Programme #8: Education and Training: Physical Facilities

To achieve these massive targets, especially in the early years, will require extensive importation of complete and partial prefab units and of mobile and reusable structures; these would supplement local industry. Requires strengthening of MOE Engineering Department and streamlining of contracting and procedural practices.

Details are in the following table:

BOYS EDUCATION AND TRAINING PHYSICAL FACILITIES
1975 - 76 TO 1979 - 80
CONSTRUCTION, EQUIPMENT AND FURNITURE

<u>Project</u>	<u>Number of Places</u>	<u>Costs SR Million</u>
A Elementary	230,000	993
B Intermediate	122,000	800
C Secondary	35,000	313
D Teacher Training	4,000	40
E Technical:		
Industrial/Commercial	10,700	132
Agricultural	550	20
F ITV	-	6
G Boarding	3,000	18
H Housing Units	500	50
I Literary Mobiles (Units)	50	15
J Career Mobiles (Units)	<u>10</u>	<u>1</u>
	405,810	2,388

(Excluding H, I, J)

SAUDI ARABIA

PROPOSED TRAINING PROGRAMMES AND PROJECTS
AND THEIR INVESTMENT COSTS
1975 - 76 TO 1979 - 80

SR 000

Girls Education AdministrationProgramme #1 Training of Elementary Teachers, Females

6 Projects	
Domestic Costs	6,600
Consultants 19 Man Years	4,750

Programme #2 Secondary Commercial Education

3 Projects

Programme #3 Education and Training Physical Facilities

8 Projects of which details are:

CONSTRUCTION, EQUIPMENT AND FURNITURE1975 - 76 TO 1979 - 80

<u>Project</u>	<u>Number of Places</u>	<u>Costs SR Million</u>
A Elementary	198,000	854
B Intermediate	61,000	384
C Secondary	10,500	80
D Teacher Training	7,500	56
E Technical: Commercial	1,800	20
F Boarding	2,000	12
G Housing Units	250	25
H Literary Mobiles (Units)	50	17.5
	281,100	1,448.5

Source: IBRD Human Resources Development Mission Draft Report, August 1974

Note: Exchange Rate is approximately SR 3.5 = \$1.

SAUDI ARABIA

PROPOSED TRAINING PROGRAMMES AND PROJECTS
AND THEIR INVESTMENT COSTS
1975 - 76 TO 1979 - 80

SR 000

UniversityProgramme #1: Study requirements and develop plan for post-secondary technician programmes

Expatriate team to work with locals after census and manpower data available - 2 months to assess, 2 months to develop programme. Specialists in:

- organization and administration Higher Education
- paramedical
- business administration and management
- engineering
- agriculture
- petrochemicals
- school architecture
- technical teacher trainer
- economist

Total Cost

900

Programme #2: Establishment of Polytechnic College

- Project A: Establishment
Project B: Training: Fellowships
Project C: Expatriate Team

Programme #3: Polytechnic College for Women

- | | |
|--|-------|
| Project A: Capital Costs | 6,500 |
| Project B: 98 Man years training | 3,920 |
| Project C: Expatriate specialists 12 man years | 3,000 |

Programme #4: Post Secondary Allied Health Schools

University of Riyadh)	
King Abdul Aziz)	One each
Other institution)	

To train new health workers intermediate between physician and lower-level paramedicals.

Project A: School Establishment

1 in 76/77, 1 in 77/78, 1 in 79/80 in close relation to the medical schools. Each capacity 600 (400 male, 200 female) with output 175

Capital Costs:

Buildings	24,600
Furniture and Equipment	15,000

Project B: Expatriate Team

Each team: Head of Mission, 5 Specialists
27 Man years

3 teams: fee cost 13,750

Project C: Fellowships

20 Saudis nucleus for each
Cost 4,500

Programme #5: Training, Intermediate Teachers, Males

5 Projects, Costs in Programme 8 for capital

Programme #6: Training Intermediate, Females

5 Projects, Capital costs in Programme 8

Programme #7: Irrigation Science Option

2 Instructors and 1 Expatriate: Output 10 per annum

Programme #8: Physical Facilities for Higher EducationPHYSICAL FACILITIES FOR HIGHER EDUCATION
1975 - 76 TO 1979 - 80
CONSTRUCTION, EQUIPMENT AND FURNITURE

<u>Project</u>	<u>Number of Places</u>	<u>Capital Costs SR Millions</u>
A 2 Polytechnics, Men	3,600	72
B Polytechnic, Women	1,000	18.25
C 3 Allied Health Schools	1,800	39.6
D 2 Intermediate Teacher Training, Males	1,300	16
E 2 Intermediate Teacher Training, Females	1,300	16
F Irrigation Service Option	-	0.15
G Replacement and Relocation of University places	15,000	405
H 5,000 Boarding places	5,000	52
I 250 Housing Units	<u>250</u>	<u>25</u>
	24,000	644

Source: IBRD Human Resources Development Mission Draft Report, August 1974

Note: Exchange Rate is approximately SR 3.5 = \$1.

SAUDI ARABIA

PROPOSED TRAINING PROGRAMMES AND PROJECTS
AND THEIR INVESTMENT COSTS
1975 - 76 TO 1979 - 80

SR 000

Council of Ministers

Programme #1: Human Resources Development Agency

Capital Costs	600
Specialists: 7 man years	1,750

Programme #2: Management Training Programme

Responsibility: ISDC: to provide for expansion of
industry and replacement of expatriates

Project A: Management Training Centre, Dharhan

Costs: Academic: Construction	1,320
Furniture and Equipment	530
Boarding: Construction	850
Furniture and Equipment	130

Project B: Management Development Office, Jeddah

Construction	1,700
Furniture and Equipment	690

Project C: Specialists to assist in education and construction

Costs	3,250
-------	-------

Project D: Fellowships

Training to staff the MTC and MDO)	
22 Man years for MTC)	
22½ Man years for MDO)	2,250

Project E: Consultants to coordinate and train

22 Man years for MTC)	
35 Man years for MDO)	16,750

Source: IBRD Human Resources Development Mission Draft Report, August 1974

Note: Exchange Rate is approximately SR 3.5 = \$1.

11 INDUSTRY

11.1 HYDROCARBON-BASED AND HEAVY

11.1.1 Background and Present Situation

Responsibility is with Petromin under the authority of the Ministry of Petroleum and Mineral Resources.

Main sources of information were:

Skeikh Ahmed Z. Al-Yamani	Minister Petroleum and Mineral Resources
Mr. Ali Awade	Minister Commerce and Industry
Dr. Taiba	Deputy Minister Commerce and Industry
Mr. Peter Duncan	Chief Economic Advisor for CPO Standard Research Institute
Mr. Abdul Aziz Zamil	Deputy Director General Industries Studies and Development Centre
Mr. Mohammed Bakr	Energy and Industry Central Planning Organization
Jamil Y. Khayat	Petromin Representative in the Eastern Province
Mr. Yussuf Suleimen	Industrial Development Petromin
Mr. William L. Hostetler	Industrial Development Department Arabian American Oil Company
Dr. Mohammed Sahd	Head of Technical Department Petromin

TABLE 11.1

SAUDI ARABIAPOSSIBLE SEQUENCE OF DEVELOPMENT OF
GAS-RELATED, BASIC INDUSTRIES

	<u>Capacity</u>	<u>Investment</u>	<u>Start of</u>	
	<u>'000 tons</u>	<u>SR millions</u>	<u>Construction</u>	<u>Operations</u>
<u>Chemical Complex</u>				
Methanol unit	3,000)	1,120	76-77	78-79
Ethylene unit	450)			
Ammonia plant	300	123	76-77	78-79
EDC factory	450	380	76-77	78-79
Iron and Steel Plant	1,000	1,370	76-77	79-80
Titanium Dioxide	50	240	77-78	79-80
<u>First Extension</u>				
Chemical and Ammonia and EDC Plant		1,623	79-80	81-82
Aluminium Smelting	150	880	80-81	82-83
<u>Second Extension</u>				
Chemical Complex		1,120	82-83	84-85
Ammonia Plant		123	82-83	84-85
MUC Factory		<u>420</u>	82-83	84-85
Total		<u>7,399</u>		

Source: ILACO, Socio-Economic Study, Eastern Region, September 1974

Note : Rate of exchange is approximately SR 3.5 = \$1.

Petromin is the state corporation established by the Ministry of Petroleum and Mineral Resources to develop hydrocarbon - based industries, among other functions. By extension it has become involved in ventures and plans in heavy industry allied to petrochemicals, and in any projects too large or complex to be handled by private Saudi business initially, although such projects may be turned over to the private sector eventually.

Petromin's main industrial activities are concerned with establishment of an industrial complex at El Jubail, a small fishing village located just north of Dammam - Alkhobar - Dharhan.

11.1.2 Development Plans

Petromin is considering a variety of alternatives for this industrial complex and is at various stages of assessment and negotiation for individual components of it.

The general strategy for the next five to ten years is to create the widest possible base by establishing industries producing simple raw materials and semi-manufactures. These can be used, in turn, for more complicated products and processes at a later stage. Establishment of such a complex is of top priority; about 5 billion cubic feet of gas per day is now being flared and is available for processing and as an energy source.

One configuration of possible development is that recorded by ILACO in its Socio-Economic Study of the Eastern Region dated September 1974 and shown in Table 11.1, opposite. It should be emphasized that

this is only indicative. A.D. Little is acting as advisor to Petromin in assessing project proposals and in conceptualizing possible structures for the complex; some 70 proposals relating to individual components have been received. Bechtel Corporation is assessing the implications of four alternative complexes for infrastructure, labour, housing, construction, etc.

The proposal which seems furthest developed is that relating to steel, for which Petromin has signed letters of intent, 50% Petromin, 35% Marcona, 5% Nippon, 10% Dutch, for an approximately \$500 million project. The intent is to import Marcona iron ore in slurry form and treat recovered ore in very large gas-fired direct reduction furnaces with a total capacity of 3.5 million tons. Sponge iron pellets in the amount of 2.3 million tons will be exported. The balance of 1.2 million tons will be further processed into the following products:

	<u>'000 tons</u>
slabs	72
plates	383
pipe	195
billets	63
bar	195

Plates would be used in the projected shipyard in which Mitsubishi is interested. Current plans do not allow for sheet manufacture but this could be added later as required by market developments.

Engineering studies are almost completed and supply tenders will be sent out in 1975; quotations have already been received on certain items. The new entity being formed for the venture will be responsible for the tendering and procurement procedure.

TABLE 11.2

OPPORTUNITIES FOR CANADA

	<u>Status and Size</u>
A Participation in construction and operation, and supply of equipment to the proposed complex at El Jubail	1976 - 80 \$1 Billion
- first stage	
- subsequent expansions	1979 - 85 \$1 Billion
B Construction and operation of an Aluminium Smelting plant with a capacity of 100 - 150,000 tons	1980 - 83 \$250 Million
C Construction and operation of a synthetic rubber plant	Possibility Long-term

Negotiations are also underway with Mitsubishi for a petrochemical plant producing 500,000 tons of polyethylene, 200,000 tons of propylene and quantities of ethylene and derivatives.

A relatively small fertilizer plant is now in operation, making urea from ammonia. Considerable expansion in ammonia and fertilizer production is planned, and there will be large increases in sulphur available. If phosphate deposits in the Kingdom are proven, phosphoric acid and ammonium phosphates could be made.

Aluminum is one project on which Petromin has not yet received a definite indication of interest and a letter of intent, although it is very anxious to do so. Two American companies, Canadians, and Japanese have shown some interest but matters are still very open. A capacity of 100 - 150,000 tons is visualized depending on market circumstances. The plan would be to have bauxite converted to oxide at source since water requirements for this part of the process are heavy and water is a constraint in Saudi Arabia. The oxide would be smelted in El Jubail using the abundant cheap energy.

Synthetic rubber is seen as a far-off proposition. The first step would be to make and supply the intermediates to foreign synthetic rubber plants; only later would domestic manufacture be considered.

11.1.3 Opportunities for Canada

Table 11.2 records in summary form the main elements of the opportunities for Canada that may arise in connection with the El Jubail complex.

These opportunities for Canadian participation clearly depend on the will and ability of Canadian suppliers of services and equipment to commit resources as sub-contractor in competition with other suppliers. The possibility of Canada being a prime contractor and operator in a part of the El Jubail complex is restricted to the aluminum plant. Potential in a synthetic rubber plant is for the long term.

11.2 OTHER INDUSTRY

11.2.1 Background and Present Situation

Responsibility is with the Ministry of Commerce and Industry.

Main sources of information were:

Mr. Ali Awade	Minister Commerce and Industry
Dr. Taiba	Deputy Minister Commerce and Industry
Mr. Ahmed Twaigir	General Director Industry Ministry of Commerce and Industry
Mr. Peter Duncan	Chief Economic Advisor to CPO Stanford Research Institute
Mr. Abdul Aziz Zamil	Deputy Director General Industrial Studies and Development Center
Mr. Abdullah Shatta	General Director Electrical Services Organization
Mr. Mohammed Bakr	Energy and Industry Central Planning Organization
Mr. Mustafa Al-Hejailan	Industrial Development Central Planning Organization
Dr. Faysal Bashir	Macroeconomics Central Planning Organization
Mr. Ahmed Zainy	President A. Abbar & A. Zainy
Dr. Ahmed Koutb	General Director Saudi Arabian Standards Organization
Mr. Ahmed Juffali	Managing Director Juffali Bros.

The basic policy regarding development of general industries in Saudi Arabia is that this is a matter for private initiative and enterprise, without Government intervention. This approach derives directly from Islamic religion and custom, of which Saudi Arabia is one of the strictest interpreters.

It is most important that this fact be fully appreciated. Saudi Arabia does have a number of industrial development institutions (described below) but these are in support of private efforts. Development initiatives should come from private individuals, as is indicated in the Guide for Industrial Development, page 14: "The Kingdom encourages consciously and without inhibitions, industrial development through free and private enterprise."

11.2.1.1 Institutions

The most important industrial development institutions, all under the authority of the Ministry of Industry and Commerce, are:

- the Industrial Studies and Development Centre
- the Industrial Development Branch of the Ministry
- the Saudi Arabian Standards Organization
- Chambers of Commerce

The function of the ISDC is to promote industrial development and to provide extension services. It has carried out a series of individual industry studies which are available to serious potential investors, and will provide technical, administrative, financial and planning assistance as required, together with introductions and contacts with private Saudi businessmen. Saudi Arabia is an open market with

industrial development potential over the whole range of industries. No priorities have been established and any project will be welcomed that is in the national interest. Industry structure and potential is commented on further below.

The functions of the Industrial Development Branch are operational, to bring about industrial development through licensing, incentives, and other support measures such as industrial estates. Licensing gives the potential investors access to all Ministry supports and incentive provisions, and provides a six-month grace period of protection against establishment of a similar enterprise by other interested parties. There are three matters of importance in an application for a license: the project should develop local industry; respect the code for joint ventures; and be economically feasible as demonstrated by supporting studies and material. In distinction to other developing countries, little importance is given to employment generation or foreign exchange savings. Examination of the industrial incentives offered and an outline of taxation provisions in the Kingdom is given in Appendix B on Commercial Matters.

The Saudi Arabian Standards Organization was set up in 1972 to establish safety and quality standards for all industrial products. It has joined ISO and is developing its expertise gradually, but is well aware that it needs considerable assistance in getting established. It has enquired about the possibility of access to Canadian standards, about the availability of standards experts in regard to general policy and to specific standards areas, and whether there is a testing organization (Canadian or otherwise) that would function for it throughout the world.

TABLE 11.3

SAUDI ARABIA

NUMBER OF INDUSTRIAL LICENSES

	<u>up to</u> <u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>Total</u>
Food and Beverages	31	9	5	10	55
Textiles and Clothes	11	1	1	3	16
Tannery and Carpentry	43	17	8	1	69
Paper Products and Printing	22	7	3	10	42
Leather, Rubber, Plastics and Chemical Products	18	6	15	10	49
Construction and Building Materials	50	5	5	3	63
Metal and Metal Products	13	3	3	17	36
Ship Repair and Transport	3	1	1	-	5
Other Processing	10	4	3	1	18
Others	<u>3</u>	<u>-</u>	<u>1</u>	<u>3</u>	<u>7</u>
Total	<u>204</u>	<u>53</u>	<u>45</u>	<u>58</u>	<u>360</u>

Source: Guidelines to the Second Development Plan.

There are five Chambers of Commerce and Industry at Riyadh, Jeddah, Mecca, Medina and Dammam, with a total membership of 10,000 or so. Two-thirds of the members are elected and one-third are nominated by the Ministry of Commerce and Industry. The functions of the Chambers include assistance in establishing foreign contacts, in securing government bids, and in settlement of industrial disputes, together with dissemination of commercial and industrial information.

11.2.1.2 Structure and Problems

The structure of industry in Saudi Arabia has been very undeveloped until recently, and even now is only in the early stages of development. Small factory or workshop operations are predominant; relatively few plants use modern productive processes, and labour supply (particularly in skilled labour) is a bottleneck.

This is illustrated by the importance of non-Saudi personnel in manufacturing operations. In 294 establishments employing 10 or more workers, the non-Saudi proportion was as follows:

- 40% of total employees
- 37% of managerial and administrative
- 55% of engineers and technicians
- 39% of skilled labour
- 37% of unskilled labour

There has been substantial expansion in manufacturing activity since the end of the 1960's, with growth in volume of output of some 14% a year. Table 11.3 shows the industrial fields in which development has been occurring, as shown by licence applications in 1970 - 72. Information from the Ministry of Commerce and Industry is that the number of licensed establishments grew to almost 800 in 1973, and in the

first six months of 1974 about 500 license applications were received. A detailed listing of licenses granted up to mid-1974 is attached as an annex to this report.

Many new plants are oriented toward import displacement, especially of consumer products like foodstuffs and semi-durables. A scale of operation has been chosen in some cases to allow export to other Middle East or nearby African countries; exports are being made. Construction-related industries (particularly cement plants and concrete products) have grown substantially. Recently there have been moves to assembly operations for vehicles: GM has been licensed for a \$19 millions plant at Jeddah to assemble 8,000 passenger cars and pick-ups a year; Datsun-Nissan will be licensed soon to assemble 60,000 cars and pick-ups a year, of which 25,000 will be for local use and the balance for export; a Japanese firm will be licensed soon to assemble 10 - 20 ton trucks.

Besides individual manufacturing plants, the Ministry is interested in manufacturing complexes for groups of similar products that cannot be made economically in separate plants; one such group would be electrical appliances ranging from refrigerators, ovens and washing machines, to small items like toasters, fans, blenders, etc. As in other fields, the Saudis are looking for proposals that will be all-embracing in terms of product range and provision of technology; they are not interested in specific, isolated proposals that presume a surrounding set of circumstances that do not exist.

While there is a favourable climate for industrial growth, particularly for Saudi/non-Saudi joint ventures, there have been and are some problems also. The Guidelines to the Second Development Plan mention several areas of concern:

- port delays because of lack of capacity
- inadequacy of customs and warehousing facilities
- lack of statistical information
- delays in obtaining visas for foreigners who are some 25% of the total labour force in Saudi Arabia
- delays in financial settlements
- inefficient banking and financial mechanisms.

One important constraint to development is directly attributable to the inefficiency of the construction industry in Saudi Arabia: this is the length of time required to get a project off the ground. We were informed that it could take more than two years from the initial proposal to the operational stage, made up as follows:

- i) review by the Ministry of application for license: 2 months
- ii) conduct of feasibility study: 4-6 months
- iii) negotiations between non-Saudis and Saudis re new entity (in parallel to (i) and (ii): 6 - 8 months
- iv) approval of project followed by ordering of machinery and equipment: 12 months
- v) construction of plant, training of supervisory staff and skilled labour: 12 - 24 months.

11.2.2 Development Plans

The development plan for general industry in Saudia Arabia looks for a continuation of the recent 14% per annum growth in volume of activity, through private initiative (particularly as expressed in Saudi-expatriate joint ventures) and through continuation of prior support and incentive policies.

Because of this, it is not possible to present detailed forecasts or targets by segments of manufacturing activity. In lieu, comments will be made within the more general categories of:

TABLE 11.4

SAUDI ARABIA AND CANADA
PATTERNS OF CONSUMPTION EXPENDITURES

	<u>Saudi Arabia</u>		<u>Canada</u>	
	<u>Income of</u> <u>\$1-2,000 p.a.</u>	<u>Income of</u> <u>\$2-3,000 p.a.</u>	<u>Income of</u> <u>Under \$4,000</u>	<u>Income of</u> <u>\$7-7,999</u>
Food	63.2%	52.2%	27.6%	21.8%
Housing	21.3	24.9	39.5	27.1
Clothing and Footwear	4.8	6.6	6.0	7.4
Other	<u>10.7</u>	<u>16.3</u>	<u>26.9</u>	<u>43.7</u>
Total	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>

Sources: Saudi Arabia: Household Budget Survey, 1970

Canada: Household Expenditure Survey, 1972

- consumer products
- intermediate goods

11.2.2.1 Consumer Products

The outlook for consumer products, whether domestically made or imported, depends on the speed with which shifts will occur in the location of the Saudi people, in their occupational pursuits, and in their levels of income.

Until now, as noted in earlier sections, the Saudi people have been predominately rural, engaged in agriculture (settled or nomadic) and with low levels of income (and participation in a market economy). The effect is summarized in the National Accounts Estimates for the Kingdom for 1966 - 67 to 1971 - 72 as reported in the Guidelines for the Second Development Plan: private consumption made up only 44% of gross national expenditures (compared with over 60% in Canada) and compensation of employees was less than 20% of gross domestic product (the comparable figure in Canada being some 55%).

Further evidence of the restricted standards of living and expenditures are provided by a Household Budget Survey carried out in 1970 in Riyadh, Jeddah and Dammam, for preparation of retail price indexes. The patterns of expenditure for the two classes of income earners surveyed are shown in Table 11.4, together with the equivalent pattern in Canada for its lowest income group surveyed and for the median of the Canadian groups used as a basis for the Canadian retail price index. It is evident that the Saudi pattern is much more heavily weighted toward food, and even though relatively less is spent on housing, clothing and footwear, there is little possibility for "discretionary"

TABLE 11.5

SAUDI ARABIA

IMPORTS OF AGRICULTURAL COMMODITIES
ANNUAL 1970 - 73 AND ESTIMATED FOR 1974

1,000 dollars					
Item	1970	1971	1972	1973	1974 ¹
Total	186,180	225,000	254,806	379,430	550,000
Cattle	3,212	3,500	6,500	9,300	14,000
Sheep and goats	17,638	18,400	26,085	35,200	41,000
Meat	6,201	5,434	6,084	10,300	18,500
Poultry, fresh	4,927	4,900	5,900	8,100	15,000
Canned meat	275	290	1,500	1,900	3,800
Milk, condensed, dry, fresh	9,966	5,650	8,100	13,500	21,000
Milk, dry	397	2,900	4,800	8,000	17,000
Butter	2,357	2,400	2,900	3,200	3,500
Cheese and curd	5,233	4,830	4,830	5,100	7,000
Eggs	2,620	3,300	3,700	4,000	5,000
Wheat and flour	26,653	26,610	30,600	50,800	98,000
Wheat	12,790	12,610	13,600	15,800	26,000
Wheat flour	13,863	14,000	17,000	35,000	72,000
Rice	37,044	38,500	30,700	76,000	149,000
Sorghum and other cereals	8,399	10,545	12,545	19,000	21,000
Corn	1,626	1,630	1,800	2,000	3,900
Oranges	5,611	5,600	7,600	8,000	8,700
Other citrus	819	840	852	900	1,100
Bananas	3,007	3,700	4,850	6,500	7,000
Apples	2,358	2,850	3,000	3,100	3,400
Grapes	218	410	460	580	700
Raisins	161	165	190	280	400
Beans and peas	1,338	1,950	2,350	3,700	5,400
Tomatoes	1,585	1,620	1,680	2,100	3,500
Onions	564	618	880	1,000	800
Sugar	7,395	9,962	14,762	27,700	39,100
Coffee	5,326	5,590	6,300	7,700	10,000
Tea	6,327	6,320	6,600	7,400	10,500
Tobacco	415	418	456	670	800
Soybean oil	747	750	1,050	1,800	3,100
Cottonseed oil	456	624	702	2,200	2,400

¹ Estimate

Sources: FAO Trade Yearbooks 1967 and 1972; OECD Commodity Trade 1972; Foreign Trade Statistics of supplying countries for 1973 and ERS
 Derived From: US Department of Agriculture Reports

spending even at the upper range of the Saudi income earners surveyed.

At the same time, there are good grounds for stating that these patterns of spending have changed and will change in ways to materially increase demand for consumer goods:

- i) the trend of imports of consumer-related products is up, even allowing for population growth. This is illustrated by the trend in food imports, shown in Table 11.5 opposite. Unfortunately adequate statistics for a full analysis of consumer product imports are not available, but opinion is general that the expansion in demand for consumer related products is very rapid.
- ii) visual evidence during our visit indicated that there is a full range of consumer non-durables, semi-durables, and durables available for purchase in modern shops which are an evolution from the traditional suk, if not yet to the stage of the shopping centre. These include:
 - large, modern supermarkets and smaller stores selling foodstuffs and general products, using refrigerated counters, and supported by refrigerated trucks and warehouses
 - many large and small appliance, hardware, and utility stores, stocking imported products from Japan, France, Germany, U.S., Italy and, sometimes, Canada
 - a full range of other commercial outlets, e.g. clothing, jewellery, etc.
 - extensive use of air-conditioners and, in newer buildings, a move away from room air-conditioners to central systems
 - traffic jams, in Saudi Arabian cities as elsewhere, caused by rapid growth in numbers of cars (incidentally, taxis are numerous and modern, of Japanese, French and American make)

Such stores, goods and amenities are still heavily for the wealthy Saudi or foreigner and are not yet items for mass use. However, the basis is there, the channels have been opened, and the direction is unlikely to be different from that in other developing countries.

TABLE 11.6

SAUDI ARABIAIMPORTS OF PRODUCTS OTHER THAN FOODSTUFFS

(million Rials)

	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>
<u>BUILDING MATERIALS:</u>					
Wood, Timber, etc.	48	71	62	78	75
Cement	43	63	48	58	35
Iron Bars and Sheets	70	87	107	82	131
Pipes and Parts	75	105	83	199	155
Others	<u>67</u>	<u>103</u>	<u>84</u>	<u>96</u>	<u>84</u>
Total	303	429	384	513	480
<u>TEXTILES AND CLOTHING</u>					
	153	172	142	203	344
<u>MACHINERY AND APPLIANCES:</u>					
Cars	186	285	264	244	366
Tractors	31	13	9	11	26
Machinery	181	231	231	304	500
Agricultural Machinery	42	65	59	53	89
Air conditioners and Refrigerators	39	56	46	47	49
Parts of Vehicles	89	95	66	71	89
Radios and Household Electrical	45	48	31	33	79
Electrical Machinery	8	7	3	3	8
Railroad Equipment	2	2	2	5	3
Aircraft	85	66	63	64	166
Ships, Boats, etc.	9	10	6	11	18
Others	<u>129</u>	<u>206</u>	<u>240</u>	<u>253</u>	<u>293</u>
Total	846	1,084	1,020	1,099	1,686
<u>CHEMICAL PRODUCTS:</u>					
Medicines and Drugs	55	74	69	109	102
Soaps and Detergents	5	8	5	7	14
Perfumes and Cosmetics	8	14	13	16	12
Others	<u>69</u>	<u>163</u>	<u>93</u>	<u>103</u>	<u>116</u>
Total	137	259	180	235	244

Source: Saudi Arabian Monetary Agency, Annual Report 1972 - 1973.

- iii) pronounced shifts in population location and occupation are in prospect over the next 5 - 10 years and a massive programme of basic education is being undertaken. The outcome inevitably will be major shifts in social customs, tastes, incomes and consumption expenditures
- iv) specific measures are being undertaken to redistribute income and to put cash money in the hands of those who have never had it before. These include family allowances (possibly paid to the mother), welfare payments to the aged, poor or infirm, and pension plan and social security provisions. All these will broaden the base of purchasing power.

While it is not possible to be precise as to specific manufacturing operations for consumer markets, the direction is clear. There are large volumes of imports that are developing the market and could be displaced by local manufacture, and there are local Saudis interested in pursuing joint manufacturing ventures. Undoubtedly, too, the potential for imports will continue to grow despite local manufacture.

11.2.2.2 Intermediate Goods

Production of intermediate goods is still at an early stage in Saudi Arabia, with activity mainly in the traditional fields including wood products, light metal shapes and products, and other relatively simple manufactures and assemblies.

The developing industrialization process will create greatly increased linkages in terms of demands for intermediate products, and there is also considerable potential for import displacement. Table 11.6, opposite, shows the pattern of imports of manufactured goods other than foodstuffs in years up to 1972, the latest period for which data is available.

TABLE 11.7

OPPORTUNITIES FOR CANADA

	<u>Status and Size</u>
<p>A Consultants to advise the Saudi Arabian Standards Organization on a long-term and short-term basis:</p> <ul style="list-style-type: none"> - senior policy and advisory - field missions by experts in particular standards areas - testing organization 	<p>1975 - 78 \$150,000</p>
<p>B Construction, operation and marketing for an electrical products complex producing a range of electrical goods</p>	<p>1975 - 76</p>
<p>C Consultants to assist in modernization of banking and finance in Saudi Arabia</p>	<p>1975 - 76</p>
<p>D Joint ventures with private Saudi businessmen; product areas mentioned during the visit were:</p> <ul style="list-style-type: none"> - fruit and vegetable canning and processing - bottling of imported juices and concentrates - paper products plant - soda ash plant - safety match manufacture - sugar refinery - glass manufacture 	<p>1975 - 80</p>
<p>E Supply by world exporters through commercial channels of consumer products and industrial products including foodstuffs, appliances, building materials, textiles and clothing, machinery and chemical products, estimated imports by Saudi Arabia</p>	<p>1975 - 80 \$20 billion</p>

There will be need for external supply of most capital equipment and intermediate products required in industrial projects in the immediate future, and there already exists potential for joint ventures for local manufacture.

Information on commercial matters relating to opportunities in Saudi Arabia is presented in Appendix B.

11.2.3 Opportunities for Canada

Table 11.7, opposite, records particular matters that were mentioned to us during our visit as potential for early exploration. Unquestionably there are many others and the items in the table should be taken only as being illustrative.

Project A refers to the request made by the Saudi Arabian Standards Organization for assistance in becoming established. The Organization sees need for a high level policy expert on general matters who would visit for a short period of up to three months to assist them and also to arrange the details of more substantial involvement by other consultants. This secondary stage would comprise a series of visits by individual specialists in particular areas of standards so as to transfer to this new organization some of these expertise already existing in developed countries in standards matters. Finally, the Standards Organization wishes to be able to use the services of an international testing organization and enquired as to the availability of such a body in Canada. This is a definite request and we consider that it should be explored and followed up on if at all possible.

Project B mentions the electrical products complex that is of particular current interest to Saudi authorities. This is illustrative of their desire for manufacture of a broader range of goods and an opportunity of this kind should not be restricted to electrical products but may exist in other product fields also.

Project C mentions the possibility of consultants being provided to assist in modernization of banking and finance in Saudi Arabia. This was not mentioned to us as a specific project but several informants indicated the sorry state of such arrangements in the Kingdom at the present time. It would appear that there is an opportunity for such a project to be presented to the Saudis and accepted by them if someone wished to formulate it and pursue it.

Finally, Project D lists a number of product areas in which individual Saudi businessmen mentioned to us that they were interested in the possibility of joint ventures with outside providers of technology and management. We are sure that this is only a partial list of the potential of this kind. It is also our opinion that any other visitors to Saudi Arabia will have the experience that we had: being approached by a number of people regarding a number of possible opportunities. This is not to say that all approaches are equally valid or valuable. It does, however, show the range of potential that is available and the fact that virtually any visitor will encounter potential project situations while in the Kingdom.

Success for Canada in projects B and D, relating to joint ventures, depends greatly on Government efforts to support and stimulate

private businesses, and on the aggressiveness of response from individual companies. Reference to measures that would assist in these respects is made in Section 2 of this report.

Project E refers to prospective general import requirements of Saudi Arabia in the next 5 years. Again, the extent of participation by Canada in competition with other suppliers will depend on the adequacy of support measures and on the strength of response by Canadian private companies.

MEETINGSSAUDI ARABIA STUDY

October 21	Mr. Jean-Guy Tardif First Commercial Secretary	Canadian Embassy Centre Sabbagh, Beirut
October 21	Mr. George Kardouche Regional Representative	The Royal Bank of Canada Box 2520, Beirut
October 21	Mr. Robert C. S. Wootton Partner	Arthur Young & Co. Gefinor Centre, Beirut
October 22	Mr. J. Pierre Lefebvre First Commercial Secretary	Canadian Embassy Box 5050, Jeddah
October 22	Mr. S. A. Defouni	Saouditel Box 2886, Jeddah
October 23	Mr. Herman Mueller and Mr. Bob McDornand	Cansult Box 324, Riyadh
October 23	Dr. M. Badr Vice-President	Central Planning Organization P. O. Box 358, Riyadh
October 24	Mr. Peter Duncan, Chief Economic Adviser Stanford Research Institute	Central Planning Organization Box 358, Riyadh
October 24	Mr. Abdul Aziz Zamil Deputy Director General	Industrial Studies & Development Centre Riyadh
October 26	Mr. Mohammed Bakr Energy and Industry	Central Planning Organization Box 358, Riyadh
October 26	Mr. Mustafa Al-Hejailan Industrial Development	Central Planning Organization Box 358, Riyadh
October 26	Mr. Ali Awade Minister of Commerce and Industry	Ministry of Commerce and Industry Riyadh

October 26	Dr. Taiba Deputy Minister of Commerce and Industry	Ministry of Commerce and Industry Riyadh
October 27	Mr. Ahmed Twaigir General Director, Industry	Ministry of Commerce and Industry Riyadh
October 27	Dr. Ahmed Kouthb General Director	Saudi Arabian Standards Organization Riyadh
October 27	Mr. Abdullah Shatta General Director	Electrical Services Organization Riyadh
October 27	Mr. Bashir Faris Economic Advisor	Central Planning Organization Box 358, Riyadh
October 28	Dr. Faysal Bashir Macroeconomics	Central Planning Organization Box 358, Riyadh
October 28	Sheikh Ahmed Zaki Al-Yamani Minister	Ministry of Petroleum and Mineral Resources Riyadh
October 28	Mr. Ibrahim Secretary to Minister	Ministry of Petroleum and Mineral Resources Riyadh
October 30	Mr. Sami Mosly, Engineer Municipalities and Water	Central Planning Organization Box 358, Riyadh
October 30	Mr. Husain Sajini Education	Centrall Planning Organization Box 358, Riyadh
October 30	Mr. Peter B. De T. Rooke	Bechtel Corporation Riyadh
October 30	Mr. Hisham M. Mosely Public Administration and Relation Consultants	P. O. Box 3405 Riyadh
October 30	Mr. Dunstan Perera National Accounts Adviser	United Nations Development Programme P. O. Box 558, Riyadh

October 31	Mr. Waleed G. H. Tawfik Private Consultant	P. O. Box 2918 Riyadh
November 1	Mr. Lou Earp Vice-President	Cansult Box 324, Riyadh
November 2	Mr. Obeid Deputy Minister	Ministry of Agriculture Riyadh
November 2	Dr. Saadia Assistant Deputy Minister	Ministry of Agriculture Riyadh
November 3	Mr. Ahmed Hamad Director of Statistics Department	Ministry of Health Riyadh
November 3	Dr. Bakr Director of Planning	Ministry of Health Riyadh
November 3	Mr. Ali Rashid Director General	Central Department of Statistics Box 3735, Riyadh
November 3	Mr. Sahel Houmaidan Agriculture	Central Planning Organization Box 358, Riyadh
November 4	Mr. E. I. Djabiras Representative in Saudi Arabia	Doxiades Associates International Riyadh
November 4	Mr. Suwailen Head of Technical Department	Ministry of Information Riyadh
November 4	Dr. Husain Mansour Telecommunications	Central Planning Organization Box 358, Riyadh
November 4	Mr. Ismail I. Sajini Transportation and Health	Central Planning Organization Box 358, Riyadh
November 5	Mr. Yussuf Assistant Director General	Saudi Railways Corporation Dammam

November 5	Mr. Jamil Y. Khayat Representative in the Eastern Province	Petromin Dhahran
November 6	Mr. Yussuf Suleimen Industrial Development	Petromin Dhahran
November 6	Mr. William L. Hostetler Industrial Development Department	Aramco Dhahran
November 6	Mr. William Mulligan Company-Government Representative	Aramco Dhahran
November 6	Mr. Robert Norberg	Aramco Dhahran
November 7	Mr. Sami R. I. Bawarshi Partner	Saba & Co. Al-Khazan Street, Riyadh
November 7	Prince Faysal Assistant Deputy Minister	Ministry of Education Riyadh
November 7	Dr. Abdullah Aziz Cultural Attache	Saudi Arabian Embassy New York
November 7	Prince Saud Assistant Deputy Minister of Planning	Department of Public Health Riyadh
November 7	Dr. Sumer Eslan Head of Hospitals	Department of Public Health Riyadh
November 7	Mr. Abdel Elah Butturgy Planning	Department of Public Health Riyadh
November 9	Dr. Frederic Thomas Deputy Regional Representative	United Nations Development Programme Box 558, Riyadh
November 9	Dr. Mohammed Sahn Head, Technical Department Research and Engineering	Petromin Riyadh

November 11	Dr. Badr Vice-President	Central Planning Organization Box 358, Riyadh
November 12	Mr. Ahmed A. Zainy President (Partner) Abdullah Abban & A. Zainy	P. O. Box 461 Jeddah
November 12	Mr. Ahmed Juffali Managing Director	E. A. Juffali Bros. Jeddah
November 13	Mr. Soliman Alhumdan Director, Mineral Division	Mineral Division, Petromin P. O. Box 5105, Jeddah
November 13	Mr. Nasef Abbas Mining Engineer	Mineral Division, Petromin P. O. Box 5105, Jeddah
November 13	Mr. Bahad Azee Manager	Petroship, Petromin Jeddah
November 13	Mr. Sindi General Manager	Saudi Arabian Airlines Jeddah
November 13	Mr. Nasser Al-Assaf Deputy Director General	Department of Civil Aviation Jeddah
November 13	Mr. Mohammed Q. Assaad Director of Technical Affairs	Directorate General of Mineral Resources Jeddah
November 14	Mr. Basim A. Hannush Head of Planning and Development	UN Economic Commission for West Asia P. O. Box 4656, Beirut
November 14	Mr. Khalil N. Kikano Manager	The Royal Bank of Canada Box 2520, Beirut
November 14	Mr. Michael Shenstone Canadian Ambassador	Canadian Embassy Box 5050, Jeddah

MEETINGS

SAUDI ARABIA STUDY

CANADIAN GOVERNMENT

Mr. Michael Shenstone

Canadian Ambassador

Mr. J. Pierre Lefebvre

First Commercial Secretary

Mr. Jean-Guy Tardif

First Commercial Secretary

SAUDI ARABIAN GOVERNMENT

Central Planning Organization

Dr. M. Badr

Vice-President

Mr. Mohammed Bakr

Energy and Industry

Mr. Peter Duncan

Chief Economic Adviser

Mr. Mustafa Al-Hejailan

Industrial Development

Mr. Bashir Faris

Economic Adviser

Dr. Faysal Bashir

Macroeconomics

Mr. Husain Sajini

Education

Mr. Sami Mosly

Municipalities and Water

Mr. Sahel Houmaidan

Agriculture

Dr. Husain Mansour

Telecommunications

Mr. Ismail I. Sajini

Transportation and Health

SAUDI ARABIAN GOVERNMENT (CONT'D)Ministry of Petroleum and Mineral Resources

Sheikh Ahmed Zaki Al-Yamani

Minister

Mr. Ibrahim

Secretary to Minister

Ministry of Commerce and Industry

Mr. Ali Awade

Minister

Dr. Taiba

Deputy Minister

Mr. Ahmed Twaigir

General Director, Industry

Ministry of Agriculture

Mr. Obeid

Deputy Minister

Dr. Saadia

Assistant Deputy Minister

Ministry of Health

Mr. Ahmed Hamad

Director of Statistics Department

Dr. Bakr

Director of Planning

Ministry of Information

Mr. Suwailen

Head of Technical Department

Ministry of Education

Prince Faysal

Assistant Deputy Minister

SAUDI ARABIAN GOVERNMENT (CONT'D)

Petromin

Mr. Jamil Y. Khayat	Representative in the Eastern Province
Mr. Yussuf Suleimen	Industrial Development
Dr. Mohammed Sahn	Head, Technical Department Research and Engineering
Mr. Soliman Alhumdan	Director, Mineral Division
Mr. Nasef Abbas	Mining Engineer
Mr. Bahad Azee	Manager, Petroship

Department of Public Health

Prince Saud	Assistant Deputy Minister of Planning
Dr. Sumer Eslan	Head of Hospitals
Mr. Abdel Elah Butturgy	Planning

Industrial Studies and Development Centre

Mr. Abdul Aziz Zamil	Deputy Director General
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Saudi Arabian Standards Organization

Dr. Ahmed Koutb	General Director
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Electrical Services Organization

Mr. Abdullah Shatta	General Director
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Central Department of Statistics

Mr. Ali Rashid	Director General
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Saudi Railways Corporation

Mr. Yussuf	Assistant Director General
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Mr. Sindi

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Mr. S. A. Defouni

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Mr. Ahmed Juffali

Managing Director

COMMERCIAL MATTERS

The following are brief comments on commercial matters by way of background information.

Business Arrangements

Business in Saudi Arabia can be done through a number of channels:

- i) direct with Government departments or agencies
- ii) in a joint venture with a Saudi
- iii) through a local agent or distributor
- iv) as a sub-contractor to a prime contractor.

These are discussed in turn.

i) Direct with Government

Contacts direct with Government can be by other Governments or by private businesses.

Several Governments besides the Canadian Government have sent official missions to Saudi Arabia. The approach by Japan was to start with a large team at Ministerial level, to follow with smaller teams of consultants to carry out prefeasibility studies, to prepare detailed feasibility studies in Japan, and to revisit Saudi Arabia to present definite proposals. The West German approach was a joint Government/private mission, which formed into 6 working groups to explore with the Saudis at a detailed level specific prospects in the fields of investment policy, automotive engineering plants, energy and chemical industries, iron and

steel foundries, building construction, and agriculture. The British similarly sent a joint Government/private team to Saudi Arabia with specific proposals for British involvement in industrial development in Saudi Arabia.

Large private companies (and small) also make direct contacts with Saudi Government Departments and agencies. As examples, over 70 companies have made proposals to Petromin for components of the El Jubail heavy industrial complex; individual companies are continually applying to the Department of Industry and Commerce for licences to establish local operations in a variety of industrial fields.

The object in either case is to demonstrate capabilities in a field, to express interest in particular undertakings, to ensure an invitation to tender when bids are being requested by the Saudis for large or small projects, and to obtain a licence to commence operations.

ii) Joint Venture with a Saudi

The orientation of Saudi policy, especially for development of secondary industry, is toward joint ventures of Saudi and foreign businessmen. Incentives are provided for such ventures as is described below.

Possible Saudi partners may be found through official Government channels - the Department of Industry and Commerce, the Industrial Studies Department Centre, and other Ministries. Chambers of Commerce can also assist in this regard. The Commercial Section of the Canadian Embassy can be of great assistance in advising the best actions to take and in arranging contacts and introductions. Many Saudis in

both private and public positions are keen to meet foreign businessmen and to assist them in their arrangements. It is important that association be with someone of good standing so as to enhance the chances of doing business.

iii) Local Agent or Distributor

This channel of business in Saudi Arabia is similar to that anywhere in the world.

The local agent or distributor will be most useful to scrutinize tender documents, follow up on bids, arrange distribution channels, make introductions, and find Saudi partners. They are probably obligatory for anyone seriously interested in entering the Saudi market.

iv) As Sub-contractor

The scale of certain Saudi undertakings and of international consulting and contracting firms who would be competitors to Canadians, suggests sub-contracting as a viable approach for Canadian suppliers of goods and services.

In this case, there remains the need for close contact with developments in Saudi Arabia and identification of projects and prime contractors as early as possible. There will be need to use all the information channels already mentioned in order to be successful as a sub-contractor.

Industrial Incentives

There are a number of incentives for industrial development, listed in the Guide for Industrial Development (a copy of which is attached to this report) as follows:

- i) New industrial enterprises and investments, subject only to a 25% participation of local capital, enjoy a five-year tax holiday.
- ii) Except for a low rate Zakat, there is practically no tax payable by industries set up by Saudi nationals.
- iii) Establishment of new industries and expansion of existing industries are encouraged by exemption of imports of machinery from customs duties.
- iv) Likewise, industrial operations are helped by exempting from customs duties imports of industrial raw materials, stores and spares and packaging materials. Towards the same end, imports of materials produced in the country are excluded from customs exemptions.
- v) Foreign investments in industry are encouraged by extending benefits to them available to national industrial enterprises.
- vi) When found in the national interest and to ensure larger scale and more economic production, the Government takes into consideration the existing capacity when licensing new industrial units.
- vii) Under the Regulations for Protection and Encouragement of National Industries, protection may be extended to industries facing undue foreign competition.
- viii) The regulations also provide that in deserving cases, subsidies or assistance in kind such as services of experts, may be given to industrial establishments.
- ix) To ensure adequate supplies of raw materials to industry, restrictions on export, if necessary, of nationally produced materials has been considered by the Government.
- x) The Industrial Studies and Development Centre (ISDC) has been established to promote industrial research and development and to give extension service to new and operating industrial enterprises. Towards this end, foreign consultants have been engaged and technical assistance has been obtained from the United Nations Industrial Development Organization.
- xi) Industrial Estates (with all attendant facilities and benefits, such as subsidized land, maintenance facilities through a modern and well-equipped workshop) are being established at Jeddah, Riyadh and Dammam. There are plans to establish more.

- xii) A large number of nationals are being sent abroad, at government expense, to receive higher education and training, while special institutions have been established in the Kingdom to improve engineering and other vocational skills.
- xiii) Preferential treatment is accorded to the locally produced industrial products in the matter of purchases made by the Government. Subject to normal business considerations, such as of quality and delivery, a price 10% higher than of comparable imported products may be paid by the Government departments in making their purchases from local industry.
- xiv) Government land is allotted to industry at preferential rates and assistance is extended to it in obtaining preferential treatment by electricity companies. In fact, agreement of electricity companies has been obtained for special rates for industry.

The references to joint ventures are most important since they reflect the prime policy of bringing foreign technology and management into association with local capital and businessmen. The latter could be former and existing importers of goods who see the opportunity of manufacturing domestically. Alternatively they could be from the increasing numbers of Saudi receiving incomes from royalty or agency payments, who have capital to invest in attractive domestic opportunities. Originally the requirement was that the Saudi part of the entity hold at least 51% of the equity but this was abandoned and the present requirement in order to obtain a five-year tax holiday is for 25% Saudi participation. At the other extreme, nominal participation by the non-Saudi partners is not favoured, since they would not have a stake in the enterprise and would, in effect, be operating as technicians/managers on a fee basis. In practice, something between 10% and 60% equity participation by the non-Saudi is looked for.

Taxation Provisions

With regard to taxation provisions, the following is summary information provided in the Guide to Industrial Investment and provided for illustrative purposes only. Reference should be made to the full taxation regulations provided as an attachment to this report and to accounting firms specialized in Saudi Arabia taxation matters.

The Zakat (Islamic direct tax on property and income) is a levy paid annually by Saudi citizens and Saudi companies. The rate is 2.5% of the assessable amount and constitutes a relatively modest tax burden.

Foreign citizens and foreign companies working in the Kingdom are subject to personal income tax and tax on business respectively.

Personal income tax is levied on locally derived incomes while working in the Kingdom, including all forms of income and allowances (including housing and living allowances) at the following rates (approximately SR 3.5 = \$1):

SR 6,000 and under	Nil
6,000 - 16,000	5%
16,011 - 36,000	10
36,001 - 66,000	20
Over 66,000	30

The taxable incomes of companies include:

- profits of a foreign company
- shares of non-Saudi in profits of Saudi companies
- total share of non-Saudi partners in the net profits of partnership firms

Company tax rates are:

Profits SR 100,000 and under	25%
100,001 - 500,000	35
500,001 - 1,000,000	40
Over 1,000,000	45

We heard comments that personal and company tax provisions might be liberalized in the interests of attracting required expatriate expertise and participation, and in light of the general revenue position of Saudi Arabia. These comments were unofficial, however, and may be purely speculative.

