

CHAPTER IX

INDUSTRY

The contribution of industry to GDP (see Fig. 30) increased from SR 5,061.1 million (or 58.8 percent of total GDP) in 1382-83 to SR 9,502.6 million (or 60.1 percent of GDP) in 1388-89. The growth rate and the contributions to GDP of the several segments of the industry sector are summarized below:

1. Crude oil exploitation increased at an average annual growth rate of 10.4 percent during 1382-83 through 1388-89, and contributed 46.6 percent to GDP in 1388-89.
2. Petroleum refining increased at an average annual growth rate of 9.6 percent during 1382-83 through 1388-89, and contributed 6.1 percent to GDP in 1388-89.
3. Contribution of GDP in 1388-89 by the petrochemical and fertilizer industry was insignificant since Saudi Arabia did not initiate this industry until 1389 when the first fertilizer plant came on-stream.
4. Mining and quarrying increased at an average annual growth rate of 14.4 percent during 1382-83 through 1388-89, and consisted mainly of the quarrying of limestone and gypsum for the cement industry, and other materials for the construction industry. In 1388-89, the contribution of quarrying to GDP amounted to 0.3 percent.
5. The contribution to GDP from the basic metal industries was insignificant in 1388-89.
6. Manufacturing, other than indicated above, increased at an average annual growth rate of 11.3 percent during 1382-83 through 1388-89, and contributed 1.9 percent to GDP in 1388-89.
7. Construction increased at an average annual growth rate of 12.1 percent during 1382-83 through 1388-89, and contributed 5.3 percent to GDP in 1388-89.

POTENTIAL FOR DEVELOPMENT

A variety of factors present in the resources of Saudi Arabia combine to present a favorable potential for development. The foreign exchange earnings of oil, for example, provide relatively unconstrained access to means of financing the development of the industrial sector by the importation, as required, of management skills, trained manpower, technology, raw materials, equipment and machinery. Large reserves of petroleum and natural gas have already been discovered, but vast areas of sedimentary geological formations with potential for the discovery of oil and natural gas remain to be explored.

Petroleum and natural gas offer cheap sources of power for industry; they are also the principle raw materials used in the production of petrochemicals and nitrogenous fertilizers. Similarly, rock phosphate is a raw material for fertilizer production, and natural gas can be used in the production of concentrated and pelletised iron ore and in the reduction of iron ore into iron and steel. There is a steadily increasing demand in Africa and Asia, the expected markets for products of the extractive industries, the petrochemical and fertilizer industries, and the iron and steel basic industries.

Both the Pre-Cambrian shield and younger coastal rocks of Western Saudi Arabia have been shown to have important mineral potentials. Not only have many mineral prospects been located, but it has been clearly established that a high proportion of the geological environment merits the long term prospecting which has typified the successful growth of mineral industries in many countries where mining contributes significantly to the gross national product. In addition, detailed explorations of mineral deposits have had a discovery rate for potentially viable deposits which is comparable with world standards in terms of expenditure per discovery.

Growth in per capita incomes, diversification and industrialization of the economy, and growth in service industries are creating expanding domestic demands for industrial products which are now mainly supplied by imports. In addition, the increasing knowledge of the Kingdom's water resources combined with the potential for agricultural production improve the prospects for increasing supplies of foods and by products, some of which will require industrial processing prior to consumption.

Hence the raw materials and market situations both favor prospects of early development of all forms of industry, provided the main constraints on such development can be overcome.

CONTRIBUTION OF INDUSTRY TO GROSS DOMESTIC PRODUCT

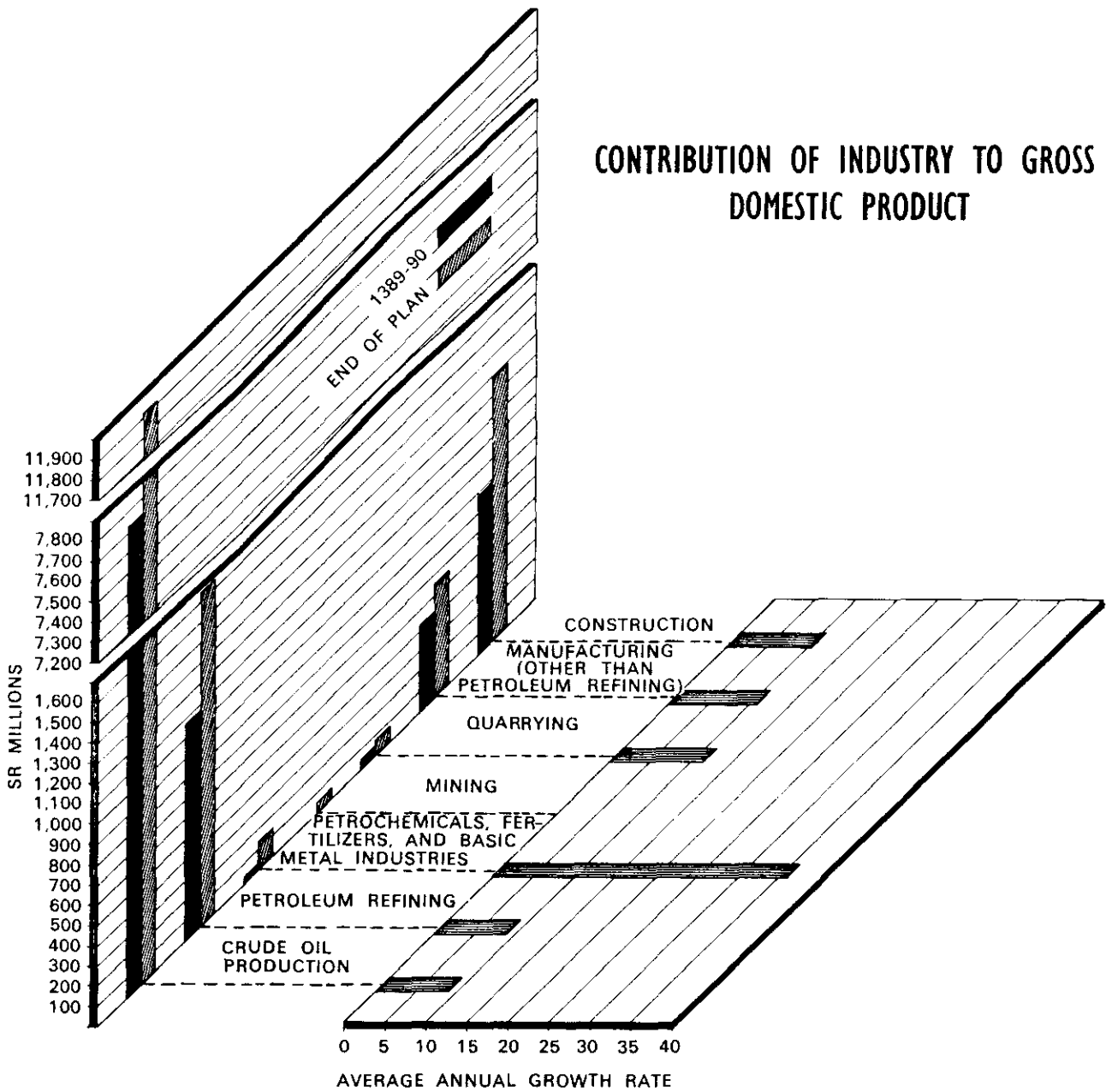


Fig 30

OBJECTIVES AND TARGETS

The main objective of the Plan for industry is to realize — as rapidly as organizational, manpower, technical and financial constraints permit — the known high potential for industrial development, thereby making a major contribution to the growth and diversification of the economy.

Objectives

More specifically the objectives of the industrial development plan are to:

1. Diversify the economic activities to reduce the dependence on petroleum as a major earner of foreign exchange, thereby leading to a more balanced economic activity;
2. Secure regional balanced development of industry consistent with the economic well-being of the Kingdom;
3. Increase the sale of petroleum products and fertilizers, and initiate the sale of petrochemicals and minerals in world markets;
4. Encourage industrial development by announcing an explicit pricing policy for refined petroleum products and natural gas based on the existence of surplus reserves, and supply them to domestic industrial users at actual cost;
5. Promote exploitation of the mineral prospects already identified and investment in exploration of other mineral deposits by encouraging foreign mining companies and national private capital to participate in new mining ventures;
6. Continue accumulating information on the geological characteristics of the areas of mineral potential in the Kingdom and on the occurrence and extent of mineral deposits by proceeding with geological surveys and explorations;
7. Expand the capacity of Government and quasi-Government agencies to assume responsibility for geological surveys and explorations now being performed by foreign missions;
8. Replace imports through local production and thus conserve foreign exchange earnings;
9. Encourage fuller utilization of capacity existing in the private manufacturing sector;
10. Increase productivity through closer approach to optimal size of factories and promotion of inter-dependence of industries, and adopt the principal of integration in their operations;
11. Improve the productivity of the construction industry and raise the standards of construction;
12. Reduce dependency on foreigners by on-the-job training, training in vocational schools and in other institutions.

The targets for the contributions of the industrial sub-sectors to value added during the last year of the Plan are summarized in Table 56. The average annual rate of increase in value added for the subsectors shown in Table 56 is 9.5 percent during the plan period.

Realization of the targets for oil production and refining will depend mainly on the ability of foreign oil companies to increase the sale of Saudi Arabian crude oil and refinery products in world markets. Petromin will contribute to meeting these targets through its world marketing program, production of oil from its concessions (providing exploration reveals oil in commercial quantities), and from the sale of refined petroleum products in the domestic market.

The target for the contribution to GDP by petrochemical, fertilizer and steel enterprises established by Petromin in partnership with foreign companies is conservatively estimated because of the uncertainties associated with the establishment of such large scale industries. Even so, realization of this target will represent a major achievement.

The characteristics of the mining industry (in particular the time taken to establish productive ventures) make it impossible to set a realistic quantitative target for its contribution to GDP. The target for the contribution of mining and quarrying to GDP is based on expanding quarrying activities for construction and starting the operation of one major mining venture late in the Plan.

TABLE 56
**TARGETS FOR THE CONTRIBUTIONS OF THE INDUSTRIAL SUBSECTORS
 TO VALUE ADDED DURING THE LAST YEAR OF THE PLAN**
 (Millions of 1386-87 SR)

Subsector	Value Added		Average Annual Rate of Growth
	1389-90	End of Plan	
1. Crude oil production	7,736.6	11,959.1	9.1%
2. Petroleum refining	1,064.3	1,649.6	9.1
3. Petrochemical, fertilizer, and basic metal industries	30.0	140.0	36.3
4. Mining	—	50.0	N.A.(a)
5. Quarrying	43.6	75.1	11.5
6. Manufacturing other than 1 and 2 above	334.7	562.1	10.9
7. Construction	790.1	1,297.8	10.4
Total, Industry	9,999.3	15,733.7	9.5%

(a) N.A. — Not Applicable

Source : C. P. O.

The target set for manufacturing industries other than those mentioned above is based on study of the opportunities in the manufacturing sector. Realization of these opportunities can be influenced by Government policies, but will depend mainly on the enterprise of the private sector.

The target for the contribution of the construction industry to GDP is based on the construction requirements of other sectors of the Plan, allowance being made for the need for construction to occur before programs in these sectors start to yield additional output.

Targets

Targets relating to the principle objectives of the Plan have been set or identified below, subject, when appropriate, to the conclusions reached in feasibility studies and the participation of foreign investors.

The targets for the Plan for industry are summarized in the following:

First year

The following activities will be completed by the end of the first year of the Plan:

1. Approval and publication of a statement of National Industrial Policy for the encouragement of industrial production;
2. Publication of the Regulation for the Protection and Encouragement of National Industries as revised in the light of the above National Industrial Policy;
3. Establishment of an industrial bank;
4. Announcement by Petromin of a pricing policy for petroleum products for domestic consumption designed to encourage industrial enterprises;
5. Provision of Petromin with a capital structure and company organization framed to increase its effectiveness in establishing industrial enterprises in partnership with foreign and national private capital;
6. Implementation of Petromin's projects for the Jiddah lubrication oil blending plant and the bulk plants in Mecca, Jaizan, and Qasim;

7. Establishment of a Project Evaluation Department in Petromin;
8. Revision and publication of the Mining Code;
9. Mapping and publication of geological maps and supporting texts covering 50,000 square kilometers of the Pre-Cambrian shield (this is a continuing annual target);
10. Conclusion of negotiations with foreign mining companies regarding the deposits at Jabal Sayid (copper, gold, silver, zinc), Nugrah (lead, zinc, and copper), and Adhbat (iron pyrites);
11. Preparations in the DGMR for establishment of a Cost Control Unit and a Data Services Department, and transference of the functions and activities of the present Chemistry Department to the two laboratories belonging to the foreign missions;
12. Performance of at least two major feasibility studies for high priority manufacturing projects by the ISDC (additional feasibility studies at the same rate during each succeeding year);
13. Publication of a guide for industrial investors;
14. Realization of the planned industrial estates in Riyadh and Jiddah;
15. Strengthening of the competence of the Ministry of Commerce and Industry to review the feasibility analyses required from private entrepreneurs seeking encouragement for new industrial undertakings;
16. Review of effects of labor legislation, land registration practices, and other factors influencing the productivity of the construction industry, and formulation of appropriate measures.

Second Year

The following activities will be completed by the end of the second plan year:

1. Establishment of the National Trading and Marketing Company by Petromin;
2. Implementation of Petromin projects for Khamis Mushayt and Tabuk bulk plants, sulphuric acid plant and expansion of Jiddah steel mill;
3. Establishment of a management training center by Petromin for high-level Petromin personnel;
4. Preparation of a magnetism map at a scale of 1:2,000,000 in coordination with the Aerial Survey Department;
5. Definition of Pre-Cambrian formations by type, area and composition to depict mineral bearing horizons;
6. Integrated study of the northwest area of Saudi Arabia to develop data on mining of the Thaniyat phosphate deposits, the Wadi Sawawin iron ore deposits, the Aqaba gypsum deposits, and utilization of natural gas;
7. Creation, subject to a feasibility study, of a quasi-government company for mineral exploration to extend the work of DGMR and to participate with foreign companies in joint exploration ventures;
8. Realization of the planned industrial estate in Dammam;
9. Establishment of a management training unit in ISDC;
10. Formation of a committee at ISDC to make suggestions for promotion of industrial productivity to the responsible authority.

Third Year

The following activities will be completed by the end of the third plan year:

1. Implementation of the Petromin projects for Riyadh refinery, Abqaiq sulphur plant, Uthmania-Riyadh gas pipeline, and expansion of Jiddah refinery;
2. Preparation of a second-order gravity net in coordination with the Aerial Survey Department;
3. Additional exploration of first priority mineral deposits at al-Amar (gold, copper and zinc), Wadi Fatima (iron ore), ar-Rokhan (magnisite), and Jabal Dhaylan (lead, zinc and copper);
4. Replacement of the present Mines Department of DGMR by an Inspectorate of Mines that will advise the Minister of Petroleum and Mineral Resources on terms and conditions for mining concessions and mining regulations and subsequently be responsible for their enforcement;
5. Establishment of national building codes and materials specifications and standards.

Remainder of Plan

The following activities will be completed during the remainder of the Plan:

1. Implementation of the Petromin project for phosphate mining and potash production;
2. Examination of basic metals in Tertiary formations and Pre-Tertiary sedimentary rocks and discovery of additional mineral resources;
3. Investigation of metalliferous possibilities of granitic rocks;
4. Implementation of Petromin projects for gypsum mining, an ammonia plant, an aluminum plant, a petrochemical complex and a phosphoric acid plant;
5. Geochemical investigation of acid intrusive rocks which may lead to discovery of disseminated copper and molybdenum deposits;
6. A regional study of basic and ultra-basic rocks as possible hosts for nickel and asbestos;
7. Preparation of summary reports with 1:500,000 maps covering rock units containing sulphide and heavy metal occurrences;
8. Intensive mapping, and geochemical and geophysical surveys of location of metals for which a world demand exists (for example, copper, gold and silver);
9. Research on the nature of the Tertiary Red Sea mineralization and the geological environment of the circular magnetic structure to elucidate the modes of mineralization and to guide future exploration;
10. Establishment of an exploration team in the deep mineralized area of the Red Sea with a very limited budget;
11. Transfer of all activities and responsibilities currently undertaken by foreign missions to DGMR;
12. Study of the feasibility of establishing industrial estates in addition to those already being constructed in Riyadh, Dammam and Jiddah.

PROGRAMS AND PROJECTS

The industrial development plan provides for action in many different areas.

Petroleum

Exploration and Concessions

Exploration for oil under existing concessions to foreign companies and Petromin will continue, and new concessions will be granted.

Production and Refining for Export

Development of the means of production of crude oil and refinery products for export will depend on three factors:

1. The success achieved by foreign oil concessionaires in expanding the share of Saudi Arabian oil and refined products in world markets;
2. The outcome of explorations carried out by foreign companies under concessions granted to Petromin;
3. The success achieved by Petromin in marketing crude oil produced by foreign companies in markets not served by these companies, and in marketing oil discovered in its concessions under the terms of its agreements with the companies that operate these concessions.

Supplying the Domestic Market

The demand for refined petroleum products is forecast to almost double in the Western Province by the end of the Plan and to increase by about 70 percent in the remainder of the country. Petromin plans to meet this growth by building a second refinery in Jiddah and a new refinery in Riyadh. The new Jiddah plant is expected to start operation in plan year three when the existing plant will close down. The latter will be re-opened about three years later when demand is expected to exceed the capacity of the new refinery.

The Riyadh refinery is also expected to come on-stream in the third plan year and will serve the Riyadh marketing area, any balance being met from the Ras Tanura export refinery. Forecasts of the consumption of petroleum products by the domestic market and the production of the refineries to meet this demand are shown in Table 57.

TABLE 57

**FORECAST OF PRODUCTION FOR DOMESTIC DEMAND AND CONSUMPTION
OF REFINERY PRODUCTS**

(000 Barrels)

	Production						Consumption				Total	
	Jiddah		Riyadh		Ras Tanura		W(a)		E.C.N.(b)			
	1970	End of plan	1970	End of plan	1970	End of plan	1970	End of plan	1970	End of plan	1970	End of plan
L.P.G.	33	500	—	310	560	636	149	446	444	1,000	593	1,446
Motor gasoline	752	3,000	—	2,250	3,423	1,654	1,972	3,451	2,203	3,453	4,175	6,904
Kerosene	436	800	—	436	541	192	514	828	463	600	977	1,428
Aviation fuels	—	1,300	—	—	—	—	620	1,246	445	966	1,065	2,212
Diesel fuels	690	3,150	—	1,612	3,125	2,607	1,847	3,681	1,968	3,688	3,815	7,369
Fuel oil	1,200	1,160	—	—	—	825	669	1,160	510	825	1,179	1,985
Asphalt	—	300	—	—	N.A.(c)	N.A.	88	142	N.A.	N.A.	N.A.	N.A.

(a) W — Western Province

(b) ECN — Eastern, Central and Northern Provinces

(c) N.A. — Not available

Source : Petromin/CPO

Crude oil will be shipped to the Riyadh refinery by rail from Khurais; the Jiddah refinery will be supplied by tankers from Ras Tanura. Petromin will build new bulk plants in Tabuk, Jaizan, Khamis Mushayt and Qasim to improve the distribution of refined products.

An agreement has been concluded between Petromin and a foreign company to establish a lubricating oil blending plant on the Jiddah industrial site. Base-stocks will initially be shipped from abroad and from Ras Tanura. The plant will later undertake the local production of base-stocks. The decision to establish a lubricating oil blending plant was based on an analysis of the increasing demand for lubricating oil in Saudi Arabia: in 1387-88 over 150 thousand barrels of lubricating oil were imported, but consumption from Ras Tanura (the only domestic producer) was about 20,000 barrels.

The new blending plant will be operational by 1390-91 with an expected annual production of 71,000 barrels. A comparison of production with expected demand (Table 57) discloses that Saudi Arabia will still produce insufficient lubricating oil to meet the demand through the end of the Plan when the Jiddah plant will probably need to be expanded to meet the demand.

Petromin plans to construct a pipeline from Uthmania to Riyadh to supply natural gas for domestic and industrial consumption. The pipeline will have an initial capacity of 19 million cubic feet per day but this can be increased to 70 million cubic feet per day. It is expected to come into operation in 1393.

Petrochemicals and Fertilizers

Petromin is undertaking studies and preparing plans for production of the following products:

Sulphur

A joint stock company has been set up with Jefferson Lake Sulphur Company to establish a plant for the extraction of sulphur from crude oil in Abqaiq. It is expected to start operating late in the second plan year and to produce 190,000 metric tons of flake sulphur in its first year of operation. Its full capacity will reach 225,000 metric tons annually. Jefferson Lake Sulphur Company will market the sulphur internationally.

Sulphuric Acid

A sulphuric acid production plant is being constructed at the Petromin industrial site in Dammam. It is expected to start operation in the first plan year and to produce 16,500 metric tons of sulphuric acid annually at full capacity. (The production of sulphuric acid from gypsum is mentioned under "Mineral Resources, Exploitation").

Petrochemical Intermediates

An agreement was reached with ANIC-PHILIPS in 1986-87 to establish a plant in Dammam for the production of ethylene (182,000 metric tons annually), propylene (96,000 metric tons annually), butadiene (10,000 metric tons annually) and other by-products from the Abqaiq natural gas fields. The feasibility of this project is still being examined, but it is anticipated that production will start by the end of the Plan. ANIC will be responsible for marketing these products internationally. This project is linked to the AGIP joint oil exploration venture.

A second petrochemical project for the production of liquified natural gas, petrochemical feedstocks and polyethylene vinyl chloride is being considered.

Ammonia

A project for the production in Dammam of 330,000 metric tons per year of anhydrous ammonia from natural gas is being evaluated.

Urea

The possibility of expanding the SAFCO urea plant in Dammam or of establishing a second plant will be studied as part of the Plan.

Phosphoric Acid

Production of phosphoric acid from rock phosphate is being studied (see the section headed "Mineral Resources").

Potash

A project for the evaporation of sea water at Tarut Bay is being studied. Such a plant could produce potash (100,000 metric tons annually) during the first stage and subsequently magnesium (20,000 metric tons) with chlorine (56,000 metric tons) and salt (1 million metric tons) as annual by-products.

Mineral Resources

Surveying and Exploration

Projects to be carried out by DGMR* and the related agencies (USGS, BRGM, JGS, ARGAS, ADC and SAMEX*) may be classified as either "geological mapping and related work" or "mineral exploration." The former consists of geological mapping, basic geological research, marine geology, geophysics, publications, and data systems; the "mineral exploration" program encompasses the location of mineralized areas, investigation of selected occurrences, and mineral research.

Geological Mapping. The aim of geological mapping is to prepare and publish maps of the Pre-Cambrian shield and adjacent areas on a regional geological basis at a scale of 1:100,000 supported by texts on the geology and mineral resources of the area, and incorporating both laboratory and basic geological data. This work will consist of about 60 sheets (each covering one degree) and representing an area of 720,000 square kilometers. This project will take more than 12 years to complete at an annual output representing 50,000 square kilometers, (see Fig. 31).

Basic Geological Research. A necessary complement of mapping in basic geological research is to define the Pre-Cambrian formations by type, area and composition in accordance with international usage. One of the ultimate benefits of this basic research is the definition of mineral-bearing horizons.

Early attention will also be given to geochemical investigations of the acid intrusive rocks, which may lead to discovery of disseminated copper and molybdenum deposits; a regional study of the ultrabasic rocks as possible hosts for nickel and asbestos; and an investigation of metalliferous possibilities of granitic rocks.

DGMR intends to seek the assistance of doctoral candidates in foreign universities for the performance of this research.

Marine Geology. Internationally, the Red Sea is an area of great academic interest; thus substantial research by DGMR would enhance the Kingdom's scientific reputation. DGMR proposes to establish an exploration team in the deep mineralized areas on a minimum budget before the end of the Plan.

* DGMR, Directorate General of Mineral Resources; USGS, United States Geological Survey; BRGM, Bureau de Recherches Geologiques et Minières; JGS, Japanese Geological Mission; ARGAS, Arabian Geological and Surveying Co.; ADC, Arabian Drilling Co.; and SAMEX, Saudi Arabian Mineral Exploration Co.

GEOLOGICAL MAPPING PROGRAM

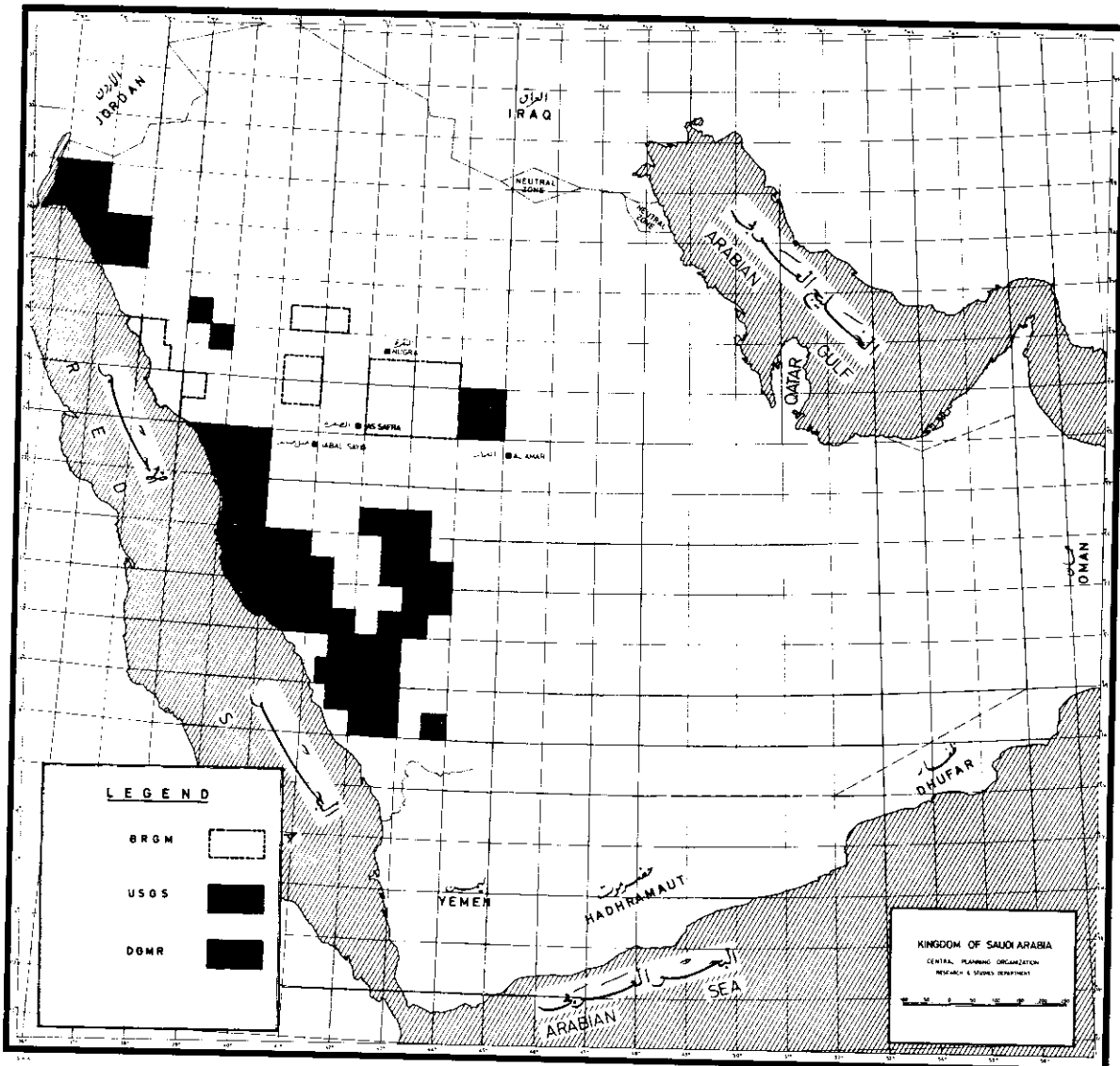


FIG - 31

Geophysics. Proposed work in geophysics includes the collection of all available regional geophysics information; the preparation of summary reports with 1:500,000 maps covering rock units containing sulphide and heavy metal occurrences; the establishment of a second order gravity net; and the preparation of a magnetism map at the scale of 1:2,000,000. These activities will be coordinated with the Aerial Survey Department, particularly with respect to the establishment of the gravity net. Analyses of these geophysical data will help establish criteria for future mineral prospecting.

Publications. Publishing the results of the work of the Directorate General and its contractors will accomplish several objectives:

1. Place the data on permanent record;
2. Focus overseas attention on the Kingdom's geological background and mining potential; and,
3. Impose an exacting intellectual discipline on all geologists.

Data Systems. Systems for collecting, storing, and retrieving technical data on mineral resources are of the utmost importance to the development of the Kingdom. Two types of data are involved: raw data, such as field notes and geophysical observations; and processed data, such as reports and maps. Collection will start as soon as possible and will include the data held by the missions. Storage includes indexing functions which will be oriented toward the computer of the College of Petroleum and Minerals at Dhahran. Retrieval will include dissemination of technical information.

Location of Mineralized Areas. Regional mapping has located most of the exposed copper, gold, silver, lead, and zinc. The mineral occurrences tend to be concentrated in certain areas in association with formations of specific rocks. These areas will be investigated by more intensive mapping and by geochemical and geophysical surveys as guided by anticipated future world demand for minerals. (For instance, intensive mapping and surveys may be justified for copper, gold, and silver since demand for these minerals is expected to double within the next 15 years). In addition, Tertiary formations and Pre-Tertiary sedimentary rocks will be examined for possible additional mineral resources.

Investigation of Selected Occurrences. The selection of certain occurrences for further examination will depend on evaluations of visible geology, geochemistry and geophysics; and experience. Occurrences are continually being reviewed and a prospect is discarded as soon as it appears clearly uneconomic. Successful investigations present the problem of determining the right stage at which to terminate examination. The best time for the government agency to terminate an investigation is when a prospect first shows economic promise if a foreign company is willing to assume the prospect on exploration licenses. DGMR's present intentions for further investigation of major deposits and prospects through the end of the Plan are summarized in Table 58.

TABLE 58
FURTHER INVESTIGATION OF MAIN MINERAL DEPOSITS AND PROSPECTS
DURING THE PLAN PERIOD

<u>Name of Deposit</u>	<u>Elements or Minerals</u>	<u>Further Investigation</u>	<u>Estimated Cost (SR 000)</u>
al-Amar	gold, copper, zinc	Underground sampling	1,000
Wadi Fatimah	iron ore	Drilling and re-check analyses in coordination with Petromin's development plan of an iron and steel industry	500
Wadi Sawawin	iron ore	Re-check analyses in coordination with the integrated study of the northwest of Saudi Arabia	500
ar-Rokhan	magnesite	Marketing and feasibility study regarding required infrastructure	500
Thaniyat	phosphate	Processing studies in coordination with the above integrated study	250
Jabal Dhaylan	lead, zinc, copper	Drilling to obtain an exploration guide for further work in coastal areas	600

The need for further investigation of the Wadi Bidah deposits (copper, gold, silver and zinc) and the ash-Shaib deposits (copper, silver and zinc) will be determined after completion of the 1:100,000 mapping of the respective quadrangles. Mapping of these quadrangles should be completed in 1391-92.

The deposits of Jabal Sayid (copper, gold, silver and zinc), Nugrah (lead, zinc and copper) and Adhbat (iron pyrites) were not included in Table 58 because major mining companies have already applied for exploration licenses for these prospects. Negotiations with these companies are expected to be concluded during 1390-91, (see Fig. 32).

Mineral Research. Mineral research falls into two categories: research into prospecting methods, and research directed towards elucidation of the modes of mineralization and guidance for future exploration. DGMR is not planning research into prospecting methods before the end of the Plan. Research planned for individual deposits or groups of deposits will include investigation of the modes of mineralization of several sulphide deposits, examination of the nature of the Tertiary Red Sea mineralization, and analysis of the geological environments of circular magnetic structures. This research will be carried out by doctoral candidates in foreign universities.

Exploitation

Exploitation of mineral resources in Saudi Arabia has been limited to mining of gypsum and limestone by domestic gypsum and cement factories. Future exploitation of minerals other than limestone and gypsum is expected to be undertaken by foreign and domestic organizations, possibly as joint ventures.

Petromin will participate in the development of mineral resources under three separate programs:

1. Feasibility studies for the projects summarized below, particularly by a regional feasibility study on the integrated development of the iron ore, phosphates, natural gas, and gypsum discovered in Northwest Saudi Arabia;
2. Establishment, subject to a feasibility study, of an organization (SAMEX) to undertake and participate in exploration of mineral deposits as described elsewhere; and,
3. Participation with foreign mining companies in ventures shown by exploration to offer prospects for commercial mineral development.

Petromin is investigating the following projects:

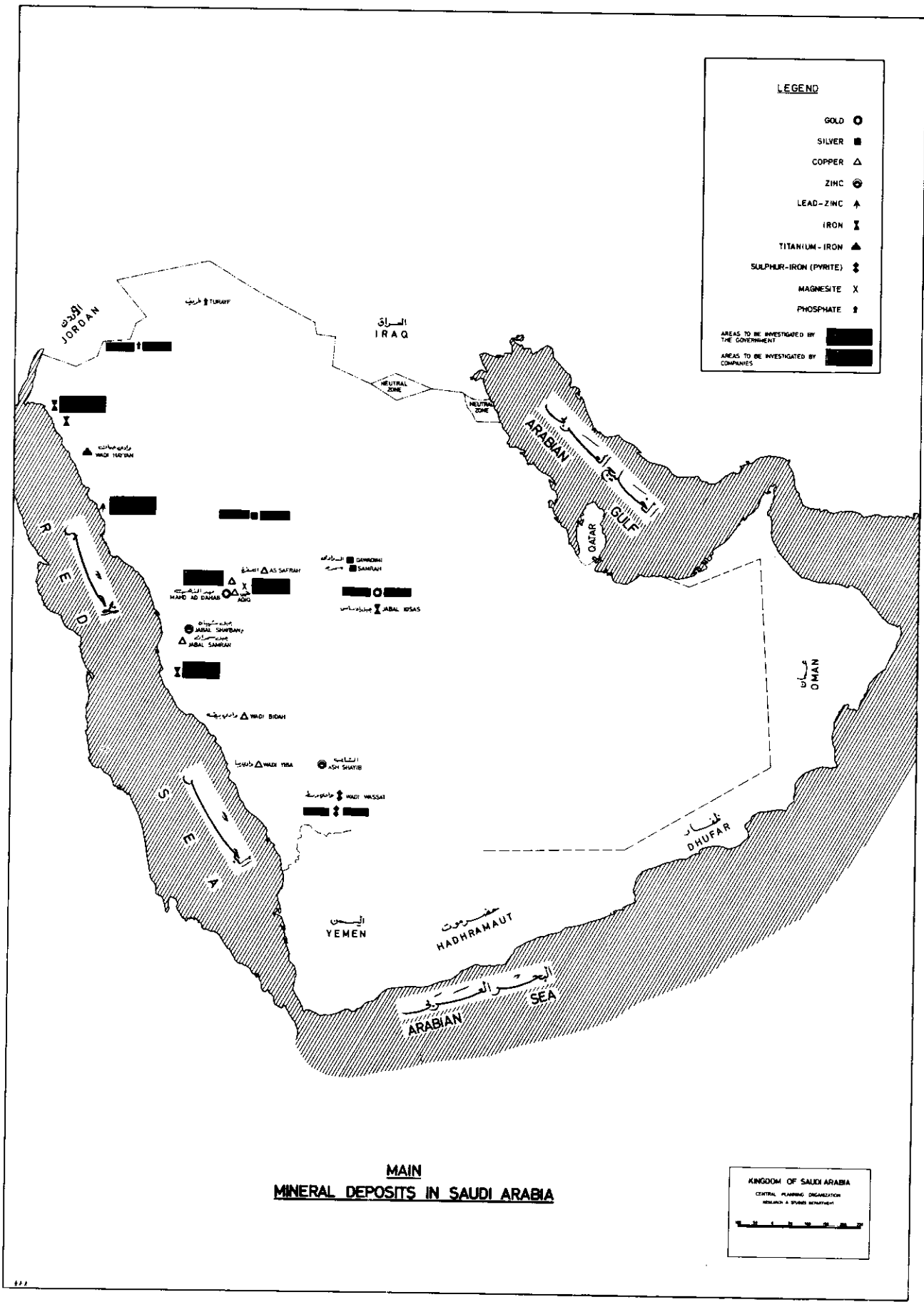
1. **Phosphate:** Mining and beneficiation of phosphate rock at West Thaniyat; transport by pipeline to the coast near Aqaba is being considered; production will be 2 million metric tons annually for export; 300,000 metric tons annually of P_2O_5 equivalent for transformation into elemental phosphorous; and 300,000 metric tons annually for phosphoric acid;
2. **Gypsum:** Mining near Aqaba for the production of sulphuric acid (330,000 metric tons annually) and cement (330,000 metric tons annually);
3. **Copper:** Mining and beneficiation for export of the Jabal Sayid deposit; and,
4. **Iron Ore:** Mining and beneficiation of the deposits located at Wadi Fatimah and Wadi Sawawin for export and for use in the production of steel.

The above projects related to the possibility of phosphate and gypsum mining, as well as the iron ore mining of the Wadi Sawawin deposits, will be part of an integrated study for the development of the northwest of Saudi Arabia.

Basic Metal Industries

Iron and Steel

The development of an iron and steel industry is considered an important step in broadening the base of the Kingdom's economy. A steel rolling mill was established in Jiddah in 1387. Petromin now plans further development of this industry.



**MAIN
MINERAL DEPOSITS IN SAUDI ARABIA**

KINGDOM OF SAUDI ARABIA
CENTRAL PLANNING ORGANIZATION
RESEARCH & PLANNING DEPARTMENT

The economic feasibility of developing iron and steel production in Saudi Arabia is based on the following:

1. Domestic demand for steel products (such as structural and pipe steel) has been increasing rapidly both in the private and government sectors. This demand is expected to increase by 300 percent between 1390 and 1400.
2. World market demand for steel products is currently strong and growing steadily.
3. Large iron ore deposits discovered at Wadi Fatimah and Wadi Sawawin offer possibilities of economic exploitation.
4. The energy requirements for iron ore mining and steel production can be freely and cheaply supplied from abundant reserves of crude oil and natural gas.

Petromin plans the development of the iron and steel industries in three phases. The first will expand the existing steel rolling mill at Jiddah so it can run at its full capacity of 45,000 metric tons per year; the second for expansion of this capacity to 100,000 tons per year; the third is the development of an integrated iron ore mining and steel manufacturing industry.

Aluminum

The establishment of an aluminum plant with a capacity of 140,000 metric tons of ingots per year from imported alumina is being discussed with a foreign corporation.

Manufacturing Industries

For the purposes of this document, the term *manufacturing industries* excludes petrochemicals, fertilizers, and the basic metal industries.

Projections have been made by ISDC of the potential growth of the private manufacturing sector from 1390-91 through the end of the Plan. These projections are indicative of the opportunities for the industrial development as shown in Table 59 by ISIC code; however they will not substitute for feasibility studies. Investors will be responsible for their own market surveys and other cost data before making new investments or expanding existing enterprises, (see Figures 33 to 36).

Table 59 is not exhaustive from the technical point of view because directed economic activities cannot be substituted for private initiative and ingenuity. Industrialists will establish industries not enumerated here; conversely, some industries mentioned here may not be feasible.

The possibilities for local capital investment are large in Saudi Arabia; however, it is necessary to provide the channels for the flow of capital to industries. Medium and long term credit is not available here, thus constituting a serious obstacle to the development of industry.

The implementation of the Industrial Bank therefore is a crucial step towards realization of the Kingdom's industrial potential. Other important steps that must be taken to realize this potential are described later in this chapter.

In addition to the prospects expected to be taken by private investors, a grain silo and flour mill project has been considered. This project would establish an integrated industry in the Kingdom for the bulk importation and storage of wheat, the milling of flour, and the processing of animal feeds from wheat by-products. The Government would supplement private capital investment: one objective of the project as defined in recent years is the maintaining of a strategic stockpile of wheat in the country that would supply the requirements for six months.

Construction and Maintenance

The sector of construction and maintenance is considered one of the most significant sector activities though much of it is undertaken for the public sector. Its main components are the construction and maintenance of:

1. Houses;
2. Factories, electricity supply systems, farm structures, irrigation works, and commercial buildings for the private sector and government institutions;
3. Transport and communications facilities, buildings, and public utilities for the public sector.

The construction industry includes many units ranging from national and foreign civil engineering and construction through small contractors engaged in building minor civil engineering works, houses, and shops using modern techniques and equipment, to builders concerned mainly with traditional local building works, often employing undeveloped methods.

The sectoral programs proposed in this Plan call for raising the standards of housing; increasing investments by the private and quasi-government sectors in industry, electricity, agriculture and commerce; and an expanding volume of construction and maintenance for the public sector.

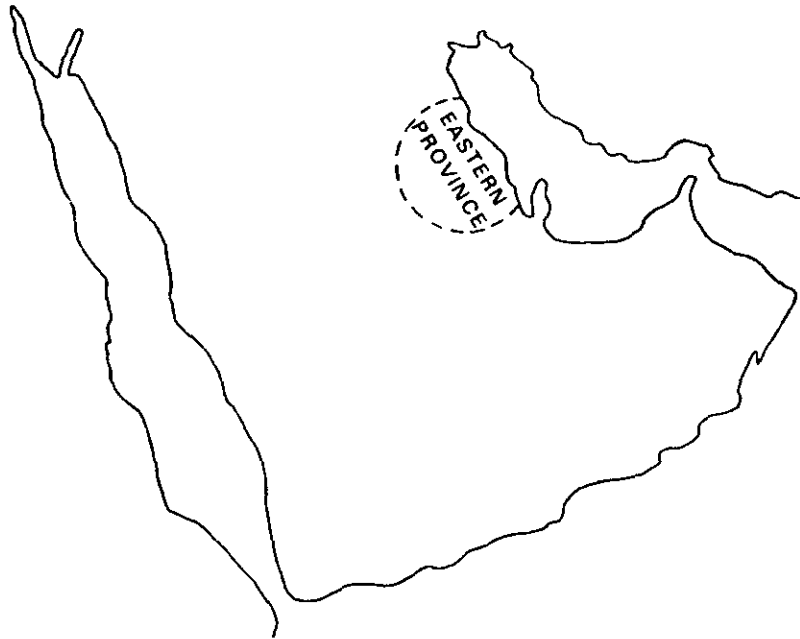
TABLE 59
SOME PROJECTED INDUSTRIES FOR THE PLAN PERIOD

ISIC(b)	Subsectors and Industries	Opportunities	Location	Estimates of Capital Requirements(a) (SR 000)
FOOD AND BEVERAGES				
201	Meat and by-products	A slaughterhouse and meat packing plant capable of producing 1,500 metric tons of meat annually	Mecca-Tayif area	3,310
202	Dairy products	Expansion of the al-Khobar, Riyadh and Jeddah manufacturers of milk and milk products as well as establishment of additional plants for the manufacture of ice-cream, yogurt and other dairy products	Mecca, Medina and Buraydah	5,380
203	Vegetables, processed and canned	A plant processing and canning 825 metric tons of vegetables annually	Close to areas of vegetable production	2,600
203	Tomato paste and juice	An integrated tomato processing industry producing 5,875 metric tons of paste and 600 metric tons of juice per year	Near areas of tomato production	6,100
204	Processed fish	Establishment of an additional fishing enterprise for packing and shipping and expansion of existing firm in Dammam	Red Sea coast	14,250
205	Polished rice	Rice milling facility capable of producing 3,000 metric tons per year	Eastern Province	1,115
206	Biscuits	Manufacture of 520 metric tons of biscuits and crackers annually	Riyadh or Jiddah	1,288
207	Date syrup	Date syrup plant capable of processing 5,000 metric tons of dates annually	Eastern Province	2,660
209	Macaroni and vermicelli	Plant capable of producing 600 metric tons per year	Riyadh or Dammam	1,120
209	Animal feed	Expansion of the animal feed mill in the Eastern Province and the establishment of another one	Western Province	1,750
312	Vegetable ghee	Two vegetable ghee processing plants producing 12,000 metric tons per year	Western and Central regions	9,800
TEXTILES AND WEARING APPAREL				
231	Cotton textiles	A mill for the weaving of cotton textiles using imported cotton yarn with an annual capacity of approximately 16 million yards		24,436
244	Canvas and products	A canvas cloth manufacturing company with an annual capacity of 500,000 meters	Western Province	1,860
391	Surgical bandages and supplies	A plant to manufacture annually 125 metric tons of surgical cotton, 1.2 million square meters of bandages and 1 million packets of sanitary napkins	Dammam	1,500
FURNITURE AND FIXTURES				
260	Doors and windows	Expansion of existing manufacturing units	Regionally according to demand	2,025
260	Metal furniture	Expansion of existing units	Jiddah and Riyadh	6,500
260	Wooden furniture	Expansion of existing units	Regionally according to demand	2,100
PAPER PRODUCTS AND PRINTING				
272	Paper Products	Expansion of existing paper industry to produce 100 million cardboard boxes annually	Jiddah	3,440
280	Printing	Expansion of existing establishments	Jiddah, Riyadh and al-Khobar	9,000
LEATHER AND LEATHER PRODUCTS				
291	Skin pickled	A skin pickling plant capable of processing 300,000 sheep and goat skins per year	Jiddah-Mecca	2,130
RUBBER AND PLASTIC PRODUCTS				
300	Tire retreading	Two tire retreading plants with an annual capacity of 20,000 tires	Riyadh-Jiddah	655
399	Plastic pipes	Expansion or establishment of new plant to manufacture plastic pipes for use in water, sewage and drain, waste and vent systems with an additional annual capacity of 2,000 metric tons	--	2,880
CHEMICALS AND CHEMICAL PRODUCTS				
313	Paints	A paint plant to produce 25,000 gallons per year	Jiddah, Riyadh or Dammam	776
319	Detergents	Expansion of the existing plant	Jiddah	6,000
319	Pharmaceuticals	Production of 200 million tablets per year	Jiddah	3,228
CEMENT AND NON-METALLIC PRODUCTS				
334	Cement	Expansion of existing cement plants (additional capacity 6,000 metric tons)	Jiddah, Riyadh and Dammam	74,000
339	Concrete posts	A plant with an annual capacity of 150,000 posts of various sizes		1,350
330	Ready mixed concrete	Plants for ready mixed concrete with a total annual capacity of 10,000 metric tons	Riyadh, Dammam and Jiddah	2,200
METALS AND METAL PRODUCTS				
342	Aluminum extrusion	A plant to manufacture aluminum extrusions with an annual capacity of 1,500 metric tons	--	12,500
350	Gas stoves	Production of 20,000 stoves per year	--	580
350	Enamelware	Production of trays, dishes, coffee and teapots and ashtrays with a total annual capacity equivalent to 500 metric tons	Jiddah or Dammam	2,500
350	Wire mesh and netting	A plant to manufacture wire mesh with an annual capacity of 1,500 metric tons	Jiddah or Dammam	1,720
MACHINERY, APPLIANCES AND MAINTENANCE				
360	General purpose foundry	Expansion of existing units with an annual capacity of 6,000 metric tons	Riyadh, Jiddah and Dammam	1,780
360	Air conditioners, refrigerators and refrigerator cases	A plant to produce 6,000 units of air conditioners, refrigerators and refrigerator cases per year	Jiddah or Dammam	3,700
370	Electric fans	A plant with an annual capacity of 10,000 units	--	660
370	Electric wires	A plant to produce 120 metric tons of insulated wire per year	Jiddah	640
370	Dry cell batteries	A plant to produce 3 million units per year	--	3,200
TRANSPORT EQUIPMENT, SUPPLIES AND REPAIRS				
381	Boats	Expansion of the four existing establishments in the western region	Jiddah	2,250
383	Wood-stake truck bodies	A plant to produce 2,000 bodies annually for installation on trucks varying in capacity from 2 to 7 tons	Jiddah	1,815
385	Bicycles	A plant to produce annually 12,000 bicycles	Jiddah or Dammam	1,055
370	Automobile batteries	A plant to produce 24,000 batteries per year	Dammam	1,152
UNCLASSIFIED INDUSTRIES				
332	Glass bottles	A plant to produce 20 million bottles per year	--	6,750
370	Electric light bulbs	A plant with an annual capacity of 11 million bulbs	--	2,180
TOTAL REQUIRED CAPITAL				235,934

(a) Including working capital.
(b) International System of Industrial Classification.

Source: ISDC.

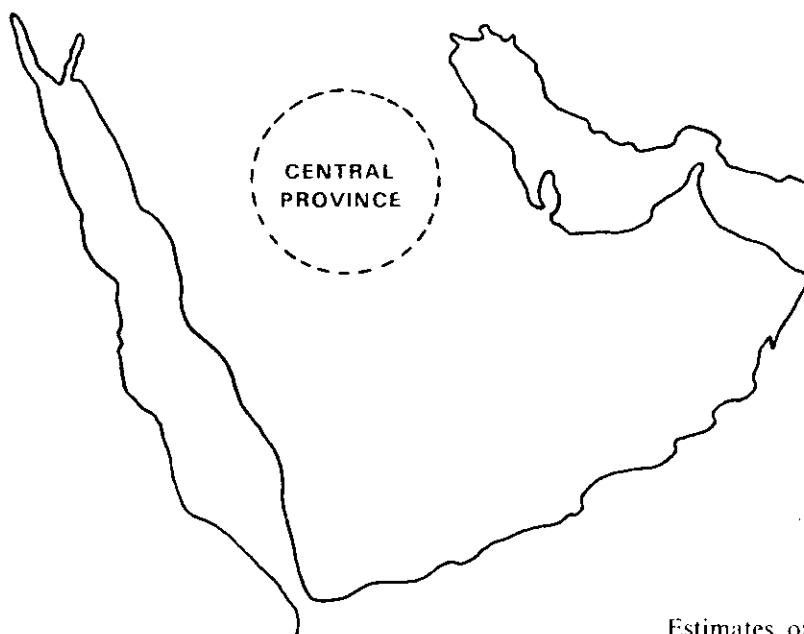
INDUSTRY IN THE EASTERN PROVINCE
Some Projected Industries For The Plan Period
 (Cost in SR Millions)



	<u>Estimates of Capital Requirements</u>
A plant to manufacture wire mesh with an annual capacity of 1,500 metric tons.	1.7
Expansion of the existing cement plant.	25.0
A plant to manufacture annually 125 metric tons of surgical cotton, 1.2 million square meters of bandages and 1 million packets of sanitary napkins.	1.5
Expansion of existing printing establishments.	3.0
Expansion of the existing fishing firm.	0.4
A plant for ready mixed concrete with an annual capacity of 10,000 metric tons.	0.7
A date syrup project with an annual capacity of 5,000 metric tons.	2.7
A rice milling facility capable of producing 3,000 metric tons per year.	1.1
A plant for processing and canning 825 metric tons of vegetables annually.	2.6
Expansion of the existing foundry units with an annual capacity of 6,000 metric tons.	0.6
A plant for electric fans with an annual capacity of 10,000 units.	0.7
A plant to produce 24,000 automobile batteries per year.	1.2
A plant to produce 20 million bottles per year.	6.8
A plant to produce 150,000 concrete posts of various sizes annually.	1.3

Fig. 33

INDUSTRY IN THE CENTRAL PROVINCE
Some Projected Industries For The Plan Period
 (Cost in SR Millions)

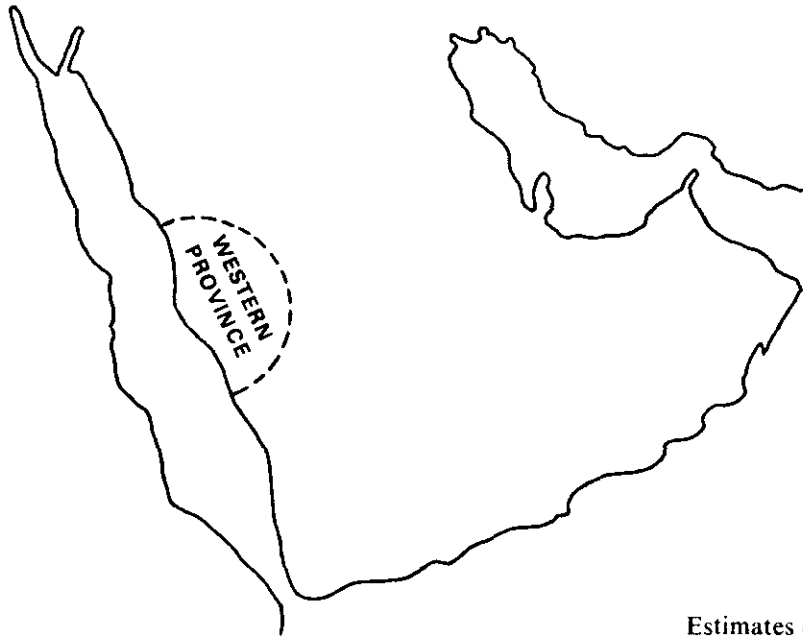


	<u>Estimates of Capital Requirements</u>
A plant to produce 120 metric tons of insulated wire per year.	0.6
A plant to manufacture aluminum extrusions with an annual capacity of 1,500 metric tons.	12.5
A paint plant to produce 25,000 gallons per year.	0.8
A plant for ready mixed concrete with an annual capacity of 10,000 metric tons.	0.7
Manufacture of 520 metric tons of biscuits and crackers annually.	1.3
Plant capable of producing 600 metric tons per year of macaroni and vermicelli.	1.1
A vegetable ghee processing plant producing 12,000 metric tons per year.	4.9
A mill for the weaving of cotton textiles using imported cotton yarn with an annual capacity of approximately 16 million yards.	24.4
Expansion of the existing printing establishments.	3.0
A tire retreading plant with an annual capacity of 10,000 tires.	0.3
Expansion or establishment of a new plant to manufacture plastic pipes for use in water, sewage and drain, waste and vent systems with an annual capacity of 2,000 metric tons.	2.9
Expansion of the existing cement plant.	25.0
A plant to produce 150,000 concrete posts of various sizes annually.	1.3
Production of 20,000 gas stoves per year.	0.6
Expansion of existing foundry units with an annual capacity of 6,000 metric tons.	0.6
A plant to produce 3 million units of dry cell batteries per year.	3.2
A plant for processing and canning 825 metric tons of vegetables annually.	2.6

Fig. 34

INDUSTRY IN THE WESTERN PROVINCE

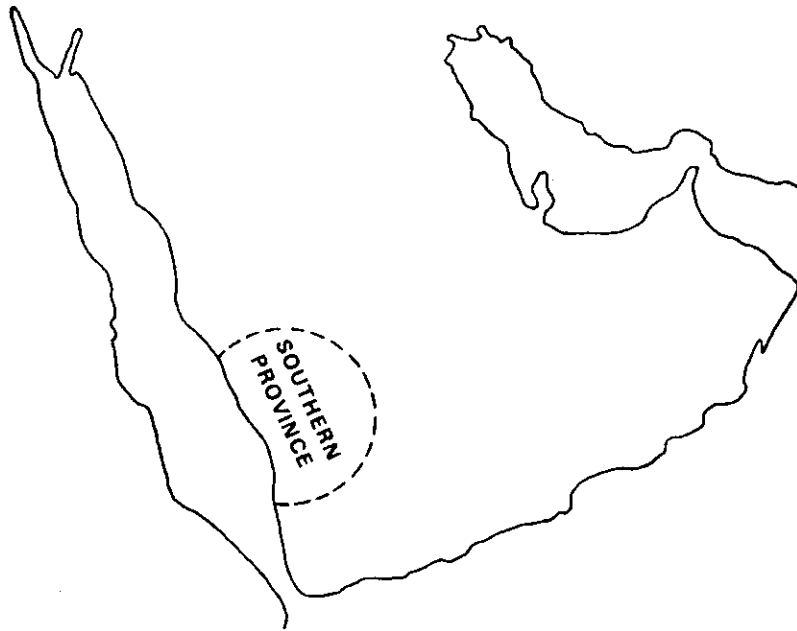
Some Projected Industries For The Plan Period
(Cost in SR Millions)



Estimates of Capital Requirements

A plant to produce 2,000 units of wood-stake truckbodies annually.	1.8
Expansion of the four existing boat manufacturing establishments.	2.3
A plant to produce 600 units of air conditioners, refrigerators and refrigerator cases per year.	3.7
Expansion of the existing foundry units with an annual capacity of 6,000 metric tons.	0.6
Facility for packing and shipping fish.	10.3
Expansion of the existing paper industry to produce 100 million cardboard boxes annually.	3.4
Expansion of the existing printing establishments.	3.0
A slaughterhouse and meat packing plant capable of producing 1,500 metric tons of meat annually.	3.3
A plant for ready mixed concrete with an annual capacity of 10,000 metric tons.	0.7
Expansion of the existing plant for the production of detergents.	6.0
A canvas cloth manufacturing plant with an annual capacity of 500,000 meters.	1.9
A skin pickling plant capable of processing 300,000 sheep and goat skins per year.	2.1
Production of 200 million drug tablets per year.	3.2
Expansion of the existing cement plant with an additional capacity of 6,000 metric tons.	25.0
A plant to produce 150,000 concrete posts of various sizes annually.	0.5
A plant for the production of enamelware with an annual capacity of 500 metric tons.	2.5
A plant to produce 12,000 bicycles annually.	1.0
A plant to produce 11 million light bulbs annually.	2.2

INDUSTRY IN THE SOUTHERN PROVINCE
Some Projected Industries For The Plan Period
(Cost in SR Millions)



	<u>Estimates of Capital Requirements</u>
A plant for processing and canning 825 metric tons of vegetables annually.	2.6
An integrated tomato processing industry producing 5,875 metric tons of paste and 600 metric tons of juice per year.	6.1

Fig. 36

Implementation of these programs is expected to require an increase in the volume of construction over the period of the Plan at an average rate of 10.4 percent annually. This requires increasing the productivity and efficiency of the sector of construction and maintenance such that it will give rise to the appropriate level which allows the dependence of the other sectors on it.

Problems confronting the construction industry were surveyed and it was found that the shortage of skilled manpower is the most significant of all problems.

These problems are summarized in the following:

1. Lack of discipline amongst constructors;
2. Forms of contract and provisions for changes in contracts that are not clearly defined and therefore create difficulties for both contractor and client;
3. Time-consuming procedures for the registration and transfer of ownership of land;
4. Customs and passport procedures;
5. Need for an up-graded national building code and material specifications and standards.

Based on the above, the Ministry of Commerce and Industry, in cooperation with other concerned government agencies, will propose measures to resolve such problems and what is listed under, or stems out of them during the first year of the Plan.

During the second year of the Plan, the Ministry, in coordination with the Public Works Department, will introduce an up-graded national building code and define the specifications and standards for selected materials applicable to the construction industry.

IMPLEMENTATION

Encouragement of Industrial Enterprise

The publication of a statement of a National Industrial Policy is proposed to inform the industrial, commercial and financial interests, both here and abroad, of the Government's stand on key issues of industrial development policy. A draft has been prepared for consideration by the Council of Ministers. It states that the Government desires to encourage the establishment and expansion of industry, and regards the competitive market as the best means of assuring that entrepreneurs are guided into nationally beneficial activities. The draft statement outlines the following forms of encouragement:

1. The Government will supply available information to investors and industrialists, such as results of industrial surveys, feasibility studies and similar economic data.
2. Imported equipment and raw materials for industry will continue to be duty-free.
3. Tariffs will be established whenever sufficient economic and social causes exist to protect domestic industries from comparable imported finished products.
4. The Government, whenever rational justification exists, will partially subsidize training for Saudi employees.
5. Land will be provided in industrial estates and elsewhere at nominal rentals.
6. Tax holidays will be offered for company income.
7. Low-cost loans and operating subsidies will be made available under certain conditions.
8. The Government will give preference to locally manufactured products in its purchasing policies.
9. Quantitative restrictions or price control will be avoided except where competition cannot be effective as in the instance of a natural monopoly.

In addition, the Government will consider joining the Commission for the Settlement of International Disputes which was recently established through the International Bank for Reconstruction and Development to settle controversial issues related to international investments.

Mining industry will be stimulated by the following:

1. Review, and where necessary, revision of the Mining Code and the Foreign Capital Investment Regulation; and,
2. Promotion of joint ventures, on a cost-sharing basis, with foreign mining companies.

These changes are intended to:

1. Attract knowledgeable foreign mining interests;
2. Accelerate the discovery and development of mineral deposits; and,
3. Accomplish more exploration at reduced cost to the Kingdom.

Petromin will be provided with capital and an appropriate organization, as described below, so it can negotiate effectively with foreign companies and attract national private capital. Additional capital, both national and foreign, is needed to implement the enterprises planned by Petromin for the Plan. Foreign capital will also provide access to technology, and managerial and operating skills.

Further encouragement will be offered in the form of an explicit pricing policy for petroleum products and natural gas to be used for domestic industrial consumption. The pricing policy will be based on the cost of production and distribution, thus offering petroleum products at a cost below posted prices.

The pricing policy is in line with current practices in the Kingdom and will be applicable to industries that qualify for encouragement under the Foreign Capital Investment Regulation, the Regulation for Protection and Encouragement of National Industries, and the Mining Code.

It will also apply to electricity and desalination plants provided, with respect to the former, that they adopt rates that pass the benefits of the pricing policy on to their industrial customers.

The introduction to this chapter indicated that early development of industry is possible if certain constraints can be overcome. Some of these constraints are controlled by agencies not directly concerned with industrial development: lack of infrastructure, including power and water supply, and transport and communications; and time-consuming customs and immigration procedures.

Programs related to the above are discussed elsewhere in this Plan.

The Directorate General of Mineral Resources

Foreign technical missions have performed most of the work of DGMR in recent years. During the Plan, such responsibility will be transferred as expeditiously as possible from these missions to the DGMR and exploration to a quasi-government organization to be established under Petromin. Establishment of this organization (provisionally identified as the Saudi Arabian Mineral Exploration Company -- SAMEX) is subject to the results of a feasibility study.

By the end of the Plan, all major decision-making and operations should be transferred to the DGMR, leaving contractors, including SAMEX, responsible only for specific activities. These changes will create a strong Directorate, responsible primarily for the implementation of national policy for mineral development and for long-term geological mapping. SAMEX is expected to perform the following functions:

1. Complete more detailed mapping and investigation of the mineralized areas and occurrences;
2. Review geophysical works performed by the Arabian Geophysical and Surveying Company (ARGAS);
3. Monitor the drilling program through the Arabian Drilling Company (ADC);
4. Perform, possibly by sub-contract, assessment work, including shaft sinking, bulk sampling, and ore calculations;
5. Arrange for ore-dressing tests and marketing investigations, probably by sub-contract; and,
6. Participate with foreign mining ventures and national private capital in exploration of mineral prospects.

When the stage is ready for a specific mining venture, the DGMR and SAMEX will withdraw in favor of an interested mining company, or Petromin will participate in the establishment of a company to undertake the operation, possibly as a joint-venture with a private mining concern.

Organizational changes proposed for DGMR are:

1. A Cost Control Unit will be established to provide data for use in planning exploration work and in general management.
2. A Data Services Department will be established to compile, store and retrieve data, including information collected by the foreign missions.

3. The present Mines Department will be replaced by an Inspectorate of Mines to advise the Minister on mining concessions and regulations; to prepare permits, licenses and concessions; to examine proposals from mining companies; to inspect mining; and to give advice to potential Saudi operators.
4. The present Chemistry Department will be disbanded and personnel allocated to the two foreign mission laboratories; when these close, one laboratory will pass to DGMR and the other to SAMEX.

Saudi geologists will be trained at the University of Riyadh, the Center for Applied Geology in Jiddah, and foreign universities; young Saudi geologists will be trained on the job by foreign experts on DGMR and SAMEX contracts or belonging to the foreign missions during the period of the Plan.

General Petroleum and Mineral Organization (Petromin)

Petromin is responsible for the development of oil production by national enterprises, the refining and distribution of petroleum products for the domestic market, the establishment of national industrial enterprises for mineral production, petrochemicals and fertilizers, and basic industries, and for the establishment of national companies to provide services for these industries. It acts as a holding company which first initiates enterprises and continues to exercise control over policy and new investment, ensures sound management and supporting services after they are established; the individual entrepreneur retains responsibility for management of all other aspects of his business.

Petromin and its associated enterprises are financed from:

1. Government grants, equity participation, and loans;
2. Equity participation and loan finance from foreign investors;
3. Loans from international financial institutions;
4. Equity raised by sale of shares to the public;
5. Revenue from Petromin's concession for the distribution of petroleum products to the domestic market;
6. Earnings of Petromin equity in associated enterprises; and,
7. Cash flow from projects undertaken by associated enterprises.

Petromin will be provided with a formal capital structure and organization. Petromin will then be able to negotiate more effectively with foreign investors and international financial institutions and to raise private capital more easily. It is therefore proposed to convert Petromin to a joint-stock company with authorized capital of SR 1,000 million and paid-up capital equal to investments already made.

The compelling argument for a capital structure is the confidence it would give to outside lenders in dealing with Petromin. This need not change either the amount or timing of further government investment in Petromin projects, except insofar as a formal capital structure increases the share of financing obtainable from external sources, thereby reducing the need for government finance.

The adoption of a formal capital structure will require transferring to subsidiary companies those industrial and commercial activities at present operated as departments of Petromin. Each of these would have its own management and capitalization.

Other institutional developments proposed for Petromin are:

1. A project evaluation department would be created for project planning, implementation and follow-up.
2. A management workshop would be established for the development of high level personnel; this will be conducted by staff obtained from a business school abroad with an international reputation.
3. An international trading and marketing company would be established to market internationally those products produced by Petromin and its related enterprises, to supply Petromin with data on market trends and profitable products, and to develop markets through general trading until Petromin can supply such products.
4. A Saudi Arabian Mineral Exploration company (SAMEX), as described above, may be established.
5. Petromin will also explore starting an investment finance company as a means of channeling public subscriptions into Petromin projects.

Petromin's policy for manpower development will continue to emphasize training of Saudis within the organization and abroad to fill posts in Petromin and its subsidiaries.

Ministry of Commerce and Industry

The Ministry of Commerce and Industry is considered responsible for:

1. Preparation and implementation of the industrial policy and encouraging the private sector to develop the manufacturing industries other than petrochemicals, fertilizers and the basic metals industry; and,
2. The construction industry.

In addition, the Ministry is empowered to regulate commodity prices and to register private enterprises. The present licensing system stipulates that a license must be obtained by any Saudi entrepreneur who wants to benefit by the available incentives. The Ministry reviews the feasibility of an industrial undertaking prior to granting a license; as a part of the Plan, the Ministry will strengthen its competence to review feasibility analyses. It is proposed to make compulsory the registration of all industrial enterprises; however, available encouragement will not be granted automatically to an entrepreneur upon receiving a license. The Ministry will not grant any form of encouragement if it does not consider the business venture as economically justified. For practical and statistical purposes, two forms of licenses will be issued, one that permits the taking advantage of the various forms of encouragement and one that does not.

The Ministry's advisory services will be expanded so that entrepreneurs can be offered more comprehensive information and advice on projects, on contacts with capable joint-venture partners, and on the organization and operation of new industrial enterprises.

The ISDC will assist the Ministry in furnishing these services, and in reviewing the feasibility analyses. Industrial estates are being established by the Ministry in Riyadh, Jiddah and Dammam to simplify land acquisition, project implementation and operations, particularly for the small entrepreneur. The estates in Riyadh and Jiddah will be completed in 1390, and the Dammam estate is expected to become active in 1391. Projects and programs planned by the Ministry of Commerce and Industry are dependent on progress made in projects sponsored by other government agencies. Efficient coordination will be assured by the organization of a committee representing the relevant government groups.

Throughout the plan period, the Saudi staff of the Ministry will continue training as replacements for foreign staff members.

Industrial Studies and Development Center

The ISDC carries out research and studies relating to industrial development, makes recommendations based on such studies, and provides technical assistance to industries, existing or prospective. The Center also supervises the construction and management of the industrial estates, and provides on-the-job training through its industrial extension service.

In addition to this, the ISDC plans to expand its program by the addition of a management training unit for the benefit of the private sector. This unit will be established during the second year of the Plan. ISDC's headquarters will be expanded by the addition of a planning and a statistical unit.

Extension services to be provided by ISDC to the private sector will include advice on:

1. Plant selection and layout;
2. Production methods, control and management;
3. Sales and marketing;
4. Cost accounting; and,
5. Project planning, evaluation and implementation.

ISDC will perform feasibility studies annually for at least two major, high priority projects during the plan period. At the same time, it will continue its evaluations of industrial opportunities in the Kingdom. Furthermore, the ISDC will study the feasibility of additional industrial estates and zones in other cities later in the plan period. During the first year of the Plan, it plans to publish an investment guide for industrial investors and update it annually.

Promotion of industrial productivity is one of the goals of ISDC's programs. This goal will be pursued by organizing a committee for the promotion of industrial productivity with members representing private industries and government organizations associated with industrial development.

The staff of this organization will be strengthened and will receive training from foreign consultants and in institutions abroad so that the need for foreign consultants will be greatly reduced by the final plan year.

Industrial Bank

The bank is proposed to be joint-venture with minority foreign participation. Government support would be needed in the form of interest-free deposits repayable over a reasonable period of time. Foreign participation is necessary to provide strong and efficient management and to attract foreign capital into the Kingdom.

While the Industrial Bank would extend credit to large and medium scale industrial enterprises, SAMA feels that consideration should be given to making credit available to small scale and cottage industries. Since it would be difficult to extend such facilities on a normal commercial basis, it is felt that the necessary funds would need to be provided by the Government in the form of budgetary allocations of about SR 5 million annually over the entire period of the Plan.

For administrative purposes and economy in operation, the Industrial Bank could create a special department to function in this respect on behalf of the Government. A special committee with representatives of the Government and the bank could be formed to establish the general policies to be followed in this respect.

FINANCIAL ALLOCATIONS

The total financial allocations to the Government agencies concerned with industrial development, during the period of the Plan are listed in Table 60.

TABLE 60
FINANCIAL ALLOCATIONS FOR INDUSTRY
(SR Millions)

	<u>Recurrent</u>	<u>Project</u>	<u>Total</u>
Ministry of Petroleum and Mineral Resources			
Ministry expenditures (a)	40.5	—	40.5
Directorate General of Mineral Resources (DGMR)			
Directorate expenditures	82.5	5.5	88.0
Arabian Drilling Company (ADC)	—	45.6	45.6
Saudi Arabian Mineral Exploration Company (SAMEX)	—	20.0	20.0
Foreign Contract Services	—	110.2	110.2
DGMR sub-total	82.5	181.3	263.8
Petromin	104.0	477.3	581.3
Ministry of Commerce and Industry (MCI)			
Department of Industry	11.1	—	11.1
Industrial estates	4.2	26.9	31.1
Flour mills and silos project	—	82.6	82.6
MCI sub-total	15.3	109.5	124.8
Industrial Studies and Development Center (ISDC)	24.5	8.6	33.1
Industrial Bank	55.0	—	55.0
GRAND TOTAL	321.8	776.7	1,098.5

(a) Excluding DGMR and Aerial Survey Department

Source : C.P.O.

The allocations for the DGMR provide for expansion of its capacity to perform the functions of geological mapping and related work, regulation of mining activities, and negotiation and supervision of contracts for geological survey, exploration and research projects. This expansion will start during the first two years of the Plan when allocations for the two major survey missions — US Geological Survey (USGS) and Bureau de Recherches Geologiques et Minieres

BRGM) — are maintained at about their existing levels. It will continue during the remaining years of the Plan, when these missions are gradually being phased out. During this period the DGMR will gradually take over the geological survey work performed under these contracts, and subject to a feasibility study, a national agency (SAMEX) will be developed to take over their exploration activities.

The allocations for national contract services provide for continuation of the existing drilling contract with the Arabian Drilling Company and for exploration work that must be done at Government expense by SAMEX during the period in which the two major survey missions are phased out. During the first two years of the Plan the allocations for foreign contract services provide for the continuation of the USGS, BRGM and Japanese Geological Survey Mission contracts at about their existing levels and for research proposed to be undertaken by doctoral candidates of foreign universities. These allocations are reduced over the remaining years of the Plan as the two main survey missions are phased out.

The allocations made to Petromin are to cover expenditures for the normal performance of the functions of headquarters-staff and costs of implementation of Petromin projects. The total allocation — SR 581.3 million — is computed as follows:

1. Total capital costs of Petromin projects proposed in their plan is SR 5,112.5 million (see Table 61).

TABLE 61
PETROMIN PROJECT EXPENDITURES

	(SR Millions)	<u>Total</u>
1. Projects Under Construction		
Lubricating Oil Blending Plant		10.0
Sulphuric Acid Plant		4.7
2. Projects Approved		
Jiddah Refinery Expansion		141.0
Riyadh Refinery		179.0
Sulphur Company		126.0
Tanker Company		10.0
Lands for Bulk Plants		4.7
Building for Petromin offices, Compounds, Road Asphalts		3.1
Steel Rolling Mill Second Stage		85.0
3. Feasibility Studies Proposed or In Progress		
Uthmaniya-Riyadh Pipeline		116.0
Potash		126.0
Magnesium		135.0
Petrochemicals (Anic-Philips)		320.0
International Trading and Marketing		22.5
Petrochemical Intermediates (liquified natural gas and petrochemical feed stocks)		1,507.5
Phosphate Rock (mining)		262.5
Elemental Phosphorus		295.0
Phosphoric Acid		345.0
Sulphuric Acid from Gypsum		175.5
Ammonia-Urea		288.0
Ammonia		190.5
Aluminum		765.0
SAMEX		0.5
		<u>5,112.5</u>

Source : Petromin.

2. Petromin has estimated its requirement from the Government to total SR 2,262.0 million of which SR 1,321.0 million is required for equity participation, SR 806.0 million for loans and SR 134.0 million for headquarters and other expenses.
3. The financial allocation proposed for Petromin is based on:
 - a. 25 percent of the capital costs of projects will be raised by domestic and foreign equity participation.
 - b. 50 percent of the capital costs of projects will be raised by loans from equity participants and bankers.
 - c. The remaining 25 percent will be financed by Petromin and the Government.

4. Finance under 3c above for projects on this basis will amount to :	
25 percent of total project cost of SR 5,112.5 million	SR 1,278.0 million
To which must be added headquarters expenditures	SR 104.0 million
Total	SR 1,382.0 million
Less dividends and surplus funds of Petromin	SR 64.0 million
	<u>SR 1,318.0 million</u>

5. Some of the projects shown in Table 61 are subject to a high level of uncertainty both as to economic feasibility and the time it will take to implement them if they are found to be feasible. It is assumed that projects under the headings "Projects Under Construction" and "Projects Approved" in Table, 61 will be implemented during the period of the Plan, (see Fig. 37).

For the projects under the heading "Feasibility Studies Proposed or In Progress", it is assumed that the aluminum and SAMEX projects will be implemented, the second phase of the petrochemical intermediates projects (requiring a capital expenditure of SR 1,507.5 million) will not be implemented during the Plan, and one-third of the remaining projects will reach the stage of implementation during the Plan. These assumptions lead to the reduction of the amount of SR 1,318.0 million shown under item 4 above by 25 percent of the capital cost of projects assumed not to be implemented during the Plan; that is by 25 percent of SR 2,946.6 million or SR 736.7 million. Hence the allocation for Petromin is set at SR 1,318.0 million minus SR 736.7 million, or SR 581.3 million.

The financial allocations for the Ministry of Commerce and Industry provide for strengthening of the staff of the Industrial Department, implementation of the industrial estates in Jiddah, Riyadh and Dammam, feasibility studies for industrial zones and estates, and implementation of the flour mills and grain silos project.

The financial allocations for the Industrial Studies and Development Center (ISDC) include expenditures for strengthening its staff and costs of foreign consultants. The allocation for the Industrial Bank includes SR 30 million for the government contribution to a joint-venture for financing large and medium-scale industry and SR 25 million for subsidized credit for small-scale industry.

Total allocations proposed for the industrial program amount to SR 1,098.5 million.

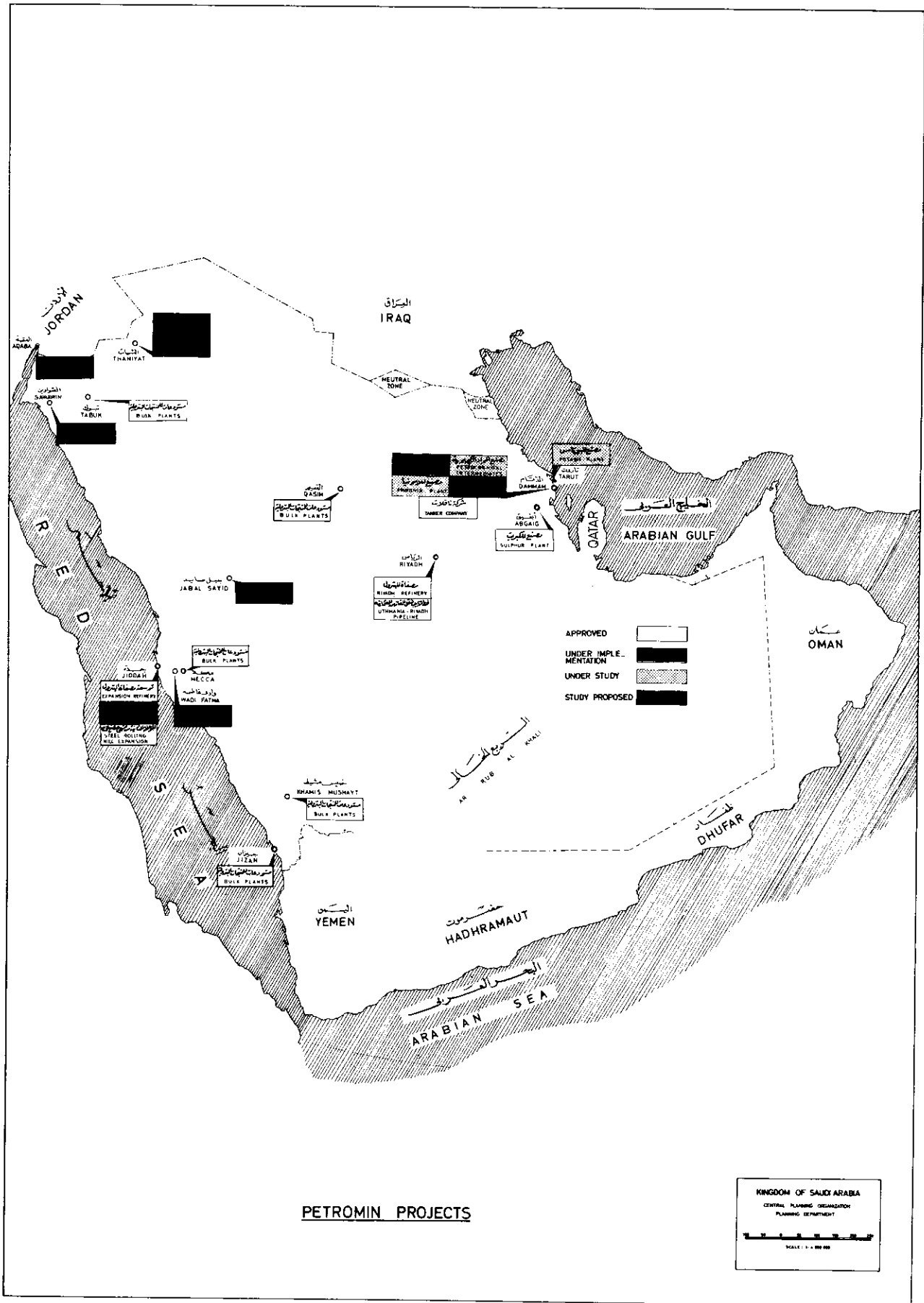


FIG - 37

