

CHAPTER 1

DEVELOPMENT AND DEVELOPMENT PLANNING IN SAUDI ARABIA

1. DEVELOPMENT AND DEVELOPMENT PLANNING IN SAUDI ARABIA.

1.1 THE PRINCIPLES OF DEVELOPMENT IN SAUDI ARABIA

The distinguishing mark of the Saudi approach to development is that its material and social objectives are derived from the ethical principles of Islam and the cultural values of Saudi society. These principles and values are reflected in:

- the dedication of the Government to upholding Islam and to maintaining its associated cultural values;
- the importance attached both to the social well-being and personal fulfillment of all citizens, and to the creation of a wide range of institutions and services freely provided for these purposes;
- the support for free enterprise, subject to the interests of the community at large.

The main principles underlie the long-term goals of development for Saudi Arabia, which maintain the basic continuity of balanced development through the sequence of five year plans. These goals are:

- To maintain the religious values of Islam, by applying , propagating and fostering God's Sharia;
- To assure the defense of the religion and the country, and maintain the internal security and social stability of the Kingdom;
- To continue balanced economic growth by developing the country's resources, by increasing the income from oil over the long term and by conserving depletable resources, thereby improving the social well-being of all citizens and providing the economic strength to attain all the other fundamental goals of development;
- To reduce dependence on the production of crude oil as the primary source of national income;

- To develop human resources through education, training and the raising of health standards;
- To complete the basic infrastructure which is required for the attainment of these other goals.

1.2 THE ROLE OF PLANNING IN NATIONAL DEVELOPMENT

The main role of planning is to provide an appropriate conceptual and organizational framework for the process of development. The main tasks of planning are to determine the objectives for each of the three dimensions of development: the economic, the social and the institutional; and to design the most effective methods to achieve them. The success of planning depends partly on the comprehensiveness and consistency of its various objectives, partly on the priorities set for each successive plan period, and partly on the practical design of its programs.

The ultimate responsibility of planning is to ensure the consistency of the development process. This means consistency both in the direction of development, which is set by the strategic objectives, and in the functions of development, whereby new programs strengthen the existing socio-economic base as well as reduce its structural weaknesses. The most important immediate concern of planning is the feasibility of the Plan's programs. Experience has shown that for plans to be realistic they have to maintain a sound balance between the Kingdom's own resource base and its related absorptive capacity on the one hand, and its substantially greater international purchasing power on the other. With the help of the latter, it is possible to expand the resource base (for example, by importing foreign labor) so as to accelerate economic growth. However, a higher rate of economic growth based on the extensive participation of foreign labor is only really desirable when it speeds up the building of the foundations for future expansion, such as infrastructural development. Once the essential infrastructure is completed, economic growth led by labor-intensive activities, such as construction, will become less important for its own sake, especially when the Saudi work force is already fully employed. At this stage a new emphasis is required, to give strategic priority to structural change rather than to growth. Accordingly, the Third Plan emphasizes the development of the Kingdom's productive resources and capabilities, and the utilization of its foreign labor force for more capital and skill - intensive development programs.

Table 1-1 illustrates how the issues for development in the Kingdom are conceptualized and formed into a comprehensive system of planning targets. First, the general goals are defined; they represent the principal aims of development in the economic, social and institutional dimensions respectively. Then, the general goals are translated into strategic long-term objectives by identifying the broad functional activities and relationships which would be emphasized to progress toward the goals. The final stage is the identification of the specific programs to achieve the desired strategic objectives over each five year plan period.

1.3 REVIEW OF THE ACHIEVEMENTS AND MAIN ISSUES OF DEVELOPMENT IN SAUDI ARABIA.

1.3.1 The Main Issues In Development

1.3.1.1 The following brief historical review is designed to highlight and explain the most important turning points in the Kingdom's development since the mid-1360s. It presents the successive First, Second and Third Development Plans as parts of a continuous evolutionary process. The emphasis will be on two aspects: the unfolding complexity of development, and the ability of planning to set the pace for, and give direction to, complex development. The most important numerical results are tabulated and presented separately in the four tables at the end of this chapter.

1.3.1.2 The history of the Kingdom's development can be described in terms of the interaction of four basic trends. The first of these is the expansion of the administrative institutions for the diverse functions of the state. The second is the contribution of the oil sector to development through exports and revenues. The third is the thrust of planned economic and social development. The fourth relates to the spontaneous response from society, including the private business sector, to the opportunities offered by development. The interaction of all four has been mutually reinforcing; the higher the level of oil revenues, the broader the scope for development and institutional growth, and the greater is society's involvement in the process. The first three of these trends are under government control, and therefore, can be considered as planning variables.

Table 1-1

THE HIERARCHY OF PLANNING OBJECTIVES IN SAUDI ARABIA

<u>Planning Dimensions</u>	<u>General Goals</u>	<u>Long Term Strategic Objectives</u>	<u>Medium Term Objectives & Programs for Sequential Five Year Plans.</u>
The Domestic Economy	<ul style="list-style-type: none"> - Efficient utilization of resources. - Structural change. - Growth 	<ul style="list-style-type: none"> - Diversification of the economic base. - Development based on natural resources and rising levels of productivity - Balanced sectoral and regional growth. 	<ul style="list-style-type: none"> - Expansion of absorptive capacity through infrastructural growth. - Industrialization based on: <ul style="list-style-type: none"> i) hydrocarbon/energy-intensive activities; ii) market demand and technological capability. - Modernized agriculture. - Efficient network of services.
The Saudi Society	<ul style="list-style-type: none"> - Maintenance of Islamic values. - Improvement in cultural & material standards. - Social well-being. - Development of human resources. 	<ul style="list-style-type: none"> - Creation of an appropriate system of social services. - Socially adequate & regionally balanced economic, settlement and housing policies. 	<ul style="list-style-type: none"> - Development of comprehensive educational, health and social services. - Housing and housing finance programs.
The Institutions	<ul style="list-style-type: none"> - Defense of religion and country. - Efficient government services in both the civilian & non-civilian branches. 	<ul style="list-style-type: none"> - Adequate defense capabilities - Institutional capabilities for economic & social planning; - Measures to administer policy and control the implementation of projects. - Institutional support for the private sector. 	<ul style="list-style-type: none"> - Agency-based expenditure programs to promote specific planning and policy objectives.

1.3.1.3 While the momentum of this interaction can be maintained without much difficulty, the problems - as experienced over the years - lie in the possibility of disproportions and imbalances arising from it. For example, oil revenues can exceed the physical spending capacity of the executive agencies; the supply of domestic resources, facilities and essential services can lag behind their demand; administrative and other inefficiencies can obstruct production schedules and cause damaging delays throughout the economy.

1.3.1.4 The turning points in the Kingdom's history of development were those times when adjustments have been made to synchronize the different growth potentials of the three controllable planning variables. Both contractions and expansions of growth rates have been used depending on the nature of the preferred adjustment, to correct the underlying imbalances in the economy. Thus, in the period 1368-1390, before the First Development Plan, institutional expansion followed the growth in oil revenues. Later, in the first half of the First Development Plan, the rate of expenditure growth was reduced to correspond to the anticipated lower income flow. In the second half of the First Plan period, after the increase in the income flow from oil, the rate of feasible economic growth was determined by the narrow base of domestic resources and the slow increase in the Saudi labor force. The Second Plan which concentrated on building the infrastructure necessary for future development, aimed at maximizing absorptive capacity (including the immigration of foreign labor) to the extent that was compatible with an acceptable rate of inflation. In contrast, the Third Plan will deliberately limit higher levels of expatriate employment, and will rely for growth on the existing base of available manpower and on other elements, particularly improvements in productivity.

1.3.2 Development Before the First Plan Period

The period before the First Development Plan was marked by three main features: first, a steady expansion and improvement of the administrative system; second, serious financial constraints to internal development caused by external factors, in particular a relatively limited demand for oil, the wars and political instability in the Middle East Region; third, steady economic growth and general development.

1.3.2.1 Development Before 1368. Although the first major oil discovery was in 1358, the Second World War prevented the full development of the oil resources of the Kingdom. Until 1364 the Kingdom's total revenues were less than US \$ 4 million (1) each year, but by 1368 they had risen to the appreciable level of US \$ 85 million, with about 60% derived from oil revenues, and for the first time, the Kingdom of Saudi Arabia had some, albeit limited, capital to invest in national development. Before then, the Government had limited revenues from an economy which was poor, with an estimated 90% of the population subsisting as nomads and peasant farmers.

1.3.2.2 The Early Innovations, 1368-1372. The year 1368 may be regarded as a turning point in the history of development in Saudi Arabia, since it marks a period of historic innovations, and the start of the Government's new role in organizing and leading the process of economic development. Against the background of rising oil output and revenues, the first formal national budget was prepared in 1367/1368. Modern port facilities were completed in Jeddah. The first local radio station began broadcasting in 1369. The first municipal electricity system was introduced in Mecca in 1370. The first formal institute for higher education, the Sharia College, was opened in 1369, and the first teachers' training college in 1371, by which time more than 20,000 students were undergoing formal education at all levels.

The Dammam-Riyadh railway was completed in 1371, at a total cost of US \$ 52 million, which was a vital but costly investment in infrastructure at a time when the Kingdom's oil revenue was about US \$ 50 million each year. The year 1372 witnessed the first time that a newspaper was published daily, though the official government gazette had been published weekly since 1345, and two other weekly journals since the mid- 1350's. At the same time the infrastructure for oil production was being completed in the Eastern Region. The Trans- Arabia pipeline was finished in 1370; the Ras Tanura tanker port came into operation, and a small refinery was built. Oil production increased from 1 million barrels per year in 1358, to 60 million barrels in 1366, and to 200 million barrels in 1370.

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- (1) US Dollars are used since they are the currency unit which has least fluctuated in value over the last 30 years. In view of the stabilization and revision of the parity of the Saudi Riyal in 1380, any figures denoted in Saudi Riyals before 1380 would give a misleading impression of the real values involved.

1.3.2.3 Early Development, 1372-1390. The Government managed to sustain steady national development and economic growth at an impressive rate in the period between the first innovations and the First Plan. Statistical data for the early years of development are sparse and not always reliable, but useful data are available for the period 1383 to 1390. During this period the Gross Domestic Product grew at an average annual rate of 10.6% in current prices, and 9.5% in constant prices. Physical infrastructure was developed rapidly, the educational and health services expanded enormously, and manufacturing industry also demonstrated a healthy growth at an average annual rate of 11% after 1383. Furthermore, the demographic and social pattern was undergoing far - reaching changes. Riyadh, Jeddah, Dammam, Mecca, Medina and Hofuf all emerged as substantial metropolitan centers.

1.3.2.4 Oil Production and Revenues, 1372-1390. Limited world demand for oil severely restricted revenues in the period 1372 to 1387. Saudi oil production had been increasing at a rate of 46% per year between 1365 and 1372, with heavy demand from Europe and the Far East during reconstruction after the Second World War and during the Korean War. Then, with a lower rate of increase in demand and a world oil glut, Saudi production increased at an average rate of only 9.2% per year between 1370 and 1380, from an annual level of 200 million barrels in 1370 to 481 million barrels in 1380, while the posted price of Arabian light crude oil remained basically unchanged during this period. World demand grew between 1380 and 1390, and Saudi production increased at an average rate of 11% per year while the estimates of reserves were revised from 80 billion barrels in 1387 to 138 billion barrels in 1390.

An adverse factor affecting the Government's revenue rate was that the revenues from oil exports, derived mainly as royalties and taxes from the oil producing companies, were significantly lower than the export value of the oil at posted prices. This, and the Saudi Government's extensive commitments to aid the Arab cause against Israeli aggression, contributed to a trade deficit in 1388 and 1389 and necessitated drawing on the Government's international reserves. Since a large proportion of the national budget had to be diverted to building up a strong defense capability, severe financial constraints were imposed on national development.

1.3.3 The First Development Plan, 1390-1395

By 1390, the key structural characteristics of the expanding Saudi economy became clearly identified:

First, there were abundant resources for future energy production, and for exports of hydrocarbon products to generate financial capital; but also there was an increasing shortage of indigenous skilled manpower for development.

Second, the trends in the economy showed that the main determining factor in the pattern of output and private sector growth was the concentration by the Government on the development of infrastructure and other logistical priorities.

Thus, two main domestic constraints were emerging: the inadequacy of infrastructural facilities and the shortage of manpower. Added to them were the financial constraints which, however temporary, dictated caution for setting the pace of future growth.

The increasing scale of development, coupled with these financial constraints, required improvements in the mechanisms for coordinating and implementing the programs of the individual government agencies and the private sector. Hence the Government introduced the technique of national development planning, with the First National Development Plan for the period 1390-1395.

1.3.3.1 Strategy of the First Plan. The First Development Plan was drawn up at a time of stringent financial constraints, with a balance of payments deficit for the previous two years, and little appreciable increase in oil revenues for three years. Therefore, the First Plan was cautious, but also flexible in order to allow greater expansion as soon as the financial constraints were overcome, which was in 1393.

The medium term objectives of the First Development Plan were essentially to continue the steady expansion of the economy, especially the infrastructure, and to improve government services and the management of the economy through new administrative programs. The Plan also gave great emphasis to the long term objective of developing the nation's human resources, through extensive investments in education and training.

1.3.3.2 Progress During the First Plan Period. The most outstanding feature of the First Plan period was the complete change in the rate of obtaining revenues from oil, and the degree of control over the Kingdom's oil resources. This change comprised two elements. The first was the success in raising the Government's proportion of revenue from oil exports, partly through

increasing the Government's share in the ownership of the oil sector. The second was the historic action taken by the Organization of Petroleum Exporting Countries (OPEC), and the Organization of Arab Petroleum Exporting Countries (OAPEC), which led not only to increased prices for oil but also to changes in the system of determining prices. Until 1393, crude oil was priced chiefly by the international oil companies - after 1393 the price was set by the producing countries. The fourfold increase in the price of oil between 1391 and 1394 reflected, on the one hand, the value of oil as a depletable source of energy, and on the other, the legitimate interests of the oil producing countries in preserving the international purchasing power of their primary source of revenue (and, for most of them, of development finance).

A parallel feature was the increase in the Kingdom's oil production from an average daily rate of 3.8 million barrels in 1390 to 7.1 million barrels per day in 1395. The practical significance of these developments can be seen in Table 1-2.

Table 1-2
INCREASE IN OIL PRODUCTION AND REVENUE 1370 - 1395

	<u>1370</u>	<u>1380</u>	<u>1390</u>	<u>1391</u>	<u>1393</u>	<u>1394</u>	<u>1395</u>
Year-end posted price, Arabian Light Crude (US \$ per barrel)	1.75	1.80	1.80	2.29	5.04	11.25	12.38
Saudi Arabia crude oil pro- duction (million barrels per day)	0.55	1.32	3.80	4.77	7.60	8.48	7.07
Saudi Government annual oil revenues (US \$ million)	57	334	1,214	1,885	4,340	22,574	25,676

The rise in the international price of oil also changed the value relationships in the Saudi economy. The weight of the oil sector in GDP increased from 54.4% in 1389/90 to 79.3% by 1394/5 in value terms, although in volume terms (and because of the parallel growth in the non-oil economy) the increase was from 54.5% to 59%.

In fact, the greatly increased oil revenues allowed a very considerable expansion in total budget allocations during the First Plan period, with positive effects on increasing output in the non-oil economy, which was also undergoing a simultaneous change. The nature and direction of these changes are indicated in the movements of the domestic labor force and in the allocation of foreign manpower by sector.

The significant decline in agricultural employment (though not in the level of activity) was accompanied by the significant employment increase in construction, trade, transportation and government services which absorbed most of the growth of the labor force.

The increased budget allocations also allowed very substantial progress in education, health, social services, and physical infrastructure, during the First Plan period.

1.3.4 The Second Development Plan 1395-1400

Conditions at the beginning of the Second Development Plan were very different from those prevailing five years earlier. The Kingdom's financial strength had become much more favorable, so there were very few financial constraints to development. Rather, economic growth was limited by a variety of infrastructural and manpower constraints. Accordingly, the issue of absorptive capacity, including the problem of inflation, became dominant both in development strategy and in the management of the Kingdom's economy.

1.3.4.1 Strategy of the Second Plan. In contrast to the First Plan, the Second Plan was formulated under conditions of financial independence provided by oil revenues, which gave full cover for both government expenditure and imports. In fact, the prospect of a revenue surplus adding to the foreign exchange reserves, in combination with the volume of oil exports, was considered to be a voluntary contribution on the part of the Kingdom toward the stability of the world economy.

At the same time, the Second Development Plan's expenditure targets were set as the likely maxima for the Government's and the economy's spending abilities in the Plan period. Even so, it was understood that the Plan's real effectiveness and feasibility would depend on completing the high priority programs (especially infrastructure) and that incomplete spending on the total range of development programs would have to be avoided.

The strategy of the Second Plan concentrated on four main areas for development:

- (1) Physical Infrastructure. Great emphasis was placed on the elimination of the constraints which had already been experienced during the First Plan with the result that throughout the Second Plan there was exceptionally heavy investment in physical infrastructure;
- (2) Hydrocarbon Resources. Initial steps were taken to introduce medium and long-term programs designed to maximize the conservation of these resources, and promote energy-intensive industries with their higher value exports;
- (3) Administration. There was a substantial expansion of the network of government institutions, and of related employment;
- (4) The Private Sector. This was stimulated through four main policies:
 - Acceptance as necessary of additions to the foreign labor force in the Kingdom, to assist in the implementation of the development programs during the five year period;
 - Encouragement of internal migration from rural areas with surplus manpower to urban areas with industrial employment opportunities;
 - A major role for private enterprise, with all possible government assistance and financial stimulation, in the development of the productive sectors;
 - Prudent utilization of international cooperation agreements, whereby the Kingdom could acquire access to technical and managerial expertise, and skilled labor.

1.3.4.2. Progress During the Second Plan Period. Overall, the economy registered very impressive growth rates - the average annual growth rate for the whole Gross Domestic Product was 8.04%, while the non-oil sector grew at an average annual rate of 15.13% . Details of development during the Second Plan are provided in Chapter 2.

One of the main features with an effect on future policies was the emergence of the problems of manpower supply and demand as perhaps the most acute and sensitive issues to affect the planning of development at both the national and sectoral levels. Manpower problems have become equivalent in magnitude to the earlier serious issues of absorptive capacity and inflation. The various options for future manpower policy are bound to become the major factors for longer-term planning, because they concern the structure of society as well as the direction and scale of economic development.

Another feature is the changing distribution of population. The effects of development are reflected in the fact that by 1400, 54% of the total population live in towns and cities - 42% in metropolitan centers with a population over 100,000 - while 46% live in the rural areas. In 1390, approximately 36% of the population lived in urban areas.

1.4 THE THIRD DEVELOPMENT PLAN

1.4.1 Conditions at the Beginning of the Third Plan Period

1.4.1.1 There are four outstanding positive features of development in Saudi Arabia at the beginning of the Third Plan period:

- (1)** The Kingdom is now one of the world's foremost financial powers, in addition to its economic role as the major oil exporter of the free world; hence, its rising significance in the international community which the Kingdom has accepted through the exercise of the attendant responsibilities and obligations.
- (2)** The major physical constraints to development have been overcome. By now in 1400, there is an adequate - if not yet fully sufficient - infrastructural framework, due specifically to the concentrated efforts during the first two years of the Second Plan period, facilitated by the immigration of large numbers of foreign labor, and the transfer of Saudi labor from rural to urban areas;
- (3)** The inflationary pressures, which threatened living standards and the price structure of the Kingdom, have been brought under control, chiefly by supply increases;

- (4) The material standard of living of most of the population has improved considerably during the Second Plan period. In real terms, the per capita GDP (including oil) grew by 26.4% between 1395 and 1400, while the average annual income from employment per head of total population increased from an estimated level of approximately SR 4,800 in 1395 to approximately SR 8,200 in 1399 (in constant 1399 prices). In addition to these earned income levels, living standards are also raised by the Social Benefit provided free by the Government representing the value of government financial social services, such as health, education and welfare; which contribute directly to personal welfare and would otherwise have to be purchased by the individual. This Social Benefit constituted an equivalent contribution of an estimated extra 29% to personal income levels during the Second Plan period.

1.4.1.2 The Second Development Plan period has revealed the following manpower-related problem areas which are likely to dominate the Third Plan Period:

- (1) A continuing imbalance between the economy's growing manpower requirements and the number of new Saudi entrants into the labor force;
- (2) The dependence on outmigration from agriculture as an important source of Saudi labor supply for new employment;
- (3) The restrictive effects of the Government's own demand for Saudi labor on the availability of manpower for other sectors;
- (4) The concentration of demand for non-Saudi labor in the private services sectors, together with the Government's concentration on infrastructural development, encouraged the growth of the construction, transportation, and distribution sectors which are "throughput" sectors, contributing primarily in a supportive sense to the growth of GDP, despite their otherwise important functions. Thus the growth of GDP as a whole did not stem mainly from new productive enterprises in agriculture and industry, but from "throughput" sectors which by their nature could offer no long term potential alternatives to oil.

1.4.2 Strategy of the Third Plan

1.4.2.1 The strategy of the Third Plan continues towards the long-term goals for development, but it has significant new focal points, some of which substantially modify the trends and strategies of both the First and Second Plans.

1.4.2.2 The strategies of the First and Second Plans emphasized high growth rates in all sectors, and as a corollary, the relatively free import of foreign labor. The Third Plan emphasizes high growth more selectively, and aims to consolidate rather than expand the foreign labor force. This reduced emphasis on all-round growth constitutes the most important element in the series of structural changes intended for the Third Plan period.

1.4.2.3 Thus, while the Second Plan concentrated on the elimination of physical constraints by means of expansion of the infrastructure and of the absorptive capacity of the non-oil economy, the Third Plan has a deliberate limitation on the future growth of the total number of foreign manpower. Instead, it concentrates on maximizing the utilization of domestic and foreign skilled manpower, through emphasizing capital-intensive development in hydro-carbon and other manufacturing industries, in agriculture and in mining. This will accelerate diversification, which is one of the dominant structural objectives of the whole economic development process.

1.4.3 Objectives and Policies for the Third Plan

The strategy sets three key medium term objectives for the Third Plan and introduces a framework of policy measures to achieve each of them, as follows:

1.4.3.1 Structural Change of the Economy. This will be induced by:

- (1)** Adopting oil and gas production levels which ensure the maximum sustainable lifetime for these resources, while generating sufficient revenue which, together with available monetary reserves, will be sufficient to cover the financial requirements for domestic development;

- (2) Directing a major proportion of the Kingdom's capital and manpower to the producing sectors, such as agriculture, industry and mining, to ensure diversification of the economic base. A key element will be the maximization of domestic value-added from crude oil production through hydrocarbon industries;
- (3) Reducing the percentage share of physical infrastructure in total investment after completion of the continuing commitments from the Second Plan period, except when needed to support productive activities. New investments will be concentrated in those areas with proven potential for growth of productive activities;
- (4) Adopting sound yet flexible fiscal and monetary policies which permit the attainment of development goals without incurring excessive rates of inflation.

1.4.3.2 Participation and Social Welfare in Development. These will be attained through:

- (1) Promoting among the Saudi population an awareness of the Kingdom's development goals and needs, providing guidance for their contribution to the achievement of these goals, and supporting Saudi society to deal with the problems of rapid economic and social change;
- (2) Stimulating the potential of all regions through a system of national, regional and district development service centers.

1.4.3.3 Economic and Administrative Efficiency. These will be increased through:

- (1) Improving the administrative organization and procedures of the Government in order both to utilize manpower more efficiently and to improve individual performance and responsibility;
- (2) Adopting incisive manpower development policies with the objective of replacing foreign manpower by Saudis to the maximum possible extent, through increasing the number and the skills of the Saudi labor force and raising its productivity, both by greater efficiency within sectors and by intersectoral mobility;

- (3) Preserving national fixed capital by improving routine repair and maintenance programs;
- (4) Ensuring sufficient allocations of manpower and finance to operate infrastructural plant and machinery at full capacity;
- (5) Limiting the level of government civilian expenditure so that it should not exceed a total of SR 783 billion, including inflation, and allocating expenditure levels to sectors in accordance with the priorities of the strategy.

1.4.4. Trends in the Composition, Growth and Utilization of the Gross Domestic Product of the Kingdom of Saudi Arabia 1386- 1405.

1.4.4.1 The following four tables give a summary presentation of developments in the growth and structural composition of the Saudi Arabian economy over a thirteen year period up to the end of the Second Development Plan, with some projections for the Third Plan.

1.4.4.2 Table 1-3 analyzes the sectoral composition of the Gross Domestic Product (GDP). The relative shares of the producing and services sectors (in the non-oil GDP) have remained stable over the entire period, as measured in terms of 1389/90 prices. Within these two sector groups, however, there have been significant structural changes. Of particular importance are the marked changes in the position of Agriculture, Construction, Trade, Finance and Government. The projections for the Third Plan illustrate the changes which should be achieved by the Third Plan's strategy.

1.4.4.3 Changes in the structural composition of GDP have a direct link to the trends in sectoral growth rates. Table 1-4 compares sectoral growth rates over successive periods, based on constant 1389/99 prices.

1.4.4.4 Table 1-5 analyzes the pattern both of sectoral income from GDP and of sectoral expenditure on GDP over a thirteen year period. The difference between income and expenditure is shown as domestic surplus. The latter's further allocation between the Kingdom and abroad is not shown.

1.4.4.5 Table 1-6 presents a more detailed picture of the growth in the private sector's domestic surplus. As a percentage of private sector income, the surplus has grown from 14.8 % in the period 1386/87 - 1389/90 to 21.6 % during the Second Plan, thus representing the basis for a potentially large accumulation of private sector financial assets.

Table 1-3

THE STRUCTURAL COMPOSITION OF GDP IN THE PERIOD : 1386/87 TO 1404/05
(Percent of non-oil GDP based on 1389/90 prices)

1. <u>Producing Sectors</u>	<u>1386/87</u>	<u>1389/90</u>	<u>1394/95⁽¹⁾</u>		<u>1399/1400⁽²⁾</u>	<u>1404/05</u>
			(a)	(b)		
Agriculture	13.9	12.6	8.7	9.1	5.8	5.1
Other Mining	0.6	0.6	0.7	0.6	0.7	0.7
Other Manu- facturing	4.8	5.5	5.5	5.6	5.6	8.9
Utilities	3.1	3.5	3.4	2.5	3.8	8.9
Construction	13.3	12.0	16.2	19.1	21.3	12.6
Subtotal	35.7	34.2	34.5	36.9	37.2	36.2
2. <u>Service Sectors</u>						
Trade	11.8	12.9	14.3	14.9	19.9	19.9
Transport	14.5	15.9	20.1	10.0	12.8	15.8
Finance	12.1	12.4	10.6	16.8	15.3	14.5
Other services	2.8	3.1	2.5	2.5	2.3	1.8
Government	23.1	21.5	18.0	18.9	12.5	11.8
Subtotal	64.3	65.8	65.5	63.1	62.8	63.8
3. <u>Non-Oil Economy</u>	100.0	100.0	100.0	100.0	100.0	100.0
4. <u>Oil Sector (includ- ing refining)</u>	109.1	119.8	137.6	144.5	89.5	64.1

(1) New data have been incorporated by the CDS in the revised estimates for the years from 1394/95 onwards (except for Agriculture). For this reason, figures from 1394/95 onwards are not strictly comparable with figures for earlier years.

The column (a) shown above for 1394/95 is based on the old system of prices; the second column (b) is based on the revised data.

(2) MOP Estimate

Table 1-4
THE GROWTH OF GDP IN THE PERIOD 1386/87 TO 1404/05
Annual Compound Growth Per Cent Per Year.
(In 1389/90 prices)

	<u>1386/87 to 1389/90</u>	<u>First Plan 1390/91 to 1394/95</u>	<u>Second Plan⁽¹⁾ 1395/96 to 1399/1400</u>	<u>Third Plan 1400/01 to 1404/05</u>
1. <u>Producing Sectors</u>				
Agriculture	3.62	3.59	5.40	5.35
Other mining	5.56	21.07	17.14	9.78
Other manufacturing	11.76	11.39	15.37	18.83
Utilities	11.31	10.93	24.41	29.46
Construction	3.32	18.57	17.78	(2.48) ⁽²⁾
2. <u>Service Sectors</u>				
Trade	10.09	13.94	22.06	8.42
Transport	10.58	16.97	21.13	12.93
Finance	7.94	8.16	12.99	7.29
Other services	9.76	7.09	13.91	2.95
Government	4.39	7.75	5.96	7.16
3. <u>Non-Oil Economy</u>	6.96	11.66	15.13	6.19
4. <u>Oil Sector (including refining)</u>	10.34	14.80	4.78	1.34
5. <u>Total Economy</u>	8.75	13.41	8.04	3.28

Note: See Note in Table 1-3. Sectoral data for the 1st Plan period shown above include the old constant price system, the 2nd and the 3rd Plan figures, however, use the revised price system for each sector. Values for the non-oil economy, the oil sector and the total economy for the Second and Third Plans are in 1399/1400 prices, partly because the 1404/05 composition of the oil sector's output has no equivalent in 1389/90.

(1) MOP Estimate

(2) Negative Growth Rate

Table 1-5

THE SECTORAL PATTERN OF GDP INCOME AND EXPENDITURE

(based on aggregated income and expenditure values per period calculated at current prices)

	1386/87-1389/90 (4 years)	First Plan 1390/91-1394/95 (5 years)	Second Plan 1395/96-1398/99 ⁽¹⁾ (4 years)
	%	%	%
1. GDP (as income)	100.0	100.0	100.0
of which:			
Private Sector Income	49.1	23.8	37.9
Oil Sector operating surplus	50.9	76.2	62.1
2. GDP (as Expenditure)	100.0	100.0	100.0
2.1 Final Consumption			
Private	32.4	14.8	20.9
Government	19.4	11.9	20.6
Subtotal:	51.8	26.7	41.5
2.2 Capital Formation			
Private sector (incl. increase in stocks)	9.2	4.4	9.4
Government and oil sectors	9.8	7.6	19.4
Subtotal:	19.0	12.0	28.8
2.3 Domestic Surplus			
Private Sector	7.5	4.6	7.6
Government Sector	21.7	56.7	22.1
Subtotal:	29.2	61.3	29.7

(1) MOP Estimate

Table 1-6

SOURCE AND ALLOCATION OF PRIVATE SECTOR INCOME

(Percent of total sectoral income in the period concerned)⁽¹⁾

	<u>1386/87-1389/90</u>	<u>First Plan 1390/91-1394/95</u>	<u>Second Plan (2) 1395/96-1398/99</u>
<u>Income</u>			
of which:			
Employee Compensation	54.6	51.8	52.7
Non-oil Operating Surplus	45.4	48.2	47.3
	<hr/> 100.0	<hr/> 100.0	<hr/> 100.0
<u>Allocation</u>			
of which:			
Private final Consumption	66.3	62.0	54.1
Private Capital Formation (including increase in stocks)	18.9	18.5	24.3
Surplus	14.8	19.5	21.6
	<hr/> 100.0	<hr/> 100.0	<hr/> 100.0

(1) Derived from current price data.

(2) MOP Estimate.

CHAPTER 2

PROGRESS DURING THE SECOND PLAN

2. PROGRESS DURING THE SECOND PLAN

2.1 INTRODUCTION

This chapter reviews the main features of the Kingdom's economic and social development during the Second Development Plan period. The purpose is to outline the progress which has been made, and to describe the general state of the economy at the beginning of the Third Plan period.

In addition, this chapter will illustrate the relationship between the Five Year Development Plan and the various policy measures supporting it. While the plan provided the framework for decisions concerning the level and direction of economic and social activity, the policies, usually short-term, were designed to effect the necessary adjustments between the Plan and the changing circumstances of the foreign and domestic environments. The need for adjustments arises chiefly from the fact that planning in Saudi Arabia has always attempted to introduce fundamental structural changes into a growing economy rather than simply expand the existing structure. It, therefore, has been inevitably confronted by complex technical and organizational problems as well as by logistical and structural constraints. Indeed, most of the operational planning by the Ministry of Planning and all other government agencies during the course of the Second Five Year Plan was devoted to identifying actual and potential problems and constraints, carefully diagnosing their scale and nature and devising appropriate methods (whether fiscal, economic, organizational, engineering, technological, legislative, or a combination of these) to overcome them.

The main problems, especially in the first half of the period, were caused by supply difficulties, aggravated by the inadequacy of available infrastructure, including a critical shortage of housing. Against the background of very high levels of demand for goods and services and of excessively high contract prices, these difficulties resulted in strong inflationary pressures. Some of these problems have been overcome, for example, the congestion of the ports which was a dominant concern during the first two years of the Plan period, with ship waiting times reaching 120 days on occasion. Other problems, like labor shortages and wage pressures, have lost much of their former strength, yet they persist. On the other hand, some difficulties such as the shortage of maintenance services have become more serious, as demand for them has increased.

Institutional constraints, such as the lack of coordination of government services, and in the planning and implementation of projects, are also important. However, the rising rates of implementation indicate the positive advances made in this area.

Despite these problems and constraints, there were many significant achievements during the Second Plan. The absorptive capacity greatly increased and the annual rate of growth in the non-oil economy averaged over 15%. Total GDP, which is influenced by the level of oil output and exports, grew at an annual rate of 8%. Inflation was brought under control, and productivity substantially improved, though mainly as a result of shifts in employment from lower to higher productivity sectors.

The structure of investment became significantly more productive, and development was more clearly distributed through all the regions of the Kingdom. The average standard of living, despite the retarding effects of inflation, was considerably improved, partially with the help of special support measures.

The following sections describe the main features of development during the Second Plan period: growth in the GDP, national income and expenditure, employment and productivity, the external economy, social development, regional development, and government administration. The discussion concentrates mainly on the non-oil economy, since the main thrust of development in the Second Plan period has been in the non-oil sectors. Although substantial investment and planning effort have gone into the oil sector, to widen its resource base and upgrade the value of its output, the relationship between the oil and non-oil sectors during the period has remained fundamentally financial in nature, with the oil sector providing the revenues for the funding of the extensive developments in the non-oil economy.

2.2 GROSS DOMESTIC PRODUCT

2.2.1 Growth of GDP

2.2.1.1 The Second Plan was formulated in 1394 when the momentum of growth from increased oil revenues was already making its effects felt, both positively, by promoting growth, and negatively, in the accompanying supply constraints and inflationary pressures. The Plan's growth targets were confidently set at high rates, based on the Government's expenditure program and linked to large-scale importing of foreign labor. The specific targets were principally concerned with the growth of the non-oil economy, and only notional targets were set for the

oil sector, in addition to the general expectation of its providing the financial cover for the Government's expenditure budget.

2.2.1.2 The decisive influence on the Second Development Plan was the Government's general aim to secure a high rate of growth by increasing the economy's absorptive capacity and labor force, while keeping inflation under control. Although the economy had experienced very high growth in the second half of the First Plan, the overall growth in GDP of 13.4% per year (in constant 1389/90 prices) had been due chiefly to rising oil exports. In the Second Plan, the main impetus for growth was planned to come from the non-oil economy. Accordingly, non-oil GDP was planned to grow at an average rate of 13.3% per year, the producing sectors at 13.0%, and the service sectors at 13.4% per year.

2.2.1.3 With the inclusion of the oil sector, the Second Plan projected an overall GDP growth rate of about 10% per year. However, the expected growth in absorptive capacity and activity in general could not be achieved without imbalances and inflationary pressures and consequent fluctuations in the growth rate. Thus, the peak year for growth was the first year of the Plan, 1395/96, while subsequent years saw marked decelerations in both inflation and in the growth of total GDP. Even so, throughout the Second Plan period, the rate of growth of the non-oil economy remained well above that of the First Development Plan, and continued to rank among the highest in the world. As shown in Table 2-1, all targets had been substantially exceeded by the end of the Second Plan period. The compound rates for value-added growth in the producing sectors increased to 16.6%, and in the service sectors to 14.1%.

2.2.1.4 The Second Plan's achievements in terms of the standard statistical measure of per capita economic growth were also encouraging. Between 1394/95 and 1399/1400 total GDP per capita in current prices increased from SR 19,700 to SR 43,400. In constant 1399/1400 prices, this represents an increase of over 4.8% per year.

2.2.2 Selected Aspects of GDP growth

2.2.2.1 The Contribution of the Oil Sector. In evaluating the planned and achieved rates of growth in the economy, special attention has to be paid to the assessment of the oil sector's contribution. While on the one hand the objective of diversifying the economy depends on the growth of the non-oil sectors, the substantial changes in the price of oil have altered the value proportions between the oil sector and the rest of the economy in favor of the former. This is demonstrated in Table 2-2 in which the contributions to GDP of the oil and non-oil sectors are

Table 2-1

GROSS DOMESTIC PRODUCT

(SR millions in constant 1399/1400 prices)

	<u>1394/95</u>	<u>1399/1400</u>	Second Plan, Annual Growth Rates in Percent	
			<u>Planned</u>	<u>Actual</u>
1. <u>Non-Oil Economy</u>	66,723.1	134,967.1	13.3	15.1
1.1 <u>Producing Sectors</u>				
Agriculture	2,505.8	3,259.4	4.0	5.4
Mining	679.1	1,497.5	15.0	17.1
Manufacturing	3,303.4	6,753.3	14.0	15.4
Utilities	117.5	350.1	15.0	24.4
Construction	20,291.9	45,994.3	15.0	17.7
Subtotal	26,897.7	57,854.6	13.0	16.6
1.2 <u>Service Sectors</u>				
Trade	6,439.1	17,447.1	15.0	22.1
Transport	7,756.1	20,227.5	15.0	21.1
Finance ⁽¹⁾	7,137.8	13,144.2	9.7	13.0
Other Services	2,741.3	5,257.3	14.0	13.9
Government ⁽²⁾	15,751.1	21,036.4	12.9	6.0
Subtotal	39,825.4	77,112.5	13.3	14.1
2. <u>Oil Sectors</u>	176,076.3	222,374.4	9.7	4.8
<u>Gross Domestic Product</u>⁽³⁾	242,799.4	357,341.5	10.0	8.0

(1) Includes GDP from ownership of property.

(2) Includes contribution to GDP of non-civilian employment.

(3) Excludes import duties.

Source: CDS National Accounts; Ministry of Planning estimate for 1399/1400.

Table 2-2

THE CHANGING WEIGHT OF THE OIL SECTOR IN THE KINGDOM'S ECONOMY

	Gross Domestic Product (Value in SR billion)		Annual Growth Rate (percent)	Percentage Shares in GDP	
	<u>1394/95</u>	<u>1399/1400</u>		<u>1394/95</u>	<u>1399/1400</u>
i) <u>In Current Prices</u> of the year concerned					
Oil	110.5	222.4		79.3	62.2
Non-oil	28.8	135.0		20.7	37.8
Total	139.3	357.4	20.7	100.0	100.0
ii) <u>In Constant 1399/1400 Prices</u>					
Oil	176.1	222.4		72.5	62.2
Non-oil	66.7	135.0		27.5	37.8
Total	242.8	357.4	8.0	100.0	100.0
iii) <u>In Constant 1389/90 Prices</u>					
Oil	18.6	23.4		59.1	47.2
Non-oil	12.9	26.2		40.9	52.8
Total	31.5	49.6	9.5	100.0	100.0

Source: Ministry of Planning.

given according to three different price levels. Although the measures for assessing the relative shares in GDP of the oil and non-oil sectors are optional to some extent, it is nevertheless of interest that the share of the non-oil sector has risen during the Second Plan period regardless of the price base selected.

2.2.2.2 Growth and Change of Non-oil GDP. For the Second Plan, the economy inherited a number of slowly changing structural features: a strong employment demand by the governmental machinery; a growing importance of trading and other distribution-related activities; a slow growth in manufacturing; and a decline in the agricultural labor force. Most of these features, in fact, proved to be constraints on development, since they reduced the scope for net employment gains within the group of producing sectors, and limited the prospects for substantially changing the sectoral pattern of non-oil GDP. To a large extent, because of specific causes, such as the growing role of government and the importance of the distributive trades and services, the Second Plan period was characterized by the tendency of the non-oil economy to generate proportionately more new employment in the service sectors than in the producing sectors. In turn, this has led to a structural imbalance between the sectoral pattern of employment growth on the one hand, and the sectoral pattern of productivity on the other. The longer-term consequences of this imbalance for future productivity growth must also be recognized, since the degree of capital-intensity (and, therefore, the scope for productivity growth) in the administrative and distributive services is unlikely to match that in the producing sectors.

2.2.2.3 Sectoral Change. As shown in Table 2-3, the structural composition of GDP, that is the relative shares of the producing and service sectors, has remained stable throughout the Second Plan period. However, this stability obscures the fact that while GDP growth was achieved through higher productivity in the producing sectors, in the services sectors it was achieved through increased employment. (A more detailed presentation of these trends is contained in Section 2.2.2.5 “Productivity Growth”.)

2.2.2.4 The Importance of the Public Sector in the Saudi Economy. A distinguishing feature of the Kingdom’s economy is its high degree of financial independence. The oil revenues, which accrue directly to the Government, dispense with the need to levy taxes on other sectors in order to finance current and capital expenditure. Simultaneously, they provide the necessary foreign exchange to finance these investments. Since the development process begins with the conversion of oil revenues into domestic assets, and given that each stage of this process is administered by the Government, economic development is to a very large extent government activity. This applies not only to the financing and administration of development projects, but also to the conceptual and organizational phases of planning. Development is a public

Table 2-3

GROWTH AND STRUCTURE OF GDP

(Based on 1389/90 constant prices)

<u>Sector</u>	<u>Percent Contribution</u>	
	<u>1394/95</u>	<u>1399/1400</u>
	<u>Actual⁽¹⁾</u>	<u>Estimated⁽²⁾</u>
<u>Producing Sectors</u>		
Agriculture	9.1	5.8
Mining (excluding crude oil)	0.6	0.7
Manufacturing (excl. refineries)	5.6	5.6
Utilities	2.5	3.8
Construction	19.1	21.3
<u>Service Sectors</u>		
Trade	14.9	19.9
Transport/Communication	10.0	12.8
Financial/Business services	16.8	15.3
Community/Personal services	2.5	2.3
Government	18.9	12.5
Non-Oil Economy	100.0	100.0
Oil Sector	144.5 ⁽³⁾	89.5 ⁽³⁾
	244.5 ⁽³⁾	189.5 ⁽³⁾

- (1) Based on revised CDS data
(2) Ministry of Planning estimate
(3) As a percentage of the non-oil economy.

sector responsibility also in the sense that the ownership and operation of most of the newly created assets continue to be controlled by the central or local government. In most sectors, government agencies manage the spending of public funds, while implementation of the government's expenditure program is actually undertaken by the private sector. The activities of the private sector are, therefore, closely linked to the scale and scope of government expenditure and can be divided into two categories: "induced" (activities generated by government expenditure) and "autonomous" (activities serving the private sector proper).

The extent of the private sector's dependence on government expenditure can be measured, indirectly, by the ratio of its autonomous activities to non-oil GDP*. In the first year of the Second Plan this ratio fell from 54% to 36%, corresponding to the substantial growth in the volume of government contracts. In the following years, however, it continued rising and reached 48% in 1398/99. It is estimated that in the final year of the Second Plan the proportion of autonomous private sector activity in non-oil GDP declined to under 40%.

The direct weight of the government sector is best seen in its share of the total wage bill of the non-oil economy. In 1389/90 the government's share was 37.3% which was maintained throughout the First Development Plan period. By 1398/99 the steady expansion of the private sector had reduced the government's proportion of total employees' compensation to 29%.

2.2.2.5 Productivity Growth. Productivity growth, as measured by the increase in the value of GDP per employee, is the result of two interacting trends. The first arises from either technological or organizational improvements resulting in lower unit costs, or from higher unit prices for higher value products. The second is linked to changes in the sectoral pattern of employment. Increases in productivity occur when there is a net flow of labor from lower to higher productivity sectors, or a more than proportionate flow of additions to the labor force going to these latter sectors.

Table 2-4 compares the growth of GDP to the growth in employment and productivity and indicates the contribution of intersectoral labor movements to productivity growth. The following conclusions can be drawn:

* Numerically, the level of autonomous activity is approximated by the difference between the non-oil economy's gross output and the value of government expenditure.

Table 2-4

OUTPUT, EMPLOYMENT AND PRODUCTIVITY GROWTH IN THE NON-OIL ECONOMY
ANNUAL COMPOUND GROWTH RATES (1395-1400.)
 (Percent, based on 1399/1400 constant prices)

	<u>Producing Sectors</u>			<u>Service Sectors</u>		<u>Total Non-oil Economy</u>	
	<u>Plan</u>	<u>Actual</u>		<u>Plan</u>	<u>Actual</u>	<u>Plan</u>	<u>Actual</u>
		(1)	(2)				
GDP	13.03	16.55	17.48	13.43	14.13	13.29	15.13
Employment	6.41	2.20	12.19	11.83	12.46	8.96	7.21
Productivity⁽³⁾	6.22	14.04	4.72	1.43	1.48	3.97	7.39
from:							
i) Cost/price changes	2.25	4.09	3.85	1.59	1.17	1.82	2.36
ii) Employment shifts	3.88	9.56	0.84	-0.15	0.31	2.11	4.91

Note: (1) Including agriculture
 (2) Excluding agriculture.
 (3) Measured by the ratio: GDP/employment.

(1) The major contribution of the producing sectors to GDP growth has come from increases in productivity: favorable cost/price changes account for 4.1 % and employment shifts for 9.6% of GDP growth in these sectors. When agriculture, which was a major domestic supplier of labor to the other sectors is excluded, the growth in productivity in the producing sectors resulting from employment shifts falls to practically zero.

(2) For the service sectors the dominant source of GDP growth was the increase in employment. Of their average GDP growth rate of 14.1% more than 12% can be explained by higher levels of employment.

(3) For the overall GDP growth of the non-oil economy, the contribution of employment increase and productivity improvement (essentially: employment shifts) were almost equal.

In some important respects, the outcome is likely to exceed the Plan's expectations. The overall growth rate for non-oil GDP is over 15%, and the growth of about 7.5% in GDP productivity is almost double the Plan's target. On closer inspection, however, it is evident that these results rest largely on sizeable employment shifts (primarily from agriculture) which are unlikely to continue to the same extent in the future.

2.2.2.6 Growth in Employment. The scope and scale of the Second Plan required a substantial increase in the Kingdom's available manpower. In 1395, the size and growth rate of the indigenous labor force were seen to be inadequate and would have effectively limited the successful implementation of the Plan. In response to this predicament two major policies were adopted. The foreign element of the Kingdom's labor force was substantially increased, and a vigorous program was introduced to expand the education and training of Saudi nationals.

Although the latter policy is essentially a long-term process, significant progress was made during the Second Plan period in expanding the number of education and training institutions. While to a certain extent the increased education and training delayed the flow of new entrants to the labor force, this was more than compensated for by the increase in the number of foreign workers employed and in the improving skill level of the indigenous labor force.

2.2.2.7 Characteristics of the Labor Force. During the Second Plan period, Saudi Arabia's civilian labor force grew by an estimated average of 7.2% per year which was almost double the rate of 3.8% achieved during the First Plan. During the same period the share of the indigenous

working population declined from about 72% of the total to 57%. Essentially this was a result of two factors: the large increase in the number of foreigners entering the Kingdom's workforce compared to the much slower growth of Saudi nationals, and the fall in the participation rates of Saudis compared to a stable rate of the foreign workforce.

As shown in Table 2-5, the non-Saudi element averaged a 16.5% rate of growth during the Second Plan period whereas the Saudi element grew at only 2.4% per year. The changes in the female labor force showed the same pattern: although their share of the total remained at about 6%, the growth in the number of foreign females was much more rapid.

Table 2-5
GROWTH OF THE CIVILIAN LABOR FORCE 1395-1400

	(Thousands)		Annual Average Growth Percent 1395-1400
	<u>1395</u>	<u>1400</u>	
Male	1,651	2,323	7.1
Female	<u>96</u>	<u>148</u>	<u>9.0</u>
Total	1,747	2,471	7.2
of which:			
Saudi	1,253	1,411	2.4
Non-Saudi	494	1,060	16.5

Source: Ministry of Planning Estimates.

Throughout the period, the participation rate of non-Saudi men remained stable at about 90%, whereas the average proportion of Saudi males of age twelve years and above declined from approximately 69% to 65%. This fall was primarily a result of increased enrollment in education and training programs. As shown in Table 2-6, the participation rate of the 12-19 age group fell from 37% in 1395 to 21% at the end of the Second Plan. The participation rate among the 60 year old and over group also declined slightly, because of the overall improvement of the social conditions in the Kingdom and the increasing number of people retiring early. The stability of the non-Saudi participation rate for males was due to institutional arrangements whereby (with the exception of certain Arab nationals) adult males are only permitted to stay in the country if they possess a current work permit.

Table 2-6

LABOR FORCE PARTICIPATION RATES OF SAUDI MALES 1395 AND 1400
(In Percentages)

<u>Age Group</u>	<u>1395</u>	<u>1400</u>
12-19	37	21
20-29	83	83
30-44	95	95
45-59	88	88
60+	51	46
All males	69	65

Source: Ministry of Planning estimates.

Despite a significant increase in the number of females employed, little change was experienced in their overall participation rate which remained at approximately 6%. Although there have been more educated women entering the labor market during this period, at the same time there has been a compensating decrease in the number of female agricultural workers, particularly in the 12 to 20 years age group. Consequently, the proportion of females holding professional jobs is increasing. This is particularly so in the fields of education, social and health services.

2.2.2.8 Structure of Employment. Not only were there changes in the composition of the labor force, there were also significant changes in the structure of employment. Whereas the level of aggregate employment increased by an average of 7.2% per year the growth in the individual sectors varied substantially. The most rapid growth was shown by the service sectors which averaged 15.3% per year. The producing sectors grew more slowly, averaging only 2.2% per year, resulting in their share of total employment falling from 57% to 45%. Government employment grew at approximately 5.4% per year, reducing its share from 14% to 13%. As shown in Table 2-7* these broad sectoral trends reflected changes within the individual activities.

* In Table 2-7 Government employment is treated separately from the rest of the services sectors.

Table 2-7
EMPLOYMENT BY ECONOMIC ACTIVITY, 1394/95 AND 1399/1400

<u>Economic Activity</u>	<u>Employment</u>				<u>Average Annual Growth Rate</u>
	<u>1394/95</u>		<u>1399/1400</u>		<u>1394/95 - 1399/1400</u>
	<u>Thousands</u>	<u>Percent</u>	<u>Thousands</u>	<u>Percent</u>	<u>Percent</u>
1. <u>Producing Sectors</u>	988.6	56.6	1,107.9	44.8	2.3
Agriculture	695.0	39.8	598.8	24.2	(-2.9)
Mining	3.4	0.2	7.3	0.3	16.5
Oil & refineries	27.4	1.6	36.0	1.5	5.6
Manufacturing	74.4	4.2	104.2	4.2	7.0
Utilities	16.1	0.9	31.5	1.3	14.4
Construction	172.3	9.9	330.1	13.3	13.9
2. <u>Service Sectors</u>	511.2	29.3	1,042.3	42.2	15.3
Trade	153.6	8.8	310.6	12.6	15.1
Transport	114.5	6.5	214.6	8.7	13.4
Finance & business services	13.1	0.8	34.8	1.4	21.6
Community & social services	230.0	13.2	482.3	19.5	16.0
3. <u>Government</u>⁽¹⁾	246.7	14.1	321.0 ⁽²⁾	13.0	5.4
Total (1+2+3)	1,746.5	100.0	2,471.2	100.0	7.2

(1) Civilian employment only.

(2) This Government figure includes an estimated 49.6 thousand daily workers not classified as civil servants.

Source: Ministry of Planning estimates.

Agriculture, which is by far the largest employer, particularly of Saudis, experienced a substantial fall in employment as more job opportunities in other sectors became available, frequently offering higher salaries and more attractive conditions. During the period, agricultural employment is estimated to have declined by over 96,000 persons contributing to the fall in agriculture's share of total employment from 40% in 1394/95 to 24% by the end of the Plan. Although employment in construction grew at nearly 14% a year over the period, compensating for the fall in agricultural employment in the producing sectors, the real growth in employment occurred in the service sectors with an increase of over half a million persons.

2.3 INCOME AND EXPENDITURE

2.3.1 Income

2.3.1.1 National income, as measured in current prices, grew at an average rate of 19% per year during the first four years of the Second Plan period, from SR 125.4 billion in 1394/95 to SR 251.6 billion in 1398/99 (as shown in Table 2-8). In per capita terms, national income nearly doubled from SR 17,700 in 1394/95 to SR 31,600 in 1398/99, representing an average annual growth in current prices of 15.5%.

Table 2-8

NATIONAL INCOME (SR billions, current prices)

	<u>1394/95</u>	<u>1396/97</u>	<u>1398/99</u>
Compensation of employees	14.84	35.46	61.25
Operating surplus ⁽¹⁾	125.28	170.27	188.09
Net foreign income	-14.20	2.67	3.22 ⁽²⁾
Indirect taxes	-0.50	-0.67	-0.93
National Income	125.42	207.73	251.63

Source: CDS National Accounts

(1) Includes oil sector profits

(2) Ministry of Planning estimates.

2.3.1.2 The table shows a rising proportion of national income accruing to employees, which is partly a result of increased employment. During the four year period, compensation of employees grew at an average rate of 42.5% per year compared with only 10.7% per year for the operating surplus. However, after deducting the oil sector's operating surplus, employee compensation and operating surplus in the non-oil economy show parallel growth over the years.

2.3.1.3 Although foreign incomes represent only a small proportion of national income, it is significant that since 1395/96, the current outflow of incomes from property and other investments (as defined in the national accounts) has changed to a net inflow.

2.3.2 Expenditure on Gross Domestic Product

During the Second Plan period, because of the Kingdom's significant export surplus, the limiting features to Saudi Arabian economic growth were not monetary but physical. Within these physical constraints both consumption and investment were able to increase with no risk to the balance of payments, and without the rate of investment interfering (as in other economies) with the rising level of consumption. The main reason for this all-round growth has been the growing capacity of the economy to absorb imports for the purposes of consumption, production and investment.

Table 2-9 displays certain important features of domestic expenditure in the first four years of the Second Plan. The table shows the estimated composition and growth rates by components of gross domestic expenditure in volume terms. Among other features, it highlights:

- (1) the increase in the economy's absorptive capacity (export-import balance);
- (2) the rise in volume in all the main components of domestic expenditure;
- (3) the high rates of nominal increase in the value of the main categories due to domestic as well as imported inflation.

The sections below review the trends in expenditure on consumption and gross fixed capital formation also on the basis of current price values.

2.3.2.1 Aggregate Consumption. Although consumption is the principal indicator of economic

Table 2-9

TRENDS IN GROSS DOMESTIC EXPENDITURE

<u>Category</u>	Composition in Percentages		Growth rates in Percent Per Year	
	<u>1394/95</u>	<u>1398/99⁽¹⁾</u>	<u>1394/95 - 1398/99</u>	
	(Based on constant 1394/95 prices)		Volume ⁽¹⁾	Value (Current)
Government final consumption	11.4	20.5	23.5	37.5
Private final consumption	12.8	21.5	21.2	37.2
Gross fixed capital formation	12.8	20.1	19.4	44.6
Changes in inventories	0.5	1.3	31.7	59.5
Exports of goods and services	82.0	79.8	5.9	6.9
Imports of goods and services	(19.5)	(43.2)	29.9	39.9
Total	100.0	100.0	6.6	15.5

Notes (1). The 'volume' data were calculated after converting 1398/99 current values into estimated 1394/95 values by using the following deflators: cost of living index (for private consumption); IMF-SAMA adjusted US \$ import price index (for imports); non-oil GDP deflators (for capital formation, inventory changes), CDS sectoral deflators (for exports and government consumption).

Source: CDS National Accounts; SAMA Annual Report for 1399; MOP estimates.

welfare, in the context of Saudi Arabia attention should not be restricted to private final consumption. A large proportion of the Government's consumption expenditure is in fact spent on general welfare programs. In 1397/98, for example, 17% of Government consumption expenditure was devoted to education, health and social welfare.

During the first four years of the Second Plan, consumption expenditure increased substantially, largely as a result of increased employment, higher prices and higher personal incomes. Private consumption expenditure increased from SR 17.9 billion in 1394/95 to over SR 63 billion in 1398/99. Despite the earlier constraints on government spending, expenditure grew significantly in the latter years of the Plan.

2.3.2.2 Gross Fixed Capital Formation. The two important aspects of investment during the Second Plan period were its growth in volume and its structure. The largest contribution to gross fixed capital formation during the first four years of the Second Plan was made by the Government. Indeed, as Table 2-10 indicates, the government's share of the total increased from approximately 41% in 1394/95 to 62% in 1398/99. Functionally, and lately from the viewpoint of funding also, the oil sector's capital formation in the Second Plan qualifies as public sector expenditure. Such investment in the period was devoted chiefly to the gas gathering programs and to domestic refinery expansion. However, the oil sector's share of total fixed capital formation declined from 21% in 1394/95 to 12% in 1398/99.

Table 2-10

GROSS FIXED CAPITAL FORMATION

<u>Sector of Origin</u>	<u>1394/95</u>	<u>1396/97</u>	<u>1398/99</u>	<u>Average Annual Growth</u>	
	(current prices, SR billions)			Value(1)	Volume(2)
				(in percent)	
Government	7.37	27.35	48.44	60.1	32.2
Non-oil private	6.81	16.75	20.60	31.9	8.9
Oil sector	3.66	7.32	8.97	25.1	3.3
Total	17.84	51.42	78.01	44.6	19.4

(1) Based on current prices.

(2) Based on constant 1394/95 prices.

Source: CDS National Accounts, - SAMA Annual Report 1399.

Although the share of the non-oil private sector fell from 38% to 26% it nevertheless more than trebled its value from SR 6.81 billion to SR 20.6 billion.

A number of significant trends developed in the composition of gross fixed capital formation during the Second Plan period. By far the largest share of investment was devoted to construction, which, in 1394 accounted for 75.1% of the total, and includes residential and other buildings as well as civil engineering.

Table 2-11

COMPOSITION OF GROSS FIXED CAPITAL FORMATION: 1394/95 to 1398/99

	<u>Growth in Percent Per Year</u>		<u>Percentage Share⁽¹⁾</u>	
	<u>Value⁽¹⁾</u>	<u>Volume⁽²⁾</u>	<u>1394/95</u>	<u>1398/99</u>
Residential buildings	17.7	(2.8)	19.6	8.6
Non-residential buildings	63.9	35.3	19.1	31.4
Other construction	47.8	22.0	36.4	39.7
Transport	35.4	11.8	12.4	9.6
Machinery and equipment	40.2	15.8	11.3	10.0
Other	26.6	4.4	1.2	0.7
Average/Total	44.6	19.4	100.0	100.0

(1) Based on nominal (current price) values.

(2) Based on constant 1394/95 prices.

Source: CDS National Accounts.

Among the expenditures on construction, the growth of “other construction” has been the most marked, reflecting the heavy investment in infrastructure. The growth of non-residential buildings, on the other hand, has been due to increasing private sector investment in office and other commercial development.

Concerning the remaining categories of investment, the rate of growth for investment in general machinery and equipment exceeded that in transport equipment. In current value terms, both more than trebled over the period.

The indications are that greater emphasis is now being placed on more “productive” types of investment than at the beginning of the Second Plan, as expected. In the absence of alternative investment opportunities and the increased level of liquidity in the economy, considerable speculative investment was made in land and property, together with substantial increases in holdings of foreign assets. As the Plan proceeded and a broader range of investment opportunities became apparent there were greater incentives to invest in commercial and productive activities.

2.4 INFLATION

2.4.1 Inflationary Risk in Development

2.4.1.1 The most disturbing economic phenomenon during the Second Plan period was inflation. Its intensity in the first two years of the period was a severe test of the consistency and feasibility of the Plan itself. Nevertheless, the evidence shows that the rate of inflation was then contained to more manageable levels and that economic policy was successful in maintaining its basic desired momentum and direction. This was primarily due to the Government being able to identify the real causes of inflation and to introduce appropriate and timely counter-measures.

2.4.1.2 The risk of inflation is endemic to sustained economic growth in any type of economy, whether developed or developing. In developing countries the danger of inflation is much greater because of the inadequacy and imbalance of existing capacities and organizational structures. In addition, competition among suppliers is weak and supply shortages, however temporary, can be more easily exploited for permanent price rises.

2.4.1.3 Not only are the risks of inflation greater, the consequences are also more serious. Distortions such as the general decline in domestic purchasing power of the currency and the shifts in investment away from production into speculative assets are more difficult to correct because they affect the development process itself.

2.4.2 Trends in Inflation

2.4.2.1 Analysis of the extent and impact of inflation on the development of the Kingdom's economy leads to the conclusion that prices have not increased uniformly throughout the economy. They have responded to a variety of sectoral constraints and frictions. This is evident from the two available measures of inflation: the cost of living index, reflecting price

increases in consumer goods and services (clothing, food, and housing); and the more general indicator, which can be termed the GDP deflator, reflecting changes in producer or non-retail prices.

2.4.2.2 Table 2-12 compares the main features of the two indices and shows time scales for each. Inflation (as measured by the cost of living index) had run a complete cycle between 1390/91 and 1398/1399 with a peak in the last year of the First Development Plan. In terms of the GDP deflator, prices peaked in the first year of the Second Development Plan, and by 1400, have almost been brought under control. Both measures indicate the acceleration of inflation in the First Plan period and deceleration during the Second Plan. There is no doubt that the deceleration, especially after 1395/96, was the direct outcome of government action.

2.4.2.3 As for the impacts of government action on the economy, there are important differences to consider. Whereas a combination of administrative controls (on rents and prices of essential foods), together with a policy of increasing supply (including housing), was effective in curbing the increase in retail prices, the control of the inflationary trend in transaction prices was achieved by slowing down government spending, especially on public sector capital formation.

2.4.3 Counter-Inflationary Measures

2.4.3.1 It was understood that the scale of expenditure and the growth in activity outlined in the Second Plan carried inflationary dangers. The Plan recognized that effective control of inflation would be necessary to prevent it becoming socially damaging, but without, at the same time, exposing the economy to recession. Even so, there was a critical acceleration of inflationary pressures on the urban population through the explosive growth in land and property values and in the associated rental charges. By 1396/97, there was already a twofold increase in the level of food prices and a fivefold rise in rents since 1389/90. Therefore, renewed emphasis was placed on strengthening the anti-inflation measures already in force. Taken together these measures represented a comprehensive approach to reducing inflationary pressures, and had three main areas of concern:

(1) Supply bottlenecks were reduced by:

- increasing the flow of imported goods and services by increasing port capacity and speeding up clearance procedures;

Table 2-12

PRICE TRENDS DURING THE FIRST AND SECOND PLANS

	<u>FIRST PLAN (1390/91-1394/95)</u>			<u>SECOND PLAN (1395/96-1398/99)</u>		
	<u>Percent change on previous years in:</u>			<u>Percent change on previous years in:</u>		
	<u>1st Year</u>	<u>5th Year</u>	<u>5 Year Period</u>	<u>1st Year</u>	<u>4th Year^(e)</u>	<u>4 Year Period^(e)</u>
Price Changes						
1. Cost of living index	4.9	34.5	15.8	31.5	3.5	10.5
2. Transaction prices (=GDP deflators)	2.7	25.6	11.6	40.4	9.2	21.1

Note: (e) Estimated values.

- increasing the volume of available domestic assets (for example by distributing freehold land titles to low income families);
- improving the internal transportation and distribution systems;

(2) The cost of living was stabilized through:

- price controls in the form of fixed retail prices and rents;
- controls regulating the frequency and extent of price rises and rents;
- consumer protection in respect of quality and other standards.

(3) Real incomes were protected through:

- periodic salary and wage increases;
- increased subsidies on essential supplies and services;
- transfer payments for welfare.

2.4.3.2 The strategy to reduce, and where possible, to eliminate the inflationary pressures was based on the government's expectation that market forces would respond to physical improvements in the supply lines. This proved to be correct, and increased competition had a significant effect on reducing inflation. At the same time, this particular strategy was also appropriate as it minimized the government's administrative interference. This made it possible to concentrate administrative action where it was most useful: where there were long delays before demand and supply could be matched and where vital social and welfare interests were at stake. Although the subsequent administrative action checked price rises among the socially and economically sensitive commodities, incomes had to be allowed to catch up, thereby further contributing to the inflationary pressures. Despite the administrative stabilization measures, inflationary pressures on wages remained. The push in wage costs and labor intensive service charges was sustained partly by persistent labor shortages and partly by the desire (especially of individual operators and service providers) to create as well as to maintain an equitable relationship between labor costs and property values.

2.4.3.3 The most significant policy measure with direct effects on inflation was the consolidation of the annual expenditure budgets at exactly their 1396/97 nominal level for the following two years, with only a minimal increase in 1398/99. Thus, the unchanged annual cash totals meant the absorption of inflation at the expense of economic growth. In reality, however, the annual expenditure budgets - although effectively reduced as a result of the inflationary price trends at home and abroad - were not unduly restrictive. Given the rather low rate of plan implementation at that time, they still offered substantial scope for future volume growth. This explains why, even in the years 1396 to 1398 in which there was hardly any nominal growth in budgeted public sector expenditure, the economy continued to grow. This was due to the fact that both the overall government expenditure and the private sector's own expenditures grew in real terms. However, a deceleration in volume terms was inevitable to sustain growth with the minimum of inflation. Technically, the consolidation of expenditure was leading directly to deceleration both because higher implementation levels were constrained by budget limits, and because continued inflation was limiting effective spending. An important overall contribution of this policy was that it reduced the widespread expectations of sustained expansion at all costs.

2.4.4 Monetary Aspects of Inflation

2.4.4.1 Fiscal Versus Monetary Policy. The rationale of fighting inflation primarily through adjustment of the most basic economic relationship (that of supply and demand) was dictated by the formal and functional absence of any of the usual instruments of monetary policy and control. Here it is important to stress that while fiscal policy was releasing funds into the economy, a monetary policy (even if institutionally feasible) working in the opposite direction would not have made much practical sense. Only in a secondary role could, and did, monetary control measures contribute, by ensuring the efficient circulation of funds, and by preventing the accumulation of idle funds for speculative purposes. It should also be recalled that there were parallel processes of monetization taking place in the economy through the sale of land or property rights for development and commercial purposes. These, while adding to money in circulation, also added to the supply of marketable assets.

2.4.4.2 Inflation and Monetary Expansion. Domestic government expenditure can be divided into two main categories: the payment of civil service salaries, and the expenditure which is used to purchase supplies or undertake projects on a contract basis by open tender. The transfer of these public funds to the private sector to finance the implementation of budgeted projects might well be regarded as the main monetary cause of inflation.

Evidence suggests that although inflation can be attributed to the growth in money supply resulting from this transfer process, and which, inter alia, is manifested in higher contract prices, the inter-relationship is more complex. The rising level of contract prices themselves led to expansion in the money supply and have, therefore, been central factors contributing to sustained inflationary pressures and expectations. Experience suggests, therefore, that prices for large contracts need more scrutiny, greater use of detailed costing reviews, and other appropriate standardized procedures for cost control.

2.5 THE EXTERNAL ECONOMY

2.5.1 The International and Domestic Significance of Foreign Trade

2.5.1.1 The background to the domestic economy's spectacular growth has been the changing international role of the OPEC countries in the world economy. The rising significance of OPEC, and of the Kingdom of Saudi Arabia within OPEC, are reflected in the changing distribution of the world's foreign exchange and other monetary and gold reserves:

Table 2-13

DISTRIBUTION OF WORLD'S TOTAL FOREIGN EXCHANGE RESERVES

(In units of SDR)⁽¹⁾

	<u>1973</u>	<u>1975</u>	<u>1977</u>	<u>1979</u>
Industrial countries	62.9	53.7	53.3	57.4
OPEC	7.9	24.9	23.8	15.7
of which				
Saudi Arabia ⁽²⁾				
as a percentage	26.7	41.2	39.7	31.2

1) The average value of 1 SDR during the period 1974-1979 was approximately \$ 1.20.

2) Excluding Government long-term foreign assets.

Source: IMF

2.5.1.2 The most important consequence of the Kingdom's growing international liquidity on international trade has been the rise in imports. Between 1394/95 and 1398/99, the value of imports increased almost fourfold in current value terms from SR 27.3 billion to over SR 104.4 billion. As shown in Table 2-14, by the end of 1398, the Kingdom joined the ranks of the leading trading nations in both exports and imports.

Table 2-14

SAUDI ARABIA'S RELATIVE WEIGHT IN WORLD TRADE

<u>Year</u>	<u>Exports</u>		<u>Imports</u>	
	<u>Percentage Share</u>	<u>Rank (No.)</u>	<u>Percentage Share</u>	<u>Rank (No.)</u>
1395	3.5	10	0.5	34
1396	4.0	10	0.9	21
1397	4.0	10	1.4	13
1398	3.2	10	1.9	11

Source: SAMA/IMF: International Financial Statistics.

2.5.2 Trends in Foreign Trade

Two important developments in the Kingdom's foreign trade have typified the Second Plan period. The first has been the rising level of imports. The consequent narrowing of the Kingdom's trade surplus from SR 87.2 billion in 1394/95 to SR 45.4 billion in 1398/99, indicates that, as a percentage of exports, imports have risen from 23.8% in 1394/95 to 69.7% in 1398/99.

The second development has been the declining contribution of oil exports to GDP, from 82.0% in 1394/95 to 60.3% in 1398/99.

These developments are shown in Table 2-15.

Table 2-15

SIGNIFICANCE OF FOREIGN TRADE IN THE ECONOMY

	<u>Growth of foreign trade</u> (Current prices, SR billions)		
	1394/95	1396/97	1398/99
GDP (incl. import duties)	139.6	205.1	248.4
Exports	114.5	140.3	149.8
Imports	27.3	62.7	104.4
Balance of trade	87.2	77.6	45.4

	<u>Exports and Imports as a percentage of GDP</u>		
Exports	82.0	68.4	60.3
Imports	19.5	30.6	42.0

Source: CDS National Accounts.

2.5.2.1 Oil Exports

The important features of oil exports from the Kingdom are presented in Table 2-16 . (Due to the international nature of the oil industry, the reported statistics from the oil companies are presented in Gregorian years).

2.5.2.2 Imports

The analysis as shown in Table 2-17 of the product composition of the Kingdom's imports for the two consecutive four-year periods 1389/90-1392/93 and 1393/94-1396/97, confirms the growing proportion of materials and machinery imports during the Second Plan period at the expense of food imports.

Table 2-16

SAUDI ARABIAN OIL EXPORTS

	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u> ⁽¹⁾
Crude (m.b.d.)	4.19	5.45	7.01	7.91	6.59	8.04	8.59	7.69	8.80
Refined oil as percentage of crude	12.7	10.5	8.3	7.3	7.3	7.0	6.0	6.4	5.1
Total value in SR Billion	16.04	22.65	33.51	125.60	104.08	135.91	153.40	127.89	180.0

(1) M.O.P. Estimate

Source: SAMA Statistical Survey, First Issue 1979

Table 2-17

CHANGES IN PRODUCT COMPOSITION OF IMPORTS

<u>Category</u>	<u>Average percentage share</u>	
	<u>1389/90-1392/93</u>	<u>1393/94-1396/97</u>
Food products	26.7	12.3
Crude materials	17.2	23.6
Chemicals	8.1	5.7
Machinery/transport equipment	34.7	41.5
Miscellaneous	13.3	16.9
<u>Total</u>	100.0	100.0
of which:		
Construction materials	14.3	19.9
Cars	7.0	11.0
Consumer manufactures	11.8	14.4
Total Value (SR million)	18,769	107,325

Source: SAMA

Parallel to the changes in the product composition of the Kingdom's imports, there has also been a geographical shift in the origin of imports towards Western Europe, whose share of the total imports rose from 28.4 % in 1392/93 to 37.6 % in 1396/97.

Table 2-18

GEOGRAPHICAL ORIGIN OF IMPORTS

	<u>Percentage share of country/region</u>	
	<u>1392/93</u>	<u>1396/97</u>
U.S.A	19.1	18.6
Japan	15.4	11.6
W. Europe	28.4	37.6
(EEC)	(25.4)	(30.2)
Middle East	21.2	14.0
Asia (excl. Japan)	7.5	8.7
Africa	2.4	0.9
Other	6.0	8.6
Total	100.0	100.0

Source: SAMA

2.5.3 Balance of Payments

2.5.3.1 Table 2-19 presents the structure of the Kingdom's international payments position. The table relates to the period of (Gregorian) calendar years 1971-1977 and gives data in percentages derived from U.N. information.

2.5.3.2 There are three main features in this structure of the balance of payments. First, unrequited transfers are rising on both government and private accounts. The former represent the government's foreign aid and subscriptions to international financial institutions; the latter have lately included as their largest component the remittances of foreigners working in the Kingdom. Second, the figures for the private sector's capital transactions indicate a growing outflow of private capital (which is further confirmed by the trend in the monetary sector's balances). Finally, the fluctuating balance of the oil sector reflects the complex, two-way nature of capital transactions in the period.

Table 2-19

THE FUNCTIONAL COMPOSITION OF THE BALANCE OF PAYMENTS

Percentage contribution to the annual positive balance of "Goods and Services"

<u>Category/Sector</u>	<u>1971</u>	<u>Percentage</u>		<u>1977</u>
		<u>1973</u>	<u>1975</u>	
1. Unrequited transfers:				
Government	5.8	16.1	17.5	21.3
Private	17.5	12.7	4.7	8.3
2. Capital transactions:				
Private	4.4	(5.2)	4.8	10.9
Oil	3.3	22.5	(10.3)	(2.3)
3. Monetary Sector transactions	1.9	1.1	0.8	3.7
4. Reserves incl. Government long-term assets	67.1	52.8	82.5	58.1
5. Total Balance of Goods & Services	100.0	100.0	100.0	100.0

Figures in (–) indicate net inflows.

2.6 SOCIAL DEVELOPMENT DURING THE SECOND PLAN PERIOD

2.6.1 The Strategy and Objectives of Social Development

2.6.1.1 The character and the objectives of Social Development are determined by the basic long-term goals and principles of development in Saudi Arabia, which have been stated in Chapter 1. The fundamental goals for social development in the Second Development Plan were to maintain the religious and moral values of Islam, to increase the well-being of all groups within the society, and to foster social stability under circumstances of rapid economic change; whilst the particular objectives for the Second Plan were:

- (1) To significantly raise health and living standards;
- (2) To ensure that all citizens share in the growing prosperity of the Kingdom;
- (3) To ensure that no family should be prevented by large numbers, misfortune or lack of opportunities for employment, from obtaining the basic necessities of life;
- (4) To bring to rural and nomadic communities health and welfare services comparable to those available to residents in urban communities;

2.6.1.2 Thus, in practical terms the Second Plan was intended to provide immediate and direct benefits from the Kingdom's oil wealth to all the citizens, through a broad range of free health and social services, through the improvement of physical facilities and utilities, through easy credit terms for housing and personal loans, through cheap subsidized prices for a variety of basic goods and services, and through the immense opportunities generated by a thriving economy. At the same time, the Government has always been concerned to prevent rapid economic expansion causing abuse or social disruption.

2.6.2 Innovations in Social Planning

2.6.2.1 Saudi Arabia is one of the few countries in the world with integrated economic, social and physical planning for the development of the society and economy as a whole, and the Second Development Plan was the first occasion in the Kingdom when the fully integrated approach was applied to planning on a national scale. The functions of the various government agencies in providing social services and administering social development were increased and broadened in scope, and in addition to the conventional social services, an array of mechanisms was introduced to intervene in the market to provide direct social benefits to people who would otherwise be deprived. These interventions were fiscal, economic and legislative, and included consumer subsidies, easy credit terms, development aids and producer subsidies, and legal requirements on employers to provide medical care, insurance, and special opportunities for the disabled. This system of social support is one of the greatest achievements of the Second Plan. Individually, each mechanism may appear to be relatively minor, but when taken together, and when the social consequences of their withdrawal are carefully examined, it is clear that they constitute a vital and comprehensive system of social support and make a direct contribution to social well-being, and to minimizing the social disruptions of rapid economic growth.

2.6.3 Improvements in Standards of Living and Quality of Life

2.6.3.1 Standards of living may be measured according to a variety of criteria and methods, but whichever technique is chosen, it is clear that there has been a considerable and definite improvement in the average material standards of living of the population. Per capita GDP is a common international measurement, and the per capita GDP in Saudi Arabia has doubled (in current prices) during the Second Plan Period, to reach SR 43,400 in 1400. This gives the Kingdom one of the highest nominal per capita incomes in the world. Much of this increase has been due to inflation; in real terms (based on 1399/1400 prices) per capita GDP increased by 26.4% over the Second Plan. However, it is not sufficient to measure increases in living standards solely by per capita GDP. Substantial investment by the Government in the social services contributes directly to society's welfare - such as in education, health, social welfare, housing and community services. In addition, the Government provides subsidies on food, travel, utilities, gasoline and other items. All these may together be called "Social Benefit", and estimates indicate that this "Social Benefit" contributed an additional 29% to average income levels during the Second Plan Period. Earned income levels per head of total population rose from approximately SR 4,800 in 1395, to about SR 8,200 in 1400 (in 1399/1400 constant prices).

2.6.3.2 The genuine improvements in the quality of life have been tempered somewhat by a number of disruptions and inconveniences which are the unfortunate but unavoidable side effects of rapid development even though they are temporary by nature. In general, it can now be said that the Saudi Arabian population is relatively prosperous. While there are still large numbers of people who can be described as deprived, in certain aspects, they now form the minority. This is an outstanding achievement in what is still a developing country.

2.6.3.3 At the same time, the expanding economy of the country has given many people opportunities to find new employment, increase their personal wealth, improve their family's standard of living, and to convert their new affluence and leisure into productive and fulfilling private lives. For people with education, initiative and a capacity for hard work, the economic conditions during the Second Plan period gave limitless opportunities for personal achievements, and the rewards that are attendant. For those who lacked the skills or the genuine opportunity to benefit from the new opportunities, the Government provided social assistance.

2.6.4 Features of Change and Continuity in Society

2.6.4.1 The Second Development Plan has probably been the most concentrated period of change in the history of Saudi Arabia. The country has undergone many other far reaching and probably more significant periods of change - in particular when it was forged into a single great nation by King Abdul Aziz - but none has witnessed such a great variety and intensity of economic, physical and social changes compressed within such a short time.

2.6.4.2 It is useful to distinguish the various types of change which have been experienced. There have certainly been vast changes in the physical environment of all the cities and many of the villages of the Kingdom; in the material standards of living; some changes in the style of life; and there have been significant changes in the distribution of population, with a high rate of urban drift and consequent rural depopulation. Table 2-20 indicates the extent to which the distribution of population has changed, while the information provided in the sections above on economic development, demonstrates the very extensive changes in employment structure. The general picture is one of rapid urbanization, and change from agricultural and agrarian service occupations to new occupations in urban services and as salaried employees in government. There is, as yet, little employment in industry.

Table 2-20

DISTRIBUTION OF TOTAL POPULATION (Percent)

	<u>1390</u>	<u>1395</u>	<u>1400</u>
Percentage living in metropolitan centers (population more than 100,000)	20	35	42
Percentage living in small towns	20	16	12
Percentage living in rural areas	60	49	46
Total	<u>100</u>	<u>100</u>	<u>100</u>

Source: Ministry of Planning Estimates.

2.6.4.3 However, it is possible to concentrate on the changes and miss the continuity and stability of the basic structure of society. The traditional institutions of Saudi society still constitute the fundamental social units - the extended family, neighborhood and village groups - and traditional relationships are still the dominant features of the social structure, although they may have been modified by migration, occupational change, the education of the younger generation, and new perceptions of status. During the Second Plan period, people were moving into the cities, changing their occupations, acquiring more wealth, learning new tastes and attitudes, giving more education to their children, and moving into new houses, but essentially retaining their customary life style, values, and personal networks.

2.6.5 The Main Problems for Social Development During the Second Plan Period

Although the Second Development Plan period witnessed great progress, there are still numerous problems which have not yet been resolved. Some of these are social problems, relating to the prevailing social conditions of the country, and some are administrative problems, relating to the administration of social development services and social development planning.

2.6.5.1 Low Income. Poverty is still a social problem, and although it is by no means as widespread as before, there is still a large number of people with low incomes. In particular, for those who are uneducated, untrained in new skills, and resident in isolated rural villages, there are few realistic opportunities for improvement, especially for the older unqualified men who have witnessed the new opportunities being reaped by younger men who have the advantages of education and training in modern techniques. Many of the low-income groups have been greatly assisted by the government services, but these are remedial programs which can only alleviate poor conditions, not eliminate them. Obviously there is no simple cure for low incomes and every country in the world, even the most affluent, has part of its population living on low incomes. Hence the Third Plan will emphasize literacy campaigns and community development programs.

2.6.5.2 Dependency on Government Welfare. Another social problem derives paradoxically from the successes in increasing income levels. The extensive social assistance and welfare services have certainly made great achievements in reducing the incidence of deprivation, and in so doing have especially benefitted those who are in the lower income groups, though not seriously deprived. This should by no means be regarded as a failure on the part of social services, since their function is to raise general standards of living as well as to remedy deprivation.

Nevertheless, these benefits have contributed to a partial erosion of incentives to improve living standards through individual effort, and a tendency among sections of the population to rely on government aid for improvement. However, it is recognized that social services are only part of this tendency; more significant is the fact that many people do not have realistic opportunities to sufficiently improve their living standards through their own efforts, mainly due to lack of education or training. There are certain particular economic and social features which mean that the extra effort of more work, or of training which can only provide qualifications for relatively low paid jobs, may be perceived as not generating sufficient extra income to justify the extra efforts. Thus there are significant economic factors as well as the welfare services which contribute to dependency on government aid. Nevertheless, it is clear that social welfare services and mechanisms will have to be applied more selectively in the future to benefit the most underprivileged.

2.6.5.3 Problems of Reconciling Traditional Values and Rapid Economic Change. During the Second Plan there was widespread concern in Government and among citizens over the dangers of traditional culture and values being undermined by alien values and a spirit of materialism. This problem is difficult to deal with, first, because it is unquantifiable, and second, because it has numerous causes which may be attributed not only to cultural and educational factors and the abundance of wealth, but also to economic, physical and managerial factors. Hence these problems require very careful diagnosis and a well planned combination of cultural, economic, social, legislative and managerial solutions. The main concern in the future will be to try and ensure that the new conditions in which people are living will not force other, perhaps unwanted, social changes.

2.6.5.4 Health Conditions. The health services have been expanded and improved, and health conditions have also improved considerably, through a combination of improved physical environment, better health education and preventive medicine, and increased access to good medical treatment. However, the health of the nation is not yet satisfactory, with high rates of infant mortality, malnutrition, and serious diseases. Furthermore, the health services are not yet extensive or comprehensive enough to fulfill all the needs for health care. These problems will receive particular attention during the Third Plan.

2.7 REGIONAL DEVELOPMENT DURING THE SECOND PLAN

2.7.1 Introduction

2.7.1.1 For planning purposes, the Kingdom has been divided into five main regions - Northern, Western, Eastern, Southwestern, and Central. Historically, development has tended to concentrate in the main metropolitan centers of the Kingdom: Riyadh, Jeddah and Dammam. The strategy for the Second Plan gave great emphasis to the development of all the regions of the Kingdom. Developments at the regional level during this period were closely connected to the overall and sectoral performance achieved by the Kingdom, and although the rapid sectoral progress could not have occurred without exerting a beneficial impact on rural areas, a significant innovation during the Second Development Plan was the concerted effort to eliminate regional disparities. The Plan's strategy for regional development was reemphasized in 1398 by the Select Committee of the Council of Ministers, which confirmed the government's commitment to assist the regions, and especially rural areas, to develop productive activities which would enable them to retain as many of their inhabitants as possible, to extend the distribution of services, and to help the local communities in accordance with the principles of Islam.

2.7.1.2 The direct methods to stimulate regional development were: the specialized and comprehensive regional or community development studies; the establishment of units within the government machinery to deal with sub-national issues and problems; the strategies that were initiated by the Council of Ministers and which were subsequently refined into operational policies by individual ministries; the major investments in the new regional growth poles of Jubail and Yanbu; the transnational gas pipeline; and the rural electrification program.

2.7.1.3 Other methods were the efforts of individual agencies to favor the less developed areas of the Kingdom, including the setting up of special programs for eliminating regional disparities in the provision of services. Consequently, the extension of health, social, and communications services fall within this category, since they were directed at the regional or community level.

2.7.2 Regional Disparities

2.7.2.1 By the beginning of the Second Development Plan the five regional socio-economic studies sponsored by the Ministry of Planning had been completed. These studies and parallel work by other agencies indicated that there were significant regional imbalances both in terms of the structure of economic activity and of employment (see Tables 2-21 and 2-22). For ex-

Table 2-21
PERCENTAGE DISTRIBUTION OF REGIONAL GDP BY MAJOR ACTIVITY 1396/97
REGION

<u>Activity</u>	<u>Western</u>	<u>Eastern</u>	<u>Central</u>	<u>Southwestern</u>	<u>Northern</u>
Oil and oil taxes	0.8	90.7	0.3	-	-
Non-oil	99.2	9.3	99.7	100.0	100.0
Total	100.0	100.0	100.0	100.0	100.0
<u>Composition of non-oil GDP</u>					
Agriculture	3.1	4.9	5.6	33.2	32.2
Manufacturing, mining and utilities	6.7	6.5	6.2	3.1	2.6
Construction	25.9	26.5	25.1	16.3	16.7
Distribution	26.6	21.7	21.7	11.8	8.0
Transport & communications	4.9	8.8	4.3	4.3	8.3
Other services	22.7	21.7	24.5	15.5	16.5
Government services	10.2	9.8	12.6	16.0	15.8
Total non-oil GDP	100.0	100.0	100.0	100.0	100.0

Notes: The imputed values of consumption of own production and rent of owner-occupiers have been included in the calculation of the table. The figures do not add up to 100 % due to rounding.

Source: Ministry of Planning.

Table 2-22
LABOR FORCE DISTRIBUTION BY NATIONALITY GROUP AND
PLANNING REGIONS: 1394

<u>Planning Regions</u>	<u>Percent of Total Labor Force</u>	<u>Non-Saudis as Percentage of Regional Labor Force</u>
Western	34.6	42.0
Eastern	11.9	37.0
Central	23.1	34.0
Southwestern	20.0	15.0
Northern	10.4	9.0
Total/average	100.0	30.0

Source: CDS Population Census, 1394.

ample, the Northern and Southwestern Regions had an unduly high share of low productivity occupations with an above average rate of outward migration.

2.7.2.2 The predominance of agriculture in the economic life of the Northern and Southwestern Regions is shown in Table 2-21, which estimates the regional composition of GDP by major economic activity. It is also apparent that, excluding the oil producing sector (an activity mainly confined to the Eastern Region), the composition of GDP broadly follows the employment pattern in each region.

2.7.2.3 In all, the regional studies conducted by various government agencies were important in increasing the awareness of the significance of regional planning and community development in national planning. It is equally true, however, that a number of ministries and other agencies began independently to pay greater attention to the impact of their activities at the regional level. The benefits of these proposals, however, were only beginning to be realized during the end of the Second Development Plan, and rural development was influenced more by the direct activities of different agencies in their respective sectors. New proposals, strategies and programs for regional development were, therefore, prepared for the Third Plan.

2.8 GOVERNMENT ADMINISTRATION DURING THE SECOND PLAN

2.8.1 New Government Organizations.

During the Second Plan, the government administrative structure was extensively modified, so that by the end of the Second Plan there is a total of 20 ministries, incorporating a total of 66 administrative agencies with their own separate budget allocations and special responsibilities, in comparison to 14 ministries in 1395.

2.8.1.1 These changes were made since the rapid development of the Saudi economy requires frequent reassessment of the government's capacity for properly administering public programs. By the end of the First Plan it was found that many ministries had been required to greatly extend their responsibilities and activities, and it was considered that smaller, streamlined executive agencies were needed to effectively implement the development plans. Thus major organizational changes were made effective in Shawal 1395. They involved the separation of the former Ministry of Commerce and Industry into two agencies: the Ministry of Commerce and the Ministry of Industry and Electricity, and the establishment of the new Ministries of Municipal and Rural Affairs; Higher Education; Public Works and Housing; Posts, Telephones

and Telegraph; and Planning.

2.8.1.2 The Saudi Basic Industries Corporation was established by the Royal Decree of 13/9/1396, with the responsibility for undertaking the establishment and operation of hydro-carbon-based industries, basic metal industries and any other strategic and viable industries that the private sector might be unable to establish.

2.8.1.3 The Royal Commission for Jubail and Yanbu was established by Royal Decree on 16/6/1395, for the task of laying the basic infrastructure foundations to transform the two regions of Jubail and Yanbu into industrial areas.

2.8.1.4 The Saudi Ports Authority was established in Ramadan 1396 with the objectives of creating sufficient unloading capacity in the Kingdom's ports to absorb the demand for unloading facilities during the planned import boom, and to operate the ports on the principle of self-financing and managerial autonomy.

2.8.1.5 In Dhul Hijja 1397, the Government framed the bylaws for a Saudi Arabian National Center for Science and Technology, with the responsibility, inter alia, of devising a national science and technology policy directed towards, and consistent with, the social and economic development of the Kingdom.

2.8.2 Administrative Innovation

2.8.2.1 In all, government administration was greatly improved during the Second Plan period. A large number of civil servants was sent on training courses, and many Saudi staff with higher degrees were appointed to positions in government services. Administrative authority was devolved to the regional directors of ministry branch offices, and a new tier of senior officials was appointed as assistant deputy ministers, thereby reducing the administrative burden on the ministers and deputy ministers. The salary rates for civil servants were raised considerably, and regulations revised to give greater flexibility, thereby improving morale.

2.8.2.2 Although these institutional changes have done much to further the accomplishment of the Kingdom's development aims, a number of problems still beset the Kingdom's civil administration. Among these are:

- (1) Frequent overlapping of administrative responsibilities, leading to both high manpower demands and costs within the public services;
- (2) Under-utilization of qualified staff due to outmoded procedures and excessive centralization of decision-taking authority within agencies;
- (3) Low levels of technology employed in many government departments;
- (4) High job-vacancy levels in many critical areas;
- (5) An absence of mechanisms for coordination of programs administered by different agencies.

2.9 HIGHLIGHTS OF THE SECOND PLAN

The major emphasis of the Second Plan was on the provision of a strong and comprehensive infrastructure, but consideration was also given to the expansion of hydrocarbon-based industry and to the development and diversification of the non-oil economy. The major features of development during the Second Plan are summarized below.

2.9.1 Economic Resource Development

2.9.1.1 Much additional water supply capacity was developed during the Second Plan. Numerous groundwater studies were completed and 760 production wells were drilled or improved. In addition to the construction of 237 municipal water supply systems, and the expansion of 150 potable water systems, 28 dams for flood protection, aquifer recharging and water supply were completed, and the water supply works for Riyadh and Jeddah were expanded.

2.9.1.2 The existing water desalination and associated power generation capacities were increased to 179,000 cubic meters per day and 350 MW respectively. Six additional plants are under construction which, when completed, will bring the total installed capacity to 1,435,000 cubic meters per day and 3,145 MW.

2.9.1.3 The number of workers employed in agriculture continued to dwindle during the Plan period, but increases in productivity resulted in an average growth in output of approximately 5% per year. While the number of agricultural holdings remained substantially unchanged, dryland agriculture declined but was compensated for by a 16% increase in irrigated land. Despite generally low crop yields and extreme climatic conditions, the growth in commercial

agriculture was encouraging. By the end of the Second Plan the Kingdom was nearly 90% self-sufficient in vegetables, 70% in fresh milk, and 27% in wheat. Moreover, progress was not limited to basic agriculture. Impressive developments were also recorded in more capital intensive areas. By the end of 1398, 276 commercial poultry farms had been established, of which 118 were primarily engaged in egg production, and 12 dairy farms were in operation with an additional 16 licensed. Between 1396 and 1398, chicken meat production increased from 21,000 tons to 29,000 tons. During the same period egg production increased from 8,500 tons to 19,000 tons, with commercial milk production increasing from 17,000 tons to 22,000 tons.

2.9.1.4 In response to the growth in agricultural output the amount of agricultural credit disbursed during the period also grew significantly. During the five years of the Plan, SR 3,054 million were disbursed in over 125,000 loans. An increasing proportion of agricultural credit was used for land improvement, particularly well drilling, at the expense of machinery and supply purchases.

2.9.1.5 Throughout the period, production of crude oil averaged 8.5 million barrels per day, reaching a peak of 9.5 million barrels in 1399. The exploration program was increased and the number of drilling rigs in operation rose from 3 in 1395 to 10 in 1399. In 1396 the Government reached agreement with the shareholders of Aramco to acquire full ownership; and in 1398, construction was started on the cross-country pipeline and export terminal at Yanbu.

2.9.1.6 In 1395, the Government commenced the design and construction of the world's largest gas gathering program for the collection, fractionation, and distribution of 34 billion cubic meters of wet gas per year. The scheme, which will incorporate an east-west NGL pipeline, will be fully integrated with the capacity of 6.2 billion cubic meters a year inaugurated at the Berri field in 1398.

2.9.1.7 Although no capacity changes were made to the Kingdom's principal export refinery at Ras Tanura, an additional 100,000 barrels/day capacity was added to the two domestic oil refineries; construction commenced on a 100,000 barrel/day expansion to the Riyadh refinery and a new 170,000 barrel/day refinery at Yanbu. In 1400, two agreements were signed with international companies to construct two new export refineries with a combined capacity of 500,000 barrels per day.

2.9.1.8 By 1399, electric power was available to 4.2 million persons. This exceeded the Plan target by approximately 11%. Consumption rose from approximately 4,100 Kwh per consumer

in 1395 to over 7,000 Kwh in 1399. Installed generator capacity increased from 2,235 MW in 1395/96 to 5,207 MW by the end of 1399/1400. The rural electrification program was implemented by the General Electricity Corporation and by 1400 about 41,000 new rural households in 143 villages were provided with electricity.

2.9.1.9 Greater attention was given to solar energy production and contracts were let for the application of photo voltaic electricity generation for two villages.

2.9.1.10 The minerals sector saw the number of stone quarries in operation increase to 76. This represents nearly an eight-fold increase over the 1395 level. Eight major exploration licenses for metallic minerals were held actively, of which 5 were issued between 1395 and 1400. Although many of these were held by foreign-based companies in partnership with Petromin, Saudi companies were also actively participating in the search for minerals including copper, gold, zinc and silver. In 1395, the Saudi/Sudanese Joint Red Sea Commission was established to exploit the Red Sea metal-rich sediments.

2.9.1.11 Both of the government owned hydrocarbon-based manufacturing companies increased in size. The Saudi Arabian Fertilizer Company increased the production of urea to 300,000 tons in 1399, and the capacity of petroacid was increased by 100,000 tons per year. In 1396, the Saudi Basic Industries Corporation (SABIC) was formed to promote investments in capital intensive industries. Agreements have been signed to proceed with urea, methanol and ethylene plants.

2.9.1.12 The contribution of non-oil manufacturing to GDP in constant prices increased at an average rate of 15% per year. The number of licensed companies in production has grown from 285 at the end of 1394 to 687 by the end of 1398, with an additional 403 licensed projects under construction. Many of these ventures were entirely new to the Kingdom - such as paints, plastic pipes, electrical goods, vehicle assembly and carpet manufacture. Generally however, the growth was dominated by industries which supplied, and therefore depended on, the rapidly growing construction sector.

2.9.1.13 The Saudi Industrial Development Fund was established in 1394 to provide interest-free industrial finance to the private sector. In 1395, its terms of reference were extended to include the finance of private electricity companies. During the first four years of the Second Plan the fund disbursed SR 3.4 billion in industrial loans and SR 12.6 billion to electricity companies.

2.9.1.14 Significant contributions were made by government owned and other public sector organizations. In 1399/1400, SABIC commenced construction of a basic steel plant and linked rolling mill at Jubail and also the expansion and modernization of the Jeddah steel mill. The Grain Silos and Flour Mills Organization completed the construction of 4 grain storage complexes and 3 wheat flour and animal feed complexes, giving the Kingdom a six month storage capacity for wheat, and the capability of self-sufficiency in wheat flour.

2.9.1.15 A Royal Commission was established in 1395 to plan and construct two major industrial complexes and cities at Jubail and Yanbu, and substantial progress has already been made. In Jubail, 11,000 people are employed on construction of the infrastructure. In all, 60% of the site for primary industries has been completed, and 750 hectares for support industries. Also, 129 kilometers of roads, and 25 kilometers of modular pathways have been designed, and 63 kilometers of roads completed, while the new airport has a 4,000 meter runway capable of handling Boeing-747 freighters. Presently, there are 9 camps with housing for 15,000 workers and some of their dependents, and the water supply system has capacity for treating 15,650 cubic meters per day, and desalinating 19,000 cubic meters per day, with storage for 37,000 cubic meters. In Yanbu (where operations commenced later) 1,413 houses, and 368 workers' hostels have been completed to accommodate the work force. A new 60-bed hospital has been opened, and 3 new schools. The water system is supplied from wells pumping 2,850 cubic meters of water per day. Eventually, Jubail and Yanbu will be cities of 370,000 and 150,000 inhabitants respectively.

2.9.1.16 The commercial sectors made an impressive response to the great increases in demand. Their contribution to GDP grew at an average rate of 22% per year compared to the target rate of 15%. The number of hotels increased from 73 in 1395 to 125 in 1399, giving over 6,800 additional rooms. A further 101 licenses have been issued for hotels which will provide another 20843 rooms.

2.9.1.17 Responding to the massive program of infrastructural development, the construction industry increased its contribution to GDP by an average rate of 18% per year in constant prices. While many foreign companies were contracted for projects, the number of Saudi construction and building companies increased significantly.

2.9.2 Human Resource Development

2.9.2.1 In terms of manpower, the major development was the growth in the labor force from 1.75 million in 1395 to 2.47 million in 1400. Progress was also achieved in expanding education

and training over the First and Second Plan periods, resulting in significant improvements in the skill-level of the indigenous labor force. At the same time, following the growth in the educational system, there were more educated women entering the labor market. Civilian government employment was greatly expanded; and the regulation of the work force, as prescribed by the Labor and Workmen Law, was greatly strengthened.

2.9.2.2 The Ministry of Labor, responsible for enforcing the Labor and Workmen Law, reviewed more than 200 company regulations on employment and work procedures, published an occupational classification manual, and improved regulations relating to labor health and safety.

2.9.2.3 Largely as a result of the foundations laid in the First Plan, the achievements of the education system have been impressive. Full time student enrollment has increased from 1394/1395 by 35% to 1.21 million, of which 46,000 are enrolled in intermediate colleges, universities and postgraduate institutions. In addition, there are over 10,000 Saudi students studying abroad. The number of part-time students enrolled in night schools, part-time classes and literacy programs increased from 1394/95 by 47% to 139,000. Almost 20% of the Saudi population are participating in some form of organized education programs. The most significant achievement during the Second Plan was the rapid growth of intermediate and secondary education. The coverage of school age population in first grade classes for boys is approaching 90%.

2.9.2.4 During the Second Plan period, the total number of vocational and pre-vocational training centers increased from 9 to 26, with a cumulated capacity for 20,000 trainees. In addition, there are 29 other training institutes with a total capacity for 8,000 trainees. The number of civil servants participating in the programs of the Institute of Public Administration increased from 1,353 in 1395/96 to over 4,500 in 1400.

2.9.3 Social Development

2.9.3.1 During the Second Plan period, the government social development services were expanded in both scale and scope. Priority was given to the expansion of health and social welfare services and to direct social assistance schemes.

2.9.3.2 The main thrust of the health service was toward the improvement of hospital services. The number of government and private hospitals increased from 91 to 103, and the number of hospital beds from 9,800 to 16,500, with more hospitals with a capacity of another 4,000 beds under construction in 1400. In addition, there are now over 1,300 dispensaries, clinics and health centers. New highly specialized acute care was provided within the Kingdom for the first

time with the opening of the 250 bed King Faisal Specialist Hospital, and the expansion of military hospitals in Riyadh and Khamis Mushayt, while specialized treatment in the general hospitals was greatly extended, and the general quality of health care upgraded. At the same time, preparations were made to expand the scope of health services, to give a greater concentration on preventive medicine, health education, primary care and environmental health. Medical training was strongly emphasized with the opening of new medical colleges in King Abdul Aziz and King Faisal Universities. By 1399/1400 there were nearly 2,700 medical students enrolled.

2.9.3.3 Substantial progress was made by the Government to increase the availability of social services within the Kingdom. Social care and rehabilitation are provided for the disabled, orphaned and aged unable to look after themselves, and for juvenile offenders. During the last five years the number of orphanages and child care institutions has increased from 18 to 25, and homes for old people and the handicapped doubled from 7 to 14 establishments in addition to 15 establishments administered by private benevolent societies, which altogether provide the capacity to care for over 3,500 people. The number of foster families also increased from 548 in 1395 to 823 in 1400.

2.9.3.4 Government social security payments in the form of stipendiary pensions and temporary relief assistance increased substantially during the period. In 1400, there were nearly 723,000 beneficiaries of pensions and nearly 123,000 beneficiaries of relief assistance, compared to the 1395 levels of 531,000 and 64,000 respectively. Moreover, the stipendiary pension increased to a maximum of SR 1,620 per year for the family head and SR 1,080 for each dependent, to a maximum of SR 8,000 per family. The number of social security offices increased to 67, compared to 49 in 1395.

2.9.3.5 The Social Insurance program has been extended to include an occupational hazards scheme which provides benefits for the employee and his dependents in the event of temporary disability caused by sickness or injury attributed to occupation. In 1400, almost 700,000 workers had enrolled in the social security scheme compared to just under 200,000 in 1395.

2.9.3.6 The growth of sports activities during the Second Plan has been most successful. The number of sports clubs increased from 53 in 1395 to 128 in 1400, and membership increased from 15,000 to 36,000. The number of sports federations increased from 5 to 13, training institutions more than quadrupled from 3 to 14, and public sport facilities (excluding those in schools and universities) were increased from 6 to 15. In 1400, there were 30 Youth Hostels administered by the Government, of which 3 had been completed in 1400.

2.9.3.7 Arts and cultural activities are also expanding rapidly. In 1400, there are 3 arts and cultural societies, with seven literary club branches, and many cultural societies attached to the schools and institutes of higher education. The events organized by the societies typically include conferences and seminars on religious, historical or literary subjects; theater productions; performances of music; arts competitions and exhibitions; and frequently the production of local journals on artistic and literary subjects. In 1400, there are 1,100 school theater groups, with regional and national drama festivals, involving well over 40,000 school children.

2.9.4 Physical Infrastructure

2.9.4.1 The program to provide the Kingdom with a modern telecommunications system received great impetus during the Second Development Plan period. A project was begun to increase telephone exchange line capacity to 697,000 lines. At the end of 1399/1400 the total capacity, including additions from the new project, was 452,000 lines. A major microwave network program was completed, linking the cities with most regional towns.

2.9.4.2 The geographical coverage of Postal Services expanded. By the end of 1400, there are 383 assigned post offices, and construction began on three major postal complexes in Riyadh, Jeddah and Dammam. Programs to improve postal methods and procedures to accelerate processing of the rapidly increasing volume of mail received the greatest emphasis during the five year period.

2.9.4.3 The inadequacies of the transport system became quite apparent in 1395/96, as the development program expanded rapidly. This problem was immediately attacked by emergency measures. On a long-term basis, more facilities were added so that all transport bottlenecks had been overcome by 1399/1400. In addition, the Saudi Arabian Public Transport Corporation was formed to provide a public bus service within and between the major cities of the Kingdom.

2.9.4.4 In addition to the construction of ports dedicated to specialized purposes, 106 commercial berths were constructed during the Second Plan, including 16 at the new commercial port of Jubail. This brought the total number of commercial berths to 130 compared to 24 at the beginning of the Plan. New handling and storage facilities were also introduced along with new systems and procedures including containerization and RORO to improve the productivity of ports. These measures, combined with the new facilities, increased annual port capacity to 41.3 million DWT.

2.9.4.5 The paved road network was increased by 9,277 km (63%) bringing the total to 21,447 km. The rural network increased by 14,680 km (47%). Attention was also given to increasing road safety through better design, more grade-separated intersections, better traffic signalling, and the construction of dual highways.

2.9.4.6 Although no major additions were made to the railroad line, almost 45% of the total 562 km were replaced and contracts have been let for the replacement of an additional 95 km. There were substantial increases in rolling stock. The number of main line locomotives increased by 75% and by the end of the period there were over 1,500 freight cars. Both long distance freight and passenger traffic increased by 50% over the period.

2.9.4.7 A new international airport was constructed at Jeddah and will be operational in early 1401. The design was completed and construction began on a new international airport in the capital city of Riyadh. The national air carrier SAUDIA experienced a passenger growth rate of 45% per year during the period. The domestic network is now 31,800 km, and the international network has been expanded to 132,500 km covering 38 cities. Coping with this growth has required improvements in both methods and equipment. Twenty-four aircraft were purchased bringing the total jet fleet to 38. An additional 5 wide-bodied and 6 jumbo aircraft have been ordered. In addition, the airline leased aircraft, including service and maintenance, and entered into pools and agreements with other airlines to meet international needs.

2.9.4.8 The progress made in the development of the municipalities has been impressive. In addition to land expropriations, over 1,200 municipal projects were completed during the period with an additional 77 nearing completion. These projects include installation and construction of water pipelines, water tanks, and wells; drainage, sewage and flood protection schemes; asphaltting of roads; street lighting projects; and building projects ranging from municipal buildings to the provision of parks and gardens. Moreover, the number of municipalities increased from 85 to 106 thus bringing a wide range of amenities to a broader section of the population.

2.9.4.9 Although the targets for the Second Plan have not been entirely achieved, progress has been made in increasing the number, and improving the quality of housing in the Kingdom. More than 40,000 units per year were constructed during the Second Plan period compared to 17,500 per year during the First Plan. About 3,600 apartments have been constructed in two rush high-rise projects located in Jeddah and Damman, and another 1,152 apartments

for Riyadh in the last rush high-rise program were begun in late 1399. Construction is also under way on 13,753 villas and apartments scheduled for completion in 1402. The private sector was responsible for providing an additional 150,000 permanent dwellings which exceeded the plan target of 122,000, while contracting companies supplied over 51,000 temporary housing units for their manpower. During the Plan period the Real Estate Development Fund disbursed more than SR 31.5 billion to individuals and companies for the construction of new housing. This low cost residential credit made available by the Government was principally responsible for the success in private sector house construction.

2.9.5 Hajj

2.9.5.1 The pilgrims arriving for the Hajj continued at a very high level. In 1399, a total of 862,520 non-Saudi pilgrims joined hundreds of thousands of Saudis for the Hajj. During the Second Plan period the Government greatly expanded all the facilities for pilgrims, so that the increasing numbers of pilgrims can be accommodated with complete safety.

CHAPTER 3

THE STRATEGY FOR THE THIRD PLAN

3. THE STRATEGY FOR THE THIRD PLAN

3.1 GUIDELINES FOR THE STRATEGY FOR THE THIRD PLAN

As has been outlined in Chapter I, the strategy for the Third Plan has three fundamental objectives:

- (1) Structural change in the economy;
- (2) Increased participation and social welfare in development;
- (3) Increased economic and administrative efficiency.

The general policies and the macro-economic changes which will be introduced to implement this strategy are described in this Chapter. The specific objectives, policies and development programs for each individual economic sector and government agency are derived directly from the general policies, and are described in Chapters 4 through 8.

3.1.1 Structural Change in the Economy

The policies which will be introduced to achieve structural changes in the economy concern three main areas of economic activity - oil and gas production, the development of the productive sectors of agriculture, industry and mining, and development of physical infrastructure. The development programs to implement the policies for these areas are summarized in Chapters 4 and 7.

3.1.1.1 Oil and Gas Production. The production of oil and gas is the most crucial single factor in the development of the Kingdom's economy as, indirectly, oil production policies also determine the scope for policies for most of the other sectors. The objectives for oil and gas production are: to conserve this national wealth for the longest possible time so as to increase the long-term potential for valueadded development; and to fix the levels of crude production to generate sufficient revenue, together with that from monetary reserves, to cover the financial requirements for the Development Plan.

To achieve these objectives the Government has adopted the following policies for the two main areas of crude oil production, and development of oil and gas reserves:

- (1) The levels of crude oil production will be determined according to the volumes required to generate sufficient finance for the Kingdom's development.
- (2) Development of oil and gas reserves: natural gas resources will be harnessed, utilized and processed to the greatest possible extent, while crude oil production will be balanced between heavy and light crudes (according to their reserves), and among the various oil fields, to obtain optimum production levels.

3.1.1.2 Development of the Producing Sectors. Diversification of the economy is one of the fundamental long-term goals of development, and the strategy for the Third Plan is to accelerate the process of diversification.

The objective for economic development is to give priority to investment in the producing sectors of agriculture, industry, and mining.

It is government policy that the development of the producing sectors will be undertaken primarily by the private sector, and that the government's role is to support and stimulate the private sector in its tasks. This will be done through providing information and research on investment and all necessary support with infrastructure and services, and setting priorities for investments.

- (1) Information and research for investment will be provided through informing citizens of opportunities for investment in the producing sectors; conducting more investment, marketing and economic feasibility studies; periodic publication of the results of minerals prospecting surveys undertaken by the Government, with encouragement to develop these raw materials; and providing support to institutes and programs for applied research.
- (2) Finance for private investment will be arranged through continuing to award incentives and facilities for productive investment and improving the procedures for their award; ensuring that there will be full coordination among all concerned before the termination of any subsidy so as to avoid any deleterious side-effects; urging private commercial banks to assist productive projects rather than concentrate on

financing import-export trade; encouraging the establishment of more joint-stock companies to undertake large scale projects and provide citizens with more opportunities for investment; and devising an appropriate system for the exchange of stock which will both encourage investment and prevent speculation.

(3) Infrastructure will be completed and services such as maintenance, marketing and transport will be encouraged where they are needed to support productive industries.

(4) Priorities for investment will be set by encouraging large-scale mechanized agricultural projects; directing investment to projects which introduce appropriate and new economic technologies; and by maximizing the value-added from crude oil production through developing hydrocarbon based industries.

3.1.1.3 Development of Physical Infrastructure. The strategy for the Third Plan requires that the volume of investment in physical infrastructure will be reduced in relation to other sectors, so as to accelerate the development of the producing sectors and thereby induce structural changes in the economy. The objectives for the development of physical infrastructure are: to complete the projects which were actually commenced during the Second Plan period; to continue to provide necessary physical infrastructure, particularly in those areas of the Kingdom which have a proven potential for production.

These objectives will be related to three main activities: concentration of investment in areas with proven potential for growth, municipal development and economic development.

(1) The concentration of investment in growth areas has been a significant consideration during preparation of the Plan. The policy for the development of physical infrastructure is to select those areas which can be identified as having potential to become growth centers for productive economic activities, capable of attracting and absorbing the population from other areas which lack such potential; and to concentrate the services and activities of all government agencies in these designated growth areas.

(2) Municipal Development will be controlled by integrated planning in municipal areas, in order to coordinate the provision of utilities, public services infrastructure for productive projects and other facilities; and to limit the development of residential areas within designated planning zones.

(3) Economic Development. Particular attention will be devoted to the development of infrastructure for the support of the hydrocarbon - based industrial areas on the two coasts. Physical infrastructure to overcome any potential supply bottlenecks will receive priority attention.

3.1.2 Participation and Welfare in Development

Participation and welfare will be attained through the various social development programs, with five particular objectives: to encourage and assist all members of Saudi society to make an effective contribution, as far as they are able, to the development of the nation; to ensure that all regions and areas of the Kingdom have the opportunity to develop their full potential, and that they are provided with the full range of government services; to assist Saudi society in dealing with the problems of rapid economic and social change; to control inflation to acceptable levels and to reduce subsidies without affecting lower income groups; to expand and improve the social services.

These five objectives will be attained by policies which cover a variety of programs, services, and administrative mechanisms, which are described in detail in Chapters 6 and 9.

3.1.2.1 Contribution to Development. This will be stimulated through three main policies:

(1) Public information programs will be designed to inform citizens of the opportunities which are open to them, to explain that the contribution of every individual is a vital element to support the whole development process, and thus to encourage the spirit of enterprise. Information about development will be provided through the public media, paying particular attention to enhancing the importance and respectability of labor and especially the importance of vocational training . Emphasis will also be put on orienting and encouraging women toward the careers open to them and explaining to the population the contribution expected from them in achieving Development Plan goals. Further attention will be given to information programs on family topics (the raising of children, nutrition, hygiene), and the importance of local self - help social programs.

(2) Religious and social guidance will continue to be given the highest priority in schools, institutes and universities, with a view to reinforcing the Islamic faith and its high principles among children and students at all levels; to instilling in them a full and deep appreciation of manual labor and vocational training; and advising them of their roles in the development process and in dealing with the social problems inherent in development.

(3) There will be direct methods to involve citizens. The Government will actively encourage more private welfare through benevolent societies, and significantly expand community development techniques and advice, which are designed to help people to help themselves, especially in the rural areas. Particular importance will be attached to adult education and literacy campaigns with a view to the total eradication of illiteracy within the shortest possible time. Successful completion of this goal will greatly hasten the pace of development and overcome one of the major constraints to development. Vocational rehabilitation of the disabled will also be increased, so as to enable as many people as possible to participate in the opportunities of development.

In addition to these exhortative measures which will be introduced largely through government services, there will be a series of administrative and management mechanisms designed to encourage participation in development. It is recognized that participation in development cannot be attained purely through information, cultural and educational programs, but must also be encouraged through economic and social programs which actually provide realistic opportunities and eliminate genuine economic and social constraints on participation.

Such opportunities will be provided by the national and regional strategies, which will generate increasing employment possibilities for Saudis throughout the Kingdom. Management and administrative programs are also needed to ensure that there are fair and good rewards for an individual's efforts in development. The manpower strategy has a critical role to play in encouraging participation, through restricting both the numbers and roles of foreign workers, so that there is both a compulsion on employers to recruit Saudis, and every opportunity for Saudis to find employment.

The constraints on individuals taking up employment opportunities will be overcome also by the national and regional strategies, and by the policies for the administration of social services. For example, facilities will be given to enable Saudis to seek opportunities throughout the Kingdom and still keep in touch with their original home, through subsidized transport

fares. The social services will be administered more selectively than in the past, so that they directly benefit the most disadvantaged while not providing unnecessary support to those able to improve their conditions through their own efforts.

There will also be more emphasis on research to diagnose any apparent problems and constraints affecting the participation of citizens in development, so as to improve the appropriate measures to be applied, whether economic, social, financial, legal, administrative or managerial. The universities will have an important role in this respect.

3.1.2.2 Regional Development. Regional Development will be a significant part of the strategy to increase participation and provide welfare, and will be stimulated through a new system of national, regional and district development service centers. This system, which will have a crucial role to play in many aspects in addition to social development, is described in Section 3.7 below.

3.1.2.3 Problems of Rapid Economic and Social Change. It is recognized that there are frequent conflicts between the different methods required to maintain social stability and welfare and those to stimulate economic growth, since growth frequently is accompanied by social disruption (for example, by requiring the rapid redeployment of manpower and by clearing old settlements for new infrastructure) and also may place limits on the diversion of financial and manpower resources into welfare services.

The issue for planning is thus one of managing the process of development so that an appropriate balance between the priorities of growth and the priorities of social stability and welfare are maintained.

The Government's policy is that this balance will be maintained by careful planning and continued wise administration. As far as the social aspects of development are concerned, there will be three major roles which will be performed by the government social development agencies. They will:

- (1) Continue to provide the specialized social welfare and social assistance services to aid those who have been adversely affected by rapid changes, or who have been unable to benefit from them sufficiently to provide for themselves. These services will be provided selectively so as not to conflict with the objective of stimulating participation;

- (2) Introduce special programs and support schemes as necessary to redress any temporary imbalances caused by market forces;
- (3) Ensure that the sudden innovation of any major economic or physical development programs or policy changes will not cause serious social disruptions and hardships.

These roles will require a well planned and efficiently administered combination of social , economic, financial, legal and administrative measures.

3.1.2.4 Control over Inflation and Reduction of Subsidies. Inflation is perhaps even more of a threat to social well-being than to economic development , since it progressively erodes living standards and particularly affects the lower income groups. The Government has introduced various subsidy schemes to counteract the effects of inflation. The Third Plan will introduce new policies to limit expenditure and to reduce the inflation rate so that it will not exceed tolerable levels, which are considered to be between seven and ten percent per year.

At the same time, all government subsidies will be reviewed with the objective of abolishing or reducing them, provided that they have already achieved their purpose, and that people living on limited incomes will not be adversely affected.

3.1.2.5 Expansion of Social Development Services. The other functions of social development which were expanded and consolidated in the Second Plan will be continued. These functions are chiefly to provide basic health, welfare and cultural services for the population in order to improve standards of living and the quality of life.

There will, however, be changes in the policies for administering these services. In particular, the policy for the health services will place much greater emphasis on health education, preventive medicine and primary care in all regions of the Kingdom, and on improving efficiency. The social welfare services will be applied more selectively in order to assist the underprivileged while not curbing incentives to those able to improve their condition by work; and will emphasize in-family care and rehabilitation, rather than institutional care. There will be greater emphasis on cultural affairs. More attention will be paid to the geography, history, culture and archaeology of the Kingdom through the opening of additional libraries and museums and preserving historical and archaeological sites. A special attempt will be made to provide the Kingdom's youth with a balanced program including sports, cultural and social activities, and to channel their abilities into constructive recreation.

3.1.3 Economic and Administrative Efficiency

The strategy of the Third Plan aims directly at increasing the present and the long-term efficiency of the economy itself, of the management of the economy, and of government administration. The strategy therefore concentrates on four main areas: administrative development, manpower development, preservation of national fixed capital and fiscal management. The programs for these areas are described in Chapters 5, 8 and 9.

3.1.3.1 Administrative Development. The particular objectives for administrative development are: to introduce basic changes in government administration; to attain optimum utilization and performance of manpower; and to ensure that all managerial and senior administrative positions are held by Saudi citizens.

(1) The organizational policies will commence with a study of government administration, which will be completed for the Council of Ministers' decision at the end of 1401/1402 and will have as its primary objective the introduction of basic changes to the Government's administrative organization, where necessary, together with the determination of methods to better utilize available manpower. This is specified in greater detail in Chapter 9. When possible, state owned corporations which provide public services will be progressively transformed to become joint-stock companies in which the Government has a share in the capital, and the right to fix the rates and prices in the public interest. The procedures for inter-agency coordination will be improved.

(2) Management policies will include the improvement of personnel management systems, rapid developments in statistical data collection and processing and greater emphasis on training.

(3) Budgetary policies will include restrictions on the recruitment of additional manpower. The requests for additional manpower by Government Agencies for the Third Plan period have been very high, and in many respects counter to the Government's policy of reducing dependence on foreign manpower. For this reason the Government has decided that no additional government positions will be budgeted beyond those currently vacant and those required for entirely new programs, pending the outcome of the detailed study of government organization and manpower described above. Exceptions to this rule will be made in cases where an individual agency

can successfully demonstrate, at the time of the annual budget review, that its current level of vacant positions is already so low as to merit additional manpower allocations. The procedures for budget preparation will also be revised.

3.1.3.2 Manpower Development. Manpower development has the highest national priority, since the effective utilization of available manpower is the key element in the whole strategy for the Third Plan. There are four particular objectives for manpower development: to increase the total numbers of available manpower; to increase the productivity of manpower in all sectors; to deploy manpower to those sectors with the greatest potential for growth and highest productivity levels; to reduce dependence on foreign manpower.

These objectives will be achieved through a comprehensive set of policies which, in combination, will directly or indirectly implement far-reaching changes in the allocation and development of manpower. These policies cover educational, training, research and administrative measures. The strategy for manpower development, and its implementation throughout the economy and society, will be administered through measures to be recommended by the Inter-Ministerial Committee for Manpower, which was established in the last year of the Second Plan, or by any new modified agency recommended by this Committee. Manpower development programs are presented in Chapter 5.

Certain particular new policies will be introduced during the Third Plan, as follows:

(1) **Education.** As primary education is indispensable, sufficient numbers of schools and teachers will be provided for all boys and girls of primary school age. Beyond the intermediate level, there will be streaming of students so that appropriate proportions of the total student body continue in formal education or are guided towards specialized technical training institutes, in accordance with the national needs for various types of skilled manpower. Grants for university students will be limited to students who maintain a good level of proficiency, and who are specializing in subjects which are considered to require extra incentives. The curricula of primary, intermediate, secondary and university level education will be reviewed in accordance with the principles of the Sharia and the changing needs of society and of the economy.

(2) Training. The private sector will be encouraged to expand training programs, and the award of significant government loans to private industry will be conditional on the recipient including a full training scheme for Saudis in the project. Training schemes will be monitored to ensure that they are in keeping with the real needs of the Kingdom, and on-the-job training will be emphasized. In order to assist the recruitment of Saudis in training schemes, the Government will re-appraise the range and system of incentives to encourage citizens to train for, and seek employment in, technical and skilled jobs.

(3) Redeployment of manpower. Surplus manpower currently employed in remote areas and sectors with limited economic potential will be encouraged to move to areas and sectors with opportunities for employment in productive activities. In the Government, all fit and able younger men will be progressively transferred out of unskilled non-cadre positions and into training schemes or productive activities.

(4) Manpower Planning and Management. Research will be expanded to provide the basic statistics and general information concerning the present distribution and future development of manpower. This will be done in close cooperation between the universities and the government ministries concerned. The Government itself will undertake a comprehensive survey of the distribution of its own manpower resources in terms of the priorities and the needs of the various agencies and the private sector. It will also form a committee of the Council of Ministers to identify the basis and areas of work for women, which do not conflict with the principles of Islam. The Government will also use the expertise and manpower of the universities and the Armed Forces to participate in implementing and supervising important development projects.

3.1.3.3 Preservation of National Fixed Capital. The exceptionally high levels of investment by the Government in buildings, roads and machinery, mean that the maintenance of this fixed capital is of paramount importance to preserve its full life span. The two particular objectives are: to preserve national fixed capital; to ensure that sufficient manpower and financial resources are available to operate the infrastructure at full capacity.

To achieve these objectives there will be policies directed toward maintenance, training and administration.

(1) Maintenance policies require that all project evaluation and design studies should include operating and maintenance programs, manpower and total costs. Projects will be designed and production technology selected so as to minimize maintenance requirements as much as possible, while maintenance programs will include preventive maintenance to ensure the full life cycle of these capacities. Specialized maintenance teams will be established for each major sector of infrastructural development, and the private sector will be encouraged to invest in maintenance services.

(2) Training in maintenance skills will be emphasized, so that machine and equipment operators will be prepared to avoid operating errors and also to carry out regular minor adjustments which will obviate major repairs. Training in simple maintenance will be incorporated as part of the post-elementary educational curriculum.

(3) Administrative measures will be introduced to standardize technical specifications and thereby both reduce costs and facilitate maintenance. The Saudi Standards Code will be completed. Any materials which do not meet these standards will not be imported, and information campaigns will be prepared to instruct citizens about building designs which conform to certain standards, and which have minimal needs for maintenance.

3.1.3.4 Fiscal Management. The particular objectives to be achieved by fiscal management are: to achieve the planned growth rate for the various sectors, in accordance with the absorptive capacity of the economy; to prevent the rate of inflation from exceeding tolerable levels.

To achieve these objectives, new policies will be introduced in two key areas: government expenditure, and project management.

(1) Government expenditure will be determined strictly in accordance with the priorities of the Third Plan strategy. The preparation of the Third Plan introduced a new methodology by imposing ceilings on the allocations for expenditure by each government agency. These ceilings reflect the priorities of the Plan strategy, and are therefore indicative not only of the Plan's magnitude but also of the structure of the future annual budget allocations for each economic sector and government agency. The ceilings will be reviewed at the time of each annual budget, and a special comprehensive review of government expenditure and plan progress will be undertaken at the end of the first two years of the Plan period in order to re-assess all planned programs and allocations for expenditure for the remaining years of the Third Plan.

Project expenditure will be carefully costed, and will not exceed the permitted allocations. The level of expenditure for sectors and for projects will be determined in order to attain the planned sectoral growth rates . Fiscal policies will be devised so as to attain appropriate levels of expenditure, and to provide effective mechanisms for financial and economic control.

(2) Project management will be carefully coordinated and scheduled. Priority in awarding contracts for projects will be given to Saudi contractors. When contracts are awarded to foreign contractors, they will have the stipulation that some of the work must be sub-contracted to Saudi companies. To facilitate this policy, very large projects will be split up rather than awarded as a single contract. Government investments within the Kingdom will be increased to finance major projects, while the private sector will also be encouraged to form investment fund companies for project finance.

3.2 ECONOMIC STRATEGY

3.2.1 Economic Development Strategy

3.2.1.1 The Third Development Plan will continue to base the strategy for economic development on the same three key objectives which directed the Second Plan:

- (1) Diversification of the economic base;
- (2) Development of the Kingdom's manpower resources;
- (3) A balanced pattern of economic growth which ensures the development of all regions, extends the benefits of national wealth to all sections of the community through social development and welfare programs, and supports individual effort and achievement.

3.2.1.2 Within this broad framework there are, however, fundamental differences between the respective strategies of the Second and Third Plans. In the Third Plan the growth objectives are more selective, conforming to a manpower policy that aims at consolidating the size of the foreign labor force. These differences in priorities are reflected in the other important aspects of the Third Plan, so the two new main features of the economic development strategy are:

- (1) By fully utilizing the infrastructural facilities which were created in the Second Plan, the Third Plan makes further progress towards diversifying the economy in the direction of capital intensive development, which is the best long-term combination of the Kingdom's capital and labor resources. The reduced prominence of infrastructure is linked to a new broad emphasis on the creation of increased output capacities in refinery operations, on energy conservation and on other manufacturing, mining and agriculture. At the same time, the Plan will accelerate the expansion of such critical development resources as energy and water.
- (2) The Third Plan's growth targets are constrained by a policy requiring new employment to correspond as closely as possible to the domestic availability of new Saudi manpower. The total number of the non-Saudi labor force (which has always been under administrative control through a system of work permits) will be consolidated at about its present size, although its skill composition will be kept flexible to meet any priority demands for special skills and expertise.

3.2.1.3 The selective changes of emphasis for sectoral growth will be obtained by smooth transition rather than abrupt change, in accordance with the Plan strategy of economic diversification and of giving priority to development of the producing sectors. These changes had already begun during the Second Plan period, and have been accompanied by changes in the direction of capital investment, reflecting the long-term strategy of development. The main trends in the Third Plan will be for a substantial part of the new investment to promote higher value production and diversification in the oil sector and in those industries where there is a clear comparative advantage (mainly those which are energy-intensive). There will also be a rapid and substantial growth in both power and water output capacities but, because of subsidized consumption, there will not be full returns in the form of contribution to GDP (that is, the return will not be proportionate to the capital outlay). Among other influences that will contribute to slower economic growth, the most important will be the constraint on foreign manpower, as it will reduce the scope for growth through increased employment.

3.2.1.4 All these considerations indicate that the economy will enter a period of structural transformation which may last longer than the Third Plan itself. Results of increased capital efficiency should, nevertheless, become evident during the Third Plan period in the form of higher productivity. For the time being, however, higher productivity within sectors of the

non - oil economy will depend largely on the private sector's willingness to direct its autonomous growth from the areas of easy profit making, such as property development and trade, to more competitive branches of activity with a better potential for long-term growth.

3.2.2 The Level and Structure of Government Expenditure on Development

Total government expenditure on civilian development, administration, emergency reserves and subsidies during the Third Plan is set at about SR 783 billion at current prices. The breakdown of this budget by development sectors is given in Table 3-1. The structure of the budget is also compared with that of actual government expenditure in the Second Plan period. As can be seen, there is a marked change in the direction of planned development expenditure during the Third Plan. There is a significant shift away from expenditure on physical infrastructure towards the development of the producing sectors of the economy, to diversify the economic base of Saudi Arabia.

Table 3-1

TOTAL GOVERNMENT EXPENDITURE ON DEVELOPMENT 1400-1405 ⁽¹⁾

<u>Function of Expenditure</u>	<u>SR Billion Current Prices</u>	<u>2nd Plan⁽²⁾ Percent</u>	<u>3rd Plan Percent</u>
Economic Resource Development	261.8	25.1	37.3
Human Resource Development	129.6	15.9	18.5
Social Development	61.2	9.4	8.7
Physical Infrastructure	249.1	49.6	35.5
Subtotal : Development	701.7	100.0	100.0
Administration ⁽³⁾	31.4	6.7	4.5
Emergency Reserves, Subsidies	49.6	15.9	7.1
Total Civilian Expenditure	782.7	122.6	111.6

Notes:

- (1) The total excludes: i) transfer payments; ii) non-civilian sectors; iii) foreign aid.
- (2) Based on actual and estimated values converted into 1399/1400 prices.
- (3) Administration includes: i) Ministries and Agencies with primarily administrative functions; ii) Judicial and Religious Agencies.

3.2.3 Growth of the Economy

3.2.3.1 Growth of the Oil Sector. The GDP growth of the oil-based sectors will be in the area of refined products, including the diverse output of the new gas gathering project. The growth of crude oil production is determined by government policy in accordance with the long term policy to conserve oil resources, and any short term priorities. The estimated growth in the value of all refined products is close to 15% per year against a projected employment growth of 17.6% per year. This ‘ negative ’ productivity growth is due to the weight of output going to the low priced domestic market, although the refinery sector’s estimated productivity at the end of the period will still be about 4 times higher than the average for the non-oil economy.

Table 3-2 indicates the expected relative weights of the oil and non-oil sectors in the Kingdom’s total gross domestic product, (expressed as a percentage of the non-oil economy) for the beginning and end of the Third Plan.

Table 3-2

RELATIVE CONTRIBUTIONS TO GDP OF THE OIL AND NON–OIL SECTORS⁽¹⁾

	<u>1399/1400</u>	<u>1404/1405</u>
<u>Non-Oil Sectors</u>	100.00	100.00
<u>Oil Sector</u> (crude and refined products)	164.76	130.41
Total	<u>264.76</u>	<u>230.41</u>

(1) In % of the non-oil economy, calculated at average international prices for oil products in 1399/1400, taking also into account prevailing domestic prices where necessary.

3.2.3.2 The Growth and Structure of the Non-Oil Economy. Table 3-3 provides a summary of the projections for the non-oil economy's growth in the Third Plan period. The various dimensions of growth and structural change have been estimated in full consideration of the effects of the new manpower policy on the size of the labor force and of the possible scope for GDP growth through improvements in productivity, and on the assumption that government expenditure will generally conform to the planned expenditure ceilings.

The composition of the broad patterns of sectoral growth in the non-oil economy in the two Plan periods, as illustrated in Table 3-3, shows the following :

- (1) The growth rate for the non-oil economy in the Third Plan as a whole is reduced from the Second Plan's average rate of over 15% per year to 6.2% per year. The main reasons for the decline are the low rate of employment growth and the expected disappearance of the favorable effects of shifts in employment;
- (2) Growth will be promoted through an expected doubling in the average growth rate of sectoral productivity (value added per unit of labor) as a result of lower unit costs or higher value products or both.

The estimates also show that on the average the service sectors come out with a higher GDP growth and with a higher overall productivity gain for the Third Plan than the producing sectors. This statistical decline in the producing sectors' contribution to growth is due entirely to the changes affecting the highly productive construction sector, and its long standing role of leading the non-oil economy*. The decline in the relative importance of construction is part of the process whereby the emphasis in development is moving towards the creation of production capacities. The positive elements in the same process are the high growth rates foreseen for manufacturing and utilities and, outside the non-oil economy, those for refining and other hydrocarbon-based industrial activities.

* Excluding the construction sector, the producing sectors' average annual rates of growth (including those for agriculture) are: 15% per year for GDP, and 14.8% per year for productivity.

Table 3-3

PROJECTIONS FOR GROWTH OF THE NON-OIL ECONOMY

(In percent per year based on 1399/1400 prices)

Growth rates for:		Producing Sectors		Service Sectors		Total Non-oil	
		Second Plan	Third Plan	Second Plan	Third Plan	Second Plan	Third Plan
1.	GDP	16.5	2.2	14.1	8.8	15.1	6.2
2.	Employment	2.2	(1.5) ⁽¹⁾	12.5	3.1	7.2	1.2
3.	Productivity	14.0	3.7	1.5	5.6	7.4	5.0
	of which:						
	Cost/price effects ⁽²⁾	4.1	5.1	1.2	4.4	2.4	4.6
	Employment shift effects	9.6	(1.3) ⁽¹⁾	0.3	1.2	4.9	0.3

(1) The rates represent annual rates of decline relative to 1399/1400.

(2) These represent lower unit costs and/or higher value products.

The extent of the contraction of the construction industry reflects the estimated difference between aggregate supply and demand over the Third Plan period. The actual rate of contraction is dictated chiefly by the peaking of government expenditure which has been committed already for the first two years of the period. The aggregate loss in the sector's gross output from its 1399/1400 level is not more than 11%. In fact, the real strategic significance of the estimated contraction lies in the expected release of foreign labor.

The growth pattern of the services sectors in the Third Plan is unlikely to change the relative share of the individual sectors, except for 'transport' which includes communications and storage.

The details of growth in the non-oil economy are presented in Tables 3-4, 3-5 and 3-6.

3.3 INCOME AND EXPENDITURE TRENDS IN THE THIRD PLAN

3.3.1 Private Income and Consumption

3.3.1.1 The projected aggregate GDP of the non-oil economy in the Third Plan is over SR 810 billion (at constant 1399/1400 prices), with the contribution from increased productivity estimated at close to SR 100 billion.

3.3.1.2 The conversion of GDP into income means dividing it into 'Employee Compensation' and 'Operating Surplus' (gross profits) including depreciation. The non-oil economy's GDP is predominantly private sector income accruing to employees and households and to the corporate private sector. The public sector's share is limited to the operating surplus of public corporations such as SAUDIA, Petromin, etc. The growth rates for both types of income are practically identical to the non-oil GDP growth rate of 6.2% per year.

3.3.1.3 The statistical evidence would suggest an almost equal allocation of GDP into 'employee compensation' and 'operating surplus'. However, the precise boundary lines between household and corporate incomes are difficult to draw. Small farmers, self-employed traders, transport operators and other family-staffed establishments have income classified as profits which is then spent as household income, chiefly on personal consumption. This duality explains why, as a rule, the aggregate level of personal consumption exceeds the aggregate income from employment.

3.3.1.4 For the same reasons there are no precise ways for separately estimating the savings potential for either category of income in the Third Plan . The total savings potential of the private sector can be quantified at the level of between 40% - 50% of private gross profits, equivalent to 20% - 30% of total private sector GDP. A further complicating factor in establishing the savings ratio from earned/disposable income is the pooling of savings by households. This means that the savings ratio applies to the household as the consuming unit rather than to the income earners' pay.

Table 3-4
EMPLOYMENT AND GDP BY SECTOR 1399/1400 and 1404/1405
IN THE NON-OIL ECONOMY
(In 1399/1400 prices)

<u>Producing Sectors</u>	<u>1399/1400</u>		<u>1404/1405</u>	
	<u>Employment</u> <u>Thousands</u>	<u>GDP</u> <u>SR. Millions</u>	<u>Employment</u> <u>Thousands</u>	<u>GDP</u> <u>SR. Millions</u>
Agriculture	598.8	3,259.4	528.8	4,229.2
Other mining	7.3	1,497.5	9.8	2,387.7
Other manufacturing	104.2	6,753.3	164.2	16,001.8
Utilities	31.5	350.1	47.0	1,273.0
Construction	330.1	45,994.3	245.1	40,560.5
<u>Subtotal</u>				
- Producing sectors	1,071.9	57,854.6	994.9	64,452.2
- Excl. Agriculture	473.1	54,595.2	466.1	60,223.0
<u>Service Sectors</u>				
Trade	310.6	17,447.1	339.6	26,135.9
Transport	214.6	20,227.5	274.6	37,158.3
Finance	34.8	13,144.2 ⁽¹⁾	44.8	18,682.4 ⁽¹⁾
Other services	482.3	5,257.3	505.3	6,081.3
Government	321.0 ⁽²⁾	21,036.4	421.0 ⁽²⁾	29,722.1
<u>Subtotal</u>				
- Services	1,363.3	77,112.5	1,585.3	117,780.0
- Excl. Government	1,042.3	56,076.1	1,164.3	88,057.9
<u>Total</u>	<u>2,435.2</u>	<u>134,967.1</u>	<u>2,580.2</u>	<u>182,232.2</u>

(1) Includes GDP from property ownership;

(2) These government figures exclude non-civilian employment and include an estimated 49.6 thousand daily wage workers not classified as civil servants.

Table 3-5

**ANNUAL COMPOUND GROWTH RATES FOR EMPLOYMENT, GDP
AND PRODUCTIVITY IN THE NON-OIL ECONOMY: 1400-1405**
(In percent per year based on 1399/1400 prices)

<u>Producing Sectors</u>	<u>Employment</u>	<u>GDP</u>	<u>Productivity</u>	<u>Components of Productivity</u>	
				<u>Employment Shifts⁽¹⁾</u>	<u>Cost/price Effects</u>
Agriculture	(2.46) ⁽²⁾	5.35	8.0		
Other mining	6.07	9.78	3.5		
Other manufacturing	9.52	18.83	8.5		
Utilities	8.33	29.46	19.5		
Construction	(5.77) ⁽²⁾	(2.48) ⁽²⁾	3.5		
<u>Subtotal</u>					
- Producing sectors	(1.48) ⁽²⁾	2.18	3.72	(1.34) ⁽²⁾	5.13
- Excl. Agriculture	(0.30) ⁽²⁾	1.98	2.29	(2.53) ⁽²⁾	4.94
<u>Service Sectors</u>					
Trade	1.80	8.42	6.5		
Transport	5.05	12.93	7.5		
Finance	5.18	7.29	2.0		
Other services	0.94	2.95	2.0		
Government	5.57 ⁽³⁾	7.16	1.5		
<u>Subtotal</u>					
- Services	3.06	8.84	5.61	1.16	4.40
- Excl. Government	2.24	9.45	7.05	1.47	5.50
<u>Total/Average for Non-Oil Economy.</u>	1.16	6.19	4.97	0.30	4.65

(1) Applicable to groups of sectors only.

(2) The rates represent annual rates of decline relative to 1399/1400.

(3) See Footnote in Table 3-4.

Table 3-6

CHANGES IN THE SECTORAL COMPOSITION OF NON-OIL GDP

Percentage shares in Non-oil GDP (Based on 1399/1400 prices)

<u>Producing Sectors</u>	<u>1399/1400</u>	<u>1404/1405</u>
Agriculture	2.41	2.32
Other mining	1.11	1.31
Other manufacturing	5.00	8.78
Utilities	0.26	0.70
Construction	34.08	22.26
Subtotal	42.86	35.37
<u>Service Sectors</u>		
Trade	12.92	14.34
Transport	14.99	20.39
Finance	9.74	10.25
Other services	3.90	3.34
Government	15.59	16.31
Subtotal	57.14	64.63
<u>Total</u>	<u>100.00</u>	<u>100.00</u>

3.3.2 Private Gross Fixed Capital Formation

3.3.2.1 The Third Plan projections envisage a minimum growth rate of between 11% and 13% per year for private capital formation (including replacement), and a corresponding change in the composition of private fixed investment, away from construction and transport equipment (around 60% and 30% respectively) to productive equipment and machinery.

3.3.2.2 With about 40% - 50% of the aggregate operating surplus serving domestic capital formation, the lowest estimate for total private outlay in the Third Plan, outside the oil sector, is in the range of SR 180 - 200 billion. This total could rise as a result, among other reasons, of the loan contributions from the various publicly financed funds, especially the Saudi Industrial Development Fund, the Real Estate Development Fund and the Saudi Arabian Agricultural Bank.

3.3.2.3 However wide the range in the estimates for private capital formation, it does not modify the empirical assumption that, especially in the corporate subsector, substantial funds are being accumulated for potential future use. This assumption is of great significance for the overall development strategy which relies increasingly on the autonomous growth of the private sector to identify and exploit new investment opportunities.

3.3.3 Changing Sectoral Shares in Capital Formation

3.3.3.1 The estimated pattern of overall capital formation in the first four years of the Second Plan shows an overall volume growth at the rate of 22.2% per year, but with different sectoral rates of growth: 35% for the government, 14.9% for the oil sector and 11.2% for the private sector.

3.3.3.2 In the Third Plan a fundamental reversal in the growth trends of the public and private sectors' capital formation is expected, although the change in their respective volume relationships will be less marked. The change in the growth of public sector capital formation will most directly affect the construction sectors. Construction has traditionally been the leading producing sector in the non-oil economy. Its volume share in non -oil GDP rose from 19% in 1394/95 to 23% in 1396/97, coming down to 21% by the end of the Second Plan period. In the Third Plan the growth prospects for construction activity are mixed with steady growth expected only from the private and non-civilian sectors.

3.3.3.3 The estimates, showing a widening gap between aggregate capacity and demand over the Third Plan, imply, in response, the contraction of the construction industry. The expected effect is labor 'shedding' at the rate of under 6% per year, from 330,000 in 1399/1400 to 245,000 by 1404/05. This estimated decline does not preclude a slight increase in construction activity in the first two years of the Plan, as a result of government expenditure already committed.

3.4 THE LABOR FORCE, EMPLOYMENT, AND PRODUCTIVITY CHANGE

The policy area with the most far reaching quantitative and qualitative changes in the Third Plan period is that relating to manpower and employment. The projections in this section highlight the complexity both of the technical and economic relationships concerned and of the administrative arrangements which will be necessary to ensure successful implementation. There will be continuous review of the whole subject of manpower and employment in case it proves necessary to re-evaluate the policies.

Civilian employment is summarized in Table 3-7, indicating that it will increase from 2.47 million in 1399/1400 to 2.63 million by 1404/05.

Underlying these estimates are projections concerning the following aspects of manpower and employment: growth of the Saudi labor force; labor supply and demand; employment structure; and productivity. The following is a detailed review of the individual aspects.

3.4.1 Labor Force

3.4.1.1 The Growth of the Saudi Labor Force. The proportion of Saudi males (12 years of age and above) participating in the labor force will continue to register a slight decline, from 65.3% to 64.1% over the five year period. This is essentially the direct result of the expansion of educational and training programs. This "schooling factor" will influence, in particular, the participation rate of the 12-19 age group. The decline of the participation rate among this age group is the cost of investment in society's future development.

Table 3-7

PROJECTED CIVILIAN EMPLOYMENT IN SAUDI ARABIA 1399/1400 to 1404/05

<u>Nationality/Sex</u>	<u>Civilian Employment</u>		<u>Net Change</u>	<u>Annual Growth Rate</u>
	<u>1399/1400</u>	<u>1404/05</u>		<u>1399/00 To 1404/05</u>
	(Thousands)			(Percent)
Saudi men	1,308.4	1,437.4	129.0	1.9
Non-Saudi men	1,014.9	1,023.9	9.0	0.2
Subtotal men	2,323.3	2,461.3	138.0	1.2
Saudi women	103.0	120.0	17.0	3.1
Non-Saudi women	44.9	44.9	—	—
Subtotal women	147.9	164.9	17.0	2.2
Subtotal: Saudis	1,411.4	1,557.4	146.0	1.9
Subtotal: Non-Saudis	1,059.8	1,068.8	9.0	0.2
Total	2,471.2	2,626.2	155.0	1.2

On the other hand, there will be little change in the overall participation rates of Saudi women. Following the growth in the educational system, there will be an expectation of more educated women finding opportunities in mainly urban employment. However, the numerical impact of this increase will be offset by a decrease in the number of female farm workers, especially in the younger age groups, because of the increased schooling factor. During the Third Plan period the average participation rates for working Saudi women will therefore remain at approximately 6% of the total.

3.4.1.2 Labor Supply and Demand. The projected increase in the size of the civilian labor force over the Third Plan Period is 155,000, representing an annual growth rate of 1.2%. Numerically, this increase corresponds to the difference between new civilian employment

opportunities (310,000) and the estimated number of people leaving agriculture (70,000) and construction (85,000). Because of the limitations on the growth of expatriate workers, the non-Saudi segment of the labor force will only increase by 9,000 qualified personnel. This , too, is a net balance, comprising 74,000 for new jobs and 65,000 leaving the Kingdom mainly on account of redundancies in construction. At the same time the net increase in the indigenous work force for civilian employment will be 146,000.

Table 3-8
MANPOWER SUPPLY AND DEMAND, 1400-1405.
(Thousands)

New civilian demand for labor

Producing sectors (excluding agriculture & construction)	78.0
Services sector (including Government)	222.0
Oil sector	<u>10.0</u>
Total	<u>310.0</u>

Manpower supply for new jobs:

Saudis	236.0
Non-Saudis (skilled)	<u>74.0</u>
Total	<u>310.0</u>

3.4.2 Employment

3.4.2.1 The changes in civilian employment during the Third Plan, and a comparison of the growth rates between the Second and Third Plan, are shown in Tables 3-9 and 3-10. Table 3-9 also compares the percentage distribution of employment by economic activity in 1399/1400 with the projections for 1404/05. Against an employment increase of 725,000 during the Second Plan, the projected net growth in the Third Plan period will be only 155,000, representing a decline in the average annual growth rate of employment from 7.2% in the Second Plan to 1.2% during the Third Plan.

3.4.2.2 Employment in the non-oil private sector is estimated to increase by a net total of 45,000, at a rate of 0.4% annually; while the scope for public sector (civilian) employment growth is estimated at 100,000 over the next five years. However, that increase will not be

Table 3-9

CHANGES IN CIVILIAN EMPLOYMENT IN THE THIRD PLAN

(Estimated employment in 1399/1400 and in 1404/05 by economy activity)

<u>Economic Activity</u>	<u>Employment In:</u>		<u>Percent Change</u>	<u>Percent Distribution</u>	
	<u>1399/1400</u>	<u>1404/05</u>	<u>1399/00-1404/05</u>	<u>1399/00</u>	<u>1404/05</u>
(In Thousands)					
<u>Producing Sectors:</u>					
Agriculture	598.8	528.8	(11.7)	24.2	20.1
Other mining	7.3	9.8	34.2	0.3	0.4
Other manufacturing	104.2	164.2	57.6	4.2	6.3
Utilities	31.5	47.0	49.2	1.3	1.8
Construction	330.1	245.1	(25.7)	13.4	9.3
Subtotal:	1,071.9	994.9	(7.2)	43.4	37.9
<u>Services Sectors:</u>					
Trade	310.6	339.6	9.3	12.6	12.9
Transport	214.6	274.6	28.0	8.7	10.5
Finance	34.8	44.8	28.7	1.4	1.7
Other services	482.3	505.3	4.8	19.5	19.2
Government ⁽¹⁾	321.0 ⁽²⁾	421.0 ⁽²⁾	31.2	13.0	16.0
Subtotal:	1,363.3	1,585.3	16.3	55.2	60.3
<u>Total non-oil economy</u>	2,435.2	2,580.2	6.0	98.6	98.2
<u>Oil sector</u>	36.0	46.0	27.8	1.4	1.8
<u>Total</u>	2,471.2	2,626.2	6.3	100.0	100.0

(1) Excludes non-civilian employment.

(2) This government figure includes an estimated 49.6 thousand daily wage workers, not classified as civil servants.

Table 3-10

CHANGES IN CIVILIAN EMPLOYMENT IN THE SECOND AND THIRD PLAN PERIODS

(Comparison by economic activity)

<u>Economic Activity</u>	<u>Employment Increase</u>		<u>Annual Growth Rate</u>	
	<u>2nd Plan</u>	<u>3rd Plan</u>	<u>2nd Plan</u>	<u>3rd Plan</u>
	<u>(Thousands)</u>		<u>(Percent)</u>	
<u>Producing Sectors</u>				
Agriculture	(96.2)	(70.0)	(2.94)	(2.46)
Other mining	3.9	2.5	16.51	6.07
Other manufacturing	29.8	60.0	6.97	9.52
Utilities	15.4	15.5	14.37	8.33
Construction	157.8	(85.0)	13.89	(5.78)
Subtotal	110.7	(77.0)	2.20	(1.48)
<u>Service Sectors</u>				
Trade	157.0	29.0	15.12	1.80
Transport	100.1	60.0	13.39	5.05
Finance	21.7	10.0	21.58	5.18
Other services	252.3	23.0	15.96	0.94
Government ⁽¹⁾	74.3	100.0	5.41	5.57
Subtotal:	605.4	222.0	12.46	3.06
<u>Total non-oil economy</u>	716.1	145.0	7.21	1.16
<u>Oil sector</u>	8.6	10.0	5.61	5.02
<hr/>				
Total	724.7	155.0	7.19	1.22

(1) Excludes non-civilian employment.

automatic and, as mentioned elsewhere, government employment will be reviewed in detail by the end of the second year of the Third Development Plan.

3.4.2.2 Changes in the rate of growth of occupations in the two Plan periods are compared in Table 3-11. In view of the envisaged sectoral growth pattern of the Third Plan, and of the required higher levels of productivity, there will have to be larger proportional increases in the higher skill groups, including both professional and manual workers.

Table 3-11
ESTIMATED EMPLOYMENT IN 1399/1400 AND IN 1404/05
BY OCCUPATIONAL GROUPS

Major Occupational Groups	1399/1400		1404/05	
	Employment (Thousands)	Percent Distribution	Employment (Thousands)	Percent Distribution
Professional ⁽¹⁾	240.4	9.73	270.8	10.31
Clerical workers	231.7	9.38	266.8	10.16
Salesmen and laborers ⁽²⁾	1,076.9	43.57	1,184.9	45.12
Farmers and fishermen	622.2	25.18	558.0	21.25
Service workers	300.0	12.14	345.7	13.16
Total	2,471.2	100.00	2,626.2	100.00

(1) This category includes professional (technical, managerial) and administrative workers.

(2) This category includes salesmen, craftsmen, operators and laborers.

3.4.3 Productivity

3.4.3.1 It is axiomatic for the Kingdom that its labor force, comprising over 65% of the male and 5% of the female population of working age, should achieve progressively higher levels of productivity (the ratio of “ value-added ” to employment). Higher productivity is not only a requirement that follows naturally from the Kingdom’s ability to equip the working population with the most modern tools for any kind of occupation, as well as its ability to educate people

in the necessary skills, it is also the pre-condition for the non-oil economy's sustained expansion, including non-inflationary income growth from employment.

3.4.3.2 The practical significance of rising levels of productivity is illustrated in Table 3-12. It shows the savings in manpower through the growth in productivity by comparing estimates for non-oil GDP and productivity at the end of the First, Second and Third Plan periods, respectively.

Table 3-12

GDP PRODUCTIVITY IN THE NON-OIL ECONOMY

<u>Year</u>	<u>GDP⁽¹⁾</u> (SR billion)	<u>Productivity per</u> <u>person employed⁽¹⁾</u> (SR thousand)	<u>Manpower required (millions) to</u> <u>produce GDP at productivity levels</u> <u>of selected years</u>		
			<u>1394/95</u>	<u>1399/1400</u>	<u>1404/05</u>
1394/05	66.77	38.8	1.72 ⁽²⁾		
1399/00	134.97	55.5	3.48	2.43 ⁽²⁾	
1404/05	182.23	70.6	4.70	3.29	2.58 ⁽²⁾

(1) All values in 1399/1400 prices.

(2) Estimated level of employment in the year concerned.

3.4.3.3 This table reveals that without an increase in productivity in the five years to 1399/1400, the necessary increase in employment would have been about 1.7 million (3.48 - 1.72) and not 710,000 (2.43 - 1.72). Similarly, the envisaged productivity increase in the Third Plan by 1404/05 will save the economy more than 700,000 people.

3.4.3.4 Despite the similarities in the effects of productivity growth for saving manpower, there is an important difference between the Second and Third Plans in respect of the source of productivity growth. In the Second Plan the bulk of the productivity gain was the combined result of two types of employment shifts: one being migration from low productivity agriculture, and the other being the flow of the new entrants to the work force joining the high productivity sectors, especially construction. Both such shifts produced the same net effect—an increase in the average productivity of a group of sectors as well as in the non-oil economy as

a whole-which was achieved by means of labor movements only, and before any positive change in the level of productivity in any of the sectors concerned. Gains of this type (which can only relate to a group of sectors rather than to a single sector) are nevertheless well known and characteristic of developing countries. Their contribution to GDP is usually also an important element in GDP growth. Although these employment shifts might well continue within the Kingdom (for example the release of labor from the trade and transport sectors), they are essentially temporary phenomena in the development process. Their significance for the Third Plan is, therefore, projected to be minimal; accordingly, productivity growth is expected to be based on capital and skill-intensive improvements and developments within individual sectors.

3.4.3.5 Thus, the Third Plan is expected to see growth in sectoral productivity of between 4% and 5% per year, which would represent a doubling of the conventional type of productivity growth relative to the Second Plan. The gains will come from the following sectors: agriculture (where GDP growth will continue against the background of outmigration); manufacturing (on account of high productivity projects financed by SIDF); energy and water (reflecting the substantial capital outlays in both areas); and transport, communications and storage (in the wake of large-scale capital-intensive developments). A relatively low rate of productivity increase is likely to come from construction, due to the fact that it will be the larger (foreign) firms that will withdraw from the construction market rather than the local contractors operating on a smaller scale. In contrast, the higher productivity estimates for the “ trade ” sector are based on the expectation that, against similar competitive pressure, this sector will be more effective in its utilization of both capital and labor.

3.5 INFLATION

3.5.1 Domestic Factors

As described in the previous chapter, high rates of inflation adversely impacted the Saudi economy during the four years spanning the end of the First Plan and the beginning of the Second Plan respectively. Now, after the experience of having successfully reduced the inflation from a very high level to the rate of import price rises, (or even below) the Saudi economy can rightly be expected to be well equipped to confront inflationary pressures in the Third Plan period. However, whereas the rate of domestic inflation was drastically reduced following this period, all evidence suggests that the danger of inflation is, as elsewhere, dormant rather than over. Therefore, neither the hardwon organizational capability nor the resolve based on experience can guarantee immunity. This can be attained only by the careful prevention of the conditions which, in varying combinations, have been the cause of inflationary pressures in the past.

At the start of the Second Plan the main inflationary cause was the gap between Government - financed demand on the one hand and the required supply of goods, services and labor on the other, aggravated by the inadequacies of an underdeveloped and inefficient infrastructure. Although the recurrence of such imbalances is now less likely, a steep rise in the level of government expenditure during the Third Plan could generate serious inflationary pressures. The real extent of the danger depends not so much on the pressure of demand for goods and services, as on that for skilled manpower which will be the critical constraint throughout the Third Plan. As long as the demand for manpower, and for associated facilities such as housing, remains within the economy's supply capacity, the control over inflationary phenomena can be maintained.

Outside the government, there could be inflationary pressures arising from the private sector's own autonomous development for which the Third Plan envisages a substantial GDP growth of about 13% per year, a rate twice as high as that for the total non-oil economy. Since overall growth in manpower in the Third Plan will only be slightly above 1% per year such a high growth in private sector GDP must, for its feasibility, depend on high rates of productivity, and therefore, on the quality of manpower newly employed. To the extent that the private sector decides to direct its investments in the Third Plan to the producing sectors (primarily manufacturing), this could easily result in strong demand pressures on wage levels to secure the required labor force. The real danger is that 'demand pull' on wages might, in turn, also generate a 'cost push' pressure which would aggravate the inflationary spiral,

In view of the private sector's substantial potential for self-financing from current profits (investment outlays represent less than 50% of gross profits), there is little doubt that the ' demand pull' on wage levels could become inflationary. Since manufacturing development in the Kingdom cannot be based on wage costs exceeding the present levels, this might seriously endanger the longer-term viability of industrialization, and, therefore, should be prevented.

3.5.2 Imported inflation

Imported inflation is the interaction of three factors which determine its impact on the domestic economy's price and cost levels: first , the rate of inflation abroad which has already become quite high and prolonged (both in industrial and developing countries); second, the domestic transmission mechanism which could amplify imported inflation by disproportionately raising distribution and transport costs; and third, the combined ability of the Government and the private sector to counter inflationary pressures by increasing supply and by preventing foreign suppliers manipulating prices. The numerical effect on the balance of trade is much easier to rectify.

3.5.3 Conclusion

Overall, the conclusion is that in the Third Plan there will be strong domestic inflationary pressures on wages, while the rate at which imported inflation could affect the domestic cost and price levels remains subject to the efficiency of protective measures taken by both the public and the private sectors. The existing administrative and other mechanisms for monitoring and controlling inflation will not only continue, but their operations will be extended to include such sensitive areas as contract prices and wages. (Specific indications for further measures to improve inflation control as part of general and economic management are contained in Chapter 9.)

3.6 FOREIGN TRADE

3.6.1 Exports

In the Third Plan period, crude oil exports will maintain their central importance domestically as well as internationally.

3.6.1.1 Domestically, they will continue to provide financial cover for: the Kingdom's expenditure budgeted for the period; the exchange needed to pay for imports and other current and capital account payments abroad, including foreign aid; the continued strengthening of the Kingdom's international financial reserves.

3.6.1.2 Internationally, crude oil and other hydrocarbon exports will maintain their stabilizing role in the world economy and supply of energy.

The daily level of crude oil exports which, at prevailing international prices, would pay for the Government's aggregate expenditures on economic development during the Third Plan is slightly under 5.3 million barrels a day.

In the Third Plan, exports of higher value hydrocarbons will enter the international markets. Their range will include refined products based on crude oil as well as on gas. (Further details concerning Energy are given in Chapter 4).

3.6.2 Imports

3.6.2.1 During the Second Plan period there has been a close, almost one-to-one, relationship between the current value of non-oil GDP and the value of imported goods and services. It is expected that this numerical relationship, representing a high propensity to import, will be maintained in the years of the Third Plan. In fact, allowance is made for a slightly higher growth in imports than in non-oil GDP (6.2% per year) on account of an expected rise in components and products substituting for labor.

3.6.2.2 During the Third Plan the Kingdom, as one of the leading importers in the world, will continue its policy of diversifying the sources of purchases abroad to ensure better value and service.

3.7 REGIONAL DEVELOPMENT STRATEGY

The Third Development Plan is introducing a more explicit and coordinated approach for dealing with the regional dimensions of national planning.

In the most general terms, regional planning aims at providing a spatial counterpart to the objectives pursued at the national level, and acts as a means for coordinating the regional activities of development agencies. The latter task has been enhanced in recent years by several development agencies with a regional responsibility. The regional strategy offers a mechanism for the application of national objectives in both rural and urban environments. Its distinct role, hence, is to integrate the applications of policy with a view to accelerating a more even geographical distribution of material and social progress.

3.7.1 Regional Strategy

3.7.1.1 Objectives. The objectives for the regional development of the Kingdom are to assist the regions, and especially rural areas, to develop productive activities which will enable them to retain as many of their inhabitants as possible, and to extend the distribution of services to assist those communities with the potential for self-sufficiency, in accordance with the principles of Islam.

The particular objectives for the Third Plan will be to avoid overconcentration of resources in a few urban enclaves, which may be to the detriment of the rest of the Kingdom, and also to stimulate the provision of development facilities in selected areas which will support productive enterprises. In this respect the regional strategy has been framed within the general strategic context of minimizing manpower requirements, while at the same time facilitating the provision of development services to the public. This strategy will also offer the opportunity to set up more specialized development zones or 'growth poles', at a later date, once particular areas have proven their potential for creating and sustaining productive investment. Also, the need for coordinating the activities of Ministries and other agencies with a regional responsibility is increasingly important. Thus, the regional strategy will have three key elements:

- (1) The coordination of activities, projects and programs of ministries and other development agencies having regional or district geographic responsibilities. This coordination will strengthen the provision of services to the individual and enable more efficient use of manpower;
- (2) The more equitable distribution of socio-economic opportunities and wider access to public services in line with the promotion of productive activities and individual initiative;
- (3) The provision of a development framework, for the design and implementation policies and programs in all regions, especially the rural areas. Such a framework will pay critical attention to the availability of the resources, including manpower and water, of the Kingdom.

3.7.1.2 Policies. The policy to achieve the regional goals and objectives is to introduce a system of national, regional and district centers, spread throughout the Kingdom, for the provision and effective coordination of development services. This system of development service centers is deemed the best method of both stimulating development activities, and aiding the most deprived sections of the population. The development centers are arranged in a hierarchy according to whether they are judged to be of national, regional, or local significance. The ranking of a particular area will be changed if it later demonstrates greater potential than currently realized. The three types of centers are defined as follows:

- (1) District Center, the location of the institutions and services needed frequently, but not daily, by a given population which is termed a district (which can be delineated according to both accessibility to the particular services and the capacity of the services);
- (2) Regional Center, the location of various specialized economic, welfare and administrative institutions, which can reasonably be shared by a number of districts;
- (3) National Center, fulfilling various economic and administrative functions for the whole country, providing very specialized services, and a growth pole of national significance.

3.7.2 Functions of the System of Development Service Centers

3.7.2.1 It must be stressed that the institutions and services which are provided by a development service center are those which are required to stimulate growth or satisfy particular welfare needs, but which are not needed daily or continually by the inhabitants of any settlement. Thus they are not the normal municipal services (electricity, water, sewerage, roads, elementary and intermediate schools, local cooperatives, local agricultural improvement services, and so forth). These municipal services will continue to be provided as previously; and no changes in the administrative arrangements for their provision are foreseen. The development service center provides the more specialized administrative and technical back-up services which support the local activities, (such as Agricultural Bank, Agricultural Extension Services, Ministry Offices). It also provides the more specialized social services which must be shared among several communities (due to insufficient regular demand or shortage of specialized staff) such as secondary schools, hospitals, welfare institutes.

3.7.2.2 This system of service centers enables the necessary institutional elements for development to be distributed evenly and efficiently throughout the Kingdom without unnecessary duplication of activities in a given area. Also, it provides the requirements for each area to realize economic expansion according to its own potential. In this respect, the Second Development Plan concentrated on removing the physical constraints to development by building the necessary physical infrastructures for growth. The new system of development service centers will remove the institutional and administrative constraints by developing facilities at the regional and district levels.

3.7.2.3 This system will also have the flexibility to select appropriate areas with outstanding potential to become growth poles in the future, once they have clearly proven their comparative advantage. The idea of a hierarchy of centers allows the promotion of areas to a higher category. Once the full potential of an area is recognized, there is always scope for the judicious injection of capital to stimulate development to a greater scale in a way which has been pioneered in Jubail and Yanbu. The immediate advantages of the system of development centers, therefore, are that it allows the stimulation of new national growth poles; safeguards the continuing growth of all other areas which can still make a useful contribution to the national economy; and continues to provide basic services to the population of areas with limited potential. This flexibility will help contain the disparities between regions and also allow full initiative to ministries to foster the development of the Kingdom.

3.8 ECONOMIC COOPERATION IN THE ARABIAN GULF REGION

3.8.1 Mutual interests of the Arabian Peninsula Countries

3.8.1.1 Cooperation in the economic and social development fields among the Arabian Peninsula countries is in the interests of all concerned. Most of these countries share a cultural heritage and common sets of problems. Among these common features are:

- (1) A shared bond of the Islamic faith;
- (2) For the most part a similar, albeit limited, natural resource base;
- (3) Limited individual market sizes, thus restricting the development of large-scale domestically-oriented industry;
- (4) Similar industrial export potential which, nevertheless, may lead to potential duplication;
- (5) Similar manpower and population features.

3.8.1.2 Following the Arabian Peninsula Ministers Planning Conference which took place in Riyadh, Rajab 1399, and was attended by the Planning Ministers of the UAE Sultanate of Oman, Bahrain, Saudi Arabia, Qatar, Kuwait and the Arab Republic of Yemen, the Kingdom of Saudi Arabia has pledged to actively pursue a policy of close economic and social coordination with other Peninsula countries. The Conference was regarded as the first step toward eventual Arab economic union, although for the time being, such cooperation will be limited to those countries in the immediate vicinity.

3.8.1.3 The challenges facing these countries are basically the same, namely: to make use of their depletable natural resources; to accelerate development; to change their economic structures; to diversify their sources of income; and to transform their societies into producer, rather than consumer, societies. All are committed to the key role to be played by the private sector in this process.

3.8.1.4 In undertaking programs to conquer these challenges, the predominant common problems are likely to be: identifying appropriate manpower policies, both to develop the respective indigenous populations and to avoid excessive competition for imported manpower resources; combating inflation and especially exploitation by foreign contractors; identifying overlap among industrial projects and the potential for joint industrial cooperation.

3.8.2 Coordination among the Arabian Peninsula Countries

3.8.2.1 It is, therefore, agreed that the general objectives of the individual countries' Development Plans should be similar. Furthermore, the basic fields of coordination have been identified and include the economic, social, industrial, financial, agricultural, educational and commercial fields, as well as transportation, energy, water and health. In the short term, concentration will be placed upon cooperation in implementing basic infrastructural projects.

3.8.2.2 Coordination and integration will take place at a number of different stages. Whereas each country will continue implementing its current key projects, coordination will take place between existing projects that are of a competitive nature. In addition to facilitating the transfer of capital, manpower and locally produced goods between countries, joint cooperation and coordination in the industrial and export fields are aimed for, as well as the interconnection of the basic infrastructure networks. In the longer term, it is hoped that each country will specialize in industry and other economic activity, according to its comparative advantage.

3.8.2.3 Although much work remains to be done for the development of operational means to achieve closer coordination and integration, the methods and means for this important task have now been established. The Planning Ministers of the individual countries will meet at least once each year to review and recommend actions based on the reports of technical committees. In addition to a system for exchanging data and studies of common interest, each country will appoint qualified planning staff, within its own institutional framework, to concentrate upon matters of regional importance. A permanent secretariat for the documentation and follow-up of the various meetings and decisions will be established within Saudi's Arabia's Ministry of Planning.

CHAPTER 4

ECONOMIC RESOURCE DEVELOPMENT

4. ECONOMIC RESOURCE DEVELOPMENT

4.1 OVERVIEW

In this Third Development Plan increased emphasis is placed on the development of productive resources, that is, on expanding the contributions made to national wealth by agriculture, minerals, hydrocarbons (particularly natural gas) and manufacturing industry. Close attention is paid both to the sequential provision and maintenance of supporting infrastructure for these producing sectors, and to providing the right conditions for their development: adequate services, proper incentives, financial resources and suitable manpower.

In the expansion of the producing sectors, both the public and private investors have important roles to play, with a close interface provided by the various government funds to which the private sector has access.

This chapter traces the historical development, current position and the planned development of the producing and service sectors/activities listed below:

Water	Industrial Complexes at Jubail & Yanbu*
Agriculture	Finance for Industry and Electricity*
Energy	Construction
Mineral Resources	Commercial Services
Manufacturing	Finance and Banking

4.2 WATER DEVELOPMENT

4.2.1 Overview

4.2.1.1. Water development to support Kingdom - wide efforts to supply every city, town and village with adequate quantities of potable water of acceptable health standards, will continue unabated during the Plan period.

4.2.1.2. The large potential for commercial agricultural development, utilizing fossil water and other sources, has been recently confirmed. The indications are that from proven water resources a century of irrigation can be sustained on about a quarter of a million hectares of land. This can be accomplished without infringing upon the rights and requirements of priority user sectors such as potable water supply, essential industry, and traditional agriculture.

* Included in the section on Manufacturing.

During the Third Development Plan period, it is planned to equip 41,500 hectares with modern water and labor saving irrigation systems, of which 19,000 hectares would be on new lands and the remainder in traditional, agricultural areas.

4.2.2 Present Conditions

4.2.2.1 National water development entails the provision of water of a quality and quantity that meets public health standards and provides for the total requirements of the population at large, industry and agriculture. This includes urban and industrial demands, rural demands and the demands of irrigated agriculture.

4.2.2.2 Four principal government organizational entities are involved in the production, treatment and distribution of the Kingdom's water supplies: the Ministry of Agriculture and Water (MOAW); the Saline Water Conversion Corporation (SWCC); the Al Hassa Irrigation and Drainage Authority (HIDA); and the Ministry of Municipal and Rural Affairs (MOMRA).

4.2.2.3 Prior to 1390, water development within the Kingdom was conducted using a more or less ad hoc approach. Large undertakings such as the rehabilitation of the Al Hassa Irrigation Project were given special attention, whereas well drilling for both municipal and agricultural uses was done mostly upon request by local authorities and land owners. The first two desalination plants in the Kingdom located at Al Wajh and at Duba on the Red Sea coast near the Jordanian border, went into operation in 1389 with a combined capacity of 576 cubic meters per day.

4.2.2.4 A more formal approach was followed during the implementation of the Kingdom's First Development Plan. At the end of the Plan period, total water demands by some major sectors were estimated as follows:

	<u>Water Demand in Million M³/year</u>
Irrigated agriculture	1,900
Oil well injection	390
Urban (towns over 5,000)	170

4.2.2.5 Accomplishments during the First Development Plan are summarized below.

(1) Well Drilling. 1,025 wells were drilled, dug or rehabilitated mostly for domestic water supply which far exceeded the original target of 550 wells.

(2) Networks. Water supply networks of varying extent were implemented with special emphasis on large cities such as Riyadh and Jeddah.

(3) Dam Construction. Over 20 small dams were constructed or initiated for flood protection, aquifer recharge and, in some cases such as Abha Dam, storage of surface runoff for water supply purposes.

(4) Desalination. Five plants were in operation at the end of the First Plan period, with a total installed capacity of 17.7 million cubic meters per year and power generation of 50 MW.

In addition, numerous ground water investigations were undertaken and the ongoing program of hydrological data collection and analysis was continued and expanded. The latter involved an extensive network of hydrologic instrumentation and observation stations. Water use for oil well injection, particularly from the Wasia aquifer, began to assume major proportions. The five year construction program of the Al Hassa Irrigation and Drainage project was completed in 1392.

4.2.2.6 Significant additional water supply capacities were developed during the Second Development Plan period.

(1) Well Drilling. 760 wells were drilled, dug or repaired, mostly by deepening. Also, many exploratory wells were drilled to gain further knowledge of aquifer characteristics.

(2) Networks. A total of 237 new municipal water supply projects was built and the expansion of over 150 potable water systems was undertaken. Again, the networks of Riyadh and Jeddah, the fastest growing cities in the Kingdom, were expanded at an accelerated pace.

(3) Dam Construction. During the Second Development Plan 28 dams were added to make a total of 41 dams operational at the close of the Plan period, including the Jizan dam for irrigation of 6,000 hectares. In addition five dams were under construction.

(4) Desalination. The existing water desalination and power generating capacities were increased to 65.4 million cubic meters per year and 350 MW, respectively.

This represents the combined capacity of 14 operational plants, of which three (located in Jeddah) have dual purpose features. Six new plants were under construction and scheduled for completion during the first three years of the Third Development Plan, bringing the total installed capacity in the Kingdom to 523 million cubic meters per year, and 3,145 MW of associated power generation.

(5) Riyadh. The increase in population of the capital city of Riyadh has been spectacular. The water system capacity requirements for the year 1400 are estimated to be in the range of 265 to 355 thousand cubic meters per day and will double by the year 1407. However, the present ground water sources near Riyadh are experiencing decrementation and, therefore, projects are underway to convey 200,000 cubic meters per day from the Wasia aquifer well field near Khurais, and up to 660,000 cubic meters per day from the desalination complex at Jubail. This is by far the largest water development project in the Kingdom's history.

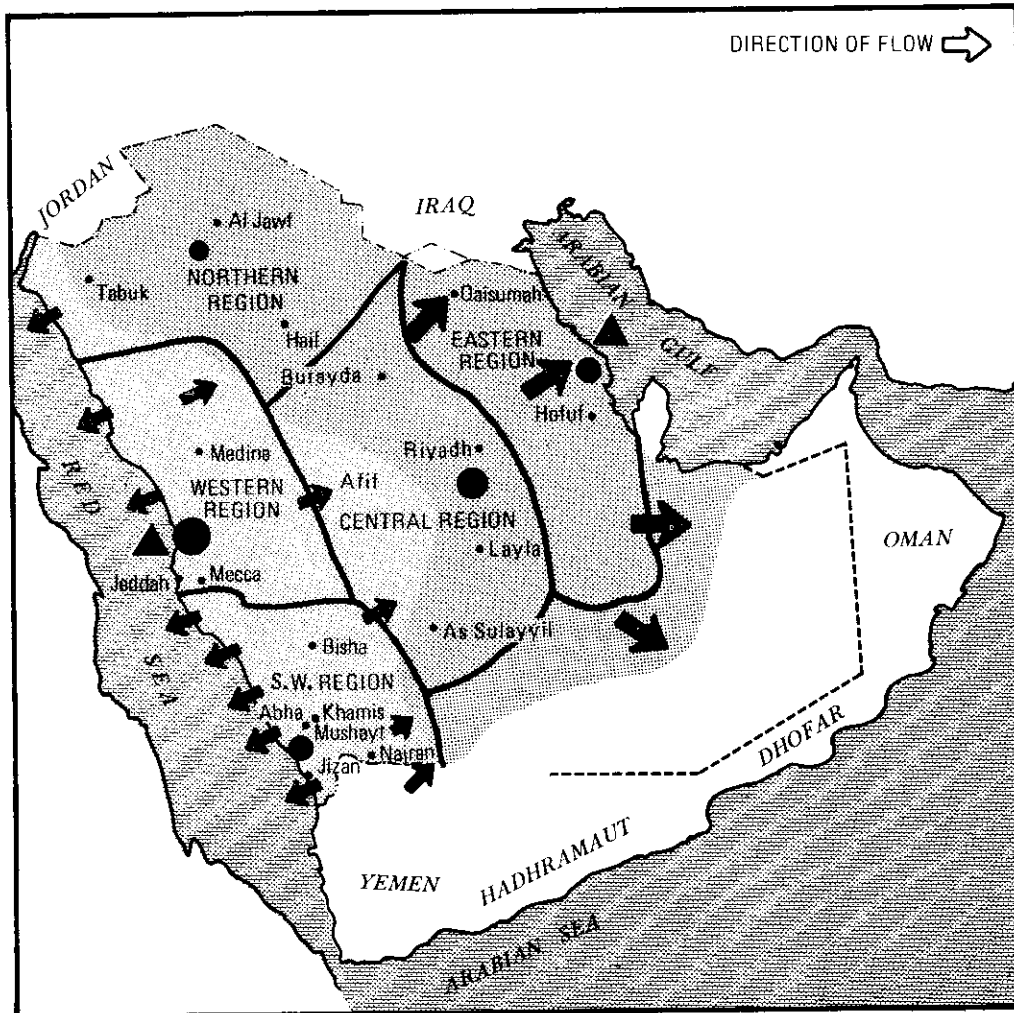
(6) National Water Plan. The preparation of a much needed National Water Plan for the rational use and re-use of the water resources available to the Kingdom was also started. Preliminary work completed by the Ministry of Agriculture and Water includes a national inventory of surface and ground water resources. A national water demand model for the urban, industrial and rural sectors was programmed for this and other purposes. Work is underway to define future agricultural use of the Kingdom's resources.

4.2.2.7 Available Water Resources. These may be divided into conventional resources and those obtained through saline water conversion. Table 4-1 presents current best estimates of water availability from these sources for each of the five planning regions. The total anticipated water availability to the Kingdom may be summarized as shown in Figures 2 and 3. The data and underlying criteria for estimating these exploitable quantities of water are derived from preliminary findings of a recently completed inventory of water resources in the Kingdom conducted by the Ministry of Agriculture and Water.

By far the largest source for future water supply is the water stored in the six major deep aquifers in the Central, Northern and Eastern Regions of the Kingdom, down to a depth of about 300 meters:

Figure.....2

EXPLOITABLE WATER RESOURCES



RESOURCES IN MILLION M³/YEAR

	1400	1405	1410	1420
<div style="display: inline-block; width: 10px; height: 10px; background-color: #cccccc; border: 1px solid black;"></div> NON-RENEWABLE Deep Aquifers (Fossil Water)	3,450	3,450	3,450	3,450
<div style="display: inline-block; width: 10px; height: 10px; background-color: #cccccc; border: 1px solid black;"></div> RENEWABLE Shallow Aquifers & Surface Water	1,145	1,145	1,145	1,145
<div style="display: inline-block; width: 10px; height: 10px; background-color: black; border: 1px solid black;"></div> DESALINATION —West Coast —East Coast	52 11	243 362	432 362	836 362
<div style="display: inline-block; width: 10px; height: 10px; background-color: black; border: 1px solid black;"></div> URBAN RECLAIMED FROM URBAN WASTE FOR NON-DOMESTIC USE	—	140	335	730
TOTAL AVAILABLE	4,658	5,340	5,724	6,523

Table 4-1
NATIONAL WATER BALANCE

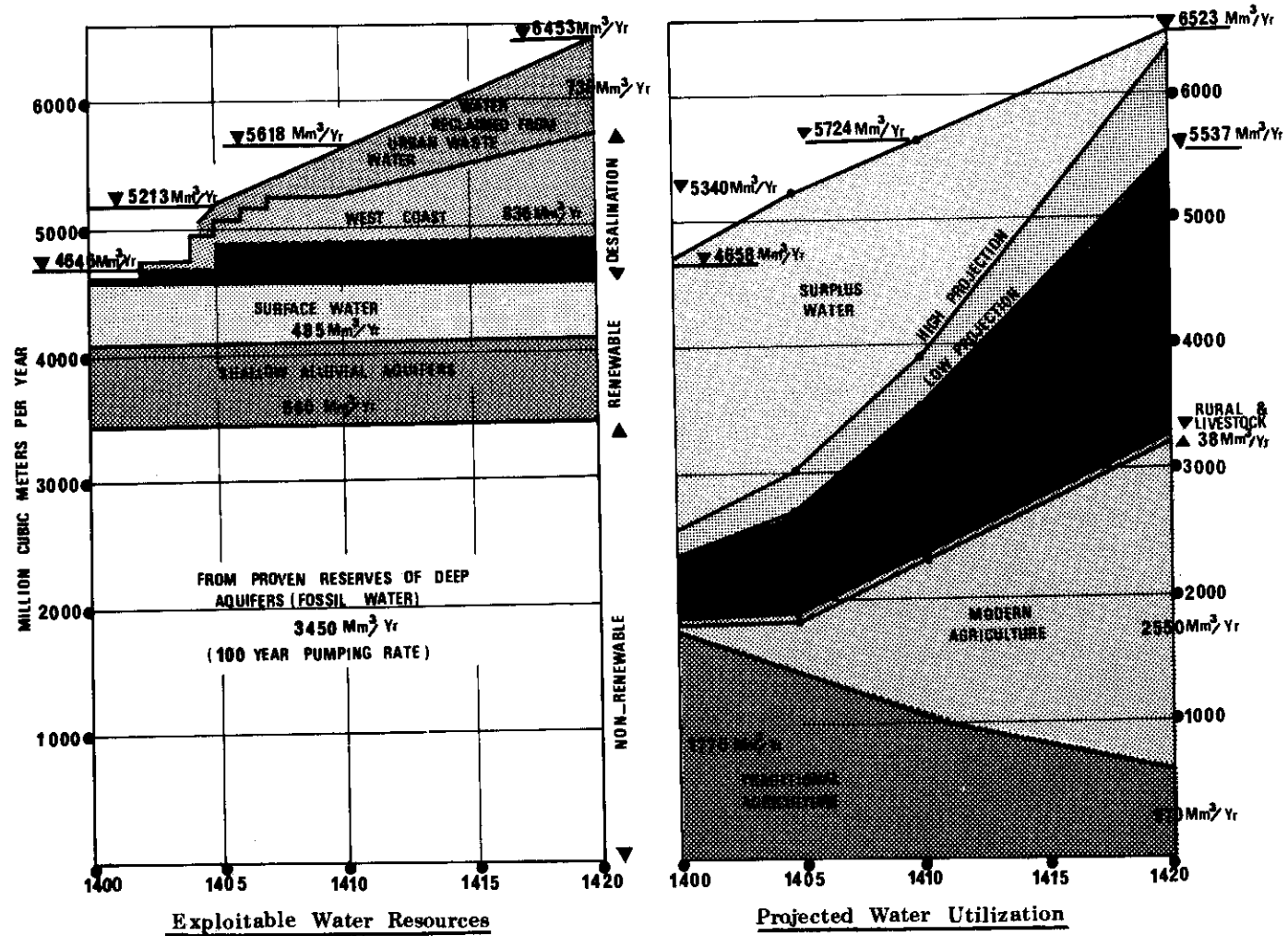
(Million cubic meters per year)

Region	Water Resources	1400	1405	1410	1420	Water Utilization	1400	1405	1410	1420
Central	Non-renewable	2,000	2,000	2,000	2,000	Urban & industrial	128	196	298	579
	Renewable	200	200	200	200	Rural & livestock watering	8	8	9	11
	Desalination	-	193	193	193	Irrigated agriculture	890	790	1,090	1,710
	Reclaimed from urban waste water	-	40	90	200	Surplus (Deficit)	1,174	1,439	1,086	293
	Subtotal	2,200	2,433	2,483	2,593	Subtotal	2,200	2,433	2,483	2,593
Western	Non-renewable	-	-	-	-	Urban & industrial	219	343	479	897
	Renewable	225	225	225	225	Rural & livestock watering	7	7	7	8
	Desalination	52	237	392	777	Irrigated agriculture	125	200	255	405
	Reclaimed from urban waste water	-	85	155	330	Surplus (Deficit)	(74)	(38)	31	22
	Subtotal	277	547	772	1,332	Subtotal	277	547	772	1,332
Eastern	Non-renewable	1,000	1,000	1,000	1,000	Urban & industrial	68	153	231	402
	Renewable	-	-	-	-	Rural & livestock watering	1	1	1	1
	Desalination	11	169	169	169	Irrigated agriculture	367	470	550	575
	Reclaimed from urban waste water	-	15	25	50	Surplus (Deficit)	575	560	412	241
	Subtotal	1,011	1,184	1,194	1,219	Subtotal	1,011	1,184	1,194	1,219
Northern	Non-renewable	450	450	450	450	Urban & industrial	20	32	54	111
	Renewable	15	15	15	15	Rural & livestock watering	6	7	9	12
	Desalination	neg.	4	4	4	Irrigated agriculture	150	138	180	220
	Reclaim from urban waste water	-	-	15	40	Surplus (Deficit)	289	292	241	166
	Subtotal	465	469	484	509	Subtotal	465	469	484	509
Southwestern	Non-renewable	-	-	-	-	Urban & industrial	67	99	149	290
	Renewable	705	705	705	705	Rural & livestock watering	5	5	5	6
	Desalination	neg.	2	36	55	Irrigated agriculture	300	275	270	310
	Reclaimed from urban waste water	-	-	50	110	Surplus (Deficit)	333	328	367	264
	Subtotal	705	707	791	870	Subtotal	705	707	791	870
Kingdom	Non-renewable	3,450	3,450	3,450	3,450	Urban & industrial	502	823	1,211	2,279
	Renewable	1,145	1,145	1,145	1,145	Rural & livestock watering	27	28	31	38
	Desalination	63	605	794	1,198	Irrigated agriculture	1,832	1,873	2,345	3,220
	Reclaimed from urban waste water	-	140	335	730	Surplus (Deficit)	2,247	2,616	2,137	986
	TOTAL RESOURCES	4,658	5,340	5,724	6,523	TOTAL UTILIZATION	4,658	5,340	5,724	6,523

neg. = negligible

Figure.....3

NATIONAL WATER BALANCE



Water Reserves in Million M³

Proven	337,500
Probable	565,000
Possible	675,000

The exploitability of these huge ground water resources will largely depend upon technological and economic limits of water well drilling depths and pump lifts, water quality and treatment costs, specific aquifer yields and the cost of conveying water from the source to the user areas.

4.2.2.8 Demand for Water. The principal demand sectors are the urban/industrial uses, rural needs, including livestock watering, and irrigated agriculture. Other minor demands are mostly recreational such as municipal parks and natural lake conservation in some oases and in the southwestern part of the Kingdom. The projections for these demand sectors, except irrigated agriculture, are derived from a national water demand model installed at the Ministry of Planning. The outputs of this model provide projections for each urban area with a 1394 population exceeding 5,000, for rural needs and total potable water requirements by provinces and regions and for the Kingdom as a whole.

Projections for irrigated agriculture's water demands beyond 1405 must await the outcome of a planned subregional, regional and national water allocation study and accompanying crop production potential analysis for all existing and potentially new agricultural areas that have been investigated to date. Nevertheless, Table 4-1 and Figures 2 and 3 give a rough order of magnitude of the volume of water available to agriculture from the regional and national water balances. Large quantities of water not utilized, i.e. the bulk of surplus water, will remain in deep aquifer storage thus prolonging the life of available water from the proven reserves under the assumed rate of extraction over a 100 year period. It appears that a fully irrigated area of a quarter of a million hectares may be assumed for the year 1420 unless factors other than water availability restrict the development of the Kingdom's irrigated agriculture.

4.2.2.9 Conclusions. From the foregoing, the following broad conclusions may be drawn.

- (1) The most water - short area is the Western Region which contains four of the seven large cities of the Kingdom, i.e. Mecca, Jeddah, Medina and Taif. In fact, even available conventional water supplies will be increasingly diverted

from the traditional irrigation sector to help meet the demands for potable water outside these cities. A similar situation, but less severe, will develop over time in the Southwestern Region and the western portion of the Central Region. The construction of flood-retention dams mostly for recharging local alluvial aquifers at feasible locations will continue unabated during the Third Development Plan.

- (2) There is no need to add to desalination capacity along the Arabian Gulf Coast, other than those plants already committed for completion, for example, Jubail I and II, and Khobar II, at least until 1420, and perhaps thereafter.
- (3) Present progress in desalinated water supply on the west coast, notably in the Jeddah area, is lagging behind the rapidly increasing demand. An additional desalination capacity of at least 380,000 cubic meters per day (or 110 million cubic meters per year, assuming operation at 80% of the installed capacity) needs to come on stream in the course of the Fourth Development Plan, and a further 1,330,000 cubic meters per day by the year 1420. By the latter year a 190,000 cubic meters per day plant will also be required for the Southwestern Region to serve the city of Jizan and other nearby coastal towns.
- (4) The city of Riyadh can be supplied by ground water sources to the east and to the south of the city in the foreseeable future without the need for additional supplies from desalination plants on the Gulf Coast. In fact, water reserves in the Central Region, particularly in the southern portion (south of Al Kharj), are so large that over 40% of the Kingdom's irrigated acreage projected for the year 1420 can be developed in the Central Region.
- (5) Although the Kingdom's water resources in the Northern, Central and Eastern Regions appear to be more than adequate for at least the next 100 years or so, there are critical areas such as the immediate vicinity of Riyadh, where over-pumping of local supplies has created severe shortages. In the Al-Hassa and Qatif areas in the Eastern Region, indiscriminate water use in the traditional irrigation sectors has caused severe cutbacks in the productive capacity of the soils. An early discontinuation of local ground water pumping, except for stand-by purposes in the former, and an early conversion to modern irrigation (and farming) methods in the latter areas, are planned for implementation during the Third Development Plan period and thereafter.

- (6) All new irrigated agriculture developments must be planned and implemented, utilizing highly water efficient and labor saving irrigation techniques. Traditionally irrigated areas must be converted to more efficient water application techniques replacing the present wasteful practices of irrigation by gravity.
- (7) The reclamation of water from urban waste water, particularly at the seven largest cities of the Kingdom (i.e. Riyadh, Jeddah, Mecca, Medina, Taif, Dammam and Hofuf: with populations over 100,000 in the 1394 census), constitutes a valuable additional and economical source of water for agriculture and livestock production as well as industrial use. By the year 1420, it can add 15% to the Kingdom's known conventional water sources, as compared to an anticipated 25% from desalinated water.

4.2.3 Objectives and Policies

4.2.3.1 Objectives. Projections of water demand and water supplies show that the situation in the Kingdom is critical in many locations; and that the rate of development of community and other water supplies is not sufficient to keep pace with the requirements of the growing population. The ultimate objectives, to which the Third Development Plan will substantially contribute as part of a longer term national plan for water development, are as follows:

- (1) To provide sufficient quantities of good quality water, in line with public health standards, to meet the urban and rural populations' needs;
- (2) To secure water supplies to cope with industrial development and to increase agricultural expansion in the Kingdom;
- (3) To conserve and develop the present known water resources efficiently;
- (4) To seek new water resources.

4.2.3.2 Strategy and Task Definitions. The general strategy to achieve the foregoing objectives will be that of maximizing the use of available water supply at the least cost and without unnecessary rates of decrement of non-renewable, fresh water sources. This can only be accomplished by means of a rational plan of water resources development whereby the various public

and private sector entities that are involved in water supply and usage, are mobilized to conduct their assigned tasks efficiently, diligently and in concert through appropriate coordinated measures.

In the public sector, there are several governmental agencies that are, wholly or in part, devoted to one or more aspects of the supply of water and its use:

- (1) The Ministry of Agriculture & Water (MOAW) has traditionally been the principal government agency that, among other tasks, is in charge of water supply to the Kingdom's population, agriculture and industry. As the complexities and size of demand increased over time, and with recently formed agencies playing specific roles in the national water supply, it has become necessary to redefine MOAW's contribution in terms of functions it is best equipped to perform. This meant limiting MOAW's water development activities to medium and large scale water production and delivery from conventional sources to the areas of use, i.e. the population centers, industrial complexes, and existing and new agricultural areas. Specifically, the water supply components assigned to MOAW comprise the construction of: storage and diversion dams; well fields; potable water treatment plants and conveyance systems from source to user areas. Taken together, these components form the Kingdom's basic hydraulic infrastructure, drawing from conventional water sources, including water reclaimed from sewage at the point of exit for agricultural purposes and aquifer recharge.
- (2) The Saline Water Conversion Corporation (SWCC) plays an increasingly important role in the water development of the Kingdom. As conventional sources of water supply near to large population centers dwindle and become insufficient or are non-existent at other locations, it becomes imperative to use seawater or saline inland water deposits as sources of supply through application of appropriate desalination techniques. Thus, the task of SWCC is that of producing potable water at these non-conventional sources and installing water conveyance systems to deliver desalinated water from these sources to the user areas.
- (3) The Ministry of Municipal and Rural Affairs (MOMRA) is gradually taking over one of MOAW's traditional roles, namely the distribution of water to consumers in the Kingdom's centers. The task of MOMRA will ultimately become, either directly or indirectly by delegation (for example Riyadh Water Supply & Sewerage Authority), to

take charge of the construction of all municipal distribution networks and associated storage and pressure maintenance facilities as well as sewage collection systems and treatment plants at large and medium sized population centers. MOMRA will also become fully responsible for the operation and maintenance of urban and rural potable water supply systems and water conveyance and treatment facilities constructed by MOAW.

(4) The Al Hassa Irrigation & Drainage Authority is the first fully independent government agency engaged in agricultural water supply and, to a much lesser extent, other support activities such as agricultural extension services to the local farming community. Its task in terms of water supply is specifically limited to that of producing and delivering water to the farm inlet gate and evacuating and ensuring the safe disposal of excess water from its collection points at the farms by means of drainage facilities.

(5) Public Sector Agencies have been formed to organize specific development efforts such as the Royal Commission for Jubail and Yanbu. Eventually, all water related activities of such agencies will revert to one or more of the above mentioned agencies.

(6) The Private Sector constitutes the water consuming public; agricultural and livestock operation; and industrial enterprise. The tasks of each of these private sector components will be to maximize the efficient use of water delivered or produced on-site through modern user techniques; re-use of water with and without in-plant treatment; and in general, to abide by the conservation regulations imposed and permits granted by the Government.

(7) The National Water Plan. There is a great need to coordinate and organize the activities of each of the implementing and operating government agencies as well as those of the water consuming private sector. This has given rise to the ongoing preparation of the National Water Plan. This involves: compiling an inventory and projections of available conventional water resources including recycled sewage and industrial waste water; demand projections by user sector; methods of beneficial re-use of water; water pricing and revenue collection; environmental and socio-economic impacts of water use and disposal; legal aspects governed by Islamic Law; monitoring water extraction and compliance with water use and disposal regulations; and the

institutional arrangements necessary for enforcing the National Water Plan. A time schedule for enforcement, beginning with those areas considered most critical, will be prepared within the first two Plan years. This task will require the concerted effort of all parties involved in water development and use, under the coordinating efforts of such non-implementing agencies as the Ministry of Interior, Ministry of Planning and the Ministry of Finance and National Economy.

4.2.3.3 Policies. In order to accomplish the objectives stated in Section 4.2.3.1, the following policy actions will be taken:

- (1) Conclude as soon as possible the preparation of the National Water Plan to provide a firmer data, regulatory and policy basis for the sector;
- (2) Continue to implement projects to provide for population , industry and agricultural needs and ensure that adequate distribution networks accompany major supply projects;
- (3) Improve knowledge of the water resource base and make detailed hydrological studies of selected major wadis, including the feasibility of dam construction. Concurrently, there will be an intensification of hydrogeological studies of selected aquifers;
- (4) Implement water conservation techniques including water charges to consumers directly connected to government-provided water supply systems; recycle sewage water for beneficial uses; treat and re-use industrial waste water; and promote a national campaign to increase public awareness that water is a precious resource;
- (5) Continue to introduce modern labor and water saving irrigation techniques in agricultural areas not presently irrigated and located within economic distances from existing water sources and supply facilities;
- (6) Convert to modern labor and water saving techniques in those existing agricultural areas that are presently served by traditional, gravity irrigation systems;

- (7) Prepare the way for enforcement of the National Water Plan on an inter-agency basis which will take into account the technical and economic factors of supply and demand as well as the accompanying environmental and social aspects and legal requirements under Islamic Law of all public and private water-based developments in the Kingdom.

4.2.4 Third Development Plan Programs

4.2.4.1 Targets. The following targets, related to the water sector, have been set for the Third Development Plan period.

- (1) Urban Water Supply (towns over 5,000 inhabitants).

From conventional sources:	600	thousand m ³ /day
By desalination:	1,640*	thousand m ³ /day
* 90% provided by SWCC		

- (2) Rural Water Supply (centers under 5,000 inhabitants).

50% of the population and their livestock within easy access to safe water for drinking purposes.

- (3) Industrial Water Supply (major industrial complexes).

Jubail	114	thousand m ³ /day
Yanbu (and Medina)	95	thousand m ³ /day
Other industrial areas at major cities:	100% service	

- (4) Agricultural Water Supply

New areas brought under irrigation by modern methods:	19,000 hectares (5,000 in the Al-Hassa Oasis and 14,000 included in Agricultural Plan Section).
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Traditional, irrigated areas converted to modern methods of irrigation:	22,500 hectares (included in Agricultural Plan Section).
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4.2.4.2 Highlights of the Plan. Table 4-2 summarizes the salient features of planned water development in the Kingdom. Table 4-3 presents the schedule of anticipated water supply and power generating capacities of all existing, ongoing and new, fully operational desalination plants.

4.3 AGRICULTURE

4.3.1 Background

4.3.1.1 The Main Agencies. Agriculture embraces settled agriculture and nomadic livestock production together with fishery, forestry and range resources. The Ministry of Agriculture and Water (MOAW) is the agency primarily responsible for the development of agriculture. Other agencies with important supporting roles in the agricultural sector are identified below.

	<u>Agency</u>		<u>Comments on functions</u>
1.	The Agricultural Bank (SAAB)	-	Wide range of financial services for agricultural sector.
2.	Saudi Arabian Industrial Development Fund (SIDF)	-	Loans for agro-industries.
3.	Ministry of Labor and Social Affairs (MOLSA)	-	Supervision of rural cooperatives.
4.	Grain Silos and Flour Mills Corporation (GSFMO)	-	Purchase and storage of local wheat, production of animal feed concentrates, monitoring of animal feed production subsidy.
5.	Ministry of Commerce	-	Coordination of agricultural trade policy and administration of some price support and subsidy payments.
6.	Ministry of Education Universities & Colleges	] - ]	Training in agricultural skills

Table 4-2
HIGHLIGHTS OF THE PLAN FOR WATER DEVELOPMENT
(1400/01 - 1404/05)

<u>Agency</u>	<u>Name of Project(s) or Program(s)</u>	<u>Purpose</u>	<u>Description or Size</u>
SWCC	<ul style="list-style-type: none"> - Operation & Maintenance of Existing Desalination Plants & Associated Facilities. - Completion of Ongoing & Construction of new Desalination Facilities. - Research, Technology Development & Preinvestment Studies. 	<ul style="list-style-type: none"> Potable water supply. Potable & Industrial water supply; and power generators. Reduction of the cost of water desalination. 	<ul style="list-style-type: none"> 179 thousand m³/day. 350 MW. 1,722 thousand m³/day 3,950 MW upon completion of all plants.
MOAW (Water Sector)	<ul style="list-style-type: none"> - National Water Plan Preparation. - Studies of Wadi Basins, Aquifers & New Water Supply Projects including exploratory well drilling and pilot projects for Waste Water Reuse. - Dam Construction. - Production Well Drilling and Well Field Construction. - Construction and Expansion of major Water Supply Systems. - Construction and Expansion of medium size and small Water Supply System. - Operation and Maintenance of potable Water Supply. - Modernization of irrigation systems in tradition farming areas. - Implementation of modern irrigation systems in new farming areas. 	<ul style="list-style-type: none"> Monitor the rational utilization of available water resources. Data base development and preinvestment studies for water source development. Flood protection, aquifer recharge and water supply. Potable and irrigation water supply. Urban/industrial potable water supply. Urban rural potable water supply. Urban and rural potable water. Irrigated agriculture for food production. 	<ul style="list-style-type: none"> Water Allocation & Use Regulation; Socioeconomic and Environmental Impact Determination. 41 existing dams; 5 dams under construction; 37 new dams. 400 tube wells, 300 hand dug wells, and deepening of 200 existing wells. Cities of Riyadh, Jeddah, Taif, Burayda, Abha, Hail, Hofuf & Mubarratz, and Hafer Al-Batin and Qaisuma. 315 systems. 470 projects by 1404/05. See Plan section on Agriculture Development and Well Drilling program (above).
(In cooperation with private Sector)			
HIDA	<ul style="list-style-type: none"> - Operation and Maintenance and Upgrading of traditional irrigation and drainage of existing farming areas. - Program of Special Studies for Integrated Project of Agricultural Production, Agro-industrial Complex and Marketing. - Improvement of Management Techniques, Manpower Training, and Upgrade Agricultural Extension services. - Conversion of the traditional irrigation system to modern high frequency irrigation equipment and techniques for government and privately owned (abandoned) farming areas. 	<ul style="list-style-type: none"> Irrigated agriculture for food production. Full utilization of food production potential. Increase efficiency of Authority's operations and increase crop production. Introduce water and labor saving methods in the Al Hassa area for increased production. 	<ul style="list-style-type: none"> Increase area effectively irrigated from 8,000 to 11,000 hectares. Covering a total areas of 16,000 hectares of traditional and modern farming areas. Administration, technical management, O & M equipment operators and agricultural extension personnel. Covering an area of 5,000 hectares.
(In cooperation with private sector)			
MOMRA	<ul style="list-style-type: none"> - Expansion, operation & maintenance of water supply systems constructed by MOAW. - Large systems (by local water supply and Sewerage authorities). - Other (by municipalities and local authorities). - Construction, operation & maintenance of sewage collection systems and treatment plants in large cities and medium sized towns. 	<ul style="list-style-type: none"> Urban & rural potable water. Urban industrial potable water supply. Urban & rural potable water supply. Improve public health conditions and provide secondary source of water for non-domestic purposes. 	<ul style="list-style-type: none"> 207 systems 42 systems

Table 4-3

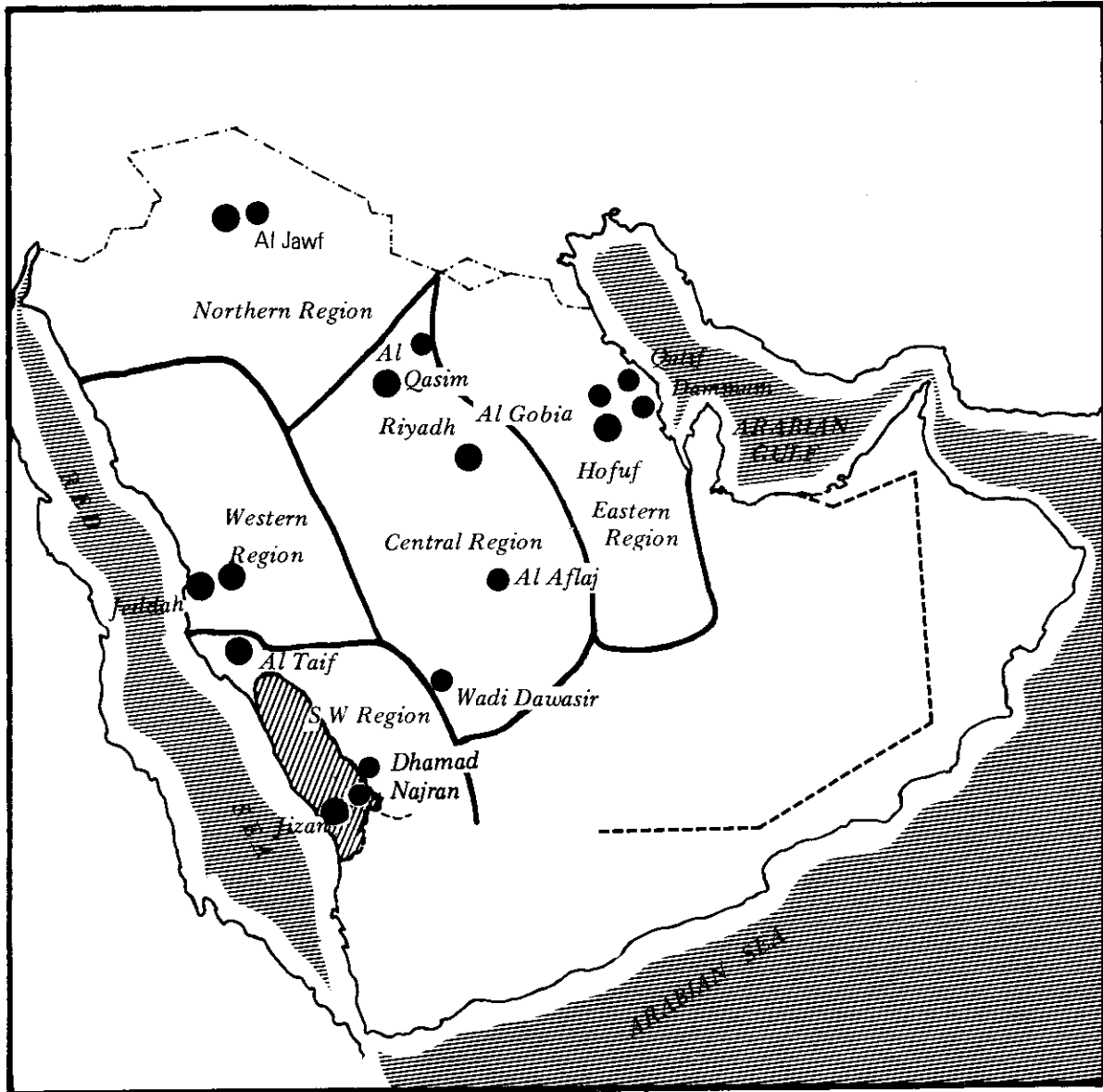
PROJECTION OF WATER SUPPLY AND POWER GENERATING CAPACITIES
OF FULLY OPERATIONAL DESALINATION PLANTS

	1399/1400	1400/01	1401/02	1402/03	1403/04	1404/05	1405/06	1406/07	1407/08
WATER SUPPLY CAPACITY IN '000 Cm/DAY									
o Existing Plants	179.2	179.2	179.2	179.2	179.2	179.2	179.2	179.2	179.2
o Ongoing Plants									
- Yanbu I	-	-	-	95.0	95.0	95.0	95.0	95.0	95.0
- Rabigh I	-	-	-	1.0	1.0	1.0	1.0	1.0	1.0
- Jeddah IV	-	-	-	190.0	190.0	190.0	190.0	190.0	190.0
- Jubail I	-	-	-	114.0	114.0	114.0	114.0	114.0	114.0
- Khobar II	-	-	-	190.0	190.0	190.0	190.0	190.0	190.0
- Jubail II	-	-	-	-	-	665.0	665.0	665.0	665.0
o New Plants									
- Al Birk I	-	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
- Mobile Units	-	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
- Al-Lith I	-	-	-	0.4	0.4	0.4	0.4	0.4	0.4
- Masturah I	-	-	-	1.9	1.9	1.9	1.9	1.9	1.9
- Tuwal I	-	-	-	1.9	1.9	1.9	1.9	1.9	1.9
- Duba III	-	-	-	-	3.8	3.8	3.8	3.8	3.8
- Haql II	-	-	-	-	5.7	5.7	5.7	5.7	5.7
- Al-Khafji II	-	-	-	-	23.0	23.0	23.0	23.0	23.0
- Umm Lajj II	-	-	-	-	3.8	3.8	3.8	3.8	3.8
- Al-Qunfundah I	-	-	-	-	-	3.8	3.8	3.8	3.8
- Yanbua II	-	-	-	-	-	-	76.0	76.0	76.0
- Mecca/Taif I	-	-	-	-	-	-	152.0	152.0	152.0
- Al Wajh III	-	-	-	-	-	-	-	3.8	3.8
- Assir I	-	-	-	-	-	-	-	-	94.0
- Jeddah V	-	-	-	-	-	-	-	-	94.0
TOTAL WATER CAPACITY	179.2	181.8	181.8	776.0	812.3	1,481.1	1,709.1	1,712.9	1,900.9
POWER GENERATING CAPACITY IN MW									
o Existing Plants (West Coast)	350	350	350	350	350	350	350	350	350
o Ongoing Plants - West Coast	-	-	-	750	750	750	750	750	750
- East Coast	-	-	-	750	750	2,045	2,045	2,045	2,045
o New Plants - West Coast	-	-	-	-	35	45	645	655	1,155
- East Coast	-	-	-	-	-	-	-	-	-
TOTAL POWER CAPACITY	350	350	350	1,850	1,885	3,190	3,790	3,800	4,300

Note: Partial operation is expected for most plants prior to first year of full operation.

Figure.....4

PLANNING REGIONS FOR AGRICULTURAL DEVELOPMENT



- Research Centers
- Irrigation and Reclamation Projects of the Third Development Plan
- ▨ Scattered areas of dryland cultivation

The MOAW participates on directorate boards including the Al Hassa Irrigation and Drainage Authority (HIDA), the Harradh Agricultural and Animal Production Company, and in the operation of local irrigation and development projects.

4.3.1.2 The Agricultural Setting. Broadly, the Kingdom's agricultural production can be divided between the settled and nomadic sectors. Settled agriculture which includes crop and livestock production, has a very long history of development at oases in the Northern, Eastern, and Central Regions, and in the Southwest Region, where rainfall is sufficient to support scattered dryland agriculture. Elsewhere, large areas of sparsely vegetated range land exist which have traditionally provided the grazing needs of nomadic herds of sheep, goats, camels and some cattle.

Despite the discovery and development of oil, and subsequently, rapid development in other sectors, agriculture has remained the primary occupation of the Kingdom's population. In 1394/95, it is estimated that about 695,000 persons, or 40% of the civil labor force, was engaged in agriculture. By 1399/1400, although agricultural employment declined sharply by about 96,000 persons, the sector still remained the largest employer, with about a quarter of the Kingdom's civil labor force.

Oil exploration initially revealed, but did not quantify, extensive fossil water aquifer reserves in sedimentary deposits east of the Arabian Shield, where formally no crops were grown. As previously mentioned recent aquifer investigations have confirmed sufficient reserves to support at least a century of sustained water withdrawal; enough to irrigate as much as 250,000 hectares of land. Extensive soil classifications have indicated an even larger area of cultivable land overlying these aquifers. It is these areas that have the potential for producing much of the Kingdom's food demand in the future.

Figure 4 shows, by planning region, the agricultural research centers, irrigation and reclamation projects and the dryland cultivation areas.

The need for a sound agricultural sector has long been recognized and supported by the Government. The need for a prudent level of strategic food production and the opportunities for good levels of agricultural incomes underlie the agricultural policies and plans of the Government.

The data base for agriculture remains inadequate and all estimates must be taken as indicative rather than firm. However, work is underway to improve the quality of agricultural data.

4.3.1.3 Agricultural Land Use. Table 4-4 shows the most recent recorded change in agricultural land use. Between 1390/91 and 1395/96 the area under cultivation increased by almost 13 % to reach 592,000 hectares. The number of land holdings remained essentially unchanged. Dryland agriculture declined significantly but was compensated for by a 16 % increase in land irrigated. Perennial crop establishment dominated land use adjustments. Most of these are orchard plantations and their effect on production will only come when trees reach maturity. The average land use data indicate that the typical farm is small with an average land holding of only 6.7 hectares in 1395/96. This 6.7 hectare average shows a 12.6 % decline over the 1390/91 average. More land within the holdings is, however, shown as cultivated, which implies an intensification of cultivation in the traditional sector. This is further supported by national production data, which indicate that greater yields are being produced per unit of area.

4.3.1.4 Crop Production. The trend in crop production can be gauged from the data shown in Table 4-5. The important production increases were in wheat, vegetables and forage. Most other crops showed some increase, but there were declines in the traditional crops of sorghum, millet, and melons.

4.3.1.5 Crop Yields. The information in Table 4-6 shows the generally low crop yields produced under traditional methods of farming. The effect of improved seed programs stands out in the significantly higher yields of wheat and barley, compared to sorghum, millet and corn. Wheat and barley have been widely distributed, whereas similar programs for other cereals are in their initial stages of distribution.

4.3.1.6 Livestock Production. In Saudi Arabia this is heavily dependent on range or pasture grazing in a harsh natural environment. Total grazing land has been estimated at about 210 million hectares, of which only 5% has been classified as excellent and 31% as good. Good grazing areas have deteriorated because of irregular rainfall, but more particularly due to overgrazing and cutting of shrubs. The extremes of climate, deficiencies of soil and, therefore, of fodder, and the problems of diseases and parasites combine to reduce the productivity of livestock on the open range. Nonetheless, livestock production is increasing and under irrigation, supportive forage production can be improved manifold, both in quantity and quality.

Table 4 - 4

COMPARISON OF CULTIVATED AREA AND LAND USE: 1390/91 – 1395/96.

Total Holdings and Land Use (Hectares)						
Year	No. of Holdings	Area in Holdings	Cultivated Areas			Total
			Dryland	Irrigated	Perennial & Orchard	
1390/91	180,789	1,391,274	403,654	78,362	42,709	524,725
1395/96	180,670	1,213,462	357,713	91,126	143,162	592,001
Changes:						
Hectares	- 119 ⁽¹⁾	- 177,812	- 45,941	+ 12,764	+ 100,453	+ 67,276
Percent	—	- 12.8	- 11.4	+ 16.3	+ 235.2	+ 12.8
Average Holding Land Use (Hectares)						
		Cultivated		Uncultivated	Total	
1390/91		2.90		4.79	7.69	
1395/96		3.28		3.44	6.72	
Changes:						
Hectares		+ 0.38		- 1.35	- 0.97	
Percent		+13.1		- 28.2	- 12.6	

(1) Number

Table 4 - 5

COMPARISON OF PRODUCTION BY CROP: 1390/91 – 1395/96

(Thousand metric tons)

Crop	1390/91	1395/96	Percentage Change
Wheat	74.2	92.5	+ 25
Sorghum	147.4	160.7	+ 9
Millet	162.5	16.6	- 90
Barley	6.7	12.0	+ 79
Vegetables	176.4	259.8	+ 47
Melons	470.0	248.4	- 47
Dates	224.3	256.9	+ 15
Citrus	13.1	20.6	+ 57
Alfalfa (DM) ⁽¹⁾	36.0	108.3	+ 200

(1) Dry material

Table 4 - 6

**AVERAGE CROP YIELDS, 1395/96.
(Kilograms per hectare)**

<u>Crop</u>	<u>Yield</u>	<u>Crop</u>	<u>Yield</u>
Wheat	1,250	Melons	10,810
Millet	538	Watermelon	19,940
Sorghum	540	Alfalfa (DM) ⁽¹⁾	11,430
Corn	494	Dates	4,250
Barley	1,250	Grapes	9,330
Tomatoes	9,823	Citrus	5,970
Potatoes	5,000	Okra	3,610
Squash	6,620	Carrots	4,300
Eggplant	5,398	Onions	16,640

(1) Dry material

Source: Statistical Year Book 1398.

Poultry are produced under controlled climatic conditions in most of the large commercial operations. They are supported by a nutritious and controlled diet, formulated from local and imported feed components. In response to a large and growing market and readily available feeds, poultry production increased dramatically and continues to expand, mainly in the commercial sector.

Table 4 - 7

**COMPARISON OF LIVESTOCK OUTPUT: 1390/91 – 1395/96.
(Thousand metric tons)**

<u>Product</u>	<u>1390/91</u>	<u>1395/96</u>	<u>Percentage Increase</u>
Lamò	18.0	23.8	32
Beef	8.0	10.6	32
Eggs	3.6	8.4	133
Chicken	7.0	20.7	196

Source: MOAW data.

4.3.1.7 Fisheries. The Saudi Arabian coastline is about 1,760 kilometers long on the Red Sea, and about 560 kilometers long on the Arabian Gulf. Although there is an abundance of fish in these coastal waters, the fishery resource has, as yet, hardly been exploited. The annual catch is estimated at about 16,000 tons, while the potential has been estimated by FAO to be as high as 300,000 - 500,000 tons annually.

The fishing fleet in operation on the Red Sea coast consists of about 1,200 boats in the 6 to 8 meter range, supporting about 2,400 full - time fishermen. In the Gulf area the fleet is about 200, ranging in size from 8 to 20 meters and supporting about 2,000 full - time fishermen.

4.3.1.8 Forestry. The area of natural forestry in the Kingdom amounts to approximately 160,000 hectares, most of which is in the Sarwat Mountains. These forests, which are extremely important to the ecology of the region, were subject to unregulated continuous cutting operations, which has seriously decreased the forestry resources. As a result, in 1398, the Council of Ministers approved a set of regulations for the protection of the Kingdom's forestry and wild life.

4.3.1.9 Food Demands. The demand for food within the Kingdom has increased rapidly in response to both population growth and rising incomes. The latter particularly, encourages shifts in traditional consumption patterns. Dietary changes are following the classical pattern of increased protein intake accompanied by a decrease in cereal consumption as purchasing power increases. Projections of the Kingdom's food demand based on population growth, disposable income and elasticity of demand show a continuation of this pattern and relative changes in per capita consumption may be expected, as follows:

- (1) Continued rapid increase in the consumption of eggs, poultry, fresh vegetables and fruit;
- (2) Modest growth in the consumption of fresh meat, fresh fish, fruit drinks, milk, pulses and tinned fish;
- (3) Fairly static consumption of tinned meats, tinned fruits, vegetable oils and sugar;
- (4) Decreases for rice, flour, melons and dates.

Table 4 - 8 gives details by food group. The intention of the projections is to indicate consumption trends rather than to give precise predictions.

4.3.1.10 Agricultural Production Incentives. The Government actively supports increased agricultural production by providing many incentives. These incentives are extended equally to traditional and commercial producers, as well as to agricultural firms both Saudi and non-Saudi. The several incentives are listed in Table 4 - 9.

Table 4 - 8

PROJECTED DEMAND FOR SELECTED FOODS: 1395 - 1405

(Thousand metric tons, rounded)

<u>Food Group</u>	<u>1395</u>	<u>1400</u>	<u>1405</u>
Flour products	597	694	649
Fresh meat, fish, poultry, eggs ⁽¹⁾	164	228	349
Dairy products ⁽²⁾	74	97	132
Fresh vegetables	453	631	957
Fresh fruit ⁽³⁾	755	931	1,038
Beverages ⁽⁴⁾	80	105	139
Oil and fats	30	37	39

(1) Includes frozen.

(2) Milk (fresh and powdered), cheese, butter/margarine.

(3) Includes dates and melons.

(4) Includes tea, coffee, soft and fruit drinks.

Source: MOP estimates

4.3.1.11 Extension Services and Research. There are 93 extension offices spread throughout the Kingdom. These offices provide technical assistance and guidance to farmers. The services of extension offices are directed mainly at achieving a higher yield and better quality agricultural production. MOAW also furnishes spraying equipment and pesticides to farmers

Table 4 - 9

INCENTIVES FOR AGRICULTURAL PRODUCTION

<u>Type</u>	<u>Amount</u>	<u>Source</u>
Production input:		
Fertilizer	50% of cost	MOAW
Animal feed	50% of cost	SAAB
Potato seed	5 tons free, SR 1,000/ton thereafter up to 15 tons.	MOAW
Machinery and equipment:		
Poultry equipment	30% of cost	SAAB
Dairy equipment	30% of cost	SAAB
Engines and pumps	50% of cost	SAAB
Fish trawlers	Variable	SAAB
Transportation:		
Air transport of cows	100% of cost	SAAB
Output:		
Wheat	SR 3.50/kg ⁽¹⁾	GSFMO
Rice	0.30/kg	MOAW
Corn	0.25/kg	MOAW
Millet/barley	0.15/kg	MOAW
Dates	0.25/kg	MOAW
Date palms planted	50.00/tree	MOAW
Agricultural credit:		
All types	Variable conditions	SAAB
Agro-industrial credit:		
All types	Variable conditions	SIDF
Land acquisition:		
Land distribution	Free	MOAW

(1) Purchase Price (1398/99)

free of charge. In addition, free veterinary care is provided to interested farmers. Table 4 - 10 lists the agricultural research stations and experimental farms in Saudi Arabia. The research program emphasizes the adaptation of modern agricultural technology to the Kingdom.

4.3.1.12 Major Development Projects. As part of the efforts to optimize water and land utilization, MOAW has embarked on several ambitious projects.

- (1) Wadi Jizan: a large dam has been completed to provide irrigation water for 6,000 hectares and an irrigation scheme is underway.
- (2) Tihama: A study has been completed for Wadi Bish and Wadi Haly for optimum utilization of water resources and consequently increasing cultivable land.
- (3) Al Hassa: a large irrigation and drainage system for 20,000 hectares in the Eastern Region is managed by the Al Hassa Irrigation and Drainage Authority. Over 3,000 hectares have been reclaimed and water is available for 10,000 hectares of winter crops and 8,000 hectares of summer crops.
- (4) Haradh Project: this reclamation project was intended to encourage Bedouin settlement, but following the construction of some 50 wells and reclamation of 4,000 hectares, its management and further development for milk and fodder production is in the hands of a new company in which the Government has a 25 % participation.
- (5) Wadi Najran: a dam is under construction for flood control and irrigation.
- (6) Wadi Al Dawassir: the project is in the early stages of development and aims at reclaiming up to 20,000 hectares in the Central Region using water from the Wajid aquifer.

4.3.2 Present Conditions

4.3.2.1 Overall Growth. During the Second Development Plan real value-added in the agricultural sector grew at approximately five percent per year compounded, only a third as fast as the total non-oil sector. Productivity or value-added per head grew at about eight percent per year compounded. The agricultural sector's growth was attained by the farmers and ranchers who remained in agriculture plus new investors in large scale poultry and dairy enterprises who

Table 4 - 10

AGRICULTURAL RESEARCH STATIONS & EXPERIMENTAL FARMS IN SAUDI ARABIA

<u>Station</u>	<u>Subjects</u>
Hofuf	Animal and forage production; soil and water management; drainage and salinity; rice and vegetable production.
Qatif	Vegetable and fruit production.
Onaiza (Qasim)	Cereals; vegetable and fruit production; papaya and Sudanese mango trees.
Jizan (Hakmah)	Sorghum, cotton, sesame, sunflower and alfalfa production; papaya and Sudanese mango trees.
Dirab	Horse breeding; dairy; seed multiplication program.
Al Kharj	Cereals; vegetables; grapes; melons; citrus; irrigation systems; dairy.
Jeddah	Locust control center.
Baljrshi	Deciduous fruits; irrigation systems.
Medina	Poultry; dairy cattle.
Marine development (Jeddah)	Fish movement and classification; fishing.
Range development (Ar'ar)	Water spreading; fodder storage.
Agriculture & Water Research Center (Riyadh)	Soil and water; crop production and protection; animal health; food science and nutrition; analytical chemistry.
Range and forest station (Taif)	Water spreading; fodder storage.

were attracted in by subsidy payments and investment incentives. Many producers, however, who were using traditional methods fell to new lows of output and real income-earning capacity.

4.3.2.2 Organization of MOAW. The organization of MOAW was considerably strengthened. In 1397/98, a third Deputy Minister position was established for agricultural research and development, including training. Further evidence of specialization was the establishment of the Animal Resource Department in 1396, the Agricultural Subsidy Department in 1398, the Statistics and Economic Studies Department in 1399, and the Agricultural Development Department in 1399. The latter department was set up to supervise the Government's agricultural development projects and provide agricultural guidance to the private sector.

4.3.2.3 Crop Production. The earlier trends in crop production were maintained during the Second Development Plan with the major gains made in wheat, vegetables, grapes and citrus fruits. Wheat production continued to be supported by subsidies and the distribution of improved seed. Potato production was successfully introduced, and is expected to become an important cash crop during the Third Plan period.

4.3.2.4 Livestock Production. In spite of large subsidies for livestock and animal feed, local production of red meat, supplied mainly by the traditional and nomadic sectors, did not expand much and rising consumption was met by increased imports. In contrast, a number of commercial ventures started poultry operations and poultry meat production expanded rapidly from 14 million fowls in 1395 to about 26 million in 1398. Likewise, egg production more than doubled, from 204 million eggs to 490 million eggs in the same period. In 1398, the number of poultry farms had increased to 158 for broiler production and 118 for egg production. In spite of the rise in output of chicken meat, it is estimated that local production was only satisfying between a fifth and a quarter of demand. For eggs, it is estimated that local production was satisfying between 40 and 50 % of local demand by the end of the Second Development Plan.

4.3.2.5 Dairy Production. During the Second Development Plan, 12 commercial dairy farms were established and local fresh milk production increased from very low levels to around 20,000 tons in 1399. A further 16 dairy farms are in the process of establishment and will be in production during the Third Development Plan.

Table 4 - 11

ESTIMATED SELECTED CROP PRODUCTION IN SAUDI ARABIA: 1395/96 - 1397/98

(Thousand metric tons rounded)

<u>Crop</u>	<u>1395/96</u>	<u>1396/97</u>	<u>1397/98</u>	<u>Percentage Change</u> <u>(1395/96 - 1397/98)</u>
<u>Cereals:</u>				
Wheat	93	125	132	+ 42
Sorghum/maize ⁽¹⁾	161	143	205	+ 27
Barley	12	14	15	+ 25
Millet	17	13	15	- 12
<u>Vegetables:</u>				
Tomatoes	165	197	211	+ 28
Watermelons	248	283	376	+ 52
Dry onions	75	106	118	+ 57
Squash	21	25	39	+ 86
<u>Fruit:</u>				
Dates	257	382	348	+ 35
Grapes	42	42	50	+ 19
Citrus fruits	21	25	27	+ 29

(1) mainly sorghum

Source: MOAW data.

4.3.2.6 Land Surveys. In 1395, MOAW initiated detailed studies of land areas indicated as suitable for agricultural purposes by earlier resources surveys. By 1400, detailed studies had been completed on Wadi Al Dawassir, Wadi Damad, Wadi Bisha, Om Al Radma and in areas south of Al Dir Al Arabi. On the basis of these studies the Ministry began planning a land reclamation scheme over a 10,000 hectare area in the region of Wadi Al Dawassir for commercial farming. A regional experimental farm was established in 1397.

4.3.2.7 Land Distribution. Up to Rabi II 1400, under the Scheme for Distributing Barren Land, 98,850 hectares had been distributed to 14,554 individual recipients; and there were 60 projects in poultry breeding, dairy farming and sheep rearing. Several problems became apparent in utilizing the potential of these lands, principally the continuation of small lot distribution to a sector already characterized by too small units, and the extensive requirement for expensive modern irrigation methods. These problems were being reviewed at the end of the Second Development Plan.

4.3.2.8 Rainwater Conservation/Flood Control. To reduce flood damage and conserve rain-water, the MOAW undertook the construction of dams and earthworks. Up to mid-1400, 41 dams had been completed and a further five were under construction.

4.3.2.9 Conservation. In 1398, the Council of Ministers approved a set of regulations for the protection of forest land and wild life . As a result, MOAW implemented several projects aimed at preservation of range and forest land. Al Suda and Dalghan in Assir and Abu Hadak were, for example, made protected areas; a reafforestation scheme of some 300 hectares was completed in 1398, and National parks were established around Abha, between Jeddah and Mecca, between Mecca and Medina, Raghdon Park in Al Baha, Al Shaibany Park in Al Hassa, Samnan Park in Al Zulfy, Kharis Park east of Riyadh, and Sakran Park in Baljirshi.

4.3.2.10 Research Programs. A wide variety of research programs was conducted at MOAW's 12 research stations covering crop variety selection and introduction, yield improvement, mechanized farming, entomology, livestock production, environmental control and locust control. Studies in marketing improvement for agriculture products were also commenced.

4.3.2.11 Fishery Department. The Marine Resource Research Center at Jeddah initiated a number of studies and research projects into increasing the fishery potential. A comprehensive survey was undertaken of the Kingdom's shorelines and a number of experiments were made to determine optimum fishing methods. Proposals were made for the modifications of fishing vessels and ports and improving marketing. The Jeddah Center also undertook a number of experiments in fish farming and concluded that these could be technically and economically feasible. The Kingdom also participated in the formation of the Arabian Fisheries Company, and in 1399, the Council of Ministers sanctioned the establishment of the Saudi Fish Company for the exploitation of marine wealth in Saudi territorial waters including fish processing and marketing.

4.3.2.12 Extension Services. During the Second Development Plan period some 4,000 field

demonstrations were conducted; 900,000 fruit trees distributed to 10,000 farmers; 2,400 tons of certified wheat seed distributed; nine extension apiaries with 130 beehives were established; 371 beehives were distributed to 213 farmers and pest control work covered more than 80,000 hectares and six million fruit trees.

4.3.2.13 Manpower Development. MOAW provided training programs for almost 2,500 trainees in a variety of agricultural related skill areas including agricultural engineering and administration.

4.3.2.14 Second Development Plan Constraints. The continued exodus of labor has made the labor input expensive and in short supply. This has particularly affected the traditional sector where, for example, dates in some areas are only partially harvested because of lack of labor. Mechanization to replace labor is impeded in much of the sector by the small size of farming tracts, by palm trees planted on a random basis, by the lack of farmers' organizations/cooperatives, as well as restrictions on the use of credit for farm machinery. Some more remote areas have suffered from a lack of infrastructure, in particular roads and well drilling. Although nearly 99,000 hectares were distributed under the Scheme for Distribution of Barren Lands, most of this was in small parcels, exacerbating the existing limitations of small scale holdings. In addition, the provisions for modern irrigation of this potentially good agricultural land remain to be made. Wasteful use of water in traditional irrigation practices has led to early salination of some of the best oases croplands and increased drainage may only partially remedy this problem. The general decline in the quality of the Kingdom's extensive rangelands continued. The existing subsidy system, although increasing some farmers' incomes, did not always result in the desired production or improvement effect. In particular, the various livestock subsidies do not seem to have increased the domestic supply of meat and the date subsidy and guaranteed wheat price have been paid regardless of produce quality. The subsidization of some food imports effectively lowered some farm prices or maintained some of them at low "real" level. Consequently, the subsidy and price support programs will be the subject of extensive review during the Third Development Plan.

4.3.3 Objectives and Policies

4.3.3.1 Objectives. The main objectives of the Kingdom's agriculture development are given below.

- (1) To establish and maintain a prudent level of self sufficiency in food production, recognizing both producer and consumer interests.

- (2) To provide the opportunities for attaining reasonable agricultural incomes and raise the welfare of rural people so as to achieve a balance between the economic and social rewards attainable in rural and urban areas.
- (3) To optimize the use of agricultural water resources.
- (4) To optimize the use of the Kingdom's land resources.
- (5) To optimize the use of the Kingdom's marine resources.
- (6) To improve the skill level in the agricultural sector.
- (7) To protect the agricultural (including marine) environment.

4.3.3.2 Policies. In the achievement of the above objectives, the following policies will be pursued.

- (1) Continue the detailed evaluation of the Kingdom's available water and land resources.
- (2) Continue the improvement of efficiency of the traditional agriculture sector by the adoption of modern farming methods that minimize labor and water inputs, assisted by improved crop selection, the formation of farming cooperatives, improved subsidy schemes and the continuation of extension services.
- (3) Continue the encouragement of the private sector in the development of larger scale agricultural projects ranging from major integrated agricultural projects, such as the Haradh project, to individual crop, dairy, and livestock projects.
- (4) Improve range management through protective measures and discouragement of overgrazing.
- (5) Continue the efficient development of the major reclamation projects.
- (6) Improve the sector's data base to provide reliable information for analysis by both the public and private sectors and assist the overall management of the agricultural sector.

- (7) Review the agricultural subsidies available and improve their overall effectiveness.
- (8) Review the Scheme for Barren Land Distribution and make appropriate adjustments to expedite its contribution to agricultural production.
- (9) Increase the research effort concentrating on practical problems of production and marketing.
- (10) Increase and promote training programs availability for both public and private sectors.

4.3.4 Third Development Plan Programs

The Third Development Plan programs incorporate the ongoing and successful Second Development Plan projects and are concerned with both the short/medium and long term development of a strong viable agricultural sector. The various projects to be implemented by the public and private sectors are incorporated in seven broad programs.

4.3.4.1 Construction Program. This program is designed to provide new buildings for directorates and branches, storage depots and animal quarantine stations throughout the Kingdom. It is proposed to construct 10 new directorate and 25 new branch offices, seven animal quarantine stations and 25 storage depots during the Plan period.

4.3.4.2 Production Program. This consists principally of the continuation of various projects, the purpose of which is to directly increase farm output. The main activities of this program are to distribute improved seed varieties to farmers, to help organize poultry and dairy producers with common processing facilities, and to produce animal vaccines locally. The main projects are:

<u>Project</u>	<u>Targets/Comments</u>
Cereal propagation	60,000 hectares of cereal grain.
Potato propagation	2,500 hectares of potatoes.
Fruit tree improvement	3,000 hectares of fruit trees.
Date palm improvement	160 hectares of date palms.

Vegetable improvement	Demonstration greenhouses.
Poultry farmers' organizations	Establish; process annually 1.3 million chickens; 75 million eggs.
Dairy farmers' organizations	Establish; process annually 17,000 tons of milk.
Animal vaccine production	Laboratory for the production of one vaccine and one serum essential for Kingdom wide use.
Bee-keeping	Distribute 4,400 beehives, mainly to fruit growers.

4.3.4.3 Agricultural Land Development Program. This will develop new land for irrigated agriculture, reclaim existing irrigated areas and assemble basic data on the production potential of range and forest areas. These data, as well as all prior soil, climatic and water data collected in past investigations, will be stored in data banks for future use. Major projects and targets of the Agricultural Land Development Program are:

<u>Project</u>	<u>Coverage</u>
Dhamad	6,000 hectares (Improvement)
Qatif	4,500 hectares (Improvement)
Al Jawf	1,500 hectares (Improvement)
Wadi Dawassir	10,000 hectares (Improvement)
Qassim, Northern, Eastern Regions	4,000 hectares (new land)
Wadi Jizan	2,500 hectares (Improvement)
Al Aflaj	1,280 hectares (Improvement)
Al Ghawahah	6,000 hectares (Improvement)
Dammam	700 hectares (Improvement)
Land distribution	80,000 hectares
Range improvement	Whole Kingdom
Forest survey	70,000 hectares
Agricultural data bank	Whole Kingdom

4.3.4.4 Agricultural Services Program. This will provide off-farm services that farmers cannot provide for themselves. An important function will be to establish new farm organizations of cooperatives and maintain and expand public park areas. Major targets of the program are:

<u>Project</u>	<u>Coverage</u>
Plant protection	24,000 hectares a year
Locust control	Whole Kingdom: expansion of crop dusting.
Mobile veterinary units	Range area: 30 additional units.
Animal disease laboratories	To be established in three regions.
Agricultural information	Improved dissemination methods, including 15 mobile projection vans.
Public parks	Improve 6 existing and establish 7 new parks & rest centers.
Farmers' organizations	Assist the establishment of 10 farmers' organizations for production/processing.
Agricultural extension	Whole Kingdom: expand the provision of improvement services.

4.3.4.5 Agricultural Research Program. This includes major projects dealing with problems of crop and livestock production, fish and locust research, sand stabilization and land classification. The Riyadh research complex will interface with the Saudi Arabian National Center for Science and Technology (SANCST) on various agricultural and water-related problems and the work of the other agricultural research centers will be concentrated particularly on regional problems. Sand stabilization work at Al Hassa will continue and new stabilization projects will be undertaken in the Eastern Region. Fisheries research activities will be extended to include the development of fresh and salt water fish farms and shrimp production (under controlled conditions), processing and marketing.

The main projects and their targets are:

<u>Project</u>	<u>Targets/Comments</u>
Riyadh Center	Kingdom/Gulf region; research agricultural/water problems.
Hofuf Center	Regional crop and marketing research.
Qassim Center	Regional crop and marketing research.
Jizan Center	Regional crop and marketing research.
Taif Center	Fruit and forestry specialization.

Al Jawf Range Research Center	New center concentrating on range improvement.
Locust control	Kingdom-wide continuous research/control.
Fish research	Fishery research; establish fish farms.
Machinery testing	Approval/recommendations for the use of agricultural machinery suitable for the Kingdom.
Animal resource survey	Establish reliable, Kingdom-wide data for policy analysis.
Land classification	550,000 hectares to be classified.
Eastern sand stabilization	3,000 hectares
Al Hassa sand stabilization	4,000 hectares

4.3.4.6 Economic Studies Program. This will be increased significantly to improve the sector's data base, its processing and policy analysis. The topics covered will include subsidies, pricing, marketing, agro-industry and data processing. The results will guide public and private sector investment in the sector. The main project areas and targets are:

<u>Project</u>	<u>Targets/Comments</u>
Subsidies	Comprehensive review; administration of subsidies.
Current statistics	Regular sample surveys of agricultural production.
Comprehensive census	Complete enumeration of all agricultural holdings in the Kingdom.
Fresh produce prices	Regular survey/analysis of prices.
Economic studies	Selected marketing, supply/demand studies, project analysis, review of agro-industry potential.
Computer services	Expansion of capability to handle new data and analysis demands.

4.3.4.7 Support Program. The Support Program deals with training including manpower development and the costs of foreign experts and advisors. Three new training centers will be added during 1400/01 and in addition to training via the extension services and demonstration, specialized institutional training will be provided for 3,731 trainees during the Third Development Plan period.

4.3.5 Agricultural Credit

4.3.5.1 Overview. The Saudi Arabian Agricultural Bank was established by the Government to provide credit to the agricultural sector. It is directly responsible to the Ministry of Finance and National Economy. The Bank's lending comprises short, medium, and long term cash loans for seasonal agricultural requirements, development projects and land development. In addition, in coordination with the Ministry of Agriculture and Water, the Bank disburses subsidies for agricultural supplies and machinery.

4.3.5.2 Present Conditions. The Bank was founded in 1384 in Riyadh, with branches in Jeddah, Burayda, Hofuf and Abha. The original capitalization was SR 10 million. By the end of the First Plan the Bank, in addition to its Riyadh headquarters, operated 10 branches and 43 sub-branches, and had increased its paid up capital to SR 103 million. During the same period the number of loans also increased from 625 in 1384 to 16,251 in 1394/95. By the end of 1399 the Bank had established branches in Riyadh, Al Kharj, Jeddah, Burayda, Al Hofuf, Al Medina, Hail, Al Jawf, Jizan, Tabuk, and Abha. These were served by 52 sub-branches. Until 1399 the more remote areas of the country with no established bank office were visited at regular intervals by mobile units. During the Second Plan significant progress has been achieved in the number and value of loans granted to the agricultural sector. As shown in Table 4-12 the value of short term loans almost doubled over the period, whereas the value of medium term loans increased more than five times.

Table 4 -12

VALUE AND NUMBER OF AGRICULTURAL LOANS

	<u>1394/95</u>		<u>1395/96</u>		<u>1396/97</u>		<u>1397/98</u>		<u>1398/99</u>	
	<u>SR m.</u>	<u>Numner</u>	<u>SR m.</u>	<u>Number</u>	<u>SR m.</u>	<u>Number</u>	<u>SR m.</u>	<u>Number</u>	<u>SR m.</u>	<u>Number</u>
Short										
term	7.2	3,835	8.2	3,073	17.3	3,633	43.7	3,572	15.3	4,609
Medium										
Term	138.3	12,416	261.2	16,629	472.6	17,744	541.9	16,726	693.8	19,149
Total	145.5	16,251	269.4	19,702	489.9	21,377	585.6	20,298	709.1	23,758

Several reasons contributed to the increased demand for agricultural credit during this period. Primarily, it was the increased development activity since the beginning of the decade which increased the demand for food and which, in combination with a sluggish response in supply, has led to higher prices and better returns for producers. The second major stimulant to agricultural investment was the Government's decision in 1394 to subsidize a wide range of agricultural machinery and agricultural supplies including seeds, and fertilizers. During the Second Plan the Bank's policy towards project lending changed. In 1398 the maximum proportion of finance available from the Bank for projects exceeding SR 3 million was increased from 40% to 60%; for projects below SR 3 million the Bank will lend up to 80% of the cost. Notwithstanding these developments a major stimulus to borrowing from the Agricultural Bank was the removal of all costs associated with borrowing. During the Second Plan all loans were made without interest or handling charges.

Concerning the structure of credit, by the middle of the Second Plan, the share of lending accounted for by construction activities and well drilling and casings had increased from 16% in 1395/96 to over 41%. This increase was mainly at the expense of loans for vehicles, machinery, animals and feedstuff, which fell from 61% to 33%. Loans for engines, pumps, ploughs, fertilizer and seed maintained their share at between 18% and 20% over the period.

A number of projects was undertaken in the Second Plan which were designed to improve both the quality of lending and also the efficiency of the Bank in dealing with loan applications. Significant headway was made in reducing the complexity of loan regulations and the time required to deal with them. The time limit to complete loan applications was reduced to 7 days for short-term loans, to 15 days for loans dealt with at branch level and to 30 days for those dealt with at the head office. Regulations for loan guarantees were also amended: personal guarantees are now sufficient for loans up to SR 3 million. Increased delegation of lending authority was also accomplished with branches now entitled to grant loans up to SR 200,000; this has meant that 72% of all loans (in number) are now being authorized at branch level.

4.3.5.3 Objectives and Policies. The principal objective in the field of agricultural credit is to encourage investment in the agricultural sector, thereby broadening the agricultural base of the Kingdom and improving the quality of production, marketing and processing, thus facilitating the attainment of an appropriate degree of self - sufficiency. To attain these ends, the Government will continue its policy of providing interest free loans for seasonal agricultural input requirements, plant and machinery, development projects, cold stores, land development and, in particular, the development of dairying and fisheries. To increase the availability of these loans, operations will be decentralized and extended on a regional basis.

4.3.5.4 Third Development Plan Programs. The Third Development Plan strategy gives principal emphasis to developing the producing sectors. The Government plans to disburse SR 5 billion in loans and SR 2.5 billion in subsidies to the private agricultural sector. Attention is also being given to improving the quality of loans, and a number of projects are directed at reducing the complexity of borrowing and the time between applications and receipt of cash. During the Third Plan, much greater emphasis will be given to evaluating the national economic and social benefits of agricultural projects rather than relying solely on financial evaluation. Programs are as follows:

- (1) **Loans Program.** The major part of the Plan concerns the disbursements of loans and subsidies. The three categories of loans - long, medium, and short - are to remain. The loans program has increased the emphasis of lending to the apiary and fishery industries. To increase the regional availability of agricultural loans, an additional twenty sub-branches will be established in areas where, at present, services are not available. The accounting departments of 29 sub-branches, not reorganized during the Second Plan, will be strengthened.
- (2) **Loan Procedures.** Efforts will continue to reduce the complexity of loan procedures, while particular attention is to be given both to lowering the present high default rate and extent of loan abuse, and to increasing the availability of credit to small farmers. Two new projects are of particular significance: the employment of agricultural extension workers and of village agents. A departure from existing practices will be the introduction of an experimental scheme to make line of credit facilities available to approved farmers.
- (3) **Information and Research.** Concerning information and research, the Plan provides for the computerization of loan records, the establishment of a data bank and the improvement of present procedures. The research program will be strengthened by recruiting additional specialists, establishing research fellowships, maintaining close liaison with universities, and making use of external consultants.
- (4) **Training.** In addition to the training of employees, facilities are also to be provided for the education of borrowers in subjects of mutual interest.

4.4 ENERGY

4.4.1 Overview

4.4.1.1 The Kingdom is endowed with three primary sources of energy:

- (1) crude oil;
- (2) natural gas;
- (3) solar radiation.

Development of all these sources, and particularly crude oil, is long established and continuous.

4.4.1.2 The production of secondary electrical energy for domestic household, commercial and industrial consumption has also been continuous and on a growing scale. Electrical energy production has traditionally been based on the conversion of hydrocarbon fuels, particularly refined petroleum products.

4.4.1.3 The development of the two hydrocarbon primary sources, and particularly the production of crude oil to supply the world market, and later also to meet the Kingdom's growing energy requirements, provided the foundation and financial resources for the Kingdom's economic development. Since the 1370s the energy sector has been the largest contributor to the Kingdom's gross domestic product (GDP). The contributions from crude oil and natural gas production have been particularly significant as shown in Table 4-13.

Table 4 - 13

ENERGY SECTOR CONTRIBUTION TO GDP
(percent)

<u>Constant Prices</u> ⁽¹⁾	<u>1384/85</u>	<u>1390/91</u>	<u>1395/96</u>	<u>1396/97</u>	<u>1397/98</u>	<u>1398/99</u>
Oil/gas production	43.8	50.7	51.1	50.5	47.2	45.7
Oil refineries	6.2	6.9	4.0	3.9	3.8	3.7
Electricity	1.2	1.5	1.0	1.1	1.3	1.6
Total	51.2	59.1	56.1	55.5	52.3	51.0

(1) 1384/85 in 1386/87 prices; other years in 1389/90 prices.

Source: Derived from Central Department of Statistics data.

4.4.1.4 The oil and gas sector has, since the 1370s provided the Government with the largest proportion of its income. During the 1380s oil royalties and income tax represented about 80% of government income, and during the 1390s the proportion exceeded 90 % as shown in Table 4-14. Energy sector exports in the form of crude oil, refined products and gas have, since the 1380s provided close to 90 % of the Kingdom's foreign exchange receipts.

Table 4 - 14

**ESTIMATED PROPORTION OF GOVERNMENT REVENUE REPRESENTED BY
OIL REVENUES**

(percent)

	<u>Oil Royalties</u>	<u>Income Tax⁽¹⁾</u>	<u>Royalties and Income Tax</u>
1382/83	28.6	54.0	82.6
1383/84	27.1	58.9	86.0
1385/86	24.3	56.6	80.9
1388/89	21.2	55.4	76.6
1389/90	22.2	59.0	81.2
1391/92	20.6	71.7	92.3
1392/93	19.2	73.3	92.5
1393/94	23.4	69.7	93.1
1394/95	38.2	57.9	96.1
1395/96	22.4	68.5	90.9
1396/97	20.7	69.3	90.0
1397/98	21.7	67.8	89.5
1398/99	20.8	68.8	89.6

(1) Predominantly oil related.

Source: SAMA Annual Reports.

4.4.1.5 In the Kingdom's domestic energy market all three primary energy sources have a history of utilization. However, it is crude oil, in the form of refined petroleum products, which is most extensively used: directly or converted to secondary electrical energy. In 1399 crude oil and petroleum products provided about 70 % of the Kingdom's primary energy requirements and natural gas most of the balance. Solar energy provided less than half a per-cent.

4.4.1.6 The Kingdom's domestic energy requirements are highly concentrated in the trans-
portation, utilities (electrical power generation and water desalination), oil, and construction
sectors as shown in Table 4-15.

Table 4 -15

ESTIMATED ENERGY UTILIZATION BY SECTORS, 1399

<u>Sector</u>	<u>Percent of Total Energy Demand (1)</u>
Transportation	32
Utilities	29
Oil/gas production and refining	15
Construction	14
Industry	4
Residential/commercial	3
Agriculture and other	3
Total	<u>100</u>

(1) Based on crude oil equivalent.

Source: Petromin data

4.4.1.7 The Kingdom's energy demand has developed very rapidly. Between 1386 and 1393 inland energy consumption grew by about 15 % per year and during the Second Development Plan accelerated to 27.5 % per year. The marine fuels market, which is supplied from Kingdom installations, did not exhibit the same growth trends during the Second Development Plan period due to the slower rate of increase in the volume of crude oil exports and greater utilization of fuel efficient tankers.

During the Third Plan energy consumption is expected to continue to grow rapidly in the utilities, industry and transportation sectors. With the increased availability of natural gas, from the gas gathering program, the consumption of the natural gas is expected to grow particularly rapidly. Estimates of the Kingdom's energy consumption are given in Table 4 - 16.

Table 4 - 16

ESTIMATED KINGDOM ENERGY CONSUMPTION: 1386 - 1405

(Million barrels, per year crude oil equivalent)

<u>Year</u>	<u>Inland Oil Consumption⁽¹⁾</u>	<u>Inland Natural Gas Consumption</u>	<u>Total Inland Consumption</u>	<u>Marine Fuels ⁽²⁾</u>	<u>Total Inland And Marine</u>
1386	9.7	3.5	13.2	20.5	33.7
1390	16.0	7.2	23.2	46.4	69.6
1393	24.6	10.8	35.4	70.8	106.2
1396	50.6	29.2	79.8	63.5	143.3
1399	106.0	46.0	152.0	72.0	224.0
1405	254.0	221.0	475.0	89.0	564.0

(1) Includes sales of aviation fuels to international airlines.

(2) Includes consumption by Saudi fleet vessels.

Source: Petromin estimates.

4.4.1.8 During the last 30 years the energy sector, and particularly the production of oil and gas, have moved gradually toward greater integration with the Kingdom's domestic economy. This is the result of such changes in the sector as the growing number of Saudis in employment; the development of industrial linkages through refineries (export and domestic); the implementation of the gas gathering program to process and utilize associated natural gas; the increasing purchases of local goods and services; and the takeover of Aramco, the world's largest oil producing company. This integration will continue during the Third Development Plan with the establishment of further domestic and export refinery capacity, the development of petrochemical and metal industries based on the utilization of natural gas and the expansion and closer integration of electrical energy production.

Solar energy utilization and research will be on a much larger scale than hitherto, but its contribution to energy supplies will be relatively small.

4.4.1.9 The main organizations and agencies involved in the energy sector are shown in Table 4 - 17.

4.4.1.10 The continued development of the energy sector is a key factor in the Kingdom's future economic progress.

4.4.2 Crude Oil

4.4.2.1 With the discovery and subsequent development of crude oil deposits in the Eastern Province, Saudi Arabia emerged as a major supplier of energy to the world market. Energy supplies to the world market have been predominantly in the form of crude oil, although exports of refined products have been a feature of Saudi trade since the early 1370s.

4.4.2.2 In 1370 Saudi crude oil production represented approximately five percent of total world output. During the 1380s Saudi output rose continuously and by 1390 represented eight percent of world production. In the latter half of the 1390s Saudi production fluctuated around 15 % of the world output . Figure 5 shows the position of the Kingdom's main oil fields.

4.4.2.3 The Kingdom's global significance in oil is underlined by its position as the world's largest crude oil exporter and holder of crude oil reserves with about one quarter of the world's total respectively in 1398 and 1399. (see Table 4 - 18). The Kingdom's output and exports of crude have traditionally responded to meet the growing import requirements of the rest of the world. To avoid the excesses of this situation (over-dependance on Kingdom oil resources and run down of reserves) and to encourage the conservation of energy and development of new energy forms, future upward movements in crude oil production and exports will be less automatic.

Table 4 - 17

ORGANIZATIONS AND AGENCIES INVOLVED IN ENERGY

<u>Oil and Gas:</u>	Ministry of Petroleum & Minerals	
	Aramco	Oil and gas production, refining, exports of crude/refined petroleum and gas products.
	Arabian Oil Company	Oil production, refining, exports of crude/refined products.
	Getty Oil Company	Oil production, refining, exports of crude/refined products.
	Petromin	Refining, exports of crude/refined/gas products, distribution of fuel to domestic market.
	Gasco	Distribution of liquid petroleum gas for domestic consumption.
<u>Solar Energy:</u>	Saudi Arabian National Center for Science and Technology (SANCST)	Development of solar energy projects, research, recruitment of Saudi personnel.
	Universities	Research projects.
<u>Electricity:</u>	Ministry of Industry & Electricity	
	General Organization for Electricity	Rural electrification and transmission schemes.
	Electric Power Companies	Generation, transmission, and distribution of electricity.
	Saline Water Conversion Company (SWCC)	Production of electricity in dual purpose power/desalination plants.

Figure.....5

*OIL FIELDS DISCOVERED IN SAUDI ARABIA
AND THE SAUDI – KUWAITI DIVIDED ZONE*

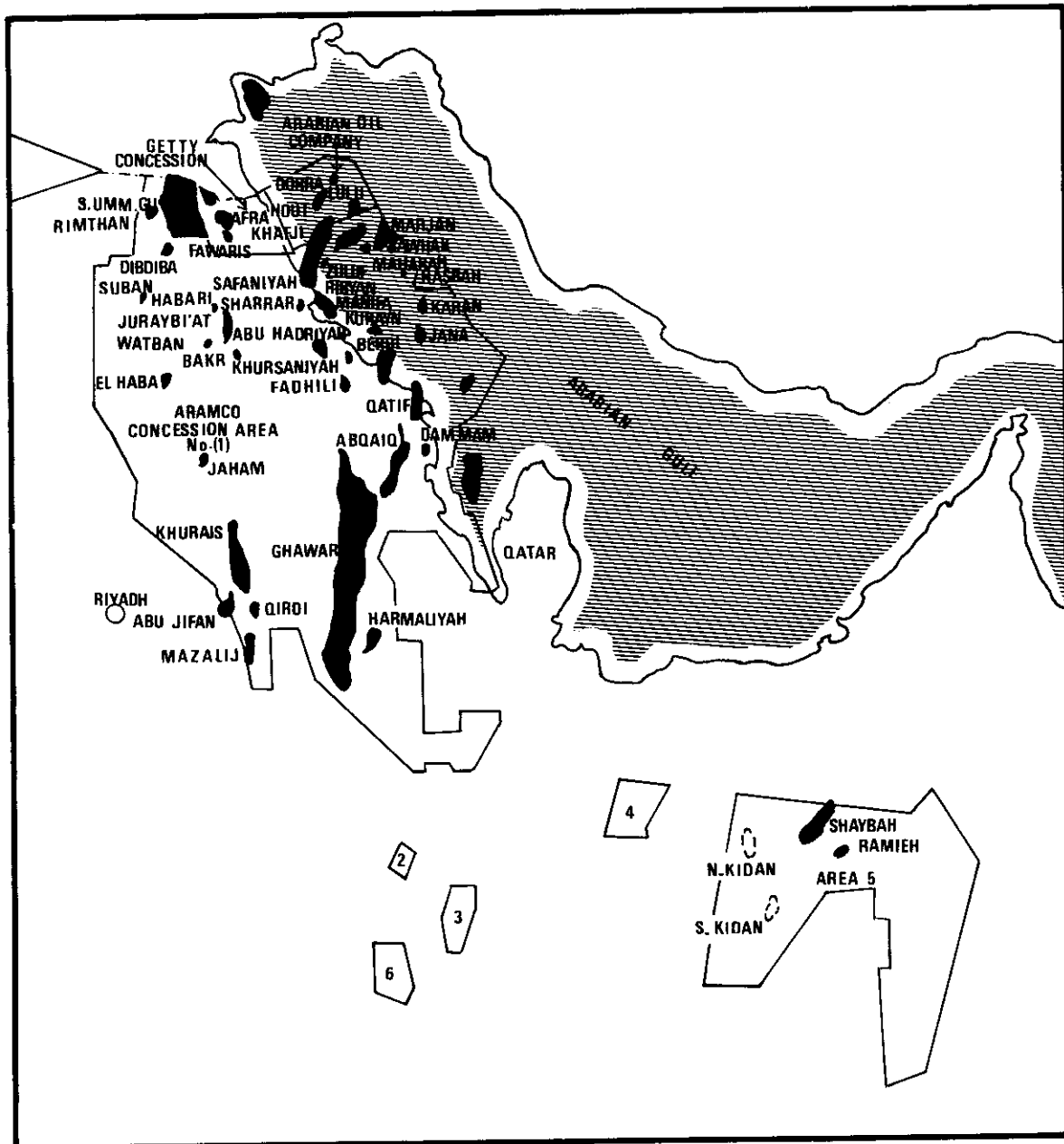


Table 4-18
WORLD AND SAUDI ARABIAN CRUDE OIL PRODUCTION, EXPORTS AND RESERVES
(Million barrels per day)

	<u>Production</u>		<u>Exports</u>		<u>Reserves (billion barrels)</u>	
	<u>World⁽¹⁾</u>	<u>Saudi Arabia⁽²⁾</u>	<u>World⁽¹⁾</u>	<u>Saudi Arabia⁽²⁾</u>	<u>World⁽³⁾</u>	<u>Saudi Arabia⁽⁴⁾</u>
1974	56.3	8.5	31.3	7.9	623	141
1975	53.4	7.1	28.5	6.6	659	145
1976	57.9	8.6	32.1	8.0	657	151
1977	59.9	9.2	32.3	8.6	646	169
1978	60.1	8.3	32.5	7.7	646	167
1979	62.5(e)	9.5	32.7(e)	8.8(e)	642	167(e)

(Percentages)

1974	100.0	15.1	100.0	25.2	100.0	22.6
1975	100.0	13.3	100.0	23.2	100.0	22.0
1976	100.0	14.9	100.0	24.9	100.0	23.0
1977	100.0	15.4	100.0	26.6	100.0	26.2
1978	100.0	13.8	100.0	23.7	100.0	25.8
1979	100.0	15.2	100.0	26.9(e)	100.0	26.0(e)

(e) Estimated

Sources: (1) OPEC Statistical Bulletins

(2) SAMA Annual Reports

(3) Oil and Gas Journal annual estimates (year end)

(4) Ministry of Petroleum and Minerals

4.4.2.4 The reserve/production ratio has moved from above 100 during the 1380s to less than half that level in recent years:

	<u>Reserve/Production Ratio</u>
1388	124
1392	62
1394	45
1395	56
1396	48
1397	50
1398	55
1399	48(e)

(e) Estimated

4.4.2.5 Exports of crude oil as a proportion of crude oil production rose from about 80 % in 1375/80 to over 90 % during the Second Development Plan period.

This high export element in crude oil production will decline as production levels are expanded more slowly than in the past and as refinery capacity is increased, first to meet growing domestic demand and second, to increase the volume of refined product exports. The change in crude oil exports as a percentage of crude oil production between 1370 and 1399 is shown below:

		<u>Percent</u>
1370	–	77
1375	–	79
1380	–	82
1389	–	87
1394	–	93
1395	–	93
1396	–	93
1397	–	93
1398	–	93
1399	–	93(e)

(e) Estimated

4.4.2.6 The proportion of the high value light and extra light crudes in total production has continually exceeded that of the medium and heavy crudes, often by a ratio of four to one. In 1399, production of light and extra light crudes represented about 70 % of all crude oil production. In the past, the ratio of light and extra light crudes to the medium and heavy crudes in the Kingdom's reserves has been much closer to one and a half to one. However, the Government has changed its policy in order to prevent excessive depletion of its light crude reserves.

4.4.2.7 After decades of little change in dollar values per barrel and declines in real values, crude oil prices began to move upwards during 1391. In 1393 producer's prices were quadrupled. Between the end of 1394 and the end of 1398 the official sales price of Saudi Arabian light crude ("marker crude") was increased in US dollar terms by some 21%. This matched fairly closely the rise in the dollar unit values of exports from the industrialized countries over the same period. During 1398 the export prices of industrial countries began to advance ahead of oil prices, and in 1399 and 1400 a number of price changes were introduced by oil producers to retain the international exchange value of their crude oil.

4.4.2.8 The 1390s (i.e. the 1970s) saw the increasing acceptance by oil producers of the principle of increasing oil revenues by raising prices rather than volumes. See Table 4 - 19.

Table 4 - 19
ILLUSTRATIVE SAUDI ARABIAN CRUDE OIL PRICE CHANGES
(\$ per barrel)

<u>Year</u>	<u>Average realized price⁽¹⁾</u>	<u>Year end posted price/ Arabian Light⁽²⁾</u>
1950	1.75	1.75
1955	1.93	1.93
1960	1.78	1.80
1965	1.79	1.80
1970	1.74	1.80
1971	2.24	2.29
1972	2.50	2.48
1973	3.27	5.04
1974	11.62	11.25
1975	11.50	12.38
1976	12.34	12.38
1977	13.22	13.66
1978	12.58	13.66
1979	16.82 ^(e)	24.00

(e) Estimated

Sources: (1) Derived from SAMA data on Aramco
(2) OPEC Statistical Bulletin and official announcements

4.4.2.9 Second Development Plan Achievements.

(1) Exploration. Exploration for new hydrocarbon resources was increased. In 1394 three drilling rigs were in operation, in 1398 and 1399 this had risen to ten. The expanded exploratory activity led to the discovery of some 14 new fields. In addition, increased oil and gas resources were discovered in Marjan Field and further natural gas resources were established in Ghawar, Qatif and Berri Fields and in the Rub' Al Khali region. Between 1394 and 1398 the Kingdom's remaining proven reserves increased by 26/28 billion barrels or about 20 % to reach 167/169 billion barrels.

(2) Production. Over the five years 1395 to 1399, Saudi Arabia's crude oil output averaged 8.54 million barrels a day; peak output, at a level of 9.5 million barrels a day, was achieved in 1399.

(3) Ownership of Aramco. Aramco continued to dominate the Kingdom's crude oil production (and refinery output). In 1399 Aramco crude oil production represented 97 % of the Kingdom's total output. Saudi Arabia was the initiator in the concept of sharing in the ownership of oil companies working in producing nations. Negotiations with Aramco shareholders resulted in the Kingdom taking a 25 % share in Aramco, effective 1 January 1973. As a result of this agreement, they had the right to sell directly a quantity of crude oil. The Kingdom's share in Aramco was raised to 60% in June 1974, and following further negotiations, it was agreed in principle, in January 1976, that the Kingdom would become the sole owner of Aramco. The finalization of this agreement is expected shortly.

(4) Crude Oil Prices and Revenues. Before the shareholding agreements in Aramco, the Kingdom's oil income comprised a royalty of 12.5% of the posted price and an income tax of 55% on the producing companies' profits. These rates were raised to 20 % and 85 % respectively in November 1974. Following the initial participation in Aramco, the Kingdom's oil revenues moved steadily toward direct dependence on oil prices actually achieved. Between January 1975 and January 1980, the official Government sales price was increased from \$ 10.46 to \$ 26.00 per barrel. The raising of prices was multi-purpose in that, among others, it enabled the purchasing power of crude oil exports to be maintained in real terms and the level of oil revenues to be raised without production volume increases. It has encouraged energy conservation as well as the search for alternative energy sources, and overall, contributed to the conservation of crude oil reserves.

(5) Reservoir Pressure Support. In order to support reservoir pressure, maximize oil recovery and conserve underground water resources, the Government, through Aramco, implemented a major project to treat and inject 4.2 million barrels a day of sea water into the Kingdom's (and the world's) largest field – the Ghawar Field. Further sea water treatment and injection facilities for the Kingdom's oil fields are planned.

(6) Crude Oil Facilities. Crude storage, shipping and loading facilities were improved and extensive reviews undertaken by Aramco and the Ministry of Petroleum and Minerals of the efficiency, safety, maintenance, and replacement of the Kingdom's oil field facilities.

(7) Petromin became increasingly involved in the international marketing of crude oil and gas. Overseas marketing offices were opened and export deals arranged with various foreign oil companies. In addition to crude exports, Petromin undertook negotiations for the overseas refining of Petromin crude.

(8) The constraints experienced in the oil production sector were: the need to avoid individual reservoir damage by overproduction, the problems of corrosion in plant and equipment, and the maintenance of the Kingdom's oil reserves in total, and by type of crude. With regard to oil exports, the requirement for a western shipping point for bulk crude to supplement facilities in the east was recognized, and under Petromin's supervision, the construction of the East–West crude pipeline was started in 1398, with completion scheduled during 1401. The construction of storage tanks and shipping facilities at Yanbu, the pipeline terminal, also commenced on the same schedule.

4.4.2.10 Objectives and Policies.

(1) Objectives. Third Plan objectives for hydrocarbons (oil and gas) are given below:

- To conserve oil and gas reserves and to maximize their useful life.
- To maintain productive capacity.
- To continue exploration.
- To increase the value added from hydrocarbons to the maximum extent.
- To link policies governing crude oil exports, refined products, gas, and petrochemicals.
- To strengthen the Kingdom's technological and service base in hydrocarbons.
- To strengthen the Saudi workforce in the hydrocarbon sector.
- To protect the environment in the exploration, production, and distribution of hydrocarbons.

(2) Policies. Policies for the hydrocarbons (oil and gas) are given below:

- Pursue an oil production policy which emphasizes the resources required for the implementation of the Development Plan.

- Pursue a production policy which takes into consideration the ratio of the various hydrocarbon types contained in the national reserves.
- Pursue a production and research policy which will optimize individual reservoir life.
- Ensure that the best methods, technologies and facilities are maintained or introduced into the Kingdom's hydrocarbon exploration, production, and distribution activities.
- Support the development of hydrocarbon based industries within the Kingdom.
- Conserve the national environment through implementation of measures to protect on-shore and off-shore environment and ground water resources.
- Support Saudi research into the Kingdom's petroleum resources, for example, at the Universities.
- Encourage world conservation of hydrocarbon resources through international contacts and organizations.
- Continue the Kingdom's major role in OPEC. Continuous cooperation will be maintained with member countries in order to protect the value of hydrocarbons and to achieve a fair petroleum income to support the welfare of OPEC citizens while taking into account the development of the world economy as whole.
- Strengthen the organization of Arab Petroleum Exporting Countries (OAPEC). Continuous cooperation will be maintained with member countries as well as participation in the planning and implementation of joint petroleum projects.

4.4.2.11 Third Development Plan Programs. The following programs will be implemented by the production companies (Aramco, Arabian Oil Company, Getty Oil Company), and the Ministry of Petroleum and Minerals, and coordinated by the latter.

- (1) The programs for the maintenance of production capability will consist of projects for: maintenance of reservoir pressures (e.g. water injection facilities); new production wells as required; maintenance of existing plant and equipment; replacement of existing plant and equipment; study and implementation of improved oil reservoir practices.
- (2) The exploration programs will consist of geological studies, seismic surveys and exploratory drilling.
- (3) Under the supervision of the Petromin subsidiary, Petrolina, the construction of the 1,200 km. pipeline will be completed in late 1401. It will extend from the eastern oil fields to the newly constructed storage and shipping terminal located on the Red Sea at Yanbu. The initial capacity will be 1.85 million barrels a day, and it will give the Kingdom an alternative and shorter crude oil export route for northern destinations than the Arabian Gulf shipping points or the Tapline. The East - West crude oil pipeline will also supply the crude oil for domestic and export refineries which will be completed during the Third Plan period at Yanbu. Expansion of the initial capacity of the pipeline is under study and will be reviewed.

4.4.2.12 Third Development Plan Targets.

- (1) Maintenance of existing production capacity. The level of crude oil production will depend on the Kingdom's resource requirement reserve position, and demand.
- (2) Conservation of hydrocarbon reserves.
- (3) Balance of crude oil production by type with the ratios of crude types represented in the reserves. This will involve increasing the ratio of heavy and medium crudes in exports.

4.4.3 Natural Gas

4.4.3.1 Development. Most of the natural gas produced in Saudi Arabia is "associated" gas, that is, it is produced in conjunction with crude oil. Hence, the level of crude oil output is the primary determinant of the volume of natural gas production. On release from the reservoir the

gas is separated from the crude oil before the latter is piped for export and refining. The untreated gas or “sour” gas, which has traditionally been flared, represents potential usable energy and petrochemical feedstock. Recognizing the loss of resources, some of this gas was increasingly utilized by reinjecting it back into oil reservoirs in order to maintain reservoir pressures. On a more limited scale it is also used as a fuel in the oil fields and at a small number of industrial plants including a cement plant and a desalination plant. A small amount of the “sour” gas is used as fuel and feedstock in the Kingdom’s first urea fertilizer plant operated by the Saudi Arabian Fertilizer Company (SAFCO). Untreated gas utilized in these ways grew from under 10 % of output during the 1380s to 15 % of output in 1393 and reached 25 % of output in 1398 as shown in Table 4 - 20.

Table 4 - 20

**SAUDI ARABIAN PRODUCTION AND UTILIZATION OF
NATURAL GAS: 1393 - 1398.**

(Billion m³/year rounded)

<u>Year</u>	<u>Production</u>	<u>Utilized Gas</u>	<u>Percent of Gas Utilized</u>
1393	42.6	6.3	14.8
1394	45.2	8.2	18.1
1395	37.7	8.9	23.6
1396	46.2	9.9	21.4
1397	49.1	9.6	19.6
1398	42.9	10.9	25.4

Source: Ministry of Petroleum and Minerals data.

In 1397 Saudi Arabia natural gas reserves were estimated to be 2,407 billion cubic meters. This represented 8.7 % of OPEC and 3.4 % of world estimated natural gas reserves. The Kingdom’s position in the world energy market in respect of natural gas is less dominant than in the case of crude oil.

4.4.3.2 The Gas Gathering Program. In order to utilize some of the available natural gas, Aramco began in the early 1390s to plan and design a gas treatment center on the Berri Field.

This treatment center was designed to process 6.2 billion cubic meters of associated wet gas a year. Shortly after this, the Government decided to undertake a much larger “gas gathering” scheme which would have the capability of treating a further 34 billion cubic meters of “wet” gas a year (3.3 billion cubic feet a day). The construction and management of this scheme was awarded to Aramco, under the supervision of Petromin. In early 1395, work commenced on the design and construction of the Government’s gas gathering scheme. The concepts of both parts of the gas gathering program are fundamentally the same, that is, the collection and treatment of large quantities of associated natural gas which would otherwise be flared, representing a loss of resources and of economic potential for the Kingdom. An outline of the gas gathering program is shown in Figure 6.

Aramco modified its original concept for the Berri NGL (natural gas liquid) Center so that it could be fully integrated with the Government’s gas gathering scheme. The Berri facilities were inaugurated in Shawwal 1397, and were a forerunner in basic design and principle for the other parts of the program. The Shedgum NGL Center and the Ju’aymah fractionation plant are expected to be on stream by the end of the first year of the Third Development Plan (1400/01) and the Uthmaniyah NGL Center and Yanbu fractionation plants during the third year of the Third Development Plan (1402/03). The Yanbu fractionation plant will be linked to Shedgum NGL Center by a 1,168 km. high pressure pipeline.

4.4.3.3 Output of the Gas Gathering Program. At the three NGL Centers (Berri, Shedgum and Uthmaniyah) the natural gas is sweetened and the first fractionation takes place. The output from these centers is sulphur, fuel gas (mainly methane), and an NGL stream which is piped to the secondary fractionation plants. At the secondary fractionation centers (Ras Tanura, Ju’aymah and Yanbu) the output is ethane and liquified petroleum gas (LPG). See Table 4 -21.

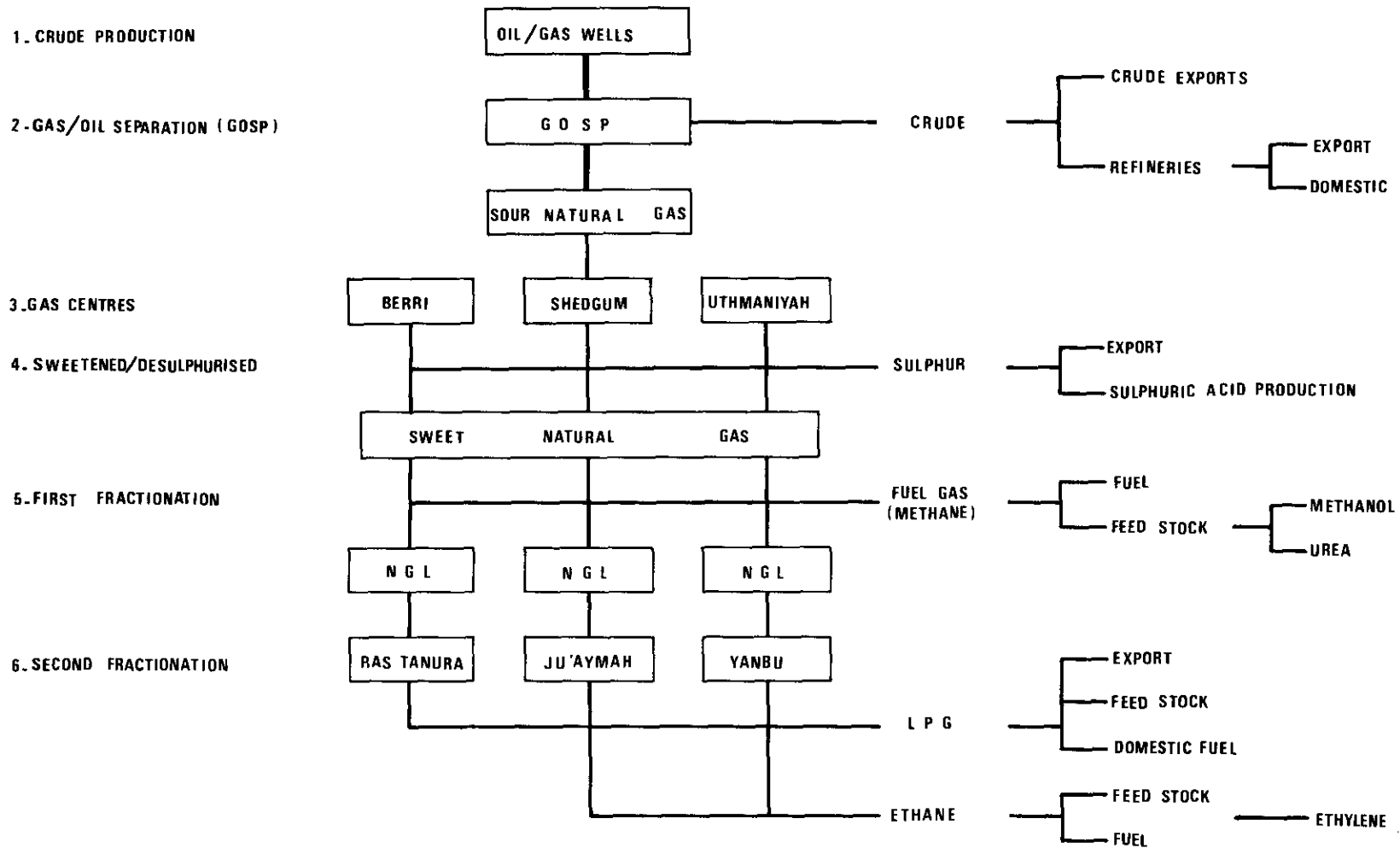
Table 4 - 21

CAPACITY OF THE GAS GATHERING SCHEME

<u>Centers</u>		<u>Products</u>	<u>Volume (rounded)</u>
Berri	]	Sulphur	4,000 tons/day
Shedgum	]	Fuel Gas	2.0 billion m ³ /year
Uthmaniyah]		
Ras Tanura	]	Ethane	0.37 billion m ³ /year
Ju’aymah	]	LPG	375,000 barrels/day
Yanbu]		

Figure.....6

THE GAS GATHERING PROGRAM, STAGES AND LINKAGES



4.4.3.4 Utilization of Products from Gas Gathering Program. The sulphur will be utilized domestically for sulphuric acid production or, alternatively, exported. The fuel gas will be utilized by industrial plants in the Eastern Region (particularly at the basic industries to be located at Jubail), by desalination plants, by power generation plants, and as a feedstock for urea fertilizer and methanol production to be undertaken by the Saudi Basic Industries Corporation (SABIC). The ethane production will provide the feedstock and fuel requirements for ethylene petrochemical complexes to be established at Jubail and Yanbu, again by SABIC in partnership with international petrochemical companies. The LPG streams are expected to be largely for export, although there may be some potential as domestic fuels and feedstock for further petrochemical plants. Thus, the gas gathering program provides the basis for supporting the development of the Kingdom's basic industry program in terms of fuel and feedstocks as well as much of the fuel for Eastern Province electricity and desalinated water production. In addition, the scheme also adds high value hydrocarbon exports without increasing crude oil production.

4.4.4 Oil Refineries

4.4.4.1 Establishments. Until 1380 only one refinery, Aramco's Ras Tanura refinery, was in operation serving both export and domestic markets. In 1380, production commenced at Getty Oil's Mina-Saud refinery serving the export market, an operation in which both Saudi Arabia and Kuwait have an interest; and in 1383, production began at the Arabian Oil Company's export refinery located at Ras Al Khafji. All these refineries are located in the Eastern Province. The Kingdom's first domestic refinery was established in Jeddah in 1388 with an initial capacity of 12,000 barrels/day. This was later expanded to 45,000 barrels/day at the beginning of 1395. A second domestic refinery of 15,000 barrels/day came on stream in 1394 in Riyadh. Both domestic refineries are operated by Petromin. Between 1370 and 1394 output from these refineries rose from 3 million barrels a year to 237 million barrels a year as shown in Table 4 -22.

4.4.4.2 Exports. Between 1375 and 1390, exports of refined products expanded from 66 million barrels a year to 208 million barrels a year. Peak export volumes were achieved in 1393 at 212 million barrels a year. As the volumes of crude oil production and exports rose, the proportion of refined product exports declined, as shown in Table 4 - 23.

4.4.4.3 Progress During the Second Development Plan.

(1) **Export Refineries.** No changes occurred in the capacity of the three existing export orientated refineries. Three further export refineries were planned. At the end of the Second Plan period agreements to commence with export refineries at Jubail

Table 4 - 22

PRODUCTION OF REFINED PRODUCTS: 1370 - 1394.

<u>Year</u>	<u>Million barrels/year</u>	<u>Thousand barrels/day</u>
1370	3	10
1375	74	203
1380	82	225
1385	120	329
1390	226	619
1394	237	649

Source: Aramco; SAMA Annual Reports.

Table 4 - 23

**REFINED PRODUCT EXPORTS AS PROPORTIONS⁽¹⁾ OF CRUDE
PRODUCTION AND EXPORTS: 1370 - 1394**

<u>Year</u>	<u>Annual volume of exports (million barrels)</u>	<u>Refined products as percent of crude oil production</u>	<u>Refined products as percent of oil exports ⁽²⁾</u>
1370	-	-	-
1375	66.1	18.5	19.1
1380	73.1	15.2	15.6
1385	110.5	13.7	14.0
1390	207.9	15.0	15.0
1394	210.3	6.8	6.8

(1) By volume

(2) Crude and refined exports combined

Source: SAMA Annual Reports.

and at Yanbu had been signed between Petromin and its joint-venture partners. Agreement was also reached to proceed with a third fuel export refinery to be located at Rabigh. The volume and proportion of refined product exports fell and the Ras Tanura refinery supplied the domestic market with a higher proportion of its output. See Table 4 -24.

Table 4 - 24

EXPORTS OF REFINED PETROLEUM PRODUCTS: 1395 - 1399.

<u>Year</u>	<u>Annual volume of exports (million barrels)</u>	<u>Refined products as percent of crude production</u>	<u>Refined products as percent of oil exports</u>
1395	175.3	6.8	6.8
1396	205.9	6.6	6.6
1397	188.4	5.6	5.7
1398	178.2	5.9	6.0
1399	187.0 ^(e)	5.4 ^(e)	5.8 ^(e)

(e) Estimated

Sources: Derived from data in SAMA Annual Reports

(2) Domestic Fuel Refineries. Between 1394 and 1399, almost 100,000 barrels a day capacity was added to the two Petromin refineries, mostly at Jeddah. This expansion was below that targeted in the Second Development Plan. Western Region capacity expansion plans were particularly affected by the Government's decision in early 1398 that no further expansion should take place at the Jeddah site. As a result, Petromin undertook the establishment of a new 170,000 barrels a day domestic refinery at Yanbu. Construction also commenced on a 100,000 barrels a day expansion to the Riyadh refinery, as shown in Table 4 -25.

Table 4 - 25

**PETROMIN DOMESTIC REFINERIES IN OPERATION OR UNDER
CONSTRUCTION DURING SECOND DEVELOPMENT PLAN
(Thousand barrels a day crude capacity) ⁽¹⁾**

	<u>Actual Capacity</u>		<u>Second Development Plan Capacity Targets for 1399</u>	<u>Capacity Under- construction</u>
	<u>1394</u>	<u>1399</u>		
Jeddah	12	100 ⁽²⁾	140	—
Riyadh	15	20	100	100
Yanbu(Phase I)	—	—	—	170 ⁽³⁾
Total	27	120	240	270

(1) Design capacity per calendar day

(2) An expansion of 160,000 b/d was halted in 1398

(3) New refinery under construction to replace halted Jeddah expansion.

(3) Refined Product Output. Output of refined products between 1394 and 1398 was as follows:

<u>Year</u>	<u>Million barrels per year</u>
1394	237
1395	211
1396	257
1397	266
1398	275

Source: SAMA Annual Reports.

The recent refinery product mix has been approximately as follows (percent of output):

<u>Product</u>	<u>Range</u>
Fuel oil	37 - 45
Gasoline/naptha	23 - 24
LPG	18 - 22
Diesel oil	10 - 12
Kerosene	3 - 3
Asphalt and others	2 -3

(4) Lubricating Operations. Petromin's scale of operations expanded substantially during the Second Development Plan as follows:

- Blending facilities at Jeddah expanded from 200 to 1,370 barrels per day;
- A lubricating oil refinery came on stream at Jeddah in 1398 with a capacity of 3,000 barrels a day;
- Construction of a new blending plant of 1,370 barrels per day commenced at the Riyadh refinery site.

In addition, several proposals for lubricating oil projects in the Eastern Region were reviewed and a proposal for a west coast lubricating oil export refinery was also under consideration.

(5) Constraints. The delays in construction of domestic refinery capacity at Jeddah and Riyadh resulted in continued movement of refined products from the Eastern Region. The faster than predicted consumption of refined products, coupled with the expansion delays, resulted in a tight supply position and some quantities of refined products, particularly diesel fuel, needed to be imported. Partly in response to this, Petromin initiated negotiations for the contract processing of some crude overseas, and linked arrangements for refined product imports.

With the rise in product volumes traffic congestion became a feature at the domestic refineries, particularly at Jeddah, and the requirement for product pipelines to bulk depots became apparent.

4.4.4.4 Objectives and Policies.

(1) **Objectives.** The Third Development Plan objectives for the oil refining sector are listed below:

- To increase the volume of refined product exports;
- To increase domestic production in line with current and future demand.

(2) **Policies.** To achieve the above objectives the following policies will be implemented during the Third Development Plan:

- Construct sufficient domestic refinery capacity to meet the Kingdom's forecasted needs and locate sufficient capacity in the Western Region to eliminate the requirement for major east to west movements of refined products.
- Link the domestic refineries to an efficient distribution system.
- Expand current lubrication oil activities to provide the capability for self-sufficiency and, subject to feasibility, enter the export market.
- Undertake the development of export refineries at Jubail on the east coast, and at Yanbu and Rabigh on the west coast.
- Maintain separate organizational structures for domestic and export refinery operations with the proviso that, if required, refined products from export refineries will be directed to the domestic market.
- Undertake the construction and operation of domestic refineries unilaterally by Petromin and by joint venture partnership for export refineries and lubricating oil projects.
- Continue to use the Aramco Ras Tanura refinery to serve both export and domestic markets.

4.4.4.5 Third Development Plan Programs. The programs for the Third Development Plan are listed below.

(1) **Domestic Refineries.** Domestic refinery capacity will be expanded from 120,000 barrels a day in 1400, to 640,000 barrels a day in 1405, as shown in Table 4 - 26.

Table 4 -26

PETROMIN FUEL REFINERY CAPACITY, 1399 - 1405
(Thousand barrels per day crude input)⁽¹⁾

<u>Refinery</u>	<u>Construction Type</u>	<u>1399</u>	<u>1400</u>	<u>1402</u>	<u>1405</u>
Jeddah	—	100	100	100	100
Riyadh	Expansion	20	20	120	120
Yanbu [Phase I]	New	—	—	170	170
Yanbu [Phase II]	Expansion	—	—	—	250
Total		120	120	390	640

(1) Design capacity year end.

(2) Export Refineries. Subject to feasibility, 750,000 barrels a day will be added to existing export refinery capacity as shown in Table 4-27.

Table 4-27

EXPORT FUEL REFINERIES CAPACITY, 1399 - 1406
(Thousand barrels a day crude input)⁽¹⁾

<u>Refinery</u>	<u>Petromin Partner</u>	<u>1399</u>	<u>1400</u>	<u>1401</u>	<u>1402</u>	<u>1403</u>	<u>1404</u>	<u>1405</u>	<u>1406</u>
New Refineries:									
Jubail	Shell	—	—	—	—	—	250	250	250
Yanbu	Mobil	—	—	—	—	—	250	250	250
Rabigh	Petrola	—	—	—	—	250	250	250	250
Existing Refineries:									
Getty Oil	—	50	50	50	50	50	50	50	50
Arabian Oil	—	30	30	30	30	30	30	30	30
Aramco ⁽²⁾	—	(500)	(500)	(500)	(500)	(500)	(500)	(500)	(500)

(1) Design capacity at end of year.

(2) Aramco's Ras Tanura refinery serves both domestic and export markets.

(3) Yanbu Crude Oil Supply. The export and domestic refineries at Yanbu will receive their crude oil supplies via the East-West crude oil pipeline.

(4) Lube Oil Projects. Five lubricating projects are planned:

- Completion of 5,000 metric tons a year grease plant at Jeddah during 1401;
- Elimination of bottlenecks at the Jeddah lube oil blending plant, doubling capacity to 1 million barrels a year by mid-1401;
- Completion of a 500,000 barrels a year lube oil blending plant at Jubail in 1401;
- Completion, in two stages, of a lube oil blending plant in Riyadh. Capacity at end - 1401 will be 175,000 barrels a year. This will be raised to 500,000 barrels a year during 1404.
- Feasibility studies will be carried out for the establishment of a 12,000 barrels per day lubricating oil export refinery on the west coast and a 5,000 barrels a day lubricating oil export refinery at Jubail.

4.4.5 Distribution of Energy

4.4.5.1 Background.

(1) Crude Oil. Deliveries of crude oil from Aramco reservoirs have traditionally been made mainly to tankers at Ras Tanura port, and to the Ras Tanura refinery. Smaller volumes move by the Tapline to Sidon in the Lebanon, to BAPCO in Bahrain, and to storage tanks for local distribution. Crude oil for the Riyadh refinery moves from the Khurais field directly to the refinery.

Delivery of crude oil from Getty Oil operations in the Neutral Zone is made at Mina Saud either to tankers or to the refinery. Deliveries by the Arabian Oil Company (AOC) are made at Mina–Al Khafji, either to tankers, or to the AOC refinery there.

(2) Refined Products. Distribution of refined products is undertaken by Petromin. With the rapid increase in the Kingdom's petroleum product consumption, Petromin has continually expanded bulk storage facilities. At the end of 1399, bulk storage facilities existed at some 15 locations and totalled approximately 9.6 million barrels (see Figure 7). Transportation of refined oil products is traditionally by tanker from the east coast to the west coast. Most inland movements are by truck, although some movements are made by rail. The ratio of road to rail movements is 8 : 1 in volume terms. The increasing volume of inland road movements has put the existing transportation system under strain. By the end of the Second Development Plan, product pipelines were only in existence between Ras Tanura and Dhahran/Dhahran Airport, and were under construction between the Jeddah refinery and new bulk terminals in North Jeddah.

(3) Natural Gas. Until the completion of the Berri NGL center, only relatively limited quantities of gas were piped. The Berri scheme involved the construction of an NGL pipeline to Ras Tanura. Later stages of the gas gathering program, currently under construction, will involve:

- the provision of an extensive network of NGL and gas pipelines linking gas and oil separation plants to the gas gathering centers;
- the provision of links to the fractionation plants, to the LPG export terminals and to gas consumers in the Eastern Province, including those at the Jubail industrial center;
- the completion of the largest of the gas pipelines, the 1,168 km. East–West NGL pipeline from Shedgum to Yanbu, construction of which began in 1398.

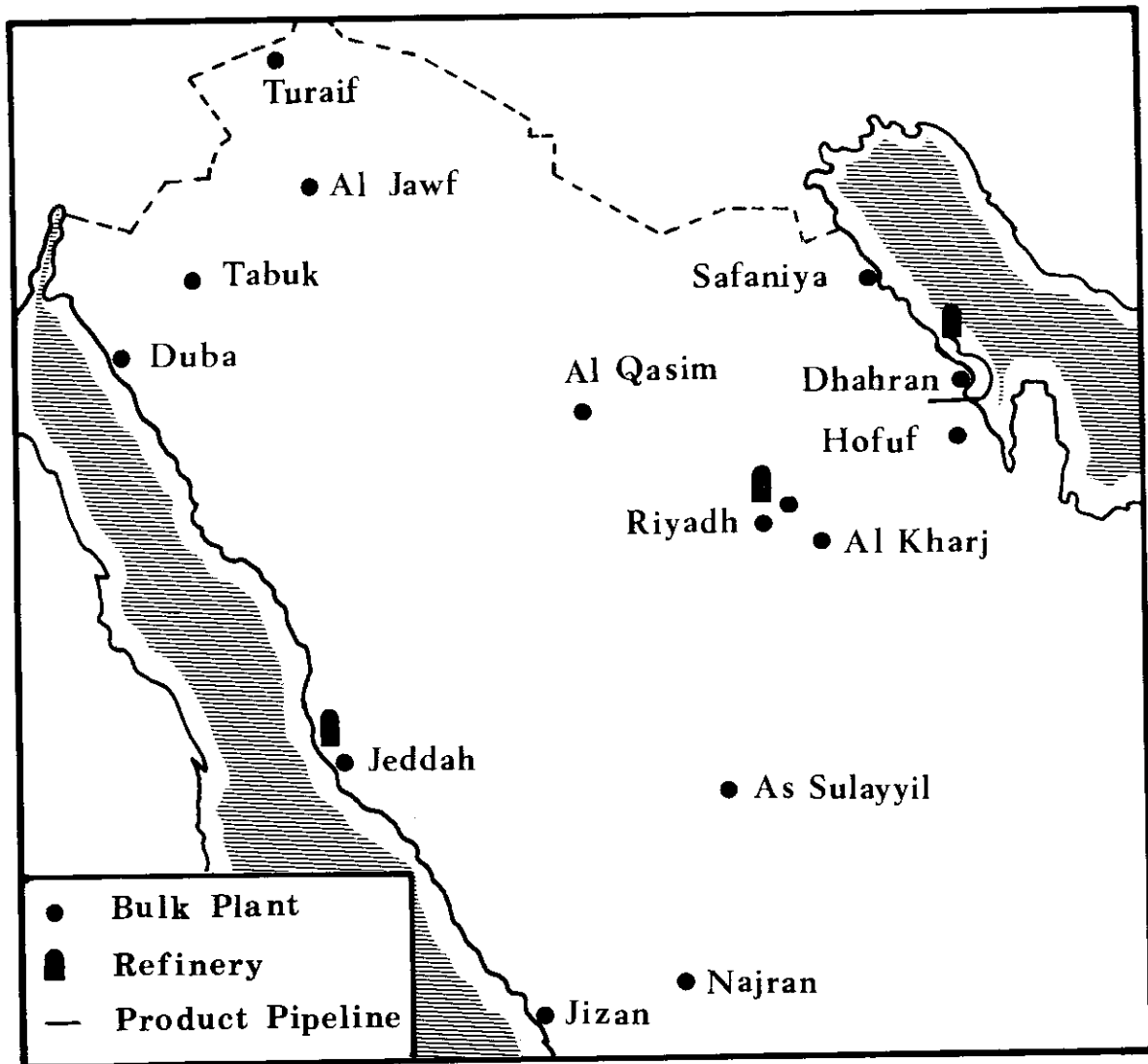
4.4.5.2 Third Plan Objectives and Policies

(1) Objectives. The Third Plan objectives are given below:

- For crude oil movements the major objectives are: to maintain existing facilities, to complete the East–West Crude Oil Pipeline, and to construct domestic crude oil pipelines as required.
- For refined products the objective is to provide an efficient, comprehensive and safe distribution system.

Figure.....7

EXISTING DISTRIBUTION SYSTEM, PETROLEUM PRODUCTS



- For natural gas the objective is to provide a system of pipeline linkages between production, fractionation, export and consuming points.

(2) Policies. To achieve the above objectives the following policies will be implemented:

- Review, maintain and replace, as required, existing crude oil distribution facilities;
- Complete the East–West crude pipeline;
- Construct pipeline systems linking existing and new domestic refineries to an expanded network of bulk plants where product volumes justify;
- Complete construction of gas pipelines, including the East–West NGL pipeline.

4.4.5.3 Third Development Plan Programs. These are summarized in Table 4 - 28. Figure 8 shows the location of the Kingdom's planned network of refineries and the related system of product distribution by the end of the Third Plan.

4.4.6 Solar Energy

4.4.6.1 Background. Regular measurements of solar radiation have been undertaken since 1386 by the Department of Water Resources Development of the Ministry of Agriculture. These were later supplemented by measurements undertaken by the Meteorology and Environment Protection Administration.

Utilization of solar energy in Saudi Arabia is traditionally confined to crop drying and simple domestic purposes. With the rising value of energy and because Saudi Arabia receives very large amounts of solar energy each day, the prospects for utilizing solar energy in the Kingdom become increasingly favorable. At the maximum extreme, it has been calculated that the Kingdom receives 105 trillion kilowatt hours of solar energy daily – thermally equivalent to 10 billion barrels of crude oil.

4.4.6.2 Second Development Plan Achievements. In 1397 an agreement to undertake a cooperative research program in solar energy was signed between the Saudi Arabian and United

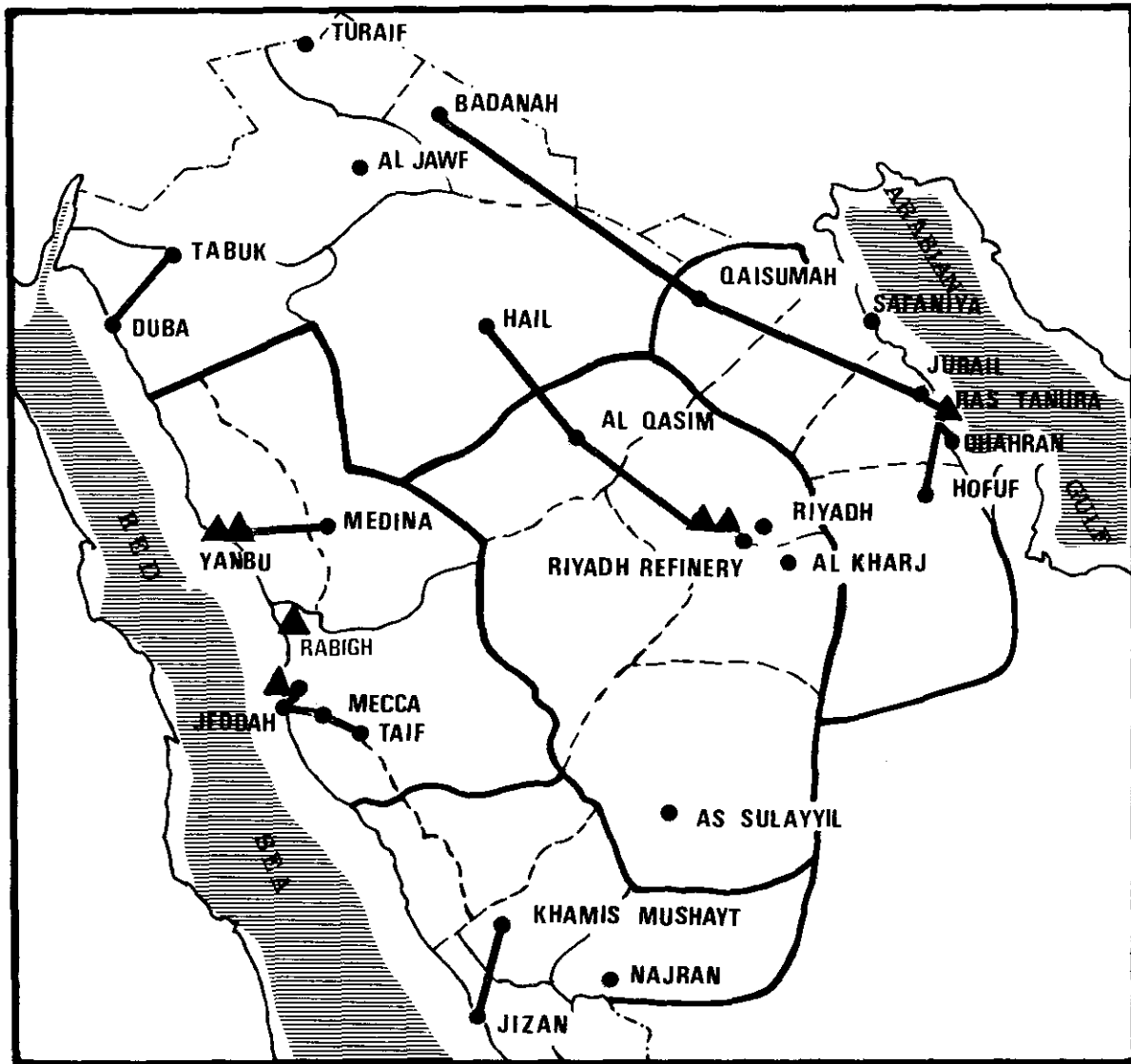
Table 4 - 28

PROGRAMS AND TARGETS

<u>Distribution Section</u>	<u>Program/Target</u>
(1) Crude oil pipelines	<u>Existing system</u> : maintenance & replacement. <u>East–West Pipeline</u> : completion by 1401; expansion review. <u>Domestic crude pipelines</u> : completion of the Khurais–Riyadh pipeline; crude oil supply to Qasim.
(2) Refined product storage	<u>Modernization and expansion</u> : 4.3 million barrels additional storage capacity at existing locations. <u>New bulk plants</u> : construction of eleven new bulk plants; 8.4 million barrels additional storage capacity. <u>New airport fuel units</u> : four units; additional storage capacity of 0.6 million barrels.
(3) Refined product pipelines	<u>New product pipelines</u> : construction of eleven pipelines.
(4) Natural gas pipelines	<u>Gas pipeline system</u> : as part of the Govern- ment’s gas gathering program, the construc- tion targets include the completion of the East - West NCL pipeline in 1402.

Figure.....8

*DISTRIBUTION SYSTEM FOR PETROLEUM PRODUCTS
TO BE OPERATIONAL BY THE END OF THIRD PLAN*



- BULK PLANT
- ▲ REFINERY-EXISTING & UNDER CONSTRUCTION
- PIPELINE-EXISTING & UNDER CONSTRUCTION

States Governments. The project agreement provides for a five year program totaling \$100 million, financed by matching funds from the two Governments.

The Saudi Arabian National Center for Science and Technology and the U.S. Department of Energy (DOE) are the action agencies which draw on governmental and private resources in the two countries for mutually agreed research, development and training programs.

Progress under the agreement has concentrated on projects which will have a demonstrable utility in Saudi Arabia, and make an eventual contribution to meeting the energy needs of the Kingdom, the United States and of developing countries throughout the world.

Five initial programs were selected for implementation:

- (1) Application of photovoltaic electricity generation for remote Saudi Arabian villages.
- (2) Study of the energy needs of villages to help determine the optimum mix of solar energy technologies applicable in rural areas.
- (3) Development of a solar radiation map of the Kingdom through strengthening the existing network of insolation measurement stations.
- (4) Establishment of experimental test facilities for urban cooling systems at Saudi Arabian universities and a parallel effort in the United States involving innovative cooling systems in areas with climatic conditions similar to those of Saudi Arabia.
- (5) Initiation of research and development in solar desalination technology.

Under the first of the above five programs, a contract was signed in December 1979 for the design and construction of what will be the world's largest photovoltaic power system to provide electricity for the villages of Al-Uyaynah and Al-Jubailah. In addition, the world's largest solar water heating system has been designed and will be onstream early in the Third Development Plan. The heating system is incorporated in the construction of the King Abdul Aziz Airborne and Physical Training School in Tabuk. The system will serve 14 buildings and heat 36,000 gallons of water for domestic and space heating use. Solar power is also utilized in some remote telephone installations.

4.4.6.3 Objectives and Policies

(1) **Objectives.** The Third Development Plan objectives are stated below.

- To continue the pilot projects and research programs already underway.
- To make the research results widely available and to encourage the utilization of the practical results within the Kingdom.

(2) **Policies.** In the achievement of the above objectives the following policies will be implemented:

- Continue, under SANCST supervision, the government-funded main research and pilot project work.
- Incorporate, depending on the success of initial projects, an increasing number of solar space and heating systems in the construction specifications for government buildings.
- Encourage the private sector to utilize solar energy in practical forms.
- Encourage Saudi firms to participate in the construction and manufacture of equipment and encourage foreign companies to use Saudi subcontractors, as much as possible.

4.4.6.4 Third Development Plan Programs.

- (1) At the villages of Al –Uyaynah and Al–Jubailah, complete the installation of the 50 kilowatt photovoltaic power system during the first quarter of 1400/01 and expand this to 350 kilowatts during 1401/02.
- (2) Conduct a socio–economic study involving Riyadh University of the impact of solar energy supply on the two villages.
- (3) Establish research programs at Riyadh University, King Abdul Aziz University, and the University of Petroleum and Minerals into solar - powered cooling systems .
- (4) Further develop the network of insolation measurement with construction of solar monitoring stations.

- (5) Initiate the design, construction and operation of two pilot desalination plants (one for sea water and one for brackish water). Each plant will have a capacity of 6,000 cubic meters a day.

4.4.7 Pricing Policy

4.4.7.1 Crude Oil. The historical development of crude oil prices is given in Section 4.4.2 above. For the future, the maintenance in real terms of the international purchasing power of the price of a barrel of crude oil will remain the primary objective in order to achieve a fair petroleum income to support the continued development of the Kingdom's economy and the welfare of its people.

4.4.7.2 Refined Products, Domestic. Prices of refined products are Government controlled at both the wholesale and retail levels. Traditionally, prices have been kept low and during the Second Development Plan period, the divergence between domestic and export price levels became increasingly large. Domestic prices are generally between one quarter and one fifth of f.o.b international prices. The policy of controlling prices and keeping them at reasonable levels for domestic consumption will be continued during the Third Development Plan. However, the actual level of prices will be reviewed thoroughly in the proposed national energy plan which will be undertaken by the Ministry of Planning, in cooperation with other government Ministries and Agencies.

4.4.7.3 Refined Product, Exports. The general considerations governing future crude oil prices will also apply to refined product export prices. The Kingdom will also aim to ensure that refined product export prices reflect their value added premium.

4.4.7.4 Natural Gas, Domestic. Prices have historically been very low, partly to encourage utilization, and partly to reflect the less desirable qualities of "untreated" natural gas. Treated gas product prices are based on their calorific or heat value; and since alternative domestic refined products have been low priced, so natural gas domestic prices have also been low. Prices of gas from the gas gathering program are expected to relate to heat values, to the technical qualities of the fuel, and to investment yield considerations. Domestic prices will remain below international levels as a support measure for industry, electric power and desalinated water production.

4.4.7.5 Natural Gas, Exports. Prices (mainly of LPG products) will relate to international price levels and will reflect the high calorific values, the premium technical qualities and return

on investment considerations. As in the case of crude oil and refined petroleum products, the Kingdom will aim to maintain the real value of exported products.

4.4.8 Electricity

4.4.8.1 Overview. Electric power has become essential to development as it is increasingly supportive of and interacting with other sectors of the economy. It is also a major factor in raising standards of living and relieving problems of health and poverty. The achievement of the Kingdom's strategic goals of improving the welfare of its citizens, and decreasing its relative economic dependence on income from oil, depends on a widely distributed and reliable electric power supply, serving as a primary input to the producing and other sectors of the economy.

The Ministry of Industry and Electricity undertakes the central planning and regulatory functions for the electricity sector. The electric utility companies and the General Electricity Corporation are responsible for implementing the electricity projects and supplying consumers with electricity. A portion of the generating capacity is supplied by SWCC from its dual purpose water desalination plants. The Saudi Industrial Development Fund (SIDF) provides financing to the electric utility companies.

4.4.8.2 Background. The historical development of the electricity sector in the Kingdom has reflected that of the overall economy. During the 1380s, electric service was confined to the major urban centers with the bulk of the existing supply supporting the Aramco operations in the Eastern Region. The then existing systems were small, isolated grids, with 50 or 60 Hz. frequencies, of different service voltages and generally of poor construction standards.

The First Development Plan (1390/95) addressed the above problems. Consequently, the Electric Services Department was established to manage and regulate the sector. The system frequency and service voltages were standardized at 60 Hz and 127/220 volts respectively. By 1395, 393,000 consumers or about 2.2 million people were being served. Total demand stood at 850 megawatts (MW), of which 57% was industrial demand, and close to one hundred, generally small, private electricity companies were established throughout the Kingdom.

The proliferation of the private electric utilities was a proper response by the private sector to meet the increasing demands of the consumer. However, rapid growth in demand, especially in the period after 1393, coupled with government policy of extending electric power to the rural areas, required increased capital, managerial and technical resources. Thus, intra-regional networks integration, regional consolidation and long term system planning became essential requisites for the sector's development.

4.4.8.3 Present Conditions. High growth rates have been experienced over the Second Development Plan period. Peak load grew at an average rate of 36% per year. The total number of people served in 1399 was about 4.2 million, which is 11% in excess of the target set for the year 1400. While the number of new consumers grew at a rate of 16% per year, consumption grew at over twice that rate (37%). Electricity consumption per consumer, which was 4,090 Kwh in 1395, rose to 7,127 Kwh in 1399, reflecting the comparable rise in the standards of living in the Kingdom, as well as the increased availability of electricity at low prices. Table 4-29 summarizes the sector conditions in 1399.

Table 4 - 29

MAJOR PARAMETERS IN THE ELECTRICITY SECTOR: 1399.

Number of consumers served (thousands)	604.2
Population served (millions)	4.2
Installed generating capacity(MW)	3,835.0 ⁽¹⁾
Peak load (MW)	2,925.0

(1) Excludes 350 MW installed by SWCC

The rural electrification program is being implemented by the General Electricity Corporation which was established in 1396 to carry out this program in addition to the electrification of areas outside the service areas of the main electricity companies. By 1400, about 41,000 new rural consumers in 143 villages were provided with electricity, in addition to those served by the central electrification projects in Asir, Al-Baha, Jizan, Al-Kharj, and Al-Qasim.

The need for reorganizing the Kingdom's utilities into more efficient organizations has resulted in the consolidation of the utilities in the Eastern, Central and Southwestern Regions. A 25 year system plan has been prepared by the MIE for the long-term development of the electricity sector.

Government assistance to the electric utilities and capital loans from the SIDF grew rapidly to meet the needs of expansion:

	1395/96 (SR. Million)	1398/99 (SR. Million)
SIDF loan commitments ⁽¹⁾ (Cumulative)	2,076.0	16,511.0
Government assistance ⁽²⁾	24.6	563.4

(1) See Section 4.6.5 Finance for Industry and Electricity for further breakdown.

(2) Subsidy paid to electricity companies to cover costs of providing service at low controlled prices.

Prices of electric power remained government controlled at the levels set in 1394: 7 halalahs per Kwh for general consumers and 5 halalahs per Kwh for industrial consumers.

The inter-regional networks suggested in the Second Development Plan have not been implemented. This is mainly due to the faster than anticipated growth in demand which necessitated a re-evaluation of the plans under a long-term planning horizon in order to avoid wasteful investments. Programs for the development of manpower, standards and specifications, and operations and maintenance procedures, although behind schedule, are presently under development by the major electric utilities.

One of the major constraints to the development of the electricity sector has been the shortage of qualified manpower and unregulated high growth in the urban centers. This has increased pressures for network expansion (at the cost of proper planning, and much needed reinforcement of the existing system), caused delays in development due to right - of - way problems, and finally, has resulted in inadequate coordination among agencies implementing

different projects in the same area. The problems of frequent outages, low plant availabilities, high costs of operations and maintenance, as well as delays in service were direct results of the above constraints.

The high growth rates for peak loads experienced during the Second Development Plan are expected to persist, mainly due to the suppressed nature of the demand for electricity. It is estimated that if every potential consumer in the Kingdom in 1398 had been supplied with all the electricity he actually needed, at the location that he chose, then the total (unsuppressed) peak load would have been 3,952 MW, instead of the 2,150 MW that was actually met.

4.4.8.4 Objectives and Policies.

- (1) Objectives. The objectives for the electricity sector during the Third Development Plan are given below:
 - To provide reliable electric services to all the viable centers of population, and of industrial and agricultural activity in the Kingdom. This is to be achieved by developing generation capacities, transmission and distribution networks and the associated support services to fully meet all consumers' electricity demands.
 - To develop comprehensive electric power systems at high levels of reliability and security, capable of continuous growth to meet future demands. National and social responsibilities require that such development be undertaken at minimum social, environmental and economic costs.
- (2) Policies. To achieve the above mentioned objectives the policies outlined below will be implemented:
 - Base and peak loads will each be served by appropriate generation, and fuel flexibility will be incorporated into generation plants to ensure a cost effective system of utilization. Load and generation centers will be interconnected by high and extra high voltage networks as required. The new system under development will be compatible with the long term system plan for electrification.
 - The electric power utilities, in conjunction with the central agencies, will work toward:
 - the development of equipment and systems standards;
 - the development of proper maintenance and operations procedures;

productivity improvements through: manpower development, enhanced system planning capabilities, and improvements in the collection, analysis and dissemination of data.

4.4.8.5 Third Development Plan Programs.

(1) Highlights. The Third Development Plan for electricity will expand the infrastructure for achieving the objective of full electrification and meet the needs of long term growth in the sector. Installed generating capacity will be expanded by about 7,568 MW; and over 6,000 km. of transmission and subtransmission lines will be commissioned during the Plan period. New industrial and agricultural loads will be served by the above additions and 600,000 new consumers will be connected to the networks. A power systems training center will be established in Riyadh to train operations and maintenance crews for the electric utilities.

(2) Trends. The process of developing the regional networks will continue by expanding into the areas which are presently without or with inadequate electric service. Large, efficient steam electric generating plants will be installed in the coastal areas, with extra high voltage (EHV) networks transmitting the power to the main load centers. These networks will be extended to form the backbone of a national grid.

The consolidated electricity companies (in the Eastern, Central and Southwestern Regions) will organize and take on the implementation of the programs in their respective areas. The Western Region's utilities will be consolidated early during the Plan, thus reducing the total number of operating companies from 74 at present to 11. By 1405, the electricity sector will have made a major leap forward with most of the national power system in operation or undergoing development, and institutionally, with the consolidated companies developed into independent and efficient organizations.

(3) Targets. Table 4 - 30 summarizes the main targets of the Third Development Plan for electricity.

Table 4 -30

TARGETS FOR ELECTRICITY IN THE THIRD DEVELOPMENT PLAN

	<u>1405</u>
Number of consumers served (thousands)	1,313
Population served (millions)	9
Installed generating capacity (MW)	12,445 ⁽¹⁾
<u>Peak load (MW)</u>	11,182

(1) Excludes SWCC Generation

- (4) Programs. The above Plan targets will be achieved through the following programs.
- Generation program: a total of 34 projects are included which will add 7,568 MW to generating capacity during the Plan period. This will be supplemented by the capacity to be installed by SWCC (see Section 4.2. Water).
 - Transmission and subtransmission program: this has 35 projects which will add 6,309 km. of lines for interconnecting generation and load centers in the five regions. (See Figure 9)
 - Distribution program: this will reinforce existing networks and serve 600 thousand new consumers, or over 4 million people.
 - Administrative and resource development program: this program includes, among others, subprograms in manpower development, information systems, and developmental studies.

With regard to sector coordination an inter-ministerial committee will be formed to review on an annual basis the progress of project implementation by the respective agencies, to ensure that lack of progress in any one area does not impede overall progress and system reliability.

4.5 MINERAL RESOURCES

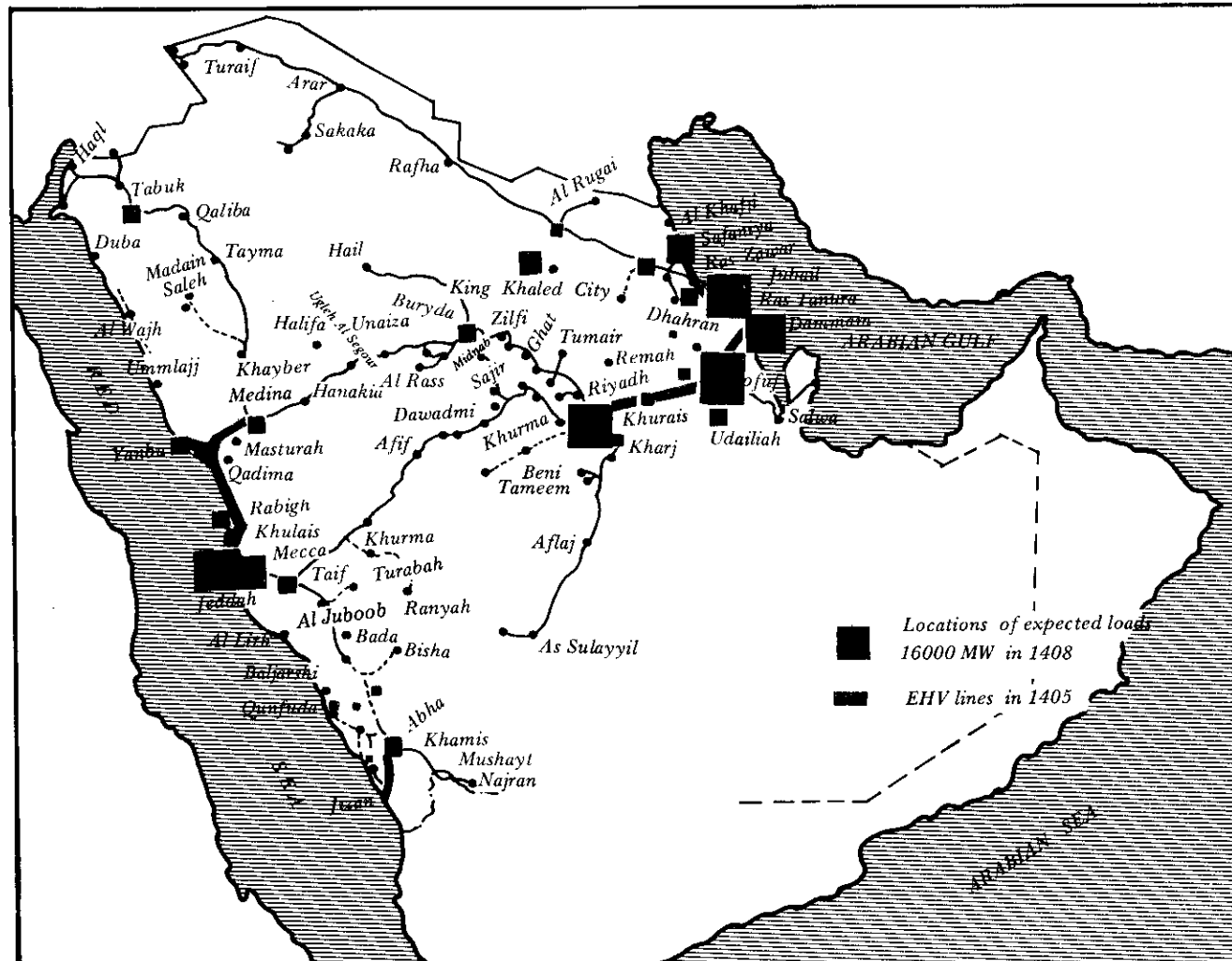
4.5.1 Overview

4.5.1.1 The Deputy Ministry for Mineral Resources is the principal agency responsible for the formulation of policy, the broad direction of technical and administrative work and the control of the Directorate General of Mineral Resources (DGMR) and the other operating units which carry out the technical and support programs concerned with mineral development. The work of the Deputy Ministry is complemented by the minerals department of Petromin which, in association with private enterprise, is responsible for the commercial exploitation of minerals.

4.5.1.2 Two additional geological organizations are operating under technical assistance agreements. The Saudi-Sudanese Joint Red Sea Commission was established in 1395 following a

Figure.....9

LOCATION OF ELECTRICITY LOAD CENTERS AND EHV NET WORKS



bilateral agreement between the two Governments concerned to organize and supervise all research and development work required to exploit the metal rich sediments of the Red Sea deposits. More recently, a joint Saudi/Sudanese/French project was agreed upon to develop the mineral resources in the region of the Red Sea Mountains in Sudan.

4.5.2 Present Conditions

The history of mining in Saudi Arabia goes back more than ten centuries. In the second century of Islam there was at least one major gold mine in operation and over 350 gold, silver and other mineral workings scattered around the Arabian Shield. The Kingdom's last major mine, apart from the industrial stone quarries, was the Mahd ad Dahab gold mine which ceased commercial exploitation in 1374. As a result of intensive exploration by the DGMR and its associated missions commercial mining is once again becoming a realistic possibility.

4.5.2.1 Metalliferous Minerals. To date over 700 mineral occurrences have been identified in the main metalliferous mineral belts. Work on these mineral belts, which individually may occupy several thousand square kilometers, is still in a relatively early stage.

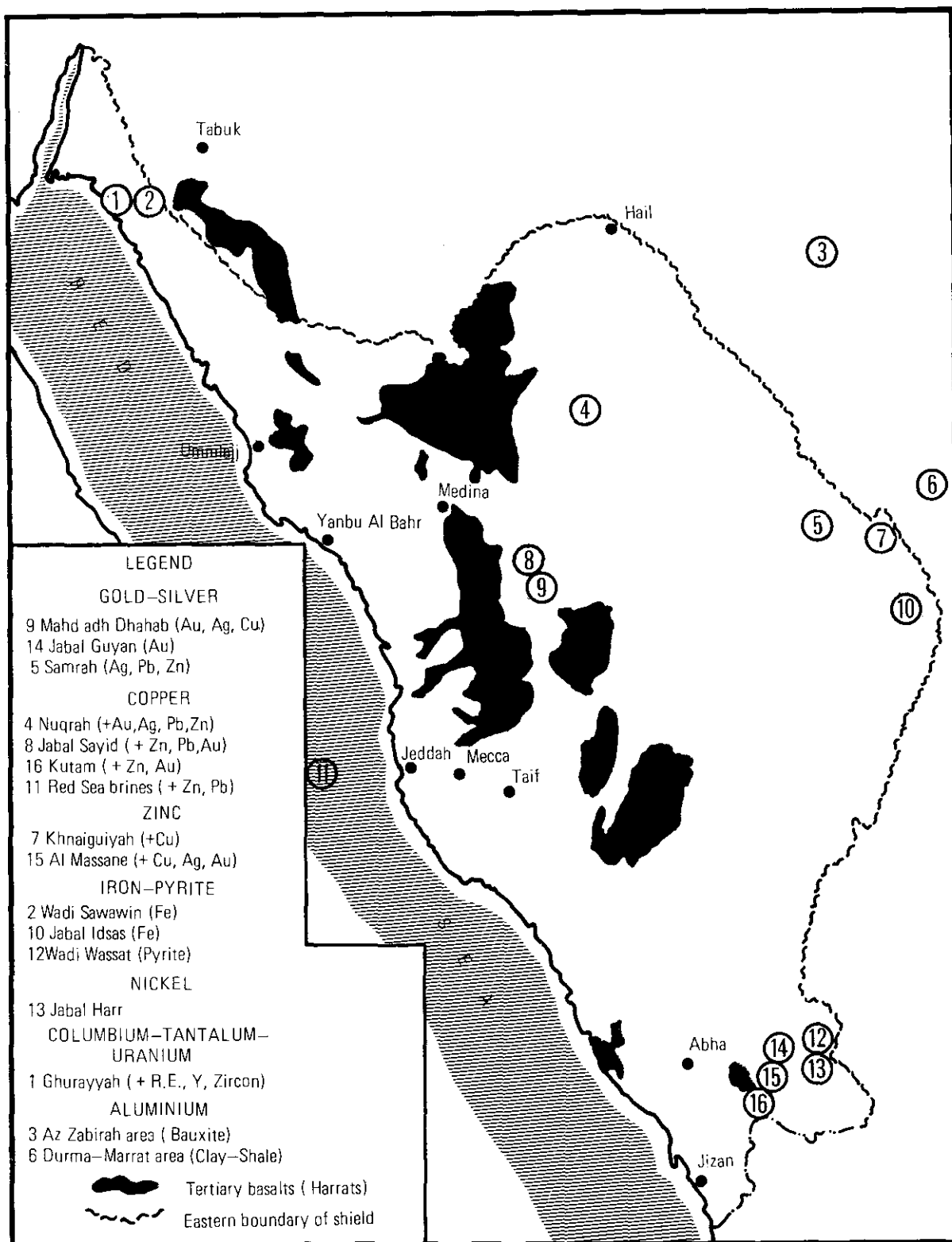
The Arabian Shield provides a most promising host environment for mineralization. To date, prospecting in the Shield has identified a total of 95 metalliferous prospects for further investigation by drilling. Most of these prospects fall into the group of volcanogenic rocks which carry copper, lead, zinc and iron minerals. Seven prospects have been drilled in basic plutonic rocks which may host chromite, nickel, platinum, asbestos and copper minerals.

A project was started in 1399 to investigate the sedimentary rock underlying 1.5 million sq. kilometers of the Kingdom. These rocks can host deposits of lead and zinc ores and their common associates barite and fluorite.

(1) Mining Investment. Despite the Second Plan generally coinciding with a period of poor mineral prices and a downturn in exploration worldwide, several companies are currently exploring in the Kingdom. Of the eight exploration permits issued, seven are concerned with metallic minerals including gold, copper, nickel, zinc, lead and silver. It is encouraging to note that Saudi Arabian companies are significantly involved with the exploration program. Gold at Mahd ad Dahab offers the earliest potential for commercial exploration. Location of major mineral deposits are shown on Figure 10.

Figure.....10

**MAJOR MINERAL DEPOSITS:
METALLIFEROUS MINERALS**



A number of favorable aspects help to explain the success in attracting foreign mining companies. These include the Kingdom's indisputable ownership of the mineral resources, a clear Mining Code, a model exploration license which defines the terms and conditions of any eventual mining lease, well established precedents for a joint venture arrangement with Petromin, the opportunity to participate with a Saudi partner in an interest free loan of 50 % of the capital, and a five year tax holiday. In addition, companies are assisted by the Ministry in many ways including access to open file records and drill core, liaison with professional staff, flights for field assessments and general assistance to aid their visits.

(2) Future Prospects. Work has been undertaken on a number of deposits which are now regarded as potentially attractive for further exploration by commercial companies. These are uranium, tin, zircon, niobium, tantalum and rare earth deposits at Ghurayyah, and zinc at Khnaiguiyah. Iron ore at Sawawin could provide iron oxide pellets for the national iron and steel industry.

4.5.2.2 Non-metallic Minerals.

(1) Mineral Exploration. During the Second Plan the DGMR initiated a project to compile an inventory of non-metallic minerals. Considerable success has been achieved in the search for construction materials and a number of deposits are expected to lead to commercial use. The search for industrial minerals has also been successful with several major deposits having been identified including limestone, clay, basalt, high purity limestone and dolomite, and glass sand.

In addition, an investigation of phosphorite in the Sirhan Basin is being reactivated in response to world market conditions. Other phosphorite investigations are being undertaken in West Thaniyat region along the Red Sea coast and in the east of the Kingdom. The other notable development of the Second Plan is the investigation of vast deposits of gypsum between Yanbu and Umm Lajj.

(2) Mining and Quarrying. The Second Plan witnessed a considerable success not only in the search for non-metallic minerals but also in the response of the private sector to exploit these minerals. Total quarry lease permits issued by the Concessions Department of the DGMR increased dramatically over the last 5 years as Table 4-31 indicates.

Table 4 -31

QUARRY LEASE PERMITS ISSUED

	<u>Pre- 1395</u>	<u>1395</u>	<u>1396</u>	<u>1397</u>	<u>1398</u>	<u>1399</u>	<u>Total</u>
Marble	7	8	7	1	—	9	32
Granite	2	—	1	5	1	1	10
Clay	—	4	3	5	8	1	21
Limestone	1	—	—	1	1	2	5
Iron ore ⁽¹⁾	—	—	3	—	—	—	3
Other	—	—	—	—	5	—	5
Total	10	12	14	12	15	13	76

(1) In small quantities for the cement industry

This success can, in part, be attributed to the efforts for popularizing and promoting the use of Saudi Arabian stone for ornamental use. To date, success includes the discovery of 128 stone deposits, the opening of a model quarry to demonstrate modern quarrying techniques, the commissioning of a modern stone cutting and polishing plant in Jeddah, the opening of nine quarries and the publication of a manual for the general public.

Efforts continue to maintain the rate of mineral discovery and exploitation. These include investigation into the use of certain clays in the production of aluminum, the mining and calcining of magnesite at Zarghat, the grade limitations for profitable mining of a zinc deposit in the central part of the Kingdom, and into presently available information to identify the new exploration targets.

(3) Geological Research. A rigorous program of basic geology investigation has formed the core of successful mineral exploration. In addition to the geological mapping of the country, a number of research and support projects has been undertaken. These include:

- Stratigraphic classification;
- Basic geological investigations;
- Airborne and ground geophysical surveys;
- Geochemical prospecting;
- Use of petrological laboratories;
- Geochronology.

Work continued on the regional gravity project, the regional aeromagnetic digitization and reinterpretation of regional airborne radiometric data.

4.5.3 Objectives and Policies.

4.5.3.1 Objectives. The objectives of the mineral sector plan are:

- (1) To stimulate the development of a sound mineral industry with particular reference to the national policy of industrialization;
- (2) To survey and record the geology of the Kingdom as a basis for mineral exploration and other applications;
- (3) To investigate mineral resources and build an inventory of mineral potential;
- (4) To relate geology to the needs of other sectors, with particular reference to construction and geohazards.

4.5.3.2 Policies. The above objectives will be achieved through the implementation of the following policies:

- (1) Study and research the basic geology of Saudi Arabia;
- (2) Investigate mineral occurrences to discover exploitable ore;

- (3) Assess mineral resources that may become of economic value in the future;
- (4) Evaluate mineral deposits;
- (5) Investigate and provide information on existing mining infrastructure;
- (6) Compile an inventory of metallic and non-metallic mineral occurrences;
- (7) Apply geophysical and geochemical methods in the search for minerals;
- (8) Provide the necessary technical, non-technical and managerial support services;
- (9) Train Saudi nationals in mining and geosciences.

4.5.4 Third Development Plan Programs.

The programs comprising the mineral sector plan are grouped in three categories.

4.5.4.1 Basic Geology. Progress in compiling geological maps of the Kingdom will be continued. The 1:100,000 and 1:250,000 scale reconnaissance maps will be completed. A start will be made on mapping the Phanerozoic rocks of the central and eastern areas. The present smaller scale maps at 1:500,000 and 1:2,000,000 will be revised, and work on a new 1:1,000,000 map will be undertaken.

Steady progress is expected on the long term stratigraphic classification of the Shield formations and on the studies of the two main groups of igneous intrusive rocks. New projects relating to the Shield will include a search for such economically important minerals as kimberlite and carbonatite.

A number of projects is scheduled which will increase information concerning the sedimentary rocks underlying the central and eastern parts of the Kingdom, and plans have been made to undertake a number of studies postponed from the Second Plan: studies in geomorphology, and a study of the Red Sea coastal plain and shelf.

The geophysics and geochemical program will be expanded to strengthen the search for economic mineral deposits. A permanent seismic observatory will be established, airborne geophysical surveys will continue, and geochemical methods will be used extensively to support the exploration for mineral deposits.

4.5.4.2 Mineral Exploration and Development. To identify the most favorable targets for mineralization the Deputy Ministry will continue to review and reappraise data from the basic research and mineral investigation programs. In addition, preliminary assessments will be made to provide the Government with realistic estimates of actual and potential reserves of non-hydrocarbon mineral resources.

Two programs are planned to undertake rigorous investigations aimed at discovering new mineral deposits. The first will be concerned with all aspects of general exploration and prospecting within a broad geologic division including volcano sedimentary, mafic and felsic plutonic, and Phanerozoic rocks. The second will concentrate on investigations for specific mineral commodities. The investigations of the phosphorite potential in the Northern, Eastern and Central Regions and of evaporite deposits will continue. A major five year program will commence to evaluate evaporite potential in the Red Sea Basin. A comprehensive program to assess the uranium potential in the Kingdom will be intensified. Further work will be carried out on the exploration for high alumina clays and the testing of their suitability for the production of alumina. The recent discovery of bauxite in the Central Region will be reinforced with a program of mapping and drilling. Following the work of the Saudi Sudanese Red Sea Commission, oceanographic research will be extended to the northern part of the Red Sea.

To complement the search for minerals a study will be carried out to identify, the demand for and possible domestic supply of, industrial minerals in the Kingdom and to estimate the costs of local production. In addition, the Ministry will continue to compile a regional inventory of industrial minerals and materials.

Studies will be initiated to provide information on existing infrastructure, on national plans which may affect mining, and in the costs of new infrastructure. Coordinated evaluation of water resources in areas with good potential for mineral development will continue.

Efforts to promote the development of the ornamental stone industry in Saudi Arabia will be increased. Two new stone dressing plants will be opened, one in the Central and one in the Southwestern region. Publicity will be undertaken to encourage the use of dressed stone and participation in the industry. The Mineral Code will be reviewed and revised as necessary. Consideration will be given to revising the mineral taxation law to increase tax holidays from 4 to 10 years, beginning from the first day of production and not from the day the lease is signed.

The evaluation of the Wadi Sawawin iron ore deposit will be completed. This will include the determination of mineable reserves; the mining and pilot plant processing of bulk samples; examination of infrastructure requirements and the completion of a full feasibility study. A preliminary mining evaluation of the Jabal Idsas iron ore deposit will also be undertaken. If this is encouraging, further geological investigation, bench-scale beneficiation tests and economic studies will be made.

Petromin, in conjunction with foreign mining companies, will continue its search for commercially viable mineral deposits. At present, gold at Mahd adh Dhahab, copper at Nugrah and phosphate at West Thunayat are the most commercially promising.

4.5.4.3 Support Services. The Ministry will provide the necessary supporting services to implement the research, exploration and development aspects of the Plan. These will include the provision of laboratories, specialist equipment, office and storage accommodation and air and land transport facilities.

4.6 MANUFACTURING

4.6.1 Overview

4.6.1.1 Background. The Kingdom has a long history as a trading nation, but little tradition in modern industrial development outside of the oil industry. Other than oil refining and cement production, the early manufacturing activities of the Kingdom related to only a few small scale local industries.

The finite nature of hydrocarbon resources has long been apparent to the Government. As a result there has been a long standing commitment to wider industrial development as a

means of lessening the Kingdom's dependance on hydrocarbons, particularly oil, and moving toward more a balanced and self supporting growth in the non-oil sectors.

In this section, “ manufacturing” is divided into hydrocarbon based (but excluding oil refining), and non-hydrocarbon based manufacturing activities.

4.6.1.2 Industrial Policy. Government industrial policy has concentrated on fostering conditions favorable to industrial growth. Early recognition was given to the difficulties in establishing a manufacturing base and, through the Statute for Protection and Encouragement of National Industries (1381), provision for industry incentives was made. Progress was made in improving the Kingdom's basic infrastructure and, in particular, industrial estates were created at Jeddah, Riyadh and Dammam.

The Government recognizes the principles of economic freedom and free competition and the important role of private sector investors in developing industrial projects. Foreign capital, skills and technology are encouraged to participate in industrial development projects in collaboration with Saudi investors.

Encouragement and financial incentives are provided (and will continue to be provided) to industrial investors to enable well managed companies to realize reasonable returns from operations. Such incentives, which are made available on a case by case basis, include:

- (1) Loans on favorable terms from the Saudi Industrial Development Fund (SIDF);
- (2) Tariff exemption on imported equipment and materials;
- (3) Selective tariff protection from imported products;
- (4) Tax incentives;
- (5) Assistance in studies and operations;
- (6) Provision of low cost utilities and fuels;
- (7) Provision of infrastructure, including industrial estates;

- (8) Training subsidies for manpower;
- (9) Adoption of Government procurement policies giving preference to Saudi producers.

Tariff protection implementation recognizes the need for also safeguarding the interest of the Saudi consumer.

4.6.1.3. Establishment of Basic Heavy Industry. In the establishment of basic heavy industry the Government plays a direct part. Despite the key role assigned to private sector investors in the Kingdom's industrial development, more direct Government involvement was felt necessary in the establishment of a fundamental heavy industry base. This direct involvement was undertaken because of the close connection to hydrocarbon policies and projects, the large scale capital and other resource requirements, and the long gestation period from planning to profitable operation of basic industry projects.

Following the creation of Petromin in 1382, the Government had a corporate entity through which to undertake investment in key basic petrochemical and metal industries. Under Petromin, a small scale (45,000 ton/year) steel mill at Jeddah came onstream in 1387, a 350,000 ton capacity urea plant near Dammam in 1390. Extensive reviews and negotiations relating to other basic industries were also carried out.

In 1396, the fully government-owned the Saudi Basic Industries Corporation (SABIC) was established for the implementation of a basic industry program in conjunction with suitable overseas joint venture partners, or unilaterally, if required. SABIC took over from Petromin the responsibility of the steel mill and all the latter's work relating to the establishment of basic industries. It is the Government's intention that, when successfully established, a substantial proportion of SABIC's share in basic industries will be made available for distribution to the Saudi public, including Saudi employees in these industries.

The establishment of a heavy industry base is a keystone in the Kingdom's industrial and economic development strategy. The intention is to utilize the substantially under-utilized natural gas production, which is a co-product or "associated" product of crude oil production. The gas will be utilized as feedstock and fuel for petrochemical and energy intensive industries. This will add value directly to the Kingdom's natural resources, increase foreign exchange earnings without requiring crude oil production or price changes, introduce new technologies, establish industries which have low labor requirements and which provide Saudis with opportunities

for well-paid and interesting jobs. In addition, opportunities for linked downstream industrial projects will be created which can be implemented both by SABIC and private investors.

The Government's gas gathering scheme, the creation of the serviced heavy industry centers of Jubail and Yanbu by the Royal Commission, and the substantial improvement in national infrastructure (all of which were started in the Second Development Plan) have laid the basis for the construction and operation stages for several major basic industrial projects during the Third Development Plan.

4.6.1.4 Non-hydrocarbon Manufacturing Progress. In non-hydrocarbon based manufacturing, substantial progress was made during the Second Development Plan. Government industrial policy and the rapid growth of the Kingdom's economy, particularly in the construction and personal consumption sectors, gave considerable stimulus to manufacturing. Thus, a secondary manufacturing base was successfully established in the Kingdom. During 1399, the Ministry of Industry and Electricity organized the first Saudi Industry Day and sponsored the publication of the first comprehensive directory of Saudi manufacturers.

The relative smallness of the Saudi market and the similarity of aspirations among the Kingdom's neighbors and fellow oil producers have given prominence to the desirability for coordination in industrial development policies to avoid unnecessary duplication. During the Third Plan period cooperation will be strengthened and more multi-country projects are expected to be considered for implementation together with measures for opening wider regional markets.

4.6.2 Hydrocarbon Based Manufacturing

4.6.2.1 Background. This excludes petroleum refineries and natural gas processing plants which are discussed in the energy sector. Reference here will be specifically to the manufacture of products which are based on the feedstocks or primary output available from petroleum refineries and natural gas processing plants. Hydrocarbon based manufacturing is separated into the public and private sector contributions.

To-date, the Kingdom's petroleum refinery output has been solely for domestic and export fuel markets; no production of any petrochemicals based on refinery feedstocks has taken place.

There has also been no private sector manufacture of petrochemical, primary or intermediate, products.

The public sector did, however, initiate the establishment of the Saudi Arabian Fertilizer Company (SAFCO), incorporated under Royal Decree in 1385 with 51 % of its SR 100 million capital held by Petromin and the balance subscribed by Saudi investors. A technical agreement was signed between Petromin and a foreign petroleum company for the latter to provide the technical supervisory know-how for the construction and operation of a 360, 000 tons a year urea plant with a sulphur by-product potential of 11,500 tons a year. The plant, located 10 km. from Dammam, is based on the use of "sour", or untreated, natural gas. The plant was completed in 1389 and the first year of production was 1390.

Integrated with the SAFCO project, to utilize the by-product sulphur, Petromin built a 15,000 metric ton sulphuric acid plant (Petrocid) which came onstream in 1391. The plant output is used by SAFCO, for desalination and in the petroleum sector.

In addition to the above , Petromin undertook extensive studies, review, and preliminary negotiations with potential partners for the establishment of other hydrocarbon based industries.

4.6.2.2 Agencies in Hydrocarbon Based Manufacturing. The following agencies and organizations are involved:

<u>Agency</u>	<u>Role/Area</u>
Supreme Petroleum Council	Major decisions on hydrocarbon strategy and policy.
Ministry of Petroleum & Minerals	] Implementation of the gas gathering program.
Petromin	
Aramco	
Ministry of Industry & Electricity (MIE)	Established in 1396. Implementation of Government industrial policy. Licensing of projects. Coordination between public and private sectors. Supervision of SAFCO/Petrocid.

Saudi Basic Industries Corporation (SABIC)	Government corporation, established in 1396. Implementation of individual projects on joint venture basis.
Royal Commission for Jubail & Yanbu	Established in 1395. Provision of sites and related infrastructure for hydrocarbon related industries at Jubail and Yanbu.
Saudi Arabian Fertilizer Company (SAFCO) Petrocid	Public sector controlled corporations, established in 1385. Continuation of existing urea fertilizer and sulphuric acid production.

4.6.2.3 Achievements during Second Development Plan.

(1) SAFCO. In 1395 the control of SAFCO was transferred from Petromin to the Ministry of Industry and Electricity. Under the new arrangement, SAFCO operated more successfully and output increased to almost 300,000 tons per year, 97% of which was for export:

<u>Year</u>	<u>Production (thousand tons/year)</u>
1390	17
1392	94
1394	197
1398	260
1399	299

In Rabi Al Awal 1400, as a reward for the successful operation of the company, and as part of the Government's policy to allow public participation in successful public sector industries, H.M. King Khaled ordered the sale of 10 % of SAFCO's shares to the corporation's Saudi employees.

(2) Petrocid. In 1395, the control of Petrocid also passed from Petromin to the Ministry of Industry and Electricity. Annual capacity was expanded by 100,000 tons in late 1399.

(3) Gas Gathering Program. The design and construction of the gas gathering program commenced in 1395. The primary objective of the program was to provide feedstocks and fuel for the operation of large scale petrochemical plants to be located at Jubail and Yanbu (for further details see Section 4.4.3, “Natural Gas”).

(4) Construction of Sites and Infrastructure at Jubail and Yanbu. The Royal Commission for Jubail and Yanbu undertook the design and began the construction of industrial sites and the required infrastructure for petrochemical plants in addition to the petroleum refineries at both locations (for further details see Section 4.6.4, “Industrial Complexes at Jubail and Yanbu”).

(5) The Establishment of the Saudi Basic Industries Corporation (SABIC). SABIC was formed by Royal Decree in 1396 as the Government’s new corporate vehicle for establishing a series of capital intensive basic industry projects. SABIC was provided with an initial capital of SR 10 billion and a mandate for the establishment and operation of hydrocarbon based industries, basic metal industries, and any other basic industry which the private sector might be unwilling or unable to establish. SABIC took over from Petromin the preliminary work that the latter had undertaken on hydrocarbon and basic metal industries, and concentrated on planning programs and projects to utilize the gas available from the Government’s gas gathering program. SABIC participated in a wide ranging series of technical and market studies relating to potential basic industry projects, and carried out joint venture discussions and negotiations with international companies and consortia interested in participating in the development of basic industries in Saudi Arabia. Most hydrocarbon based projects are expected to be implemented as joint ventures with suitably qualified international companies and will consequently have a separate corporate form.

SABIC’s major petrochemical project achievements during the Second Development are summarized in Table 4 - 32.

(6) Private Sector. In the private sector no production of petrochemicals was undertaken. An industrial license was, however, issued to a joint Saudi/Indian/U.S. group for the production of carbon black from natural gas. In addition, over 20 relatively small scale plastic factories were established or planned using imported plastic resins.

Table 4 - 32

**MAJOR HYDROCARBON BASED PROJECT ACHIEVEMENTS OF SABIC
DURING SECOND DEVELOPMENT PLAN**

<u>Type of Industry</u>	<u>Project/Location</u>	<u>Status/Achievement</u>
Petrochemical	Ethane I – Jubail: ethylene complex (650,000 metric tons year (mty) – ethylene)	SABIC board approved. PIF loan approved. Detailed engineering underway. Final partnership negoti- ation underway.
	Ethane II – Yanbu: ethylene complex (450,000 mty– ethylene)	Feasibility study completed. Agreement to proceed signed.
	Ethane III – Jubail: ethylene complex(440,000 mty ethylene)	Detailed economic study completed. Preliminary engineering undertaken. Continuing partnership discussions.
	Ethane IV – Jubail: low density polyethylene plant(240,000 mty)	Detailed feasibility completed. Agreement to proceed signed.
	Ethane V – Jubail: ethylene complex (310,000 mty –ethylene)	Preinvestment study completed. Continuing partnership discussion.
	Methanol I – Jubail: methanol plant (600,000 mty)	Initial feasibility study completed. Initial engineering completed. Agreement to proceed signed.
	Methanol II –Jubail: methanol plant (600,000 mty)	Detailed feasibility study underway. Continuing partnership discussions.
	Urea I – Jubail: urea fertilizer plant (500,000 mty)	Initial studies completed. Partnership agreement to proceed signed.

When locally produced resins become available from the basic and intermediate petrochemicals plants some of these imports will be replaced.

4.6.2.4 Objectives and Policies.

(1) Objectives. The Third Plan objectives for hydrocarbon based industry development are given below:

- To establish and begin operations of basic or “building block” petrochemical plants using the output of the gas gathering scheme for raw materials and fuel.
- To follow the establishment of the basic plants with investment in downstream opportunities to be undertaken according to feasibility and priorities.
- To offer, on the successful establishment of basic industries by SABIC, a proportion of SABIC shares for Saudi public subscription.

(2) Policies. To achieve the above objectives the policies outlined below will be implemented:

- Establish and operate the basic petrochemical plants undertaken by SABIC through joint venture partnership corporations.
- Concentrate the public sector basic petrochemical program at two locations – Jubail and Yanbu, where The Royal Commission for Jubail and Yanbu will complete the construction of the basic infrastructure.
- Concentrate the program initially, on the establishment of ethylene complexes, methanol and urea projects.
- Make all projects commercially viable.
- Review other petrochemical projects continuously and encourage private sector involvement in any downstream opportunities and undertake the planning for further basic petrochemical and downstream plants for establishment during the Fourth Development Plan.

- Develop strong administrative, planning, and marketing functions.
- Develop Saudi manpower to undertake the responsibilities of managing, operating, and maintaining the industrial plants.
- Minimize the use of expatriate construction labor by adopting modular construction methods for projects wherever possible.

4.6.2.5 Third Development Plan Programs.

Public Sector. The elements of the public sector hydrocarbon manufacturing program to be implemented by SABIC are:

- (1) The conversion of separated associated gas into industrial petrochemicals for export and domestic use.
- (2) Conversion and utilization of gas feedstock and fuel on a project by project basis according to feasibility and priorities through the auspices of separate joint-venture companies established by SABIC and qualified international companies. Development of support and downstream projects may also take the joint venture form or alternatively, be undertaken by private investors encouraged by SABIC.
- (3) Four programs will be implemented.
 - General studies and research 1400-1405: a continuous program comprising research and studies on product marketing, feedstocks, process evaluation, and prefeasibility studies.
 - Expansion of administrative space 1400-1405: in Riyadh, and the opening of branch offices in Yanbu, Jubail, and Jeddah.
 - Methane utilization projects 1400-1405: these will consist of the establishment of a 600,000 metric ton a year methanol plant or plants by 1403 and a 500,000 metric ton a year urea plant by 1404. Most of the production will be for export.

- Ethane utilization projects 1400–1405: these will consist of three very large ethylene complexes, two located at Jubail and one at Yanbu. The resultant ethylene capacity is expected to total about 1.5 million tons a year by 1404/05. These ethylene complexes will be the basic “building blocks” for downstream petrochemical products such as plastic and other ethylene derivatives.

Private Sector. Specific programs as in the case of SABIC, have not been drawn up. SABIC and the Ministry of Industry and Electricity will, however, give encouragement to private sector companies to investigate and implement manufacturing opportunities arising from the coming on-stream of the public sector initiated basic petrochemical plants. If projects are viable, loan funds will be made available to private sector investors from the Saudi Industrial Development Fund. An example of a potential private sector project in this field is the initially licensed carbon black plant project. Other possibilities could include a wide range of plastic resins, solvents and other chemical product production.

4.6.3 Non-hydrocarbon Based Manufacturing

4.6.3.1 Background. In non-hydrocarbon based manufacturing, the basic implementation role, i.e., the detailed planning, construction, and operation of manufacturing plants, has always been assigned to the private sector with general guidance, supervision, and encouragement from the Government. Petromin, followed by SABIC in 1396, has implemented a direct public sector role in establishment of basic metal industries.

Prior to the 1370s, even cement production was only relatively small-scale (see Table 4-33). Indeed the private sector establishment survey covering the year 1396⁽¹⁾ estimated that out of a total of recorded 13,067 manufacturing establishments, almost 80 % employed less than five persons. One half of the recorded manufacturing employment of 61,000 (which included some oil company employment) was in establishments employing less than ten persons.

(1) Census of Establishments in the Kingdom 1396.
Central Department of Statistics.

Table 4-33

**KINGDOM CEMENT PRODUCTION IN SELECTED
PRE-SECOND DEVELOPMENT PLAN YEARS**

(Thousand tons/year rounded)

<u>Year</u>	<u>Production</u>	<u>Imports</u>	<u>Total supply</u>	<u>Production as percentage of total supply</u>
1378	30	347	377	8.0
1380	90	271	361	24.9
1385	250	492	742	33.7
1389	574	686	1,260	45.6
1390	667	464	1,131	59.0
1393	1,008	281	1,289	78.2

Source: SAMA Annual Reports.

The contribution of non-hydrocarbon based manufacturing to GDP expanded during the 1380s but during the 1390s remained fairly constant: around 5.5% of non-oil GDP at constant prices. Such relative stability, nevertheless, required a rise in the sector's annual growth rate, from 11.4% in the First Plan to 15.4% in the period of the Second Plan. (See Table 4-34). In the period of the Third Plan the growth rate envisaged for non-hydrocarbon manufacturing considerably exceeds the growth of non-oil GDP.

Table 4-34

MACRO ECONOMIC INDICATORS FOR NON-HYDROCARBON BASED MANUFACTURING
(Percent)

	<u>1384/85</u>	<u>1390/91</u>	<u>1395/96</u>	<u>1396/97</u>	<u>1397/98</u>	<u>1398/99</u>
<u>Total Contribution to GDP</u>						
Current Prices	1.9	2.1	1.3	1.5	1.8	2.1
Constant Prices (1389/90)	1.8	2.4	2.4	2.4	2.6	2.8
<u>Total Contribution to Non-oil GDP</u>						
Current Prices	3.8	5.5	4.5	4.4	4.4	4.7
Constant Prices (1389/90)	3.6	5.6	5.3	5.2	5.4	5.5
	<u>1389/90-1394/95⁽¹⁾</u>		<u>1394/95-1399/1400⁽²⁾</u>			
<u>Comparative Compound Growth Rates</u>						
Total GDP	13.4		8.0			
Non-oil GDP	11.7		15.1			
Non-hydrocarbon manufacturing	11.4		15.4			

(1) Unrevised CDS data for 1394/95

(2) Revised CDS data for 1394/95

Source: Derived from CDS National Accounts data.

4.6.3.2 Agencies Involved in Non-hydrocarbon Based Manufacturing. The following agencies are involved:

<u>Agency</u>	<u>Role/Area</u>
Ministry of Industry & Electricity (Industrial Affairs) (MIE)	Established in 1396. Implementation of Government industrial policy. Regulation of industry, including licensing of projects. Provision of industrial estates.
Grain Silos and Flour Mills Organization (GSFMO)	Government corporation, established in 1392. Construction and operation of grain silos, flour and animal feed concentrate mills.
Saudi Industrial Development Fund (SIDF)	Government industrial lending agency, established in 1394. Provides loans to private sector industrial projects.
Saudi Basic Industries Corporation (SABIC)	Government corporation. Established in 1396 for the development of basic metal industries (in addition to hydrocarbon based industries).
Royal Commission for Jubail and Yanbu	Established in 1395. Provision of sites and infrastructure for basic metal industries and secondary industry parks at Jubail and Yanbu as required.
Saudi Consulting House(SCH) (formerly the Industrial Studies and Development Center –ISDC)	Government corporation. Established in 1399. Works closely with MIE/government agencies on technical and market research.

4.6.3.3 Achievements During the Second Development Plan

(1) General. A major objective of the Second Development Plan was the diversification of the economy through the expansion of the non-oil industrial sector. Industrial policy concentrated on fostering conditions favorable to industrial growth within the framework of economic freedom and free competition.

Foreign capital, skills, and technology were encouraged to participate in industrial development projects in collaboration with Saudi investors. Through a combination of government support measures and the vigor and enterprise of the private sector, considerable progress was made in non-oil manufacturing. As a result, a secondary manufacturing base of a reasonable structure was successfully established in the Kingdom.

Tables 4-35 and 4-36 indicate the progress made in the number of licensed companies and industrial projects⁽¹⁾. Between 1394 and 1398 the number of licensed companies in production rose from 285 to 687. In 1398, there were, in addition, some 282 companies with plants under construction and a further 319 companies in the planning stage of industrial venture. Development remained concentrated in the Central, Western and Eastern Regions but progress was made in the Northern and Southwestern Regions' development. The number of licensed industrial projects which was implemented, more than doubled, from 474 in 1394 to 1,092 by the end of 1398. At the end of 1398, a further 403 projects were designated as under construction and 394 projects as planned.

All product areas showed expansion particularly those serving the construction sector such as non-metallic mineral products, fabricated metal products, chemicals, plastic and rubber. The pattern of industrial lending by SIDF confirms this picture (see Section 4.6.5, Finance for Industry and Electricity, for further details).

(2) Ministry of Industry and Electricity. During 1396, the supervision and promotion of the Kingdom's non-oil industry was transferred from the Ministry of Commerce and Industry to the newly established Ministry of Industry and Electricity (MIE). The core department is the Minister's Office with the directly attached financial and administrative departments. The Minister, ex-officio, represents and supervises the Government's interests in SAFCO/Petrocid, SABIC, the investment in the Bahrain

(1) Industrial licenses are issued on a project basis, thus a company may have multi-products and multi-licenses.

Table 4-35

NUMBER OF LICENSED COMPANIES:1394 - 1398

	<u>Kingdom</u>	<u>Central Region</u>	<u>Western Region</u>	<u>Eastern Region</u>	<u>Northern Region</u>	<u>Southwest Region</u>	<u>Region not Defined</u>
<u>In Production</u>							
1394	285	103	120	52	5	3	2
1398	687	275	239	129	11	24	9
<u>Under Construction</u>							
1394	17	8	5	4	.	-	-
1398	282	110	84	65	5	12	6
<u>Planned</u>							
1394	18	6	7	4	-	-	1
1398	319	121	95	73	3	21	6

Source: MOP computerized industrial licenses file: based on Ministry of Industry and Electricity (MIE) input data.

Table 4-36

NUMBER OF LICENSED PRODUCT LINES:1394 - 1398

<u>Product Code/Description</u>	<u>In Production</u>		<u>Under Construction</u>	<u>Planned</u>
	<u>1394</u>	<u>1398</u>	<u>1398</u>	<u>1398</u>
<u>In Production</u>				
31. Food & beverages	40	85	82	71
32. Textiles, clothing	25	37	13	16
33. Wood/wood products	54	80	26	17
34. Paper/paper products	47	79	10	16
35. Chemicals, plastic, rubber	69	145	51	48
36. Non-metallic mineral products	78	388	81	115
37. Basic metals	5	9	3	-
38. Fabricated metal products	152	262	133	108
39. Other manufacturing	4	7	4	3
All manufacturing	474	1,092	403	394

Source: MOP computerized industrial licenses file: based on Ministry of Industry and Electricity (MIE) input data.

aluminum plant, and other intra-regional and international industry matters. The Minister has two Deputy Ministers, a Deputy for Electrical Affairs and a Deputy for Industrial Affairs. Each Deputy Minister controls specialist departments related to his respective sector.

The Deputy Minister of Industrial Affairs is responsible for the supervision of the following departments and committees (the latter are inter-ministerial):

Departments

Industrial Protection and Promotion
Industrial Licenses
Engineering and Projects
Industrial Estates

Committees

Foreign Capital Investment
Land Distribution in Industrial Estates
Industrial Licenses
Exemption

Under the Second Development Plan, the industrial estates program was expanded substantially with its implementation undertaken by the Industrial Affairs Division of MIE. Major expansions at new sites were at Riyadh, Jeddah and Dammam while industrial estate areas became available for the first time for industrialists in Hofuf, Qasim and, on a more limited basis, in Mecca.

At the end of 1398, some 533 warehouses and factories were occupying sites on these estates.

In total, the industrial estate areas were expanded from 2.5 million square meters to 14.0 million square meters at the end of 1400/01:

<u>Location</u>	<u>1394/95</u> (million m ²)	<u>1400/01</u> (million m ²)
Riyadh	0.45	4.95
Jeddah	1.04	4.04
Dammam	1.00	3.60
Mecca	—	0.42 ⁽¹⁾
Qasim	—	0.50
Hofuf	—	0.50
Total	2.49	14.01

(1) Not fully developed.

A new headquarters and administrative building in Riyadh was completed and handed over to the Ministry at the end of 1399. The initial establishment of an industrial information data bank was completed, including the installation of a mini-computer.

(3) Industrial Studies and Development Center (ISDC). In 1399, ISDC, which formally operated as an autonomous separately budgeted department of the MIE, providing technical and market research on industrial matters, became an independent research and consulting corporation. It was renamed the Saudi Consulting House (SCH).

(4) SABIC. Following its establishment in 1396, SABIC took over from Petromin, the latter's interests in the small-scale steel mill at Jeddah and the preliminary work that had been undertaken on establishing other basic metal plants in the Kingdom. At the end of the Second Development Plan, SABIC and its joint venture partner, Korf-Stahl of West Germany, had agreed to the construction of three steel projects: a basic direct reduction steel plant of 850,000 mty at Jubail; a rolling mill at Jubail, linked to the basic steel plant; and the modernization and expansion of the existing Jeddah steel mill. All these projects will serve the domestic market.

SABIC also continued to review the prospects for establishing other basic metal plants, and in particular, an aluminum smelter. In respect to aluminum, SABIC, on behalf of the Government, became a shareholder in the aluminum smelter located in Bahrain.

(5) SIDF. Established just prior to the start of the Second Development Plan, the industrial lending activities of SIDF gathered momentum and some SR 5.5 billion in funds were committed to 467 separate industrial projects by the end of 1398/99. In keeping with the general industrial development strategy, lending policies emphasized commercial viability and minimizing labor input. (See section 4.6.5 for further details.)

(6) Grain Silos and Flour Mills Organization (GSFMO). Established in 1392, GSFMO reached the implementation stage during the Second Development Plan with the construction and commencement of operations of four grain silos complexes and three wheat flour and animal feed complexes. This provided the Kingdom with the ability to store over six months stock of wheat, the capability of self-sufficiency in wheat flour production, and the ability to produce up to a quarter of the Kingdom's animal feed concentrate requirements. The sales of wheat flour and animal food products are at Government controlled prices, which were fixed at levels below the corporation's raw material costs. The capacities of GSFMO's facilities at the end of 1399 were as follows:

<u>Projects</u>	<u>Capacity</u>
Grain silos	320,000 tons/year ⁽¹⁾
Flour mills	449,000 tons/year ⁽²⁾
Animal feed concentrates	300 tons/day ⁽³⁾

(1) Located at Riyadh, Dammam, Qasim, Jeddah, and includes 20,000 tons/year capacity under construction at Khamis Mushait.

(2) Located at Riyadh, Dammam, Jeddah.

(3) Integrated with flour mills at above locations.

(7) Private Sector. Backed by the Government's encouragement and incentives, the expansion of the private sector is reflected in the recorded 15.4 percent compound growth contribution to GDP by non-oil hydrocarbon manufacturing. The same expansion picture is also presented by the industrial licenses and SIDF data given in Section 4.6.5.

4.6.3.4 Constraints. The constraints experienced during the Second Development Plan were: initial deficiencies in infrastructural facilities; the lack of experience in manufacturing and consequent shortage of experienced management, technical and operation staff; and, the general smallness and regionality of the Saudi market. In respect to the latter factor, over-expansion was experienced in some product areas, for example, some building materials and paper products, with the result that MIE curtailed the issue of new industrial licenses and SIDF similarly tailored its lending policies.

In recognition of the relative smallness of the Saudi market and the dangers of duplication of capacity with other neighboring countries, the Government gave support to the concept of industrial cooperation on both an inter-regional and international basis. Joint ventures were under consideration by a number of Saudi-foreign countries' joint economic commissions (e.g. Kuwait, Bahrain) and international organizations, of which the Kingdom is a member. For example, the Gulf Organization for Industrial Consulting in Doha, Organization of Arab Petroleum Exporting Countries (OAPEC), and the Arab Petroleum Investment Corporation (APICORP) were studying various cooperative manufacturing projects in both the hydrocarbon and non-hydrocarbon sectors.

4.6.3.5 Objectives and Policies.

(1) Objectives. During the Third Development Plan the following objectives will be pursued:

- To continue the growth of non-hydrocarbon based manufacturing in order to increase and diversify national income.
- To maximize the industrial development opportunities based on the natural, manpower, and financial resources of the Kingdom.
- To support geographical distribution of industry where feasible and appropriate.
- To continue to assign a major role to the private sector in the implementation of industrial projects.

- To seek the establishment or maintenance of self-sufficiency in products considered important for national security and welfare.
- To continue and intensify the participation and training of Saudis in the Kingdom's industrial sector.
- To improve the efficiency of manufacturing activities.

(2) Policies. The policies given below will be implemented:

- Continue Government participation in basic industry projects through SABIC and GSFMO.
- Continue encouragement of foreign capital and technology participation in industrial projects in collaboration with Saudi investors.
- Continue supervision of government industrial development policy by MIE along with the implementation of the various industrial incentives available.
- Continue to provide the basic industrial infrastructure and, in particular, the availability of fully serviced sites.
- Intensify the study and research effort into the identification of the following: viable industrial opportunities in respect to import substitution and products considered of strategic importance; opportunities related to the growth of other sectors such as mineral development, construction, agriculture and services; downstream opportunities related to the establishment of basic hydrocarbon and metallurgical industries.
- Review procedures at MIE and the loan appraisal work carried out by SIDF through industrial licensing, import duty exemption and foreign investment to ensure that appropriate training and technology transfer are introduced. Through the same procedures ensure that labor saving technology is employed and optimum use is made of critical resources such as water.

- Continue to explore the prospects for international industrial development co-operation both to widen the market opportunities for Saudi industry and to avoid unnecessary duplication.
- Strengthen the advisory and follow-up functions at MIE, SIDF, and the Saudi Consulting House as an aid to increasing industrial efficiency.
- Continue and update the implementation of the “Buy Saudi” publicity campaign for the general public, industrial and government buyers.

4.6.3.6 Third Development Plan Programs.

(1) MIE. The main programs will cover: the administration and implementation of the Kingdom’s industrial development policy; the maintenance of existing industrial estates; the provision of new industrial estate areas including estates for the first time at Medina and Khamis Mushait or Abha; adequate sewage and treatment plants at existing and new industrial estate areas; research and studies into improving existing industry and identification of potential industrial projects; a publicity program to increase investor awareness of investment opportunities in the manufacturing sector as well as generally improving Government and public awareness of the capabilities of Saudi industry.

(2) GSFMO. The main programs will cover: the continued operation of existing flour mills, animal feed concentrate mills, and existing grain silos. Two new grain storage, flour and animal feed mill complexes will be constructed at Khamis Mushait and Jizan. Additional grain storage capacity will also be constructed at Qasim; overall an extra 155,000 tons of grain storage capacity will be added. A number of small-scale projects to increase the efficiency and flexibility of existing mills will also be undertaken.

(3) SABIC. Outside of hydrocarbon based manufacturing, SABIC’s main programs concern the completion of the construction and subsequent operation of the SABIC–Korf Stahl steel projects. The effect of these steel projects will be to provide self-sufficiency to the Kingdom in basic steel reinforcing bars by 1403. The capacities of the steel projects are as follows:

Jubail direct reduction steel plant	:	850,000 tons/year
Jubail rolling mill	:	800,000 tons/year
Jeddah rolling mill	:	150,000 tons/year

In addition, SABIC will continue to pursue the potential for other basic metal projects, most probably, for implementation during subsequent development plans.

(4) SIDF. The basic lending policies will be continued but with greater emphasis on higher technology industries and less on basic building material products. To extend the Fund's regional coverage, the opening of branch operations will be investigated. To assist the improvement in the general efficiency of the Kingdom's manufacturing industry, wider applications of the Fund's expertise in marketing, technical services, and accounting will be undertaken (see Section 4.6.5).

(5) Private Sector. Most non-oil manufacturing growth will be implemented through the private sector with up to 50 % of funds available from SIDF for viable projects. There will be expansion of existing establishments particularly in non-construction related products. Other areas where the private sector is expected to expand are:

- (1) **Cement production:** although local production expanded from 1 million tons in 1394 to 1.8 million tons in 1398, the position of local supplies fell from 41% to 21% of demand due to the construction boom in the Kingdom. (see Table 4 - 37). Five new cement plants are planned along with major expansions at existing plants at Riyadh, Hofuf and Jeddah. (See Table 4 - 38).
- (2) **Industrial gas production:** demand for gases for air conditioning and refrigeration equipment and also at the new heavy industry centers at Jubail and Yanbu will present opportunities for new industrial gas plants.
- (3) **Intermediate petrochemical production:** opportunities are expected to arise based on the availability of basic petrochemicals. Private enterprise could, for example, undertake the production of melamine and urea formaldehyde resins based on urea production. The availability of ethylene from SABIC joint venture complexes at Jubail and Yanbu will provide the basis for a wide variety of ethylene based petrochemical products.
- (4) **Glass products:** new industrial projects may be feasible, possibly on an inter-regional basis, in flat glass and light bulbs. The former is the subject of discussion within the Saudi-Kuwaiti Joint Economic Commission, and the latter is being reviewed by the Gulf Organization for Industrial Consulting.

Table 4 - 37

KINGDOM CEMENT PRODUCTION: 1394 - 1398.
(Thousand tons rounded)

<u>Year</u>	<u>Production</u>	<u>Imports</u>	<u>Total supply</u>	<u>Production as percentage of total supply</u>
1394	1,057	1,511	2,568	41.2
1395	1,125	1,826	2,951	38.1
1396	1,143	2,795	3,938	29.0
1397	1,293	5,356	6,649	19.4
1398	1,791	6,679	8,470	21.1

Source: SAMA Annual Reports

Table 4 - 38

KINGDOM PLANNED CEMENT PRODUCTION CAPACITY: 1400 - 1405.
(metric tons per day)

<u>Plant Location</u>	<u>Status</u>	<u>Plant Capacity</u>	<u>Year</u>
Riyadh	Expansion	4,100	1400/01
Jeddah	Expansion	5,000	1404/05
Hofuf	Expansion	4,300	1400/01
Yanbu	New	3,000	1401/02
Burayda	New	2,000	1402/03
Kuwait border ⁽¹⁾	New	7,000	1404/05
Dammam ⁽²⁾	New	6,000	1404/05
Jizan	New	5,000	1402/03

(1) Saudi-Kuwait joint venture.

(2) Saudi-Bahrain joint venture.

- (5) **Metal Products.** Diversified opportunities are expected to arise in this sector related to hydrocarbon manufacture, desalination plants, and basic metal industries. Product areas will be wide, and include pipe and tank fabrication, other metal fabrication, steel wire industries, castings and forgings.
- (6) **Automotive Parts.** The growing vehicle fleets within the Kingdom and in neighboring countries are expected to present local manufacturing opportunities for replacement parts. This again is a product area where interregional cooperation will be an important feature.
- (7) **Animal Feed Concentrates.** The expansion of livestock production/herding, poultry and dairy output will increase the requirements for animal feed concentrates nationally as well as regionally.
- (8) **Building Materials.** Outside of the three major population centers, scope for establishment and expansion/modernization for building materials of all types is anticipated on a modest regional scale.
- (9) **Agro-industry.** With the expanding production/demand for vegetables and fruits, dairy products and poultry, the scope for packaging plants and even processing plants, some on a cooperative basis, will increase.

4.6.4 Industrial Complexes at Jubail and Yanbu

4.6.4.1 Overview. The development of hydrocarbon based and energy intensive industries, to convert the Kingdom's petroleum resources into high-value processed products, is a key factor in the national industrialization program. The Jubail and Yanbu complexes are essential parts of this program.

The Royal Commission for Jubail and Yanbu was created by Royal Decree M/75, dated 16 Ramadhan 1395. The organization is directly responsible to the Deputy Prime Minister. It is the sole and controlling authority responsible for planning and implementing the basic infrastructure necessary to transform the two regions of Jubail and Yanbu into industrial areas. The authority for controlling the development of the regions of Jubail and Yanbu is also vested in the Royal Commission.

The Jubail industrial area encompasses 900 square km. on the Arabian Gulf, about 80 km. north of Dammam. The Yanbu industrial area is 150 square km. in size on the Red Sea littoral, 350 km. north of Jeddah.

Royal Commission programs will cover a period of 20 years and be concerned with the provision of adequate and timely infrastructure and trained manpower at the two industrial complexes. Infrastructure includes housing, roads and other transport, public utilities, telecommunications, commercial markets, schools, medical facilities, training centers and recreational facilities. Concurrently with the development of the infrastructure of the two areas the Government has undertaken a large scale natural gas gathering project to transform associated natural gas, which was previously flared, into fuel and feedstock for the petrochemical industry (see Section 4.4.3 Natural Gas). Primary strategy in the provision of trained manpower involves the construction of training centers and the mobilization of both Saudi and non-Saudi industrial employers to train Saudi nationals in all occupations.

4.6.4.2 Present Conditions. The two areas were totally lacking in infrastructure and other amenities required to plan and execute the tasks envisaged. The initial effort in the program was to provide the housing, water supply, communications and public utilities needed to plan the infrastructure.

(1) Jubail. It is expected that in 20 years time Jubail will be a major industrial area with a population of up to 370,000 persons. Considerable progress in planning and implementation was achieved during the Second Development Plan. The scope and status of the Royal Commission's work at Jubail at the end of 1399/1400 is indicated in Table 4 - 39.

(2) Yanbu. Yanbu will be a major growth pole in the hitherto sparsely populated coastal area north of Jeddah. It is expected that at the end of the 20 year development period, Yanbu will be an industrial city of around 150,000 inhabitants. In addition to Yanbu's role in the economic and geographical diversification of the economy, it will provide the strategic advantage of major hydrocarbon export facilities on the Red Sea. The Yanbu industrial complex was formally dedicated at the end of Dhul Hijja, 1399. Table 4 -40 indicates some of the main Second Development Plan achievements at Yanbu.

Table 4 - 39

JUBAIL FACILITIES AND PROGRESS

<u>Area/Project Type</u>		<u>Activity/Status⁽¹⁾</u>
1.	Site Survey/ Preparation	Comprehensive surveys underway. Industrial sites 60% completed.
2.	Materials Handling Systems	Design 40% completed; work underway in 5 packages.
3.	Self-supporting Camps	9 construction camps completed, 1 under construction.
4.	Transport: Airport Roads	4,000 meter runway completed; other facilities under construction. 129 km. of roads and 25 Km. of modular pathways designed; 63 km. of roads completed.
5.	Industrial Parks: Support industries Secondary industry	Development plan completed and one development contract let. Master Plan completed.
6.	Electric Power	Design of power system completed
7.	Water: Potable Cooling	15,650 m ³ /day treatment capacity; 37,000 m ³ /day of storage tankage; 66 km. of con- veyance lines; 19,000 m ³ /day of desalination capacity. Seawater system design completed; some contracts let.
8.	Waste Treatment	Initial phases in operation with capacity of 6,200 m ³ /day.
9.	Public & Community Facilities: Mosque; warehouses; various service, community and recreation facilities.	Design underway. Mosques with an area of 2,450 m ² complete. 4 warehouses of 8,000 m ² completed.
10.	Training	Design completed for 74,000 m ² facility.

(1) At end of 1399/1400

Table 4-40

YANBU FACILITIES AND PROGRESS

<u>Area/Project Type</u>	<u>Activity/Status</u> ⁽¹⁾
1. Site Survey/Preparation	Comprehensive surveys underway.
2. Housing	Prefabricated temporary housing completed.
3. Offices	12,600 m ² complex completed.
4. Water	2,040 m ³ /day barge mounted desalination plant operating. 2,850 m ³ /day ground water supply.
5. Electric Power	Initial generation capacity/distribution installed.
6. Transport:	
Airport	Airport facilities with B-707/DC-8 capability completed.
Roads	20 km. completed.
Port	2 berths completed.
7. Telecommunications	2,000 telephone lines and other facilities installed.

(1) At end of 1399/1400.

4.6.4.3 Objectives and Policies

(1) Objectives. To complete the construction of the industrial and community infrastructure required by the public and private sector energy, industrial and commercial projects, which will be located at Jubail and Yanbu during the Third Development Plan; design and construct, as necessary, the infrastructure requirements for subsequent projects; increase the availability of trained Saudis for industry.

(2) Policies. Maintain close and continuous coordination with government agencies including Petromin, SABIC, Aramco, SWCC and electric power utilities and private sector investors to ensure that infrastructure is available in a timely manner for respective projects. Saudi companies will be encouraged to tender for contracts. Public and private companies will be encouraged to increase their training programs for Saudis and total manpower requirements will be coordinated by the Commission through its manpower training centers.

4.6.4.4 Third Development Plan Programs. While a significant beginning has been made in the provision of the infrastructure of the two industrial complexes, great investment in effort and funds will continue to be required during the Third Development Plan period to provide the sites, utilities, and other infrastructure for the new basic and secondary industry projects which will be located at Jubail and Yanbu.

Jubail. Major Third Development Plan programs for Jubail are outlined below.

- (1) Surveys will continue throughout the Third Plan period.
- (2) The handling systems for liquid and solid materials will provide links between the industrial port and the industrial area. Berths with solids handling facilities and berths for liquids handling will be constructed by the end of the Plan period with sufficient capacity to accommodate the primary industries in operation at that time. Pipelines and conveyors capable of transporting and loading projected shipments of solids and liquids will also be constructed.
- (3) The program to provide self supporting camps for manual and non-manual workers and dependents who are associated with the development and operation of the industrial city will be nearly completed. Facilities will be available to accommodate over 23,000 workers.

- (4) The programs to provide transport facilities during the Plan period will include: the minimum airport requirements, including completion of a terminal, taxiways, parking and cargo facilities; 32 km. of expressways; and 49.2 km. of collector and local roads.
- (5) The infrastructure provided will include electrical distribution network, and standby power sources in the form of diesel and gas turbine generating units.
- (6) While the bulk of the freshwater will be supplied by SWCC, the infrastructure for distributing the water to users within the complex will be completed. By the end of 1404-05 the conveyance system will be completed. In addition, there will be an extra capability of 77,000 cubic meters of desalted water per day provided as part of the complex, making total capacity of 100,000 cubic meters per day.
- (7) Waste water treatment capacity, the sanitary landfill and solid waste collection system will be expanded. By the end of 1404/05, 31,250 cubic meters per day of industrial wastewater treatment capacity and 36,000 cubic meters per day of permanent sanitary wastewater treatment capacity will be in place. The conveyance lines serving the primary and secondary industrial areas will be in place.
- (8) By the middle of 1404, facilities capable of supplying seawater for cooling purposes will be provided to all primary industries.
- (9) A single integrated telecommunications system will serve the greater Jubail area including the industrial zone, community, ports and airports. It will augment the existing Eastern Province system and the link with the national network. By the middle of 1403, a 15,000 line network will be in place, together with microwave transmission facilities to link with the intra-Kingdom network.
- (10) A manpower training program, aimed at developing the construction and building skills and professional, operations and managerial abilities of young Saudis, is an essential part of the Jubail project. While an interim training facility is now operational, a large permanent training center, planned to graduate about 1,500 students each year by the end of the Third Development Plan period, will be in full operation by 1403.
- (11) Masterplanning and major design of the community facilities will be started early in order to interface with infrastructure design and establish a reasonable lead time between engineering and construction. The design of site development

for about half of the city's area will be completed by 1405. Site development, including the local streets, sewerage, water, power and telecommunications distribution networks will prepare the different zones for housing and facilities construction and cover approximately 1,400 hectares by 1405.

- (12) By the end of the Third Development Plan period, there will be approximately 500 housing units located mostly in Districts B and D, and housing construction will be ready to start in District F. In the earliest phase it includes the construction and maintenance of 1,737 units. Thereafter, the private sector will be invited to participate in housing construction in a properly phased way.
- (13) Masterplanning for the Government center, sports complex, the community commercial center, and other facilities located around the bay will be essentially completed and design will be underway by 1405. Construction will have started for on-site development in that area, as well as for the Eid Mosque.
- (14) Throughout the two southeastern districts, supporting facilities will be completed in a phased manner to serve the early population. These will include: community development centers in sector and neighborhood centers, fire and police stations in each district, kindergartens and schools for Saudi boys and girls, sector clinics, a large mosque in each district center, smaller mosques in the neighborhoods, libraries, assembly halls and a 200 bed hospital in District B.
- (15) Facilities to meet the commercial needs of the population will be provided in the neighborhood and sector centers in the first district center, while the second district center is being completed. It is planned that, as early as feasible, the private sector take the lead in the development of these centers.

Yanbu. The major effort to the end of 1399/1400 was to complete the construction support facilities. Sufficient progress has been made so that remaining tasks can proceed concurrently with the provision of the infrastructure for the industries and their employees expected to locate there. The overall programs have been separated into six major groups. These are:

(1) Public Works

- The system to collect and dispose of about 300 tons of solid waste per day will be in operation by the middle of 1403. There will be two liquid waste collection and treatment systems. A 26 km. conveyance system will collect sewage for treatment at a 27,000 cubic meter capacity treatment plant to be completed in 1402/03.

- Industrial waste water will be collected by an 11 km. collection system. The treatment system will be in two stages. The initial treatment will take place at each industrial plant. The final treatment of the liquid waste will be done at a 35,000 cubic meter per day capacity plant to be constructed. This is targeted for completion in 1403/04.
- In order to provide Yanbu with safe and effective road transportation, personnel and haul roads linking all the key construction sites to the residential camps and the temporary port facilities will be constructed. This will relieve the traffic load on the existing Yanbu-Jeddah highway. Thirty kilometers of the existing Yanbu-Jeddah road will be expanded from a two-lane to a six-lane divided highway by the middle of 1402. The remainder of the road construction program will include: 31 km. of community arterials to be completed by mid-1403, 7 km. of airport roads to be completed by mid-1401 and the requisite industrial zone roads to be completed by mid-1402.
- Other important public works projects include a flood control program to be completed in 1401/02 and land grading of the community area and industrial zones. Both of these will be finished in the first year of the Plan period. This will be part of the program to provide 320 hectares of land complete with utilities for plants to be constructed by the private sector. The work will be completed in 1402.

(2) Water and Power

- Potable water requirements will be met by expanding the existing desalination plants. Total capacity is expected to be 64,100 cubic meters per day in 1403/04.
- The programs to provide power generation include two gas turbine units to be augmented by multi purpose steam turbine units. By the end of the Plan period generating capacity will total 930 MW. Ancillary electric power transmission and distribution works will proceed as required. It is expected that this will require 200 km. of transmission cable by the end of the period.

- A seawater cooling system will be developed to accommodate the power generation, desalination plants and industries. A 450,000 cubic meters per hour system is envisaged to be in place by 1401/02 although extensions of the system will be required beyond that date to serve individual plants.
- (3) Telecommunications. The telecommunications program will provide an integrated system for both the construction effort and the permanent community. The initial system will provide CATV with 12,000 connections and a 2000 mobile radio system by the middle of 1403. Telephone and telex systems with 18,000 and 100 exchange line capacities, respectively, will be provided in 1404.
- (4) Port. Three general purpose berths required by the industrial city will be in place by the end of 1401/02. The program will be completed by 1403/04 when 12 berths will be completed. The hydrocarbon industries will provide the berths and other facilities required for their own purpose.
- (5) Airport. During the Third Plan period, additional works will consist of a cargo facility with appropriate loading/unloading docks.
- (6) Community. The community works required include facilities to house the permanent workers at the complex; educate their children; provide health, religious and recreation needs; and provide space for the requisite administrative offices and commercial establishments. It is proposed to let the private sector provide these to the extent appropriate and possible. In order to undertake the community development program a master plan, urban design and health care study are now underway and will be completed in 1401/02.
- The housing requirements represent of necessity, the first priority. The Government proposes to act directly in the provision of housing: of the 12,000 dwelling units expected to be constructed, the Government will provide 25–30%, and the private sector the remainder.
- The public and commercial requirements will be met, to the extent possible, by the private sector. This includes the areas of religion, education, health, offices, recreation and commerce.

- A large number of schools will be located in the residential areas to provide easy access to the school population. Emphasis will be put on special facilities such as the Human Resources Development Institute, which will be established to ensure the availability of adequately trained managerial, supervisory and skilled manpower.
- A 60-bed “emergency” hospital facility is already provided within the temporary community. A health service study has been initiated in order to establish not only the type of physical facilities that will be required, but also to determine the institutional and operational aspects of health services delivery. The permanent community will have a 300-bed hospital constructed when use of the 60-bed hospital begins to approach capacity.
- Local mosques will be provided within each of the residential areas.
- Recreation and landscaping will enhance the qualities of the natural environment by creating an attractive waterfront for town residents and by creating a number of public parks. A water recycling system is planned to provide irrigation from the sewage treatment plant.
- The Yanbu community development plan provides for a large number of commercial services to be provided by the private sector including hotels, retail facilities, services, private offices and light industrial activities. Guidelines, within which such developments are taking place, on designated sites, are being developed.

4.6.5 Finance for Industry and Electricity

4.6.5.1 Overview. The Saudi Industrial Development Fund (SIDF) is one of the principal government agencies responsible for promoting the development of private industry. It provides interest free loans of up to fifty percent and one hundred percent of capital to manufacturing and electric companies respectively. At present, a service charge of between two and three percent is levied on industrial loans to cover administration costs. To support its lending activities the Fund provides technical and managerial advisory services for its clients. Organizationally, it is responsible to the Ministry of Finance and National Economy (MOFNE) but has its own board of directors.

The Fund was established by Royal Decree in 1394 with the objective of supporting industrial development in the Kingdom through the provision of medium and long term loans and advisory services. Since then, in response to the large and increasing demand for industrial loans, the Fund's capital has increased from SR 500 million to its present level of SR 5 billion. In 1395, to facilitate the development of the electricity industry, the Fund was charged with the additional responsibility of financing private electric utility companies through the management of a special allocation of funds from the Government, which now stands at SR 19 billion.

4.6.5.2 Present Conditions. To meet the challenges offered during the first five years of operation, the SIDF increased its annual lending from SR 200 million in 1394/95 to nearly SR 7 billion by 1398/99.

(1) **Industrial Lending.** Since its inception, the SIDF has played a major role in developing the non-oil sector. More than 85% of manufacturing companies licensed during the period applied to the Fund for loans. Between 1394/95 and 1397/98 the cost of projects to which the Fund had committed loans accounted for over one third of total private non-residential investment. It has been estimated that in 1396/97 the Fund disbursements alone accounted for over 50% of private non-oil manufacturing investment. In terms of value added, when all industrial projects finalized to date reach full capacity, the annual contribution to GDP will be over SR 5.4 billion, far greater than the total contribution from the manufacturing sector prior to the Fund's establishment.

As can be seen from Table 4 - 41, not only has the Fund experienced a rapid growth in the number and value of loans made, it has also experienced extensive changes in the type of projects financed. Fifty-four percent of loans made during the period were for construction sector related projects. In the early years of the Plan, interest focused on basic building materials, but more recently applications have reflected the growing sophistication of the sector: pre-cast concrete, prefabricated buildings, clay bricks and steel construction related products. Consumer oriented, particularly food related projects, have consistently increased their share of Fund lending. These include dairy products, bakeries, meat packing and processing, and soft drinks and healthy water plants. Other major developments in which the Fund has been involved include paper products, textiles, furniture, and electrical products. In early 1400, the terms of reference of the Fund were extended to include loans for cold stores.

Table 4-41
SAUDI INDUSTRIAL DEVELOPMENT FUND
STRUCTURE OF INDUSTRIAL LOANS COMMITMENTS
(Current Prices)

	<u>1395/1396</u>		<u>1396/1397</u>		<u>1397/1398</u>		<u>1398/1399</u>		<u>1399/1400⁽¹⁾</u>		<u>Total</u>		<u>Applications Backlog</u>	
	<u>No.</u>	<u>SR m</u>	<u>No.</u>	<u>SR m</u>	<u>No.</u>	<u>SR m</u>	<u>No.</u>	<u>SR m</u>	<u>No.</u>	<u>SR m</u>	<u>No.</u>	<u>SR m</u>	<u>No.</u>	<u>SR m</u>
Food & beverages	8	101	3	31	18	218	26	159	8	52	63	561	26	434
Textiles & clothing	3	47	-	3	-	-	1	21	-	-	4	71	11	59
Wood & wood products	4	12	4	31	3	6	-	6	2	8	13	63	8	94
Paper & paper products	1	6	6	47	7	74	7	41	-	-	21	168	5	46
Chemicals & chemical products	14	66	19	321	17	75	14	194	6	43	70	699	27	207
Ceramics, glass products	-	-	4	72	2	31	2	11	2	12	10	126	5	44
Cement	1	360	-	-	4	863	-	-	-	-	5	1,223	-	-
Other building materials	17	174	68	506	51	484	40	404	14	491	190	2,059	9	997
Basic metal products	9	202	16	88	20	183	16	124	9	75	70	672	14	165
Machinery & equipment	8	60	10	77	14	154	4	25	6	40	42	356	13	142
Other	-	-	4	73	-	1	1	2	1	2	6	78	-	-
Total	65	1,028	134	1,249	136	2,089	111	987	48	723	494	6,076	118	2,188

(1) First half year

Note: Value figures include loans made for extensions, whereas number of loans are new projects. Value figures are expressed in SR millions.

Source: SIDF Annual Reports

Owing to their generally greater degree of capital intensity and higher level of technology, projects financed by the Fund have indicated significantly higher levels of productivity compared to the traditional manufacturing sectors. As a result, whereas the potential contribution to GDP doubled, the envisaged growth in employment only about 40%.

(2) Electricity Loans. Over the last five years a total of SR 12.6 billion has been disbursed to finance all aspects of electricity investment: construction, expansion, generation, transmission and distribution. As a result, an additional 6,400 MW will come on stream in the next 4 years. Table 4 - 42 shows the structure of loan commitments over the Second Plan period.

Table 4-42

STRUCTURE OF ELECTRICITY LOAN COMMITMENTS
(SR million current prices)

<u>Project Type</u>	<u>1395/96</u>	<u>1396/97</u>	<u>1397/98</u>	<u>1398/99</u>	<u>Total</u>	<u>Percent</u>
Generation	1,050.0	828.7	2,745.5	1,740.2	6,364.4	38.6
Transmission & distribution	906.0	1,145.1	3,250.6	3,537.5	8,839.2	53.5
Buildings	69.8	148.4	300.8	106.1	625.1	3.8
Equipment	20.6	51.2	67.4	28.7	167.9	1.0
Other	29.1	47.3	23.5	414.1	514.0	3.1
Total	2,075.5	2,220.7	6,387.8	5,826.6	16,510.6	100.0

Source: SIDF Annual Reports

The most significant feature has been the declining importance of loans for generation in favor of lending for transmission and distribution. The heavy commitment toward high voltage transmission is a major advance in electrification as it will permit the installation of larger and more efficient generating units, improve the reliability and security of the system and facilitate integration of SWCC power/desalination plants into the electricity network. Expected levels of financing for the electricity sector are presented in section 4.4.8.

(3) Problem Areas. The major problems facing the Fund in its lending policy and assessment of project viability tend to be those affecting the performance of the manufacturing sector as a whole. In addition, for small manufacturing ventures it is difficult to raise loan capital by borrowing from the Fund as its lending is directed primarily towards medium and large scale projects. The Fund's term of reference do not permit the financing of mineral exploration projects.

4.6.5.3 Objectives and Policies. The principal objective is to foster a pattern of industrial development appropriate to the needs of the economy and one which will encourage Saudi companies to exploit viable new industrial opportunities and upgrade existing ventures, thus improving product quality and increasing the Kingdom's ability to compete in world markets.

To these ends, special encouragement will be given to investment in industries, based on local raw materials, those introducing new technology and labor saving techniques to the Kingdom and those projects which support manufacturing activity, especially maintenance, service and repair projects. Particular attention will be given to promoting the development of agro-industry, mineral based projects, and downstream projects linked to the establishment of basic industry. Loan support services and market, financial, and economic feasibility studies for keeping borrowers and potential investors fully apprised of investment opportunities within the Kingdom will be continued.

4.6.5.4 Third Development Plan Programs. Although the absolute number of loan applications will continue to fall, projects will generally be larger and more sophisticated. As a result it is anticipated that industrial lending will increase to SR 10 billion over the next five years compared to SR 6 billion in the Second Plan. Electricity finance will continue to be disbursed in accordance with Government policy. Sections 4.4.8 and 4.6 outline the Third Plan development of the electricity and industrial sectors in more detail.

During the Third Plan the Government industrial funding agency will increasingly assume the role of a development agency in addition to its present rather narrower role of lending institution. In addition to commercial viability, economic and social aspects of projects will receive greater consideration in future feasibility studies, and attention will be given to locational aspects of projects. Consultancy and advisory functions will be strengthened.

Emphasis in industrial lending will significantly change in the Third Plan. Generally fewer, but larger loans will be made. Eighty loans per year are planned at an average value of SR 25 million. In response to the dynamic nature of the economy, the share of loans for building related projects (such as construction materials) will diminish while the proportion of loans made to higher technology industries, such as those associated with downstream development of the hydrocarbon industry and the secondary industry planned at Jubail and Yanbu, will increase.

A significant expansion in lending is also planned for consumer oriented projects, particularly in the food and food processing sector. In terms of regional distribution, more emphasis will be given to projects in rural areas. Concerning electricity, there will be a continued emphasis on lending to projects concerned with the distribution and transmission aspects of investment.

The major programs proposed for the next five years are summarized below.

(1) Lending Activities. In response to a growing demand for small business finance, a new department will be established to provide loans for viable and competitive small businesses, irrespective of sector of operation. The new department will also provide an industrial extension service to small investors. In addition, to support the Government's policy of economic diversification, lending to joint venture mineral companies undertaking exploration programs for commercial mineral will be permitted.

(2) Loan Follow-up and Project Identification. During the Third Plan greater emphasis will be given to positive loan follow-up and the provision of more loan support activities. Advisory services in the fields of finance, marketing and production will continue, with additional services introduced in the areas of personnel, stock control and budgeting. In conjunction with other agencies concerned with industrial development, studies will be undertaken to define sectors for industrial investment and provide a series of pre-feasibility studies for present and future industrial investment opportunities.

(3) Information Services. To complement the activities of the Ministry of Industry and Electricity, a comprehensive information service for existing borrowers and potential investors will be organized to accommodate enquiries concerning, among other things, Government plans, statistical information, market data, regulations, sources of raw materials and supplies and Government tenders. This work will be undertaken in close association with the Private Sector Unit of the Ministry of Planning.

(4) Regional Representation. To increase the availability of industrial finance and encourage a wider regional dispersion of lending, branch offices will be established in Jeddah and Dammam.

(5) Training. With the increasing complexity and sophistication of projects, highly trained and experienced manpower will be required. Accordingly, more staff will be sent on training courses to improve management, and staff training schemes will be included in loan agreements.

4.7 CONSTRUCTION

4.7.1 Overview

4.7.1.1 The construction industry is almost entirely in the private sector. It is made up of diverse units, varying in size from very large local and foreign companies, with the latter often in joint operation with local companies, to small loosely organized builders constructing houses or other minor works. This composition is expected to continue, with local contractors assuming an increasingly greater role in this important sector.

4.7.1.2 During the decade from 1379 to 1389, the construction industry grew at an average annual rate of 12%, had 19% per year average growth during the First Development Plan, and about 18% per year during the Second Development Plan. In 1399/1400 the industry contributed 21% of non-oil gross domestic product.

Most construction materials and labor are imported, although local firms produce some materials, notably, cement and cement products.

4.7.2 Present Conditions

4.7.2.1 Capacity. During the latter years of the First Development Plan period, construction capacity in the Kingdom increased very substantially. Capacity is defined as total use of all of the Kingdom's technology, goods and equipment, services, and labor to perform civil, general or industrial construction. It expanded an estimated 90% from 1394 to 1395, and a further 67% in 1396. Since then capacity has not been fully utilized due, first to transport constraints and, later to delays in letting and administering contracts.

4.7.2.2 Efficiency. In 1396, there were 215 large scale contractors with a work volume exceeding SR 10 million (1397 prices) in operation in the Kingdom. About 70% of these larger firms were foreign. In addition, an estimated 4,200 small Saudi contractors were doing business. As in most countries, contracting firms vary in efficiency. Some are very efficient and employ a high level of technology, while at the other extreme are those which are very labor intensive. The situation is changing rapidly, however, and it is estimated that the overall level of productivity has increased at a minimum of 3% per year during recent years. It has, however, exceeded this very markedly in some types of construction.

During the early portion of the Second Development Plan period, the construction industry was impeded by significant logistical constraints, most severely in transport. Inadequate port facilities and low productivity at the ports were major problems, but they had been overcome by the end of the Second Development Plan period. The highway system also proved inadequate for appropriate regional distribution within the Kingdom; this was true not only in terms of capacity but also of roadway strength. Lack of enforcement of axle load limits and inadequate maintenance contributed to the difficulties. The last two problems have been largely corrected and further improvements will take place with expansion of the roads system during the Third Development Plan.

4.7.2.3 Labor Force. While construction labor has always been imported into the Kingdom, additional sources of labor had to be developed to meet requirements. According to estimates for 1399/1400, construction labor totaled 330,100 and comprised 13% of the labor force. This was 92% more than in 1394/95 when construction labor totaled 172,300 and was 10% of labor force.

4.7.2.4 Construction Costs. There is no widely accepted index of construction costs in the Kingdom. Shown below, however, is the change in construction prices as indicated by the deflator used for this sector in the calculation of the Gross Domestic Product. This data clearly indicates the effect of the constraints experienced in the industry in pushing up costs during the first two years of the Second Development Plan period. Subsequent action taken by the Government to alleviate these problems has since reduced the construction cost inflation rate to about the world level.

Table 4 - 43

OVERALL CONSTRUCTION COST PERCENTAGE CHANGE FROM PREVIOUS YEAR

1395/96	+ 53
1396/97	+ 28
1397/98	+ 13
1398/99	+ 7
1399/1400	+ 10 ⁽¹⁾

(1) Preliminary estimate.

Source: MOP.

4.7.3 Objectives

4.7.3.1 Objectives of the Third Development Plan are:

- (1) To encourage the development of a technically and managerially efficient Saudi national contracting industry;

- (2) To improve the construction materials manufacturing industry;
- (3) To encourage the formulation of a means to disseminate construction information.

4.7.4 Third Development Plan Programs

4.7.4.1 The backlog of construction works representing infrastructure, government buildings, and private sector construction has largely been met. While the industrialization programs will require a major construction effort, it cannot be expected that construction volume will increase as during the Second Development Plan. The most significant trend will be the continuing shift towards the use of local contractors.

4.7.4.2 Construction expenditure including defense, other government, and private sector programs is expected to total about SR 440 billion in constant 1399 prices during the Third Development Plan period.

4.7.4.3 The construction industry labor force is expected to decrease from 330,100 in 1399/1400 to 245,000 in the last year of the Third Development Plan period, when it will make up 9% of the labor force. Increased productivity will contribute to this decrease.

4.7.4.4 Efforts to encourage the use of Saudi contractors will continue. A major step in this direction will be to encourage division of large contracts into smaller parcels. Unless the local contractors are able to execute the work efficiently, the danger of increasing project costs is inherent. However, this danger can be minimized by the government contracting organizations awarding contracts to Saudi organizations which are:

- (1) Full financial, technical and managerial partners with foreign firms;
- (2) Combinations of small Saudi contracting companies which may subsequently merge;
- (3) Specialized in maintenance, electrical work, and other activities.

4.7.4.5 Government organizations will also encourage design engineering and architectural firms to develop designs which are adapted to the Saudi environment rather than accepting those of developed areas. This need is quite apparent in areas such as housing, building, and transport facilities but also applies to materials and work methods.

4.7.4.6 As more facilities are put in place, operation and maintenance expense will become an increasingly important area of activity. It will comprise about one-sixth of total project expense of non-military government programs during the Third Development Plan period. It is imperative that government organizations design their works so that operations and maintenance costs are kept to a minimum. This is also true of the installation of the works themselves. Close supervision of construction must be an accepted norm in all construction projects.

4.7.4.7 The availability of construction resources is not a problem. Local cement and reinforcing bar production will, for example, be substantially increased. A principal factor impeding efficient production is the lack of managerial and technical expertise. Often the smaller firms are unaware of the need for assistance in these areas. Existing government organizations (e.g. SIDF), which are involved in these areas, will increase their efforts to provide managerial, technical, and marketing advice as well as financial assistance to the manufacturing firms in the construction materials industries.

4.7.4.8 There is a need for more information and coordination in the construction sector in the Kingdom. This does not necessarily mean another governmental body. One of the publishing companies in the private sector could establish a "trade" journal to provide this type of information which would include: pending construction contracts, construction techniques, case histories of construction works and sponsor conferences. Such methods to improve information dissemination will be actively pursued.

4.7.5 Construction Resources Required

Table 4 - 44 provides estimates of construction material requirements in the Third Plan period. They are derived from the programs of the Government, including estimated outlays by the military, and estimates of private housing, office, retail, wholesale, and industrial plant construction. Annual estimates and summations of the materials required for each project were made. Deviations from the project time schedule, size and design of projects as now envisaged will obviously affect the validity of these estimates. All estimates should be regarded as indicative rather than firm.

Table 4 - 44
**ESTIMATES OF SELECTED CONSTRUCTION MATERIAL REQUIREMENTS
FOR THE THIRD DEVELOPMENT PLAN PERIOD**

<u>Material</u>	<u>Quantity</u>
Cement ⁽¹⁾	68.00 million metric tons
Steel reinforcing bars	10.00 million metric tons
Asphalt	13.00 million metric tons
Aggregates	286.00 million cubic meters
Concrete blocks/tiles	31.00 million metric tons
Concrete pipe	0.58 million metric tons
Asbestos cement pipe	0.64 million metric tons
Architectural stones	2.60 million metric tons
Structural steel	2.40 million metric tons
Steel pipe	50.00 million metric tons
Sheet metal	3.50 million metric tons
Aluminum, (fabricated)	0.17 million metric tons
Lumber	9.00 million cubic meters
Glass	0.34 million metric tons
Drywall, acoustical ceiling ⁽²⁾	36.00 million square meters
Insulation ⁽²⁾	0.38 million metric tons
Paints and sealants	133.40 million liters
Membrane roofing	42.00 million square meters

Note: (1) Includes cement used to manufacture blocks, slabs tiles.

(2) Represents potential requirement since these products are not installed in all houses and buildings.

Source: MOP estimates.

4.7.6 Domestic Production Capability for Building Materials

Table 4 - 45 shows estimated domestic production capacities for selected construction materials during the Third Development Plan. The capacities shown should be regarded as minimum estimates since they exclude self-financed capacities for which reliable data are not available. Even given this limitation, the indicated gaps between requirements and capacities suggest scope for further expansion of domestic production capabilities.

4.8 COMMERCE AND SERVICES

4.8.1 Overview

4.8.1.1 The activities of the commercial trades are concerned with facilitating the flow of goods and services between the producers and consumers of raw materials, intermediate goods and final products. They include: wholesaling and retailing, storage, hotels and restaurants, distribution, financial and business services, and personal and community services.

4.8.1.2 Since 1396 the Ministry of Commerce has been the executive agency responsible for coordinating and supervising the Kingdom's non-oil foreign and domestic trade. A major part of its duties is discharged through the constant monitoring of the commercial sector to eliminate import shortages and ensure that the Kingdom is adequately supplied with the products and services it requires. In this role the Ministry is supported by the Chambers of Commerce and Industry and a number of other government ministries whose responsibilities interface with those of the Ministry of Commerce.

4.8.2 Present Conditions

4.8.2.1 Sector Development. The importance of the commercial trades to the development and well-being of the economy has been significant. With the exception of the oil sector, they have traditionally accounted for the largest share of gross domestic product. In 1382, their share was approximately 8.5% and by 1389/90 this has increased to 20%. Despite having more than trebled in size over the previous five years, by the end of the First Plan their share of GDP had fallen to 18%. In terms of the non-oil economy, however, commercial trades and services maintained their combined share over the period at approximately 44%.

Table 4-45

**ESTIMATED DOMESTIC PRODUCTION CAPACITIES OF SELECTED
CONSTRUCTION MATERIALS DURING THE THIRD DEVELOPMENT PLAN**

A. Planned effective capacity

Cement	32.00 million metric tons
Steel reinforcing bars	3.00 million metric tons
Asphalt	8.00 million metric tons

B. Effective capacities ⁽¹⁾ of other manufacturing plants for which Government has provided financial assistance

Aggregates	35.00 million cubic meters
Concrete blocks/tiles	4.76 million metric tons
Clay bricks	0.08 million metric tons
Red bricks	0.06 million metric tons
Sand lime bricks	0.83 million metric tons
Other bricks	0.35 million metric tons
Precast concrete elements	0.19 million metric tons
Precast concrete slabs	0.60 million metric tons
Pipes (cement, clay, etc)	20.00 million metric tons
Asbestos sheets	0.42 million metric tons
Marble	0.42 million metric tons
Architectural stone	10.00 million tons
Paints	75.00 million liters

Note: (1) Regard as a minimum, since non-government financed capacity is not included.

Source: MOP estimates

In the past, and still to a very large extent today, almost all of the Kingdom's supplies have had to be imported. The increase in public sector expenditure over the past decade resulted in a dramatic upsurge in aggregate domestic demand. In the absence of a well developed industrial sector, great strain was put on the commercial trades which were those responsible for supplying, financing, and distributing the Kingdom's import requirements. See Table 4-46.

Table 4-46

VOLUME OF SAUDI ARABIAN IMPORTS

(Million tons)

	<u>1390</u>	<u>1395</u>	<u>1397</u>	<u>1399⁽¹⁾</u>
Cement	0.5	0.7	5.5	11.1
Iron & steel pipes	0.2	0.4	1.8	1.5
Vehicles	0.1	0.2	0.5	1.4
Food	1.0	1.0	2.3	2.4
Other cargo	0.4	0.8	4.1	7.6
Total	2.2	3.1	14.2	24.0

(1) Estimated.

Source: MOP estimates based on CDS data.

The initial inadequacy of commercial infrastructure and port facilities to meet the increased levels of activity, combined with a number of other factors, resulted in rates of inflation which, however temporary, were unprecedented by previous experience.

Despite its initial unpreparedness, the commercial sector was quick to respond. Between 1394/95 and 1399/1400 the sector's combined contribution to GDP grew by more than 18% a year. Table 4-47 quantified the performance of the individual commercial sectors over the Second Plan period.

Table 4-47

CONTRIBUTION TO GROSS DOMESTIC PRODUCT

(Constant 1399/1400 prices, SR millions)

<u>Sector</u>	<u>1394/95</u>	<u>1399/1400⁽¹⁾</u>	<u>Second Plan Annual Growth (Percent)</u>	
			<u>Actual</u>	<u>Target</u>
Wholesale, & retail trade, hotels & restaurants	6,439.1	17,447.1	22.1	15.0
Transport, storage, communications	7,756.1	20,227.5	21.1	15.0
Banks, insurance & real estate	7,137.8	13,144.2	13.0	15.0
Personal & community services	2,741.3	5,257.3	13.9	14.0
Total	24,074.3	56,076.1	18.4	14.0

(1) MOP estimate

Source: Ministry of Finance: CDS

Parallel to the response of the private sector, the Ministry of Commerce was undertaking a comprehensive anti-inflation program. As a result of this, and other complementary measures undertaken by the Government, and with the efforts of the private sector to supply the Kingdom's requirements, the annual rate of inflation fell from over 30% in 1395 to under 10% in 1400.

4.8.2.2 The Distributive Trades. The structure of the wholesale and retail trade is dominated by a large number of very small establishments. It has been estimated that nearly 65% of employees are engaged in small establishments employing less than four persons. Despite this, these firms generate only 45% of trade revenue. In terms of value-added, the wholesale and retail trades contributed 6.1% of GDP in 1394/95 which increased to 10.5% in 1400.

The wholesale and retail trade sectors are typified by low levels of labor productivity. Several reasons contribute to this. In 1396 the ratio of fixed assets per employee was 30% lower than the average for the non-oil sector. Although there has been a rapid growth in the more capital intensive supermarket and cash and carry systems, traditional sales methods are still more prevalent. A dominant feature of the trade sector is its heavy reliance on franchises and lack of trade specialization. Nearly 50% of wholesalers deal in both food and nonfood items. As a result, management is spread over many products, no detailed product knowledge develops and inventories become difficult to control. The scarcity of well qualified and experienced managers, and the large number of owner-traders together explain the low level of management expertise within the sector. Finally, wages are extremely low, in 1396 the level of wages in this sector was 40% below the average. Consequently, good quality staff is rarely recruited.

Although a deficit in warehousing facilities still exists, the situation is rapidly changing. Four public sector warehouses were established in Riyadh, Jeddah, Dammam and Yanbu each with a capacity of 20,000 tons. Other warehouses are being planned in a number of cities in cooperation with the Ministry of Municipal and Rural Affairs.

Since 1399, cold stores have not been required to obtain industrial licenses, commercial registration was sufficient. As a result, over 50 projects have been authorized by the Ministry of Commerce. When completed, these stores will provide an additional 300,000 tons of cold store capacity. By the end of the Second Plan over half of this capacity was operational. The Saudi Arabian Agricultural Bank, and more recently, the Saudi Industrial Development Fund provide loans for the construction of cold store warehouses.

4.8.2.3 Hotels and Motels. As a result of the large investments made by the Government in the early years of the Second Development Plan, the number of businessmen visiting the Kingdom increased rapidly. Combined with the large inflow of foreign workers, a great strain was put on the Kingdom's hotel industry.

In response to this situation, the Ministry of Commerce was charged with promoting hotel development and regulating hotel charges. A number of policies was introduced to encourage a comprehensive development of hotels. These measures included the granting of financial incentives to the hotel sector including the provision of loans up to 50% of the capital cost, hotel licensing and classification, and the sponsoring of Saudi Arabian students for training in the hotel trades abroad.

In addition, in 1396 the Government approved the formation of the Saudi Hotels and Tourist Resorts Corporation, financed jointly by the public and private sectors. The Corporation is responsible for building, leasing and managing hotels, restaurants and rest houses, either independently or in partnership with private companies.

The strategy was successful. Before 1395 the Kingdom's hotel industry comprised 64 establishments with just over 5000 hotel rooms. By 1399, the industry had more than doubled in size. Table 4-48 shows the development during the Second Plan.

Table 4-48

HOTELS AND HOTEL ACCOMMODATION

<u>Region</u>	<u>Pre-1395</u>	<u>1395</u>	<u>1396</u>	<u>1397</u>	<u>1398</u>	<u>1399</u>	<u>Licenses issued and outstanding and hotels under construction.</u>
Central	9	11	16	17	20	24	44
Eastern	6	6	7	11	17	23	24
Western	43	50	58	60	65	69	24
Northern	3	3	3	3	3	3	2
S. Western	3	3	3	4	5	6	7
Total	64	73	87	95	110	125	101
Total rooms (cumulative)	5,010	5,492	6,812	7,469	9,546	12,322	20,843

The number of licenses outstanding indicates that the hotel industry is continuing to expand. From a situation of acute shortage during the Second Plan period, the hotel industry is now faced with over-capacity, particularly in the Western and Eastern Regions where room occupancy rates are already very low.

Although most of the major international hotel chains are represented in the country, the extent of their direct investment is limited. Most hotels are owned and financed by Saudi citizens although the hotel chains operate under management contracts.

4.8.2.4 Business Services. In response to a growing demand for insurance services, the insurance industry has rapidly expanded during the Second Plan. By 1400 many major international insurance companies will be represented either directly or through local agents. It has been estimated that approximately ten companies were in operation in 1395 which, although operating as offshore companies, were incorporated entirely with Saudi capital.

In 1399, the Kingdom's first investment service company was established in Jeddah to provide a direct link to international security markets, particularly London and New York.

Although the number of professional services companies continues to grow, there are as yet, no regulating boards in operation.

Some of the most important developments within the financial and business service sector have been accomplished by the commercial banks. These are dealt with in Section 4.9.

4.8.2.5 Problem Areas. Despite the general level of success in the development of the commercial trades during the last five years a number of problems were experienced. Poor quality management, particularly financial and marketing, low productivity, also affected by unclear regulations and procedures, were the most important negative factors.

A number of projects scheduled for the Second Plan were not implemented. These include the establishment of a commercial information center, a study of the financial and business service sector, and a comprehensive study of the need for, and organization of the Saudi insurance industry.

4.8.3 Objectives and Policies

4.8.3.1 Objectives. The overall objective for the commercial trades during the Third Plan is to foster the development of the commercial sector in accordance with the needs of the economy and to achieve this end with maximum efficiency. In so doing, particular attention will be given to maintaining an adequate flow of supplies to the Kingdom, providing necessary and appropriate support to the producing sectors; and protecting the interests of the individual.

4.8.3.2 Policies. Greater attention will be given to raising productivity levels and fostering the growth of constructive competition. Export oriented industry will be promoted as will a wider dispersion of business ownership through the promotion of joint stock companies. Government agencies concerned with regulation and promotion of the commercial sectors should ensure that their role and structure keep pace with the changing profile of the commercial sector while continuing to protect the interests of both business and consumers through their regulatory and monitoring responsibilities.

4.8.4 Third Development Plan Programs

4.8.4.1 Highlights. Whereas the Second Plan witnessed fast expansion of the commercial sector, the Third Plan will give more attention to consolidating its organization and structure. The rate of economic growth during the next five years will result in a much more competitive environment, particularly for the distributive trades, hotels and restaurants. Therefore, it is expected that greater attention will be given to raising productivity levels, improving management expertise and increasing the degree of specialization. There will be less scope to disguise inefficiencies in high markups and profit margins. Indeed in some fields, particularly hotels, some degree of overcapacity is already present. These trends will be reinforced with the dispersion of business ownership. With greater accountability to public shareholders more awareness and concern for efficiency will be engendered.

4.8.4.2 Target growth. The forecasted levels of employment and GDP for the commercial services sector for the end of the Third Plan are given in Table 4-49.

Table 4-49

FORECASTED GROWTH: COMMERCIAL SERVICE SECTOR

	<u>Gross Domestic Product</u> (SR million in constant 1399/1400 prices)			<u>Employment</u> (Thousands)		
	<u>1399/1400</u>	<u>1404/05</u>	<u>Annual Growth (Percent)</u>	<u>1399/1400</u>	<u>1404/05</u>	<u>Annual Growth (Percent)</u>
Wholesale, retail & hotels and restaurants	17,447	26,136	8.4	310.6	339.6	1.8
Transport, storage & communications	20,228	37,158	12.9	214.6	274.6	5.1
Banks, insurance, real estates	13,144	18,682	7.3	34.8	44.8	5.2
Personal & community	5,257	6,081	3.0	482.3	505.3	0.9
Total	56,076	88,057	9.4	1,042.3	1,164.3	2.2

The differential growth rates between employment and gross domestic product require productivity increases in each sector. These range from 2.0% per year in the financial and personal service sectors to over 7.0% per year in the commercial trades and transport sectors. The Government's programs for the Third Plan support these objectives.

4.8.4.3 Programs. In addition to its ongoing responsibilities such as the statistical enumeration and analysis of the commercial sector; the registration and regulation of companies; the day to day monitoring of, and liaison with private enterprise, through the Chambers of the Commerce and Industry, a number of new projects will be introduced. These are summarized below.

(1) Central Ministry. A number of programs have been designed to strengthen the Government's capacity to accommodate the growing demands from the commercial

sector. Computer techniques will be introduced for the commercial register and an O & M study will be undertaken. To complement these projects, technical staffing will be strengthened. The present headquarters building will be expanded to accommodate the Ministry of Commerce, GSFMO and SASO and five new branch offices will be opened.

(2) Commercial Trades. Major emphasis in this group of projects will be to increase the productivity of the commercial trades. To this end a study is planned to determine the causes of low productivity and recommend programs of action to promote increased efficiency. A new series of technical pamphlets will be published on a number of business related topics, including display, storage, packaging, transportation and sources of finance. A survey is planned, with regular updating, to enumerate and document commercial sector establishments throughout the country. On the basis of this study, a commercial directory will be published. Government regulations affecting the distributive trades and concerning import, tenders and patents regulations, public warehouses, commercial incentives and taxation will be reviewed and revised as found necessary. To ensure adequate and appropriate storage facilities, a storage demand study will be commissioned which will examine, among other things, storage capacity, regional storage demand, the types of stores most appropriate, and the suitability of existing stores. Based on the findings, appropriate sites will be designated for the construction of stores by the private sector.

In cooperation with Chambers of Commerce and Industry, regular conferences will be held on topics of interest to particular trade groups. New commercial libraries will be established in each chamber and new chambers will be established in Najran, Jubail, Jizan, Abha, Baha, Sakaka, Hail and Hofuf.

(3) Hotel Industry. An examination of the present structure and growth of the hotel industry is planned to establish regional hotel demand and the capacity of existing hotels. An assessment will also be made of the current and future needs for a hotel trades training institution. To encourage the improvement of existing hotels and to provide more meaningful criteria for consumers, a new hotel classification will be introduced. Draft legislation will be drawn up to cover the following features of the hotel industry: fire hazards and safety precaution standards; health and cleanliness standards; and control of the number of hotels.

(4) Consumer Protection. Efforts will continue to combat inflation through price and profit monitoring, trade mark surveillance, subsidies to basic foodstuffs, the establishment of five new quality control laboratories and the improvement of existing laboratories. To strengthen the position of consumers and increase their awareness, consumer advice bureaus are to be established. These will deal with problems of price and quality, shop cleanliness and legal redress. A product testing service is planned which will inform consumers on the relative merits of different brands of products. A monthly survey of prices, charged by major retail establishments, will be published in the national press. In addition, a media campaign will be introduced to inform consumers on prices, consumer rights and new developments in retailing. Existing legislation will be reviewed and new consumer legislation will be introduced in respect of: precious metals, substandard products, misleading information from manufacturers or traders, services and repair facilities.

(5) Financial and Business Services. The major emphasis of this program will be to assess the current situation and forecast trends in the behavior of this sector. In this respect, studies will be undertaken to determine the present structure of the business services and the insurance industries, to determine their present shortcomings, to estimate the economy's future demand for the services and to recommend ways to promote their development. In addition, the establishment of a locally based stock exchange will be further evaluated.

(6) Foreign Trade. To complement the renewed emphasis on establishing a strong industrial structure, new programs to promote exporting companies will be introduced. In addition to the continuing review of trade agreements, an export promotion council will be established to investigate methods of increasing the Kingdom's non-oil exports; furthermore, separate areas in Riyadh, Jeddah and Dammam will be designated for trade fairs.

4.9 FINANCE AND BANKING

4.9.1 Overview

The domestic financial sector comprises twelve private commercial banks, six government lending institutions, one joint venture banking corporation, and four major money changers. In the absence of a capital market, the banking system performs the principal role of

mobilizing and distributing domestic resources among sectors. The overall coordination, guidance and regulation of the sector is accomplished through the offices of the Saudi Arabian Monetary Agency (SAMA). Arising from its authority to request information from banks, and to determine the level of special deposits commercial banks are required to make, SAMA effectively controls the level of private bank credit. Ultimate control of the sector rests with the Ministry of Finance and National Economy to which both SAMA and the government lending funds are responsible.

4.9.2 Present Conditions

Prior to the establishment of SAMA in 1372, banking and money were in their infancy. The economy was based predominantly on foreign currency, particularly the British pound sterling and Maria Theresa-dollars. In 1372 a new gold based Riyal coinage was issued, but the terms of reference under which SAMA was established prevented it from issuing any paper currency. After an initial experiment, between 1372 and 1377, with paper "Hajj Receipts" the restriction was lifted and a new paper currency introduced. Following the issue of these notes the monetization of the economy spread rapidly, accompanied by the growth and development of the banking and financial system.

4.9.2.1 The Institutional Structure. Before 1395, the Government encouraged foreign owned banks to open branches within the Kingdom. The policy was successful and by the end of the First Plan there were ten international banks represented in the country which operated a total of twenty three branches. Since then, the Government has promoted a policy of Saudization of commercial banks. To encourage greater participation by Saudi nationals in the banking sector, only Saudi owned banks were allowed to open additional branches. As a result, by the end of the Second Plan, of the twelve banks in operation only three were non-Saudi.

One of the principal objectives of the Government during the last 5 years was to encourage commercial banks to extend their national and regional coverage. Despite the restriction on foreign banks the response was encouraging. Table 4-50 outlines the pattern of growth of commercial banks.

Table 4-50

PERMANENT COMMERCIAL BANK BRANCHES ⁽¹⁾: MID YEAR FIGURES

	<u>1395</u>	<u>1396</u>	<u>1397</u>	<u>1398</u>	<u>1399</u>
Local banks	56	64	71	96	137
Arab banks	10	10	10	10	1
Other banks	13	13	12	4	2
Total	79	87	93	110	140

(1) Excludes 13 temporary branches open during Hajj.

Since 1395, the number of commercial bank branches has almost doubled, increasing from 79 to 140. The fastest growth has been experienced in the Central and Southwestern Regions. Prior to 1395, only 14 branches were in operation in these regions. By mid-1399, the Southwestern Region had 11 branches and the Central Region, 39 branches.

To a large extent, a parallel banking service, particularly in foreign transactions, is operated by a network of money changers. While there are only four major money changing companies, it has been estimated that they have over 250 branches, of which 150 are located in the Jeddah, Mecca, Medina area. Because of their generally lower cost locations and their specialization in foreign currency transactions, they are able to offer efficient service at lower costs than do commercial banks. At present they are not subject to SAMA control.

Complementing the private sector are six major Government lending institutions. Since commercial banks primarily concentrate on short term finance, Government funds were established to provide medium and long term development loans. The loans are made interest free, but sometimes a small service charge is levied. As a group they are permitted to lend to individuals and households as well as to parastatal, and private companies. Individually, they specialize in lending to particular sectors. With the exception of two funds, they have been established since the end of the First Plan. A brief description of each fund follows with an indication of their relative importance given in Table 4-51.

Table 4-51

CREDIT DISBURSEMENTS BY GOVERNMENT LENDING INSTITUTIONS

(SR millions)

	<u>1393/94</u>	<u>1394/95</u>	<u>1395/96</u>	<u>1396/97</u>	<u>1397/98</u>	<u>1398/99</u>
1. Saudi Arabian						
Agricultural Bank	36	146	269	490	586	709
2. Saudi Credit Bank	9	40	82	158	103	57
3. Specialist Finance						
Programs	-	-	118	33	22	21
4. Public Investment Fund	263	603	1,512	3,843	6,267	3,893
5. Saudi Industrial						
Development Fund						
- Industry	-	35	290	705	1,268	1,117
- Electricity	-	-	1,409	1,570	3,073	6,540
6. Real Estate						
Development Fund						
- Personal loans	-	-	2,159	8,749	7,198	5,264
- Investment loans	-	-	-	152	336	460
Total	308	824	5,839	15,700	18,853	18,061

Sources: 1 to 4 SAMA Annual Reports
5 and 6 Funds' records.

(1) The Public Investment Fund (PIF): sometimes referred to as the General Investment Fund, is a division of the Ministry of Finance and National Economy. It was established in 1391 with the objective of promoting the diversification of the economy. It provides finance to public sector organizations in the form of loans and equity subscriptions. The loans are usually interest-free although, depending on the type of project a small handling charge is sometimes levied. Not only must projects funded by PIF be commercially viable, they must also have an important role in the Kingdom's development. At the beginning of 1400, the Fund had extended some SR 10 billion in the form of loans. SAUDIA and Petromin are the only beneficiaries, although a loan to Saudi Arabian Basic Industries Corporation (SABIC) has now been approved. In terms of equity participation, from the total SR 7.2 billion subscribed by PIF, SABIC has to date received SR 2.5 billion. In the past, the Government has used PIF to channel funds to Pan Arab Organizations such as the Arab Maritime Petroleum Transport Corporation.

(2) The Saudi Arabian Agricultural Bank is the longest established of the government funds. It was founded in 1382, to provide short, medium and long term loans to the agricultural sector. All loans made are cost-free to the borrower and can be used for a wide range of purposes, including the purchase of seed, fertilizers, animal stock, construction, drilling and integrated investments such as large scale dairy projects. The SAAB operates from over 52 branch offices which are located in most of the areas with high agricultural potential. In addition to financing agricultural development, the bank also disburses agricultural subsidies on behalf of the Ministry of Agriculture and Water. Further details for SAAB are presented in Section 4.3.5 on Agricultural Credit.

(3) The Real Estate Development Fund was established to provide loans for private residential house construction and for the construction of residential compounds. Loans made are up to 70% of cost for owner occupiers and up to 50% for other borrowers. The loans made to owner occupiers include a subsidy element. In 1400 a repayment incentive scheme was introduced to encourage the prompt re-payment of loans. A discount of 20% is now allowed on timely payments with an additional 10% discount if repayment is made in one lump sum. Loan management is entrusted to two Saudi commercial banks with a nationwide coverage of branches. Section 7.3 gives further details for REDF.

(4) The Saudi Industrial Development Fund (SIDF). In terms of credit disbursed, SIDF is the third most important government fund. It was established in 1394 to finance private sector industrial ventures. In 1395, it was given the additional responsibility of managing a special fund for loans to electricity companies. Industrial loans are made interest free up to 50% of project cost with a handling charge of approximately 3%. Electricity loans are made for the full project cost. Greater details of the Fund's operation and the Third Plan development are given in Section 4.6.5.

(5) The Specialist Finance Programs. The Contractors' Finance Program (CFP) was the first funding facility established by MOFNE to meet a specific need within the economy. In the early years of the Second Plan, there was an enormous demand for construction goods but finance for cement, building materials and steel was difficult to arrange. CFP was introduced to meet the credit requirements of registered Saudi contractors undertaking contract work. Loans were granted for between 50% and 60% of cost. Within the same overall scheme, and in response to a rising demand for bread, loan facilities are also available to encourage the construction of new automatic bakeries. For this purpose capital assets of SR 100 million have been provided by the MOFNE.

(6) The Saudi Credit Bank. This is the only government fund concerned solely with private individuals. It was established in 1391 to grant loans up to a maximum of SR 7500 to low income Saudi families for a number of purposes, including marriage, health, artisan workshops and home improvements. In 1400 the lending scope was substantially widened, provided there was adequate security. In 1395, 71% of loans were financing marriages. The bank operates from three branches and ten sub-branches.

4.9.3 Development Finance

4.9.3.1 Growth

Prior to 1393/94 the growth in commercial bank lending was very slow. Two factors contributed to this. First, the enormous increase in the level of government expenditure during the First Plan led to a large increase in private sector incomes and liquidity. Between 1387-1392, private sector deposits increased by 50%. The increased level of liquidity together with

an apparent lack of domestic investment opportunities (reflected in an increasing level of foreign assets) meant that private enterprise was able to finance their planned level of investments without recourse to bank credit. The second factor contributing to the slow growth in bank credit was the availability of low cost credit from the government lending institutions. Table 4-52 outlines the trends in the major items in the commercial banks' balance sheets between 1387 and 1399.

Table 4-52

MAJOR ITEMS IN COMMERCIAL BANKS' BALANCE SHEETS

(SR millions— mid year figures)

	<u>1387</u>	<u>1390</u>	<u>1393</u>	<u>1396</u>	<u>1398</u>	<u>1399</u>
Claims on private sector	1,248	1,624	1,809	8,507	11,217	19,739
- of which loans	1,166	1,565	1,706	8,291	10,607	18,997
Foreign assests	208	479	719	5,425	14,690	12,962
Other assets	474	621	2,753	7,758	26,607	19,859
Total assets & liabilities	1,930	2,723	5,281	21,690	52,514	52,560
Deposits	1,234	1,609	3,730	15,894	35,647	40,370
Foreign liabilities	174	150	392	2,734	4,838	5,699
Other liabilities	522	964	1,158	3,062	12,029	6,490

Note: Columns do not add due to rounding.

Source: SAMA Annual Reports.

Since 1393/94, the boom conditions experienced in the Kingdom have created an unprecedented level of demand in all sectors of the economy and the level of loans extended by the commercial banks has also increased. Total credit disbursed by the lending institutions and the commercial banks has increased by 38.4% per year in the first three years of the Second Plan.

4.9.3.2 Structure of Credit. Traditionally, commercial banks have concentrated on short term lending to finance private sector foreign trade. This tendency was reinforced with the introduction of low cost long and medium term finance from the government funds. Table 4-53 gives a broad comparison of the structure of lending by commercial banks and government funds between 1394/95 and 1397/98.

Table 4-53
STRUCTURE OF DOMESTIC CREDIT (1): 1394/95 - 1397/98
(Percent)

	Commercial (2) <u>banks</u>	Government (3) <u>funds</u>	<u>Total</u>
Agriculture	0.6	3.6	2.4
Manufacturing & mining	13.4	24.4	20.1
Utilities	2.6	15.6	10.4
Building & construction	23.8	0.4	9.7
Commerce	36.4	-	14.5
Transport	2.3	7.2	5.2
Real estate	-	47.8	28.8
Other	20.9	1.0	8.9
Total	100.0	100.0	100.0

(1) Excludes PIF, equity investments but includes PIF loans to SAUDIA and Petromin up to end of 1398.

(2) 1395 - 1397.

(3) 1394/95 - 1397/98.

Source: MOP estimates.

Over 60% of commercial bank lending was made to the trade and construction sectors but less than 14% was made to the producing sectors, with agriculture receiving less than 1%.

The pattern of government fund credit was substantially different. Nearly half of the entire value of loans disbursed by the funds was devoted to the finance of housing construction and almost 30% was used to finance projects in agriculture, manufacturing and mining. Only a very small proportion of fund credit went directly to the building and other construction or the commercial sectors, although a substantial amount went to the building industry indirectly as a result of the REDF lending program.

Total bank and fund credit was disbursed more evenly; the producing sectors received 22%, building and commerce 24% and real estate 28%. Despite the long history of agriculture and low cost agricultural finance in the Kingdom, only 2.4% of all development credit found its way to the agricultural sector.

Concerning the distribution of credit among recipients, Table 4-54 shows the relative shares of three major groups between 1394/95 and 1398/99.

Table 4-54

STRUCTURE OF CREDIT BY TYPE OF RECIPIENT

(SR millions)

	<u>1394/95</u>	<u>1395/96</u>	<u>1396/97</u>	<u>1397/98</u>	<u>1398/99</u>	<u>Total</u>	<u>Percent</u>
Public sector ⁽¹⁾	603	1,512	3,843	6,267	3,893	16,118	14.6
Private companies ⁽²⁾	5,469	10,377	10,902	15,810	27,838	70,396	63.8
Individuals & households	40	2,240	8,907	7,301	5,321	23,809	21.6
Total	<u>6,112</u>	<u>14,129</u>	<u>23,652</u>	<u>29,378</u>	<u>37,052</u>	<u>110,323</u>	<u>100.0</u>

(1) Includes equity investments by PIF.

(2) Excludes commercial bank investments.

Source: Derived from SAMA Annual Reports data.

The Bank Training Center established in 1385 continued to support the banking sector. In 1395, an intensive general banking course was introduced with participants limited to students from SAMA and domestic banks. Since then the number participating has averaged 70 per year.

4.9.4 Problem Areas

4.9.4.1 Two major gaps exist in the structure of lending. At present, it is very difficult for small businesses to raise finance for development projects. This is particularly the case for the service industry. As yet there is no “small business finance fund” although such an institution is being considered for the Third Plan. In addition, although SIDF will make loans for mineral development projects, there are no facilities to finance the exploration stages of mining. It is anticipated that the Third Plan will remedy this situation.

4.9.4.2 Checking facilities are available in most banks, but still no comprehensive consumer banking service exists. Personal loans are difficult to arrange. Checking facilities are essentially limited to cash withdrawals, and small remittances overseas generally fall within the domain of the informal banking sector. In addition to the difficulty in arranging personal bank loans, there is, with the exception of automobile finances, a shortage of specialist consumer credit organizations. Finally, there is a notable absence of facilities to cater to small savers. As a result, a large proportion of assets are held in the unproductive form of cash balances.

4.9.4.3 A number of problems remain within the banking sector itself. Banking methods are still antiquated (there is only a limited use of computers) and the clearing house system is still regionally based with poor communications between regions.

4.9.5 Objectives and Policies

4.9.5.1 Objectives. The principal objectives of the financial sector will be to ensure that the banking and financial sector develops in accordance with the expanding and changing requirements of the economy, thereby promoting and facilitating the expeditious development of the Kingdom.

4.9.5.2 Policies. To achieve the above objectives the policies outlined below will be implemented.

- (1) Maintain a stable currency in both the internal and external economies.
- (2) Continue promotion of Saudization of commercial banks.
- (3) Increase monetization of the economy through greater geographical coverage by the financial sector.
- (4) Identify gaps in the spectrum of financial services and promote institutions or changes in procedures to satisfy the corresponding demand.
- (5) Continue monitoring commercial banks and other financial intermediaries to ensure the protection and safety of their customers.
- (6) Continue management of the official reserve of foreign currency.

4.9.6 Third Development Plan Programs

During the Third Plan emphasis will continue to be on the orderly expansion and development of the financial sector. The four main areas of concern are outlined below:

4.9.6.1 Government Lending Institutions. Plans for the major government lending agencies, with the exception of the Public Investment Fund and the Saudi Credit Bank, are detailed in their respective referenced sections. In addition to the particular loan programs, these plans generally seek to improve the systems and procedures through which funds operate, to increase the effectiveness of loans, as a result of better loan evaluation techniques, and to extend the funds' regional coverage. Particular attention will be given to reviewing the Saudi Credit Bank's maximum loan policy including the qualifying levels of income for borrowers and adjusting them where necessary to compensate for inflation.

Table 4-55 summarizes the lending programs of the major government credit institutions.

4.9.6.3 The Commercial Banks. The commercial banks are privately controlled institutions. Nevertheless, through the regulatory powers bestowed on SAMA and the Ministry of Finance and National Economy, a significant degree of influence over the development of the sector can be achieved.

Table 4-55
THIRD PLAN LOAN PROGRAMS⁽¹⁾
(SR millions 1399/1400 Prices)

	<u>1400/01</u>	<u>1401/02</u>	<u>1402/03</u>	<u>1403/04</u>	<u>1404/05</u>	<u>Total</u>
Saudi Arabian Agricultural Bank	1,000	1,000	1,000	1,000	1,000	5,000
Saudi Credit Bank	66	66	66	66	66	330
Specialist Funding Programs	25	25	25	25	25	125
Saudi Industrial Development Fund						
- Industry	2,000	2,000	2,000	2,000	2,000	10,000
- Electricity	4,045	4,128	5,002	4,345	4,476	21,996
Real Estate Development Fund	2,749	2,561	2,386	2,232	2,067	11,995
Total	9,885	9,780	10,479	9,668	9,634	49,446

(1) PIF not included:

A number of projects are planned for the next five years which will greatly influence the rate and pattern of financial development.

The Third Plan period will witness a continuation of the expansion of the regional coverage of commercial banks and will also see the completion of the Saudization program. To ensure that the development of the sector is proceeding in accordance with the needs of the economy, the commercial banks will be required to supply a more detailed and comprehensive range of information to the sector's regulatory agency.

Greater attention will be given to expanding the range of services offered by the commercial banks. Through its regulatory and promotional powers SAMA will encourage the extension of commercial bank lending towards more development oriented purposes, particularly in medium term and longer term credit. Furthermore, consumer orientated banking services will be introduced with the objective of providing a full range of personal checking and loan facilities by the end of the Plan.

To maximize the potential of the specialized credit institutions, greater use will be made of dispersing loans granted by these funds through the regional offices of the commercial banks.

During the Third Plan period, greater controlling attention will be given to the operations and development of the money changers. Legislation will be drafted to ensure that money changers do not jeopardize the security of their customers and that they operate their businesses according to modern banking practices.

A continual review will be undertaken of commercial bank tariffs.

4.9.6.4 Training. The Bank Training Center will continue to provide courses for Saudi students in skills relevant to the banking sector industry, general banking, commerce and accounting. In addition, commercial banks will continue to send employees on training courses abroad to familiarize them with the latest banking techniques.

4.9.6.5 Buildings and Institutions. In addition to the new buildings mentioned in the detailed plans of the government credit funds, new permanent headquarters will be constructed for SAMA and, depending on the results of the examination of the need for a national clearing house, a new clearing house will be constructed or established in Riyadh.

Other developments to the institutional framework will be the proposed small business finance section for SIDF and the widening of the SIDF's terms of reference to include the financing of mineral exploration projects.

4.10 FINANCIAL REQUIREMENTS

4.10.1 The Third Development Plan's financial requirements, from government sources, for the development of the Kingdom's economic resources are shown in Table 4-56.

Table 4-56

FINANCIAL REQUIREMENTS: ECONOMIC RESOURCES DEVELOPMENT

(SR millions - Current Prices)

<u>Sector Components</u>	<u>Recurrent</u>	<u>Project</u>	<u>Total</u>
Agriculture & water ⁽¹⁾	12,767.2	59,318.2	72,085.4
Energy & mineral resources	14,013.7	79,508.9	93,522.6
Manufacturing & commerce ⁽²⁾	3,643.4	91,958.4	95,601.8
Total	30,424.3	230,785.5	261,209.8⁽³⁾

(1) Excludes expenditures by MOMRA.

(2) Includes SABIC capital contributions.

(3) This total differs from the corresponding total in Table 3-1 on account of exclusions (SANCST and SASO) and inclusion (Ministry of Commerce).

CHAPTER 5

HUMAN RESOURCE DEVELOPMENT

5. HUMAN RESOURCE DEVELOPMENT

5.1 OVERVIEW

The development of Saudi human resources stands at the heart of the development process. The national development plan aims at the formulation of policies necessary for the development of these human assets. These policies emphasize:

- (1) Ensuring that manpower training programs are in keeping with actual economic needs;
- (2) Developing and modifying the general education programs and curricula in accordance with the Islamic Sharia and the changing needs of society and development requirements;
- (3) Providing sufficient educational opportunities for all school age children;
- (4) Evaluating the programs and curricula of university education;
- (5) Reappraising the distribution and services of manpower in government and the private sector. To achieve this, the Kingdom's education and training system, together with the labor affairs programs, plays a central role as the flexible institutional structure that can adapt to the exigencies of rapid change and modernization.

The objectives of the education and training system as a whole are as follows:

- (1) To expand coverage to provide equal access to at least basic education for all citizens while improving educational quality;
- (2) To equip citizens as future participants in the labor force by providing types of training which are responsive to the changing needs of the economy.

The objectives of labor affairs programs are:

- (1) To administer and enforce employment regulations in both public and private sectors;
- (2) To supervise employment activities;
- (3) To provide necessary services and guidance to the labor force.

The plans for human resource development are coordinated and administered by 16 interlinked agencies in three functional components:

(1) Education.

- General Education Ministry of Education
Presidency for Girls' Education
Al-Assima and Al-Thagr Model Schools
- Higher Education: Ministry of Higher Education
General Secretariat for Girls' Colleges
Riyadh University
King Abdul Aziz University
King Faisal University
University of Petroleum and Minerals
Imam Mohammad Bin Saud University
Islamic University

(2) Training.

- Vocational training: Directorate General of Vocational Training,
Ministry of Labor and Social Affairs
- Government training: Institute of Public Administration
- Other institutional Various Ministries and Agencies
training by government:

(3) Labor Affairs.

- Public sector: Civil Service Bureau

- Private sector: Deputy Ministry for Labor Affairs,
Ministry of Labor and Social Affairs

5.2 EDUCATION AND TRAINING SYSTEM

5.2.1 Background.

As Saudi Arabia enters its Third Development Plan, it can look back on a substantial record of achievement in the education and training system in particular. The main challenge has been an increasing demand for education and training at all levels. However, progress has been constrained by such difficulties as the physical implementation of projects in an efficient manner commensurate with overall development goals; and regional imbalances in the access to and quality of education, as evidenced by disparate enrollment ratios and similar indices. At the same time, pressures for physical development of the system have impeded adequate qualitative improvement of instruction. Great progress has been made since 1395, but with it has come the realization that the current historical trends cannot be sustained in their present form. There must be better management of, and consolidation and coordination within, the education and training system.

5.2.1.1 Quality of Instruction. The record regarding qualitative improvement is discussed first because it has been given insufficient attention in the last decade, given the pressing need for infrastructure. This area must now be given priority, considering the fact that measures to improve quality require several years to take root. It is necessary to lay the groundwork for qualitative improvement now if there is to be appropriate impact in the Fourth Development Plan. Specific areas which remain weak are the organizational capacity for conceptualizing, designing, appraising, and evaluating qualitative programs, particularly those relating to instruction. Additionally, the requisite data base on the achievement of Saudi students and on the operational skills they have acquired via training is absent. The lack of appropriate mechanisms to permit adequate monitoring of students and evaluation of programs lies behind these deficiencies. To address the major problems related to developing and maintaining a high quality of education, new institutional arrangements are required at the level of general education (Ministry of Education, Presidency for Girls' Education, higher education in the Ministry of Higher Education and at the level of the individual institutions), and in manpower development programs (coordination of efforts in education, labor and public sector training and upgrading).

5.2.1.2 Responsiveness to the Economy. The education and training system has been primarily successful in the Second Plan period in channeling increasing numbers of students to higher education. This will have beneficial consequences for the higher categories of manpower. Social demand for education (and for essential government employment) has been the primary motive force behind this growth. At present, economic demand remains so great that even this rapid growth in output lags far behind. However, imbalances in enrollments exist which, despite corrective measures (such as higher stipends for science and engineering studies) already implemented, will require adjustment in the Third Plan period. This will be accomplished by controlling the growth of certain branches of higher education, improving admission requirements and opening up vocationally - oriented post-secondary educational programs.

In terms of preparatory programs leading to technician training, (secondary technical and vocational programs), skill training, and pre- and vocational training, social factors and the quality of the training programs, combined with inadequate information on private economic returns, have worked against the desired expansion of this sub-sector. However, most trainees who do graduate find employment, primarily in the public sector. A potential source of entrants to skill training programs, the large pool of illiterates, remains largely untapped due to the limited scope of the literacy program and the lack of follow-up measures to channel new literates into such training programs. On-the-job training for workers remains embryonic except in the largest public sector firms and, for civil servants, in the Institute for Public Administration.

5.2.1.3 Administration and Management. Despite the establishment of organizational structure and administrative procedures (many derived or introduced directly from neighboring countries), there remains a lack of capacity for planning, management, and coordination which has hampered the ability of the education and training system to operate efficiently and effectively. Despite some improvements in the statistics of general education, there is inadequate reporting on the effectiveness and costs of educational programs. Similarly, skill training and on-the-job training (where tracer studies are imperative for the adjustment of programs to the changing requirements of employers) are not monitored in terms of their external efficiency or their costs and benefits. In higher education, recent studies have revealed serious problems in internal efficiency (e.g., the high number of years to generate a graduate, and the corollary of significant drop-out and repetition rates, as well as high unit recurrent costs). These findings

are general in character since the necessary detailed student progress reporting is not carried out by individual universities. Reporting on other parameters, such as staff and facility utilization and current costs, is quasi-absent. The dispersion of the agencies involved in education and training is in itself a strong argument for a centralized management information system which would require some uniformity in both the provision and format of data.

Improved reporting will require some corollary improvements in the technical capacity of the sectoral agencies. This will involve both upgrading and systematic formal training of administrative and managerial staff in the light of identified, operational constraints. Recognition of educational management for all levels as a key profession appears to be lacking – few universities have well-designed programs to address educational administration, and training abroad is not systematic. Staffing and development at the different levels of the education and training system are detailed in the individual agency plans.

5.2.1.4 Imbalanced Enrollments and Quantitative Development of the System. A dispersed and dynamic (intra-regional) population base continues to result in uneven access to and participation in education. A major continuing cause is planning of school locations. The situation is particularly serious for girls at all levels of the general educational program— as the Presidency for Girls' Education recognizes – given the need to locate schools near homes. The imbalance in enrollments may be summarized as follows:

- (1) In general education the enrollment of girls lags behind that of boys at all levels; there are regional disparities in the percentage of the age group enrolled in general education; and a continuing bias in secondary education toward the arts as opposed to the sciences.
- (2) In technical and vocational education there is a problem of declining enrollments as more students proceed to secondary general education. Because of the Kingdom's needs for skilled indigenous manpower, these deficiencies are particularly significant.
- (3) In teacher education there is not only a proportionally greater availability of intermediate teachers than of elementary teachers, but also a generally lower level of enrollments in all branches.

- (4) In higher education there is a rapid rise in enrollments as more secondary school graduates continue their education, creating serious pressures on existing institutions from an administrative and an instructional viewpoint.
- (5) There are further imbalances due to excessive enrollments in low priority fields of study (largely as continuation of the arts bias in secondary schools). There are also imbalances in the structure of enrollments due to the excessive time required by students to complete their studies (repetition).

5.2.1.5 Problems. Although the Second Development Plan has witnessed a very considerable expansion of the physical facilities of the education and training system, there are problems in the location of facilities, their delivery and equipment, and in their maintenance. Designs are often costly and ill adapted to educational purposes. Rapid expansion of primary, intermediate, and secondary schools in response to the expressed needs of local communities has occurred without the benefit of adequate planning and control. The consequences are:

- (1) Widespread inter- and intra- district inequalities;
- (2) A large number of the elementary schools declared “ unfit” with most of them in rented premises;
- (3) Large scale overcrowding in some schools and under-utilization of spaces and teachers in others, with an especially large number of small, incomplete schools.

In these circumstances, where rapid expansion appears likely to continue, and demographic conditions are in a state of flux, it is clear that there is a need for a complete national and regional school inventory and for more effective implementation procedures generally. In this way physical or quantitative expansion can be better coordinated with the measures needed to make qualitative improvements in the system.

5.2.2 Present Conditions.

The quantitative and qualitative achievements of the major branches and programs of the education system are reviewed below, followed by a presentation of the major issues confronting the future development of the system, namely: the quality of instruction; enhancing the system's responsiveness to the economy; administration and management; and the further quantitative development of the system and its requirements for physical infrastructure.

5.2.2.1 Ministry of Education. The present conditions faced by the Ministry of Education may be conveniently described in terms of their qualitative and quantitative aspects. On the qualitative side, the high hopes of the Second Development Plan were not realized fully although there were notable successes. Present conditions thus reflect certain opportunities for improvement in qualitative programs, particularly in implementation of major development projects such as: an educational technology center, education television, and multi-purpose classrooms. On the other hand, in-service training of teachers and headmasters was conducted with moderate success, and progress was made in the areas of school meals provision, health services and the establishment of a pilot comprehensive school.

In quantitative terms, the number of schools opened during the Second Development Plan was generally above target for most educational levels, although there was not always a parallel increase in enrollments. Technical education presented a particular difficult challenge. Enrollments and schools achievements are shown in Table 5-1.

At the elementary education level, enrollments did not reach Second Development Plan targets, in part because schools were opened in locations where demand was insufficient or variable. On the other hand, the target of schools to be opened was surpassed by 22.7% in 1398/99. In intermediate education enrollments exceeded the plan target by 8.4% with 143,949 enrollments in 1398/99. The number of schools opened in this period was 28.2% in excess of the target. Secondary education enrollments increased significantly, due both to a higher proportion of intermediate students continuing their education and to a decreasing percentage of them entering technical education at this level. Within secondary education, progress was made in terms of increasing the proportion of students entering the science "stream" (grades 11 and 12).

Table 5-1

COMPARISON BETWEEN TARGETS AND ACHIEVEMENTS
OF KEY EDUCATIONAL INDICATORS (1398/99)
(number)

Educational Level	Enrollments				Schools			
	1395/96 Achieve- ment	1398/99 Target	1398/99 Achieve- ment	Percent achieved	1395/96 Achieve- ment	1398/99 Target	1398/99 Achieve- ment	Percent achieved
Elementary	439,502	632,264	492,367	77.9	2,489	2,787	3,419	122.7
Intermediate	106,671	124,487	143,949	108.4	582	642	825	128.2
Secondary	34,970	36,676	52,169	142.2	177	122	246	201.2
Teacher training	10,587	20,267	10,649	52.5	30	45	41	91.1
Technical education	4,063	12,759	5,532	43.4	21	37	28	75.7
Special education	1,550	3,945	1,865	47.3	13	28	25	89.3
Literacy program	68,082	109,160	93,199	85.4	1,272	1,815	2,047	112.8

Source: Education Statistics Manual (Summary), Ministry of Planning, 1398/99.

Technical education saw a significant development of physical facilities. A total capacity of 6,120 places was created in the industrial education programs. Enrollments lagged behind capacity at 1,217 (i.e. 19.9 %) in 1398/99 largely as a result of the greater flows from intermediate to general secondary education. Enrollments in the commercial courses reached 3,927 by 1398/99, 77.6 % of the Second Development Plan target. Of the five various agricultural centers to have been created in the Plan period only the Burayda Center was established, with 271 students enrolled in 1398/99. The internal efficiency of the technical education program, as measured by dropouts and repeaters, was comparable with the results obtained in similar programs elsewhere; and most graduates found employment in the public sector.

With regard to teacher training, targets were not achieved because the attractiveness of secondary general education was seen as leading to more remunerative public service jobs. At the elementary school level the teacher/class ratio declined from 1.25: 1 to 1.07: 1 since intermediate colleges attracted students who would normally have entered district level elementary teacher training institutes. The enrollment at secondary teacher training level decreased from 10,150 in 1394/95 to 7,543 in 1398/99, while seven intermediate colleges were established compared with the five originally targeted. Enrollments in the latter totalled 2,487 in 1398/99.

In the area of adult education the adult literacy program achieved 85.4% of its target, 93,199 enrollments in 1398/99, which was a net increase in enrollments of 30,288 over 1394/1395.

5.2.2.2 Al Assima Model School. During the Second Development Plan the Al Assima Model School expanded its physical facilities. Data on enrollments, graduates and teachers for the first four years of the Plan are shown in Table 5-2.

5.2.2.3 Al Thagr Model School. During the Second Development Plan, enrollments exceeded the expected numbers, which led to the implementation of a second campus on the Mecca road. Data on enrollments, graduates, and teachers for this period are shown in Table 5-3.

Table 5-2
AL ASSIMA MODEL SCHOOL

	<u>Planned</u> No.	<u>Enrollments</u> <u>Achieved</u> No.	%	<u>Planned</u> No.	<u>Graduates</u> <u>Achieved</u> No.	%	<u>Planned</u> No.	<u>Teachers</u> <u>Achieved</u> No.	%
1395/96	2,265	2,115	93.4	714	779	109.1	149	133	89.3
1396/97	2,570	2,068	80.5	837	745	89.0	172	146	84.9
1397/98	2,850	1,951	68.5	945	637	67.4	190	129	67.9
1398/99	3,125	2,054	65.7	1,071	681	63.6	208	137	65.9

Table 5-3
AL THAGR MODEL SCHOOL

	<u>Planned</u> No.	<u>Enrollments</u> <u>Achieved</u> No.	%	<u>Planned</u> No.	<u>Graduates</u> <u>Achieved</u> No.	%	<u>Planned</u> No.	<u>Teachers</u> <u>Achieved</u> No.	%
1395/96	1,668	1,841	110.4	354	424	119.8	98	97	99.0
1396/97	1,665	1,908	114.6	390	464	119.0	98	90	91.8
1397/98	1,637	1,933	118.1	367	425	115.8	98	77	78.6
1398/99	1,624	2,078	128.0	370	458	123.8	98	96	98.0

5.2.2.4 Presidency for Girls' Education. The Presidency for Girls' Education made significant progress in the Second Development Plan in increasing girls' access to education at all levels. Enrollments increased in the major programs for the agency as shown in Table 5.4.

Table 5-4
PRESIDENCY FOR GIRLS' EDUCATION - ENROLLMENTS

	<u>1395/96</u> <u>Enrollment</u>	<u>Planned</u>	<u>1398/99</u> <u>Achieved</u>	<u>Percentage</u>
Elementary:	237,945	321,107	286,170	89.1
Intermediate:	47,214	60,408	69,011	114.2
Secondary:	13,061	14,877	23,401	157.3
Teacher Training:	4,064	11,935	10,907	94.1

More girls continued their studies to the secondary level (and to the university) and, in general, their retention in school and progression through the grades was superior to that of boys. With regard to school construction - despite difficulties in land acquisition for the educational compounds (combined elementary, intermediate and secondary campus schools) in the cities, the number of government-owned schools increased from 232 (1395/96) to 383 in 1398/99. Other key achievements of the Plan period included: equipping 700 of the 1,417 elementary schools and all other schools with their own libraries, and extending the transportation system.

In the area of adult literacy, enrollments increased from 26,721 (1395/96) to 34,531 in 1398/99; however, coverage of the illiterate population is limited to approximately 1.5% of the 15-44 age group. The Presidency for Girls' Education has revised the instructional materials for illiterates and is experimenting with a three year program.

5.2.2.5 Higher Education. Higher education in Saudi Arabia is affected by a number of conditions which in turn, help define the practical steps that can be taken to develop the post-secondary education system in an effective way. These include: the requirements of the Saudi labor market for highly educated manpower; the demands of an ever-increasing number of secondary school graduates for places in higher education; the productivity level of the Saudi post-secondary education system; the low proportion of Saudi nationals available for professional jobs in that system; and the rapid growth of Saudi universities over the recent past.

This rate of growth illustrates the pace which the higher education system must maintain in order to continue to meet the demand for places within it. At present, a very high percentage of secondary school graduates enter universities. Though that proportion may decrease, the rate of growth will surely continue, resulting in an intense, immediate and continuing demand for places in post-secondary education (though not necessarily in the universities alone).

In this relatively new Saudi system of higher education, there are pressing demands for admission at one end of the higher education process, and for graduates at the other. Owing to the low levels of productivity and efficiency which many universities still have to face, the system cannot, as yet, have its desired impacts (on the quality of education and on students' performance) in order to generate increased quantitative flows.

Despite these problems, the university system has experienced an impressive growth in capacity and productivity over the period of the Second Development Plan. The total undergraduate enrollment in the six universities and the girls' colleges increased from 18,966 (1394/95) to 36,112 in 1398/99, the latest year for which complete data are available. Estimated enrollments for 1399/1400 are around 40,000. Over the same period, recipients of the first university degree have increased from 1,885 (1394/95) to 3,779 in 1398/99; and the estimate for 1399/1400 is more than 4,000.

In specializations crucial to national development and technical independence, growth has been equally impressive. Enrollments in engineering and architecture have grown from 2,177 (1394/95) to 4,972 (1398/99). Over the same period, degrees awarded annually grew from 178 to 502. In science, the corresponding enrollment growth was from 1,100 to 2,530. Graduates increased from 106 to 165 in the period. In medicine, enrollments grew from 276 to 1,616; and by 1398/99 there were 74 graduates. This pace of growth will quicken as the individual institutions mature and become more efficient in the execution of their missions.

Given rapid growth and a shortage of qualified Saudis, the universities have relied heavily on foreign nationals to fill key posts. In the 1398/99 academic year, only 15 % of the senior faculty members were Saudis, a proportion which did not change significantly during the Second Development Plan.

5.2.2.6 Vocational Training (Ministry of Labor and Social Affairs). In the Second Development Plan significant progress has been made in the development of a network of vocational training centers which operate a prevocational program for recent school leavers and a skill training program (vocational training). Additional evening courses (industrial induction) are offered for adults. Capacity and enrollments have increased as shown in Table 5-5.

Table 5-5

VOCATIONAL TRAINING CENTERS

	<u>1395/96</u>		<u>1398/99</u>	
	<u>Capacity</u>	<u>Enrollments</u>	<u>Capacity</u>	<u>Enrollments</u>
Prevocational	300	300	600	440
Vocational	1,780	1,395	3,700	2,300
Industrial Induction	-	-	8,600	3,000

In 1397 a far-reaching decision was made to revitalize the vocational training program, involving the design and development of facilities and equipment, and the progressive adaptation of skill training programs to employers' needs, utilizing modern instructional technology.

An estimated 16,000 workers completed various on-the-job training courses (mainly in large private sector enterprises) during the Plan period. However, the human and physical resources to promote such training - as required by Article 44 of the Labor Law - in smaller firms are not yet available. The Directorate of Vocational Training has, however, made a promising start on the design and staffing of a program which will reach these firms during the Third Development Plan. Similarly, SABIC and the Royal Commission have laid the foundation for the rationalization and systematic implementation of the training components of the major industrial projects which are, or will shortly be launched.

5.2.2.7 Institute of Public Administration. During the Second Development Plan, the Institute opened its second branch in Dammam (for which only staff housing remains to be completed) and began work on the required extensions to the instructional facilities (classrooms, library, auditorium) of the main Riyadh center. Pre-service courses (for future civil servants) and on-the-job training courses (including seminars for managers) have been significantly expanded. An important measure to improve the quality of pre-service programs has been the inclusion of a two-month internship in the different branches of the civil service for trainees, ensuring practical, on-the-job experience as an integral part of training. An important and continuing emphasis has been on staff development. During the last two years of the Plan, 64 Saudi staff have been sent overseas for training. In 1398, 86 out of 139 (62%) full-time teaching staff were Saudis.

5.2.3 Objectives and Policies

5.2.3.1 Objectives. All plans respond to the following four major strategic goals for the sector. These are: (1) to improve the quality of education and training; (2) to make the education and training system more responsive to the needs of the economy; (3) to increase the efficiency via improved administration and management; and (4) to facilitate balanced quantitative growth of the system.

(1) Improving the Quality of Education. A major objective in general education is to carry out a pre-investment study leading to the development of an Education Development Center (EDC) within the Ministry of Education but also serving the Presidency for Girls' Education. The EDC will consolidate several of the present functions of the Ministry but will concentrate on the development, evaluation and extension of new curricula on the basis of identified needs. It will also introduce the mechanisms, including standardized achievement tests, for the monitoring of student performance and the evaluation of programs. Two other major actions will be to organize Regional Institutes of Education and to develop a capacity for qualitative planning within the Ministry of Education and Presidency of Girls' Education, the former concerned with the extension of new programs at the regional level, the latter to provide economic evaluation and programming assistance to agencies relating to the selection and implementation of major new qualitative programs. Other qualitative measures at this level involve a national assessment study; identification of school variables and teacher constraints; research and testing; upgrading of teachers; enhanced Saudization of the teaching force; and improved facility designs which reflect the educational requirements of programs. Other activities directed at quality improvement, which are emphasized in the plans for education, include the introduction of broadcast media lessons to schools, a standardization of the academic year for general education level schools and development of common core programs for secondary students.

In higher education, the goal will be to focus on qualitative improvements in admissions and in assignment of students, instruction, research, better recruitment and staff development (in-country and overseas) and in general improvement in the monitoring and evaluation of performance of the subsector as a whole. Other important improvements relate to improved university master planning and campus designs which take into account the educational specifications of individual programs, and to the establishment of a national library and information system.

Qualitative measures in technical and vocational education include: a critical skills inventory (in collaboration with the Directorate General of Vocational Training and Labor Affairs Agency) designed to throw light on those critical occupations which should be the object of improved training programs; computer based information on the job market providing improved guidance and placement of trainees; improved modular programs for vocational training which will result in employable

skills; upgrading of staff, particularly of instructors and administrators; a prototype post-secondary technical program (polytechnic institute) providing training not currently available in Saudi Arabia and designed with the job market in mind; and generally improved links between various types of vocational training and technical education programs.

In education and training the objectives are: to strengthen literacy programs; to assist in the training of non-cadre employees; to implement the Labor and Workmen Law's major provisions for the upgrading of private sector workers (on-the-job training centers); to improve the quality of all training programs and instructors; and to enhance the monitoring and evaluation of the effectiveness of key programs.

(2) Enhancing Responsiveness to the Economy. The second major goal (embracing the system's responsiveness to the economy) will require the introduction of more relevant general education programs, to be developed by the Education Development Center. The single most important measure, addressing training programs sector-wide, is the establishment of the Interministerial Committee on Manpower. This would lead eventually to a powerful regulatory body, backed by a well staffed permanent secretariat, which will improve the coordination and internal and external efficiency of manpower development programs in both the private and public sectors. The permanent secretariat, once created, will have competence in the economic and qualitative evaluation of training programs (specific to the different sectors), in planning, programming and budgeting as well as in field inspection of training programs.

Other key improvements, by level, which aim at making the system more responsive to the economy include:

(1) To establish a Technical Secretariat within the Ministry of Higher Education to support the Supreme University Council in effectively supervising the development of post-secondary education, to assist the Council in technical fields and to supervise studies and construction plans of university campuses. Under its aegis, enrollments and graduates will grow to 69,000 and 10,342 respectively in

1404/05 with a balanced distribution by discipline and an appropriate concentration on specializations critical to economic development.

- (2) To make a periodic review of needs for additional technical education places; to create a prototype polytechnic institute to address high priority technician training needs (hitherto not provided for in the sector).
 - (3) To undertake a critical skills inventory; to ensure programs are responsive to employers' needs; to implement a counseling and placement system, to improve the external efficiency of training programs; to undertake monitoring and improvement of programs and certification of skills to ensure they meet employers' standards of performance; to implement an incentive program to ensure retention of trainees.
 - (4) To develop adult literacy programs which will prepare potential trainees for skill training programs and on-the-job training facilities, together with training of workers, training of supervisors, both impacting on the upgrading of private sector Saudi workers; to upgrade public sector employees leading to enhanced productivity with emphasis on senior and middle management, via improved public administration training.
- (3) Improving the Efficiency of the System. With regard to improving the efficiency of the education and training system, a major step in general education will be to review the management and organization of the sectoral agencies, and undertake related training of administrative staff. Other measures include carrying out a compensation study and introducing data processing and related management techniques. In the major effort to improve the planning and management of school construction, a joint Ministry/Presidency implementation project will result in an inventory of school facilities leading to: annual renovation and maintenance programs; design and implementation of school location planning procedures; development of region-specific school construction programs; and formulation of legal and administrative procedures to expedite project implementation. In terms of the internal efficiency of the system, efforts will be made to reduce drop-out and repetition rates as appropriate at all levels and to improve the utilization of teaching staff.

In higher education the Supreme University Council will oversee two main developments. The first is through its technical secretariat, developing its capability in institutional and systems planning, implementation (norms and standards) and information systems units (improved data collection and analysis to permit effective monitoring of the subsector). The second comprises actions at the level of individual institutions (student record system; better campus planning; improved faculty recruitment and student throughput; and reduced drop-out and repetition rates, as appropriate).

Other efficiency-oriented measures at the level of major programs include:

- (1) To make the Directorate-General of Training responsible for establishment of a computer-based information system which will result in enhanced external efficiency of the system through guidance and placement of enrollees. There will also be improved management and utilization of resources by more selective location of new facilities, and the training and upgrading of administrators. Reduced drop-out and repetition rates are expected to result from better programs and judicious application of incentives.
- (2) To undertake an inventory of education facilities and equipment by the Ministry of Education which will enable more effective utilization of existing facilities, certain of which could serve a future polytechnic institute.
- (3) The National Center for Adult Literacy, under the authority of the Ministry of Education, will work to improve management of instructional resources in the literacy campaign and provide programming assistance to other agencies' operating campaigns.
- (4) Development of Physical Infrastructure. The Ministry of Education's Education Development Center and the Regional Institutes of Education, linked to the Regional Directorates of Education, will be created. These facilities will enhance the country's capacity for applied education research and development. The implementation project common to the Ministry of Education and Presidency for Girls' Education will increase the productivity of school construction by streamlining and, at the same time, adapting construction procedures to permit them to increase significantly their stocks of schools in the Third Development Plan. A significant by-product of the

project will be regional construction programs, made possible by school mapping, which will permit increased enrollments, while correcting the present imbalances in access to education (urban/rural; boys /girls; between and within regions).

An inventory of higher education facilities will be undertaken by the Technical Secretariat of the Supreme University Council and enrollments increased at individual universities by completion of campus development in line with international standards and norms. Alternative forms of post-secondary education, to respond to increasing enrollments, will be explored through establishment of separate prototype technical junior colleges for men and women. Campus development in higher education will be implemented in a timely fashion so that the system can absorb an appropriate flow of secondary school graduates. In this regard, no new facilities, budgeted or planned, will be implemented without approval by the appropriate, designated government agency and the financing of designs will be limited to a stage permitting systematic evaluation. Other measures will include:

- (1) Creation of a post-secondary polytechnical institute (1,100 places) and increase of secondary technical education enrollments through post-grade 9 selection, but with no additional places created;
- (2) Undertaking expansion of, or addition to, facilities at the prevocational and vocational levels including creation of ten new vocational centers and two prevocational centers with commensurate provision of evening industrial induction program places; creating mobile centers, a new instructor training center at Riyadh, and three on-the-job training centers;
- (3) Constructing a new office for the National Center for Adult Literacy within the Ministry of Education (to serve the literacy programs of the Ministry of Education and Presidency for Girls' Education); creating three on-the-job training centers for private sector employees (as mentioned above); establishment of non-cadre public sector employee training with the assistance of the Institute for Public Administration; and expansion of the library network.

5.2.3.2 Policies. The Government, in conformity with national strategy, seeks to improve the quality of education and training by undertaking the following policies, recognizing that qualitative change requires a significant head start and special institutional provisions to remedy current weaknesses:

- (1) Establish the institutional capacity (staff, facilities, procedures) for identifying, developing and extending programs of qualitative change adapted to the environment of the Kingdom;
- (2) Install the necessary mechanisms for reporting on qualitative aspects (assessment of student performance, evaluation of instructional programs);
- (3) Develop a capacity for planning and programming qualitative change;
- (4) Manage more adequately those variables in schooling which impact on qualitative change.

The embodiment of government policy relating to qualitative change will be the Education Development Center, the National Center for Adult Literacy, the Regional Institute of Education, the development of the qualitative planning capacity of the Ministry of Education, the Supreme University Council (and its technical secretariat), and the Interministerial Committee on Manpower, all addressing the qualitative dimensions of specific functional needs.

The Government, in conformity with national strategy, seeks to improve the responsiveness of the education and training system to the needs of the economy by undertaking the following policies:

- (1) Ensure that general educational programs reflect the broad economic concerns of Saudi society, and that appropriate linkages with work-related training are established;
- (2) Improve public knowledge about the economy and its private returns, with a view to influencing attitudes toward technical and vocational training in particular;
- (3) Counter severe problems of coordination and redundancy in the manpower development programs by the regulation and control of the quantitative and qualitative of those programs regardless of agency;
- (4) Ensure that in higher education appropriate numbers of secondary school graduates enter such priority degree programs as science, medicine, engineering, agriculture, etc.
- (5) Emphasize the participation of women in appropriate occupations, e.g. teaching and medicine;

- (6) Make every effort in technical and vocational education to ensure the participation of major employers with regard to determining priority programs in setting up appropriate standards of certification;
- (7) Make it an urgent priority to tap the pool of unskilled or semi-skilled male workers from age 18 to 45 by promoting literacy, and encouraging such persons, through incentives and career guidance, to participate in the modern sector.

The embodiment of government policy regarding responsiveness to the economy will be the Interministerial Committee on Manpower, the National Center for Adult Literacy, the Supreme University Council (and its technical secretariat), and other qualitative mechanisms.

The Government, in conformity with national strategy, seeks to improve the efficiency of the education and training system by undertaking the following policies:

- (1) Ensure that administration and management of the system at all levels impact directly on the quality of programs and upon access to the system, and that repetition and excessive stay in higher education programs do not block access for newcomers;
- (2) Develop appropriate standards to guide planning and management, e.g. in general education there is no accurate information on unit costs nor any control of repetition which should be related to objective standards of student achievement;
- (3) Strengthen university planning to reduce repetition and drop-out rates and to improve the implementation of the credit hour system.

Government policy to enhance efficiency is embodied in such institutions as the Education Development Center, the Supreme University Council (and its technical secretariat), and the Project Implementation Project, which will facilitate improved management and better collection of the information required for more effective control of the sector.

The key institutions with regard to quantitative expansion will be the Project Implementation Project, the Supreme University Council (and its technical secretariat), the Interministerial Committee on Manpower, and other institutions as appropriate.

The principal issues emanating from the present conditions of the sectoral agencies' performance during the Second Development Plan period are reviewed below. They provide the principal justification and main thrust of the agency plans which are summarized below. The issues in order of importance are:

- (1) quality of instruction;
- (2) responsiveness of the system to the economy;
- (3) administration and management of the system;
- (4) current imbalances in enrollments and the requirements for physical infrastructure and other measures to facilitate balanced growth of the system to meet increased demand for education at all levels.

5.2.4 Third Development Plan Programs

5.2.4.1 Ministry of Education. With regard to the improvement of instruction a key project is the establishment of an Education Development Center (EDC) within the Ministry of Education but also serving the Presidency for Girls' Education. The Education Development Center will consolidate several of the present functions of the Ministry but will concentrate on the following sub-projects: a national assessment study to establish current levels of performance and the mechanisms for monitoring student progress at all levels in key subjects; a preinvestment study of broadcast media for school lessons; the development of curricula and methods better adapted to student and teacher profiles and reflective of the socio-economic goals of the society. The application of new instructional tools to improve the quality of programs and to compensate for the varying caliber of teachers will be implemented after careful field study. A related key project is the Regional Institute of Education linked to regional directorates of education, which will provide the means for extending and evaluating the school level application of these new measures to the schools within each region.

Other qualitative measures include: development of the qualitative planning capacity of the Ministry (economic and general feasibility studies of proposed qualitative measures and their monitoring and evaluation); extension of the school and public library network; and

extension and development (curricula, logistics) of the adult literacy program, to be linked to follow-on courses in skill training.

In terms of responsiveness of the economy, appropriate curriculum changes will be carried out via the Education Development Center, including school guidance programs. The polytechnic institute will address the need for training technicians at the post-secondary level.

Projects addressing the efficiency of the education system include: a systematic review of the organization and management of the Ministry (and the Presidency) and related compensation studies and subsequent staff training and upgrading programs.

Expansion of the system will be facilitated by the joint Ministry/ Presidency implementation project which will improve productivity in school construction by means of a systematic inventory of facilities leading to a regional school construction plan established according to appropriate design and cost standards. The resulting total construction program is summarized below:

Table 5-6

MINISTRY OF EDUCATION: CONSTRUCTION PROGRAM
(Number)

	<u>Classrooms</u>	<u>Schools</u>
Primary	10,461	848
Intermediate	4,161	270
Secondary	1,593	105
Intermediate/colleges	-	6
Special education	-	5
Koranic schools	-	60
Polytechnic Institute	-	1

Consequently, enrollments are projected to increase as shown in Table 5-7 and the projected number of graduates is given in Table 5-8.

Table 5-7

MINISTRY OF EDUCATION: PROJECTED ENROLLMENTS
(Number)

<u>Category</u>	<u>1399/1400</u>	<u>1404/05</u>	<u>Percentage Increase</u>
Elementary (1)	527,769	696,335	31.9
Intermediate (1)	126,215	188,844	49.0
Secondary (1)	50,489	79,625	57.7
Teacher Training	9,594	17,335	80.7
Adult education	75,700	137,650	81.8
Other (2)	8,624	17,275	100.0

(1) Data includes Islamic education.

(2) Other includes special education and technical education.

Table 5-8

MINISTRY OF EDUCATION: PROJECTED GRADUATES
(Number)

<u>Category</u>	<u>1399/1400</u>	<u>1404/05</u>	<u>Percentage Increase</u>
Elementary	53,508	82,397	54.0
Intermediate (1)	32,274	47,926	48.5
Secondary	13,144	21,141	60.8
Teacher training	4,825	5,400	11.9
Adult education	8,720	18,900	116.7
Other (2)	1,464	4,363	198.0

(1) Intermediate graduates also enter teacher training institutes.

(2) Other includes special education and technical education.

To achieve these increases, the teaching force will be increased, with due attention to achievable targets of Saudization. Appropriate compensation and career development measures (to be reviewed in the context of the administration review) will assist this endeavor. The planned growth of the teaching staff is shown in Table 5-9.

Table 5-9

MINISTRY OF EDUCATION: TEACHING STAFF

<u>Category</u>	<u>1399/1400</u>		<u>1404/05</u>	
	<u>All Teachers</u>	<u>Percentage of Saudi Teachers</u>	<u>All Teachers</u>	<u>Percentage of Saudi Teachers</u>
Elementary	28,375	72.9	31,652	74.9
Intermediate	10,124	35.3	11,108	76.9
Secondary	3,122	27.0	4,680	78.5
Teacher training	855	19.4	1,310	28.8
Adult education	6,308	94.5	3,906	100.0
Other ⁽¹⁾	1,872	48.7	2,195	58.6

(1) Includes special education and technical education.

5.2.4.2 Presidency for Girls' Education. The principal programs and projects addressing the quality of education (the Education Development Center and its sub-projects) are common to the Presidency. So, too, are those measures addressing improved efficiency.

In terms of the physical expansion of girls' education, the implementation project will involve the implementation unit of the Presidency as well as the Ministry of Education's Project Execution Department. The resulting construction program⁽¹⁾, regionally-oriented, provides for the numbers of campus schools (incorporating elementary, intermediate, secondary levels or combinations thereof) as shown in Table 5-10; and the projected enrollments are shown in Table 5-11. The projected numbers of graduates are shown in Table 5-12.

(1) In addition to the completion of First and Second Development Plans.

Table 5-10
PRESIDENCY FOR GIRLS' EDUCATION: CONSTRUCTION PROGRAM
(Number of class rooms)

<u>Type of School</u>	<u>1400/01</u>	<u>1401/02</u>	<u>1402/03</u>	<u>1403/04</u>	<u>1404/05</u>	<u>Third Plan</u>
350 New schools of 6 classes (elementary rural schools)	210	441	483	483	483	2,100
50 New schools of 9 classes (elementary and intermediate level)	-	-	140	121	189	450
45 New schools of 15 classess (intermediate and secondary levels)	-	-	60	250	365	675
40 New schools of 27 classess (educational compounds)	-	-	227	540	313	1,080
Total	210	441	910	1,394	1,350	4,305

Table 5-11
PRESIDENCY FOR GIRLS' EDUCATION: PROJECTED ENROLLMENTS

<u>Category</u>	<u>Enrollments</u> (Number)		<u>Percentage</u>
	<u>1399/1400</u>	<u>1404/05</u>	<u>Increase</u>
Elementary	308,092	439,213	42.6
Intermediate	72,033	103,655	43.9
Secondary	26,542	43,560	64.1
Teacher training	12,996	24,370	87.5
Adult education	36,485	49,404	35.4
Other ⁽¹⁾	4,520	15,552	244.1

(1) Includes nursery, kindergarten and technical education. Koranic programs are included under "elementary".

Table 5-12

PRESIDENCY FOR GIRLS' EDUCATION: PROJECTED GRADUATES
(Number)

<u>Category</u>	<u>1399/1400</u>	<u>1404/05</u>	<u>Percentage Increase</u>
Elementary	32,212	49,320	53.1
Intermediate (1)	17,959	27,056	50.7
Secondary	6,345	11,396	79.6
Teacher training	3,554	7,333	106.3
Adult education	3,813	7,411	94.4
Other (2)	1,975	8,432	326.9

(1) Intermediate graduates also enter teacher training institutes.

(2) Includes nursery, kindergarten and technical education. Koranic programs are included under "elementary".

To achieve these increases, the teaching force will be expanded as indicated in Table 5-13.

Table 5-13

PRESIDENCY FOR GIRLS' EDUCATION: TEACHING STAFF

<u>Category</u>	<u>1399/1400</u>		<u>1404/05</u>	
	<u>All Teachers</u>	<u>Percentage of Saudi Teachers</u>	<u>All Teachers</u>	<u>Percentage of Saudi Teachers</u>
Elementary	15,404	61.3	19,957	100.0
Intermediate	4,502	15.2	5,603	45.8
Secondary	1,896	15.3	2,562	42.5
Teacher training	1,000	9.0	1,859	15.3
Adult education	2,432	33.1	2,823	100.0
Other (1)	307	56.4	932	70.9

(1) Includes nursery, kindergarten and technical education. Koranic programs are included under "elementary".

5.2.4.3 Al Thagr Model School. Table 5-14 shows the intakes, enrollments, graduates and class-room requirements projections during the Third Development Plan.

Table 5-14

AL THAGR MODEL SCHOOL								
(Number)								
Level	Students		Intakes		Graduates		Classrooms	
	1399/1400	1404/05	1399/1400	1404/05	1399/1400	1404/05	1399/1400	1404/05
Elementary	1,231	1,260	180	200	198	172	37	36
Intermediate	496	630	151	230	179	218	13	18
Secondary	409	510	152	180	131	133	12	17
Total	2,136	2,400	483	610	508	523	62	71

The main projects scheduled for the Third Plan are listed below in order of priority:

- (1) Secondary school (Medina Road Campus);
- (2) Intermediate School (Medina Road Campus);
- (3) Playgrounds and roads;
- (4) Clubhouse, swimming pool, and gymnasium;
- (5) Mosque and Koranic Hall;
- (6) Maintenance and workshop facilities and garages.

5.2.4.4. Al Assima Model School. Table 5-15 shows the intakes, enrollments, graduates and class-room requirements.

Table 5-15

**AL ASSIMA MODEL SCHOOL
(Number)**

Level	Students		Intakes		Graduates		Classrooms	
	1399/1400	1404/05	1399/1400	1404/05	1399/1400	1404/05	1399/1400	1404/05
Kindergarten	650	650	350	350	350	350	20	20
Elementary	970	990	200	200	145	160	33	33
Intermediate	450	500	150	180	145	180	18	18
Secondary	525	560	200	200	144	180	21	21
Total	2,595	2,700	900	930	784	870	92	92

The main projects scheduled for the Third Plan are listed below in order of priority:

- (1) Completion of projects underway;
- (2) Housing for teachers and administrators;
- (3) Extension of closed circuit television network;
- (4) General stores;
- (5) Covering soccer field with artificial turf;
- (6) Covered parking;
- (7) Clubhouse for equitation;
- (8) Clubhouse for driver education.

5.2.4.5 The Universities and the Girls' Colleges. A total undergraduate enrollment of 69,000, of whom some 59,300 will be Saudis, is projected for the end of the Third Development Plan. Recent levels of enrollments and graduates at the undergraduate level are shown in Tables 5-16 and 5-17. Of the individual higher education institutions, all but King Faisal University existed

Table 5-16

ENROLLMENTS AND GRADUATES BY UNIVERSITY: 1394-1399
(Number)

<u>University</u>	<u>1394/95</u>		<u>1395/96</u>		<u>1396/97</u>		<u>1397/98</u>		<u>1398/99</u>	
	<u>Enrollments</u>	<u>Graduates</u>	<u>Enrollments</u>	<u>Graduates</u>	<u>Enrollments</u>	<u>Graduates</u>	<u>Enrollments</u>	<u>Graduates</u>	<u>Enrollments</u>	<u>Graduates</u>
University of Riyadh	6,710	685	7,807	872	8,139	831	10,565	1,044	12,857	1,060
Islamic University, Medina	903	151	1,055	186	1,249	210	1,565	233	1,916	287
King Abdul Aziz University, Jeddah	5,761	464	9,986	680	14,150	955	14,390	734	11,517	811
Imam Mohammad Bin Saud University, Riyadh	3,273	372	4,515	490	4,623	592	4,579	581	4,445	741
King Faisal University, Dammam	-	-	170	-	351	-	614	-	872	154
University of Petroleum & Minerals, Dhahran	1,444	127	1,706	140	1,937	208	2,272	289	2,540	302
Girls' Colleges	875	86	1,099	117	1,326	123	1,694	350	1,965	424
<u>Total</u>	18,966	1,885	26,338	2,485	31,775	2,919	35,679	3,231	36,112	3,779

Notes: Data includes Saudi and non-Saudi regular and external students of both sexes.

Table 5-17

UNIVERSITY ENROLLMENTS AND GRADUATES BY MAJOR ACADEMIC DISCIPLINE
(Number)

Major Academic Discipline	<u>1394/95</u>		<u>1395/96</u>		<u>1396/97</u>		<u>1397/98</u>		<u>1398/99</u>	
	Enrollment	Graduates	Enrollments	Graduates	Enrollments	Graduates	Enrollments	Graduates	Enrollments	Graduates
Agriculture	523	61	603	87	673	92	871	98	1,076	119
Arts	4,478	352	8,421	391	9,048	599	9,680	570	7,588	790
Commerce	3,263	177	4,878	368	6,978	493	7,334	328	6,214	519
Education	3,168	469	3,635	516	3,787	534	4,416	903	5,492	803
Engineering & architecture	2,177	178	2,706	207	3,681	273	4,063	376	4,972	502
Medicine	276	-	393	20	818	23	1,175	26	1,616	74
Allied medical science	-	-	-	-	12	-	16	-	58	-
Pharmacy	341	39	351	63	265	44	338	47	350	46
Religious fields	3,640	503	4,137	698	4,917	740	5,522	679	6,216	761
Sciences	1,100	106	1,214	135	1,596	121	2,264	204	2,530	165
Total	18,966	1,885	26,338	2,485	31,775	2,919	35,679	3,231	36,112	3,779

Notes:

- (1) Data includes Saudi and non-Saudi, regular and external students.
- (2) Agriculture includes Veterinary Medicine.
- (3) Arts includes Arabic Language, Social Service and Social Science.
- (4) Commerce includes Economics and Administration.
- (5) Engineering & Architecture includes Applied Engineering, Engineering Science and Industrial Management.
- (6) Medicine includes Dentistry.
- (7) Allied Medical Science includes Nursing.
- (8) Religious Fields include Sharia, Hadeeth Shariff, Da'wa and Principles of Religion.
- (9) Sciences include Meteorology, Geology, Earth Sciences and Oceanography.

Source:

Education model projections based on enrollment data published by the Ministry of Education.

at the beginning of the Second Plan period. The two largest: Riyadh University (with a branch at Abha) and the King Abdul Aziz University in Jeddah (with branches at Mecca and Medina) are general universities with a range of courses including arts, engineering and medicine. The King Faisal University in Al Hassa (with a branch at Dammam) and the University of Petroleum and Minerals in Dhahran are specialized universities. Whereas the latter is concentrating on engineering, science and industrial management, the King Faisal University offers programs in medical sciences, agriculture and veterinary medicine, architecture and planning. During the period of the Third Development Plan it expects to add : humanities, administrative science, education and applied sciences. There are also two religious universities: the Imam Mohammad bin Saud University in Riyadh (with branches at Abha and Qasem) and the Islamic University at Medina. The latter is an international university devoted primarily to the instruction of non-Saudi students in Islamic subjects. The Girls' colleges are located in Riyadh, Jeddah, Mecca and Dammam; they serve largely as teacher training institutions, though a Higher Institute for Social Service also functions in Riyadh.

During the period of the Third Development Plan, the various elements of the higher education system will develop their academic programs guided by the Kingdom's overall need for manpower in such critical fields as engineering, science, medicine, commerce and administration. The output of graduates with the first university degree will be increased by improving the quality of effectiveness of teaching programs and by reducing the number of students who drop out or who prolong their studies through repetition. Postgraduate studies will be expanded primarily by means of courses overseas. A limited number of post-graduate programs will be maintained within the Kingdom, but there will be no explicit expansion of accommodating facilities.

Every effort will be made to staff the colleges and departments efficiently at all levels, with due consideration to the need to increase the proportional weight of Saudi staff, both through recruitment policies and by increasing the number of students per faculty member. The supply of qualified Saudis for faculty work will be increased by means of active overseas study programs already begun under the Second Development Plan.

The programs and projects specified in the operational plans of the several higher education institutions will be developed and executed within the framework of master plans, to be prepared by the institutions according to guidelines set down by higher authorities for the national system of higher education. A technical secretariat, to be established within the Ministry of Higher Education, will provide technical, administrative and information services to assist the individual higher education institutions in planning their development.

5.2.4.6 Ministry of Higher Education. The Ministry of Higher Education was established by Royal Decree No. 1/236 dated 8/10/1395 A.H. in order to implement the Kingdom's policy in the field of higher education in conjunction with the existing universities and those to be established in the future.

- (1) A technical secretariat will be set up to support the Supreme University Council in the operation of its function of a higher education development and coordination board, which will provide guidance and technical services to the development of the higher education system. Among the many functions of the technical secretariat, the following are especially important and urgent:
 - preparing a master plan for the higher education subsector;
 - collecting, processing and distributing standardized information regarding university operations;
 - establishing appropriate design, space and cost standards for new university facilities.
- (2) A model regional junior college (planned enrollment: 3,000) will be established as a pilot project to assess the feasibility of serving national manpower needs and the regionalization of post-secondary educational services by means of such an institution.
- (3) A permanent Ministry building, including a computer center, will be built to serve the Technical Secretariat and other Ministry functions.
- (4) A pre-investment study for a National Central Library will be carried out.
- (5) Facilities and staff will be provided to support Saudi students who are studying abroad.

5.2.4.7 General Secretariat for Girls' Colleges. The Girls' Colleges play a key role in the provision of higher educational services to female graduates of the secondary schools. Although the present emphasis is on the training of teachers, there is also a Higher Institute for Social Service. The addition of programs in other fields suitable for the education of Saudi women is expected during the Third Development Plan period.

The Girls' Colleges will continue their role as principal providers of post-secondary educational services to eligible females, through the expansion of their enrollment capacity to a total of 10,000 at the four existing campuses at Riyadh, Jeddah, Mecca and Dammam. An alternative to the full four years of college will be introduced by means of a junior college option, a model institution to be established in a region not presently served by a women's college.

In the five years of the Plan, the activities of the Girls' Colleges will continue to expand in quantity and to improve in quality. In this process they will carry out their functions consistent with the overall policy for the development of higher education in the Kingdom. Academic buildings, necessary equipment, housing and library facilities will be provided by the Third Development Plan for the three existing campuses and the model junior college for women.

5.2.4.8 Riyadh University. As a general university, Riyadh University is devoted to instruction and research in a variety of academic fields. During the Third Development Plan, its activities will continue to expand in quantity and to improve in quality. In this process, and through collaboration with the Supreme University Council, it will carry out its activities consistent with the overall policy for the development of higher education in the Kingdom.

A total enrollment of 17,000 (15,000 males and 2,000 females) is projected for the end of the Plan period, including those at the College of Education in Abha. Some 2,460 graduates are projected for the final year of the Plan. Table 5-18 summarizes these estimates by major field of study.

Table 5-18

RIYADH UNIVERSITY
(Number)

<u>Academic Discipline</u>	<u>Enrollments</u>			<u>Graduates</u>
	<u>Total</u>	<u>Male</u>	<u>Female</u>	-----
Agriculture	1,000	1,000	-	150
Arts	3,200	2,600	600	480
Administrative sciences	5,000	4,100	900	750
Education	2,400	2,400	-	360
Engineering	2,000	2,000	-	260
Medicine	1,000	600	400	100
Allied medical science	400	300	100	60
Pharmacy	500	500	-	70
Science	1,500	1,500	-	230
Total	17,000	15,000	2,000	2,460

The above projections envisage a special emphasis on the expansion of fields crucial to national development, principally engineering, science and administration.

Riyadh University will, during the Third Development Plan period, continue to deliver and improve instructional programs, research and community service. Its major physical development goal is construction of the new campus at Dariyah, which will cover nine square kilometers, with an enrollment capacity of more than 15,000 students in all colleges and the Arabic Language Institute, in addition to King Khaled University Hospital and administrative and auxiliary facilities.

During the Second Development Plan period, all planning and design documents were completed. Roads have been constructed. Printing facilities and some athletic facilities have been built, as has Phase I of the faculty housing. Contracts for academic buildings, additional housing units and other auxiliary construction are underway. Phases I and II of laboratories at King Khaled Hospital are likely to be completed in 1399/1400. Housing units for 4,000 students will also be finished at that time. A telephone network will be installed and central maintenance buildings constructed. The remaining developments at the Dariyah campus are expected to continue for most of the Third Development Plan period.

5.2.4.9 King Abdul Aziz University. As a general university, King Abdul Aziz University is devoted to education and research in a variety of academic disciplines. During the Third Development Plan, its activities will continue to expand in quantity and to improve in quality. In this process, and through collaboration with the Supreme University Council, it will carry out its activities consistent with the overall policy for the development of higher education in the Kingdom.

A total enrollment of 21,000 (15,000 males and 6,000 females) is projected for the end of the Plan period at all three campuses - Jeddah, Mecca and Medina. Some 3,070 graduates are projected for the final year of the Plan. These estimates are summarized in table 5-19.

Table 5-19

KING ABDUL AZIZ UNIVERSITY
(Number)

<u>Academic Discipline</u>	<u>Enrollments</u>			<u>Graduates</u>
	<u>Total</u>	<u>Male</u>	<u>Female</u>	
Arts and humanities	2,900	1,400	1,500	440
Economics and administration	6,500	5,700	800	980
Education	3,000	1,500	1,500	450
Engineering and architecture	2,000	2,000	-	260
Medicine	1,000	600	400	100
Allied medical sciences	800	400	400	120
Sharia	1,800	1,200	600	270
Science and meteorology	3,000	2,200	800	450
Total	21,000	15,000	6,000	3,070

The above projections envisage an emphasis on the expansion of certain fields crucial to national development, especially engineering, science and administration.

King Abdul Aziz University will, in the Third Development Plan period, maintain its instructional programs, research and community service, with expansion and improvements as appropriate.

The campus facilities at Jeddah, Mecca and Medina will continue to be developed. New capital projects for the Third Development Plan include academic buildings and equipment, a teaching hospital, housing and campus infrastructure. Of these, the medical school and housing have the highest priority.

5.2.4.10 King Faisal University. King Faisal University is a higher education institution which presently comprises a number of specialized faculties, namely: medicine, veterinary medicine, architecture and planning, and agriculture. During the course of the Third Development Plan faculties of education, administrative sciences, humanities and applied sciences will also be established. In addition, the medical sciences capability of the University will be expanded to include dentistry, nursing and a school for medical assistants.

A total enrollment of 5,000 (3,500 males and 1,500 females) is projected for the end of the Plan period at both campuses : Al Hassa and Dammam. Some 710 graduates are projected for the final year of the Plan. Projections of enrollments and graduates, reflecting an emphasis on fields important to national development, are shown in Table 5-20.

Table 5-20

KING FAISAL UNIVERSITY

<u>Academic Discipline</u>	<u>Enrollments</u>			<u>Graduates</u>
	<u>Total</u>	<u>Male</u>	<u>Female</u>	
Agriculture & veterinary medicine	800	600	200	120
Humanities	700	600	100	110
Administrative sciences	300	200	100	50
Education	700	400	300	110
Architecture & planning	600	600	-	80
Medicine	1,000	600	400	100
Medical sciences	800	400	400	120
Applied sciences	100	100	-	20
Total	5,000	3,500	1,500	710

During the Third Development Plan period, King Faisal University will pursue its growth and development as a comprehensive institution of higher education with a scientific, professional and human orientation. In this framework it will continue to prepare students to participate in the Kingdom's social, economic, and cultural development by means of educational programs in selected fields relevant to national and regional needs. At the same time, it will also establish and expand research and community service programs in order to contribute maximally to the base of knowledge and trained manpower needed for rapid and effective development of the Kingdom. The capital projects for the Third Development Plan include academic buildings, infrastructure and housing at both campuses, as well as a teaching hospital at Dammam.

5.2.4.11 University of Petroleum and Minerals. The University of Petroleum and Minerals, draws students from throughout the Kingdom, as well as from a number of foreign countries, and is well established as an educational institution of first quality in technical and scientific fields.

A total enrollment of 4,000 is projected for the end of the Plan period, mainly in various fields of engineering, but also in engineering sciences, industrial management and natural sciences. Some 520 graduates are projected for the final year of the Plan period.

In addition to the expansion and development of its instructional facilities, the University will also increase the activities of its Research Institute. The Institute, national in scope, will conduct research in petroleum and gas technology, minerals, water and environment, meteorology, energy, economics and industrial management.

During the period of the Third Development Plan, the University of Petroleum and Minerals will continue to prepare technical manpower to contribute to the economic and social development of the Kingdom, while also increasing its activities in research and public service. Physical development in support of these activities will concentrate on the construction of academic buildings, research facilities, housing, and campus services.

5.2.4.12 Imam Mohammed bin Saud University. Imam Mohammed bin Saud University is, with the Islamic University, one of two universities in Saudi Arabia devoted to instruction and research primarily in topics related to religion. In addition to specifically religious subjects such as Da'wa and Sharia, this University also has major instructional programs in Arabic language and the social sciences.

The University was established in 1394. In that year, it had two colleges, one higher institute and 37 religious institutes throughout the Kingdom which provided candidates for entrance to the University.

Today, the University offers graduate degrees, including the Ph.D. in various fields. The University is composed of six colleges, the Higher Da'wa Institute, the Higher Judicial Institute, the Arabic Center for non-Arabs, an English language center and 47 institutes on the intermediate and secondary levels.

A total enrollment of 8,000 is projected for the University at the end of the Third Development Plan period, in addition to 23,850 in the religious institutes. Some 1,200 graduates from the University are projected for the final year of the Plan and 2,740 from the institutes at the secondary level.

Capital projects for the Third Development Plan include student housing, academic buildings, support services, mosques, renovations and the expansion of existing institutes and branches. Of these, housing has the highest priority.

5.2.4.13 Islamic University (Medina). Islamic University is, with Imam Mohammed bin Saud University, one of the two universities in Saudi Arabia devoted to instruction and research in topics related to religion. In addition to specifically religious subjects, the University also has an instructional program in Arabic language for non-speakers of Arabic. The University is principally an international institution, and according to its charter 85 % of its enrollment are to be non-Saudis. It will, during the Third Development Plan, be devoted both to increased quality in its instructional and research programs and to quantitative expansion of its facilities and operational capacity.

By the end of the Third Development Plan, the enrollment at Islamic University is projected at 4,000 students, with 610 graduates anticipated for the final year of the Plan period. The University will continue to develop as a center of Islamic studies for students from all parts of the world. At the same time, it will seek to encourage research, translation and scholarly contacts in Islamic subjects and to spread the Islamic spirit, belief and message.

The capital projects for the Third Development Plan include academic buildings, student housing and services, and campus infrastructure. Of these, completion of buildings approved during the Second Development Plan will be given priority, followed by new academic facilities and housing.

5.2.4.14 Directorate General of Vocational Training (Ministry of Labor and Social Affairs). The Third Development Plan will complete the network of pre-vocational and vocational training centers as projected in the Second Development Plan. Additionally, certain urgent new physical projects will be implemented: three on-the-job training centers to train instructors and to upgrade employed private sector workers; four mobile training centers to provide flexibility in meeting localized demand for training and upgrading; two new pre-vocational centers and ten vocational training centers. These physical projects will be complemented by important qualitative measures including: identification of skills critical to the economy (in collaboration with the Labor Affairs Program); improved quality of programs adapted to employers' needs and certification of trainees' skills; better placement and follow-up of graduates through a computer-based information system leading to more secure chances of employment. Linkages with adult education programs (in particular, functional literacy) and with general education (technical education) will be better articulated. In general, all programs will be coordinated with the Interministerial Committee on Manpower. Table 5-21 lists major physical projects and their impact on overall enrollments and graduates.

Table 5-21

VOCATIONAL TRAINING
(Number)

<u>Type of Training</u>	<u>Facilities</u>		<u>Additional Capacity</u>	<u>Cumulative Enrollments</u>	<u>Graduates</u>
	<u>1399</u>	<u>1405</u>			
Pre-vocational	6	8 (+ 2)	980 (1)	3,892	2,722
Vocational	14	24 (+ 10)	4,130 (1)	19,964	13,975
Instructor training	-	1 (+ 1)	70	830	830
Mobile centers	6	10 (+ 4)	240	1,932	1,352
Industrial instruction	-	-	4,880 (2)	30,184	21,128
On-the-job training	-	3 (+ 3)	300	1,235	1,235
Workers	-	-	-	15,500 (3)	-

- Notes: (1) Includes expansion of existing facilities.
 (2) Function of available pre- and vocational places.
 (3) Trained by in-firm training instructors.

5.2.4.15 Institute of Public Administration. The Institute will increase the impact of its pre-service and in-service training as shown in Table 5-22.

Table 5-22

INSTITUTE OF PUBLIC ADMINISTRATION
(Number)

	Cumulative Enrollments 1400 - 1405
Full time regular course	27,645
Pre-service courses	1,520
Special courses	1,418
Management seminars	1,240

To achieve these ends, it will increase its instructional staff and complete the development of its physical facilities (Riyadh expansion by 1402; Jeddah by 1404 subsequent to a pre-investment study, and housing and equipment at Dammam by 1403).

Increased emphasis will be placed on: staff development for the Institute (330 personnel to be sent overseas 1400-1405); the provision of research and consulting studies related to the practical problems of public sector agencies which, in turn, will have a beneficial impact on training; and the application of modern methods of instruction (education application of closed circuit television and language laboratories). The English language training program, an important prerequisite to overseas training of public officials, will be significantly strengthened (7,877 cumulative enrollments). The Institute will assist the Civil Service Bureau in the design and development of non-cadre training programs.

To assist in the orientation of the Institutes' major role in the development of human resources, a mechanism for external review will be established to evaluate key programs.

5.3 LABOR AFFAIRS

5.3.1 Background

The administration and employment services of the Kingdom's Labor force are conducted by two separate government branches. The Civil Service Bureau is responsible for the civilian employment in the public sector, while the Deputy Ministry for Labor Affairs supervises the employment activities in the private sector.

In the public sector, the Civil Service Bureau operates under the supervision of the Civil Service Board, which reports directly to the Council of Ministers. The Bureau is in large part a service organization. It is responsible for a wide range of functions on government employment. These functions include:

- (1) Manpower planning for the entire civil service;
- (2) Recruitment, examination and selection of government employees;
- (3) Distribution of available manpower within the government;
- (4) Enforcement of the Civil Service Regulations;
- (5) Coordination and improvement of government training activities;
- (6) Evaluation of government employees;
- (7) Maintenance of control records on all government employees;
- (8) Development and operation of a manpower data system;
- (9) Assistance to the Ministries and Agencies in the improvement of their personnel and manpower capabilities.

The Labor Affairs program of the Deputy Ministry for Labor Affairs is mainly concerned with providing labor services and supervising employment activities in the private sector. It includes four major functional areas: labor legislation; labor conditions supervision; labor services; and labor information.

5.3.2 Public Sector Services: Civil Service Bureau

5.3.2.1 Present Conditions. During the past two decades, the direct government civilian employment has more than trebled. As of now, the Government is not only the single largest employer in the Kingdom, but it also absorbs the vast majority of trained new labor force entrants each year. Therefore, the Civil Service Bureau plays an important role in the Kingdom's overall manpower utilization and labor force deployment process.

With regard to its added responsibilities, the former General Personnel Bureau was converted to the Civil Service Bureau during the first half of the Second Development Plan. A Civil Service Board was also established under the chairmanship of HRH the Crown Prince, with authority to act for the Council on most matters that formerly required attention by the Council itself. At the same time, employees of public establishments were made subject to the Civil Service Regulations.

In addition, Civil Service Bureau field offices for the recruitment of foreign nationals were established in Cairo, Damascus, Amman, Karachi, and Dacca. A microfilming system, a computer terminal, and an automated record processing system were installed in the Bureau for the recording and maintenance of information and statistics on government employees. In recent years, the Bureau assumed a more active role in manpower planning and development for the Civil Service as a whole. Also, employment regulations were developed and adopted for Saudi civil servants and, separately, for non-Saudi contract employees.

Despite the significant progress in the preceding five years, the following conditions require further attention.

- (1) There is an overall need for better organization plans, procedural systems, and staffing patterns in the Ministries;
- (2) Supervisory practices are often notably inadequate at virtually all levels;
- (3) An undesirably large percentage of the authorized positions in the Government as a whole are vacant;
- (4) Employees in many cases are not effectively utilized or properly motivated;
- (5) Statistics on positions and employees are not as complete and up-to-date as necessary for effective manpower research and planning.

5.3.2.2 Objectives and Policies. The major goals for the Third Development Plan are concerned with three functional areas:

- (1) With respect to overall functions achieve a cooperative relationship with the ministries and other organizations in the execution of the Government's development plans.
- (2) With respect to personnel regulation and administration secure the development and application of objective measures for determining the number of positions required by the ministries and agencies; prepare position descriptions and

classifications for all civil service posts; reduce the percentage of non-Saudis occupying civil service positions and eliminate the category of "non-cadre" positions by the transfer of the employees in such positions to the civil service or the labor force.

- (3) With respect to manpower establish a data bank and supporting information system to improve the management and utilization of the human resources available to the Government and develop methods for measuring the productivity of employees and of organizational units.

5.3.2.3 Third Development Plan Programs. In recognition of its assigned responsibilities and of the conditions described above, essential functions relating to personnel recruitment, examination, regulation, and administration will be combined; and attention to manpower planning, development, utilization, and motivation will be expanded. Major programs during the Plan period include the following:

- (1) In the area of personnel regulation and administration, authorized civil service positions will be classified on the basis of duties and responsibilities. The need for changes in personnel regulations will be studied; a government summer job program for students will be developed; and the vacant positions in all agencies will be evaluated.
- (2) The manpower management and planning functions will be conducted in coordination with the newly established Inter-Ministerial Committee on Manpower. Major actions of this program comprise the following: a comprehensive and integrated machine record and communication system for the maintenance and use of all civil service information on manpower and individual employees will be developed and installed; the actual staff requirements in each government agency will be evaluated; a program for the upgrading of non-cadre personnel will be developed; the Government-wide organization and management study will be coordinated. (For detail, also see Sections 3.1.3.1 and 9.5.3.1). A Civil Service Manpower Planning System will be developed and administered; short-term management training seminars will be organized; means to improve the productivity of government employees will be established; and studies of manpower and personnel management conditions and problems in the public service will be carried out.

5.3.3 Private Sector Services: Deputy Ministry for Labor Affairs

5.3.3.1 Present Conditions. The size of the labor force has doubled over the ten-year span since the inception of the First Development Plan. The services and activities of the Deputy Ministry for Labor Affairs thus require substantial changes and expansions.

The provisions of the Labor and Workmen Law, which came into effect in 1389, have guided the development of the Deputy Ministry's program. Branch labor offices have been established throughout the Kingdom's main labor market areas. In accordance with the development objectives of the Kingdom, there has been increasing emphasis on training and upgrading of the indigenous labor force and on improvement of labor market information.

In addition to administering and enforcing the Labor and Workmen Law, the Deputy Ministry reviewed more than 200 company regulations on employment and work procedures during the Second Plan period. Also, it provided a wide range of employment services to both Saudi and non-Saudi workers. An occupational classification manual of the private sector was completed in 1397. Various survey and research studies on labor force conditions were conducted in cooperation with the Central Department of Statistics; and the labor health and safety services programs were improved.

The major constraints to the development of the programs of the Deputy Ministry for Labor Affairs are the lack of qualified and technical manpower in the field of labor affairs, and the inadequate information and statistics concerning the labor market system.

5.3.3.2 Objectives and Policies. In accordance with the Kingdom's need for manpower development and labor services, the main objectives and policies for the Third Development Plan are:

- (1) To enforce the provisions of the Labor and Workmen Law;
- (2) To improve and develop an efficient labor market system by providing better employment information to citizens;
- (3) To develop labor service programs;
- (4) To provide a better understanding of the Kingdom's labor situation by continuing the collection and dissemination of labor statistics;

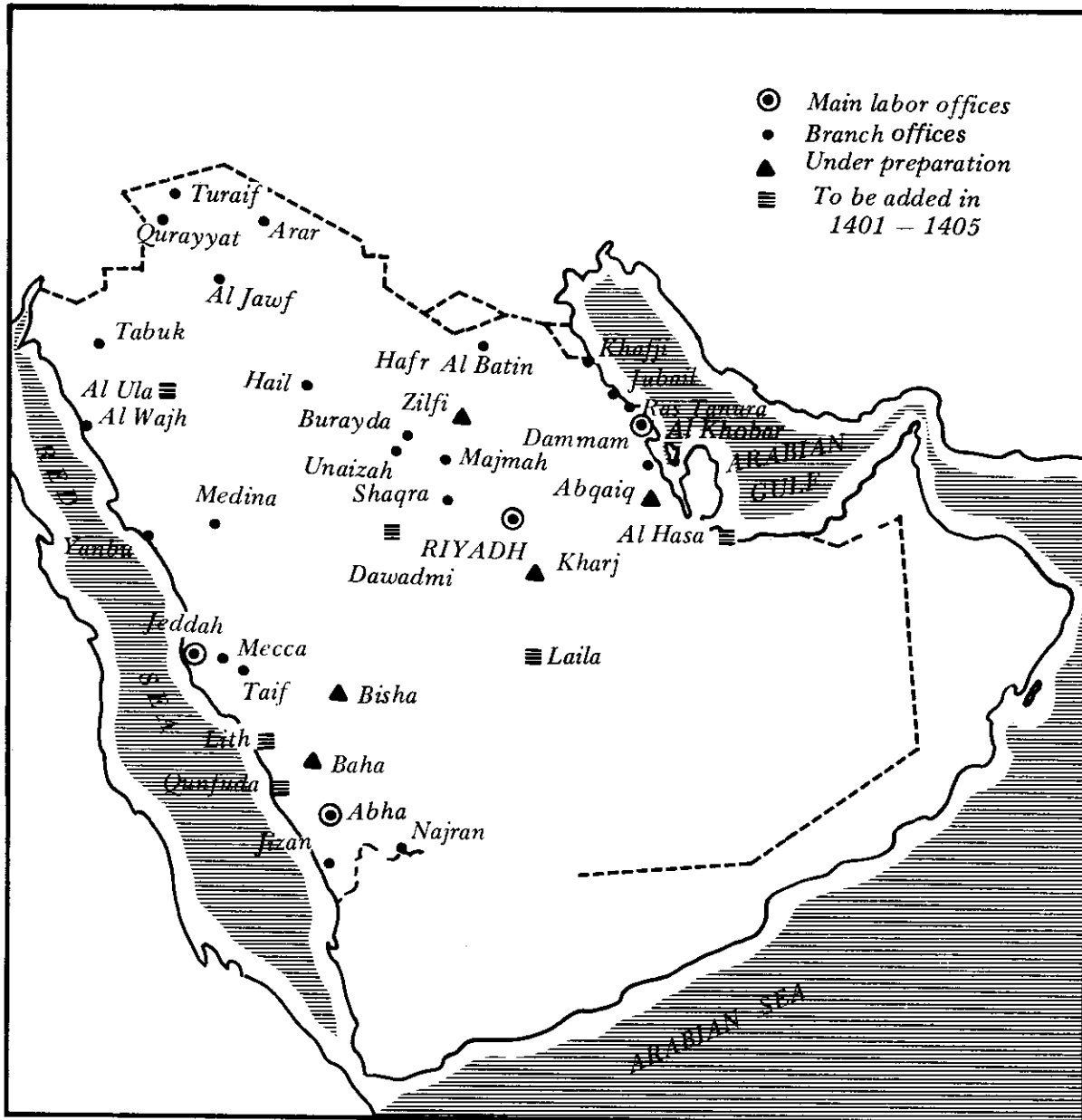
- (5) To reduce dependence on foreign manpower and to concentrate on Saudization in all economic activities;
- (6) To formulate policies for encouraging citizens to participate in productive activities;
- (7) To assist deployment of the labor force.

5.3.3.3 Third Development Plan Programs. During the Third Development Plan period, the Deputy Ministry's Labor Affairs program will expand the scope and improve the quality of its activities in the following program areas:

- (1) In the area of labor legislation the review of the Labor and Workmen Law will be completed and resolutions issued for necessary changes. Also, a committee will be established to draft an occupational health and safety act.
- (2) The labor conditions supervision program will emphasize the upgrading of the labor inspection program and will improve the labor health and safety services.
- (3) Under labor services, the labor guidance program will be expanded to elucidate issues relating to labor; develop special programs to intensify recruitment of the domestic labor force; establish an Employment Supervisory Section to coordinate and monitor foreign worker importation activities; design short-term career development training courses; review the private sector social services and labor welfare programs; and conduct national standard vocational skill proficiency tests.
- (4) In the area of labor information, a Central Information Center on labor statistics will be established; a series of comprehensive career handbooks for school children will be developed; and studies related to labor activities and critical skills of the economy (in collaboration with the Directorate General of Vocational Training) will be undertaken.
- (5) Administratively, Women's Affairs Units will be established in the labor offices to coordinate and supervise employment services and guidance counseling activities for women. There will be five new branch labor offices added bringing the total of main and branch labor offices to 37 by the end of the Third Development Plan. (See Figure 11)

Figure.....11

DISTRIBUTION OF LABOR OFFICES



5.4 OTHER GOVERNMENT TRAINING

5.4.1 Present Conditions.

5.4.1.1 In addition to the activities of the aforementioned training sectors, all government agencies have some type of in-service training programs through which they organize the training and development of their manpower. The focus of this section is on those government agencies that operate their own training institutions. Comprehensive data on such training institutions and their fields of programs are shown in Table 5-23.

Table 5-23

OTHER TRAINING INSTITUTIONS ⁽¹⁾ IN GOVERNMENT

<u>Sector</u>	<u>Number in 1399</u>	<u>Capacity in 1399</u>	<u>Number Trained In Second Plan</u>
Agriculture	3	465	1,130
Energy and manufacturing	3	3,200	8,570
Health	9	1,400	n.a.
Social services	1	vary	2,000
Transportation	3	1,200	6,040
Communications	7	1,400	3,000
Municipal development	3	300	600
Total	29	7,965	21,340

(1) Excluding the training programs of the Ministry of Interior, the Ministry of Defense and Aviation, and the Saudi Arabian National Guard.

5.4.1.2 These programs encourage skills training by the agencies which will utilize their graduates in the work setting. The training period can be related to a goal-oriented outcome, and, if successful, the trainee will know his eventual job destination. The intended result is to increase the labor force to a qualified and productive level.

The capacity of the government training sector, as measured by physical space and program offerings, has expanded greatly since the end of the First Development Plan period, and additional expansion is proposed. However, solutions proposed to alleviate the manpower and training dilemma in the Kingdom have lacked the system-wide ramifications that should impact all training policies; have emphasized quantity of rather than quality of programs; have not considered the training activities of other agencies; and have not reached the segments of the social structure that are the determinants in any attitudinal changes toward the skilled trades. All of these problems will be reviewed in a systematic manner during the the Third Plan period.

5.4.2 Objectives and Policies

5.4.2.1 The chief objective of this training subsector is to provide adequate planning and co-ordination of training for a balanced development of Saudi manpower in the professions, skilled trades, arts, and crafts so that it may make a maximum contribution to the economic, industrial, agricultural, and social development of the Kingdom.

5.4.2.2 In order to achieve the above objective the Interministerial Committee on Manpower was established in 1400 to find means to coordinate and maximize the effectiveness of manpower planning, development and training within the Kingdom.

5.4.3 Third Development Plan Programs

5.4.3.1 During the Third Development Plan period, the Secretariat of the Interministerial Committee on Manpower will present its definitive structure and functions to the Council of Ministers in the first year. The IMCOM and its Secretariat will serve as the coordinating mechanism of the educational and training sector; and it will promote communication and cooperation in efforts to reconcile manpower demand with supply. The general functions of the IMCOM will be to focus the expertise in the separate government agencies and to induce them to work more effectively towards commonly accepted manpower objectives. Manpower data and policies for manpower development will also be developed by the IMCOM.

5.4.3.2 The other government training infrastructure is presently organized to emphasize more of what was produced in the past rather than encourage new manpower training and development schemes. The IMCOM will ensure that education and training programs are in keeping with economic needs. Table 5-24 presents the new training institutions that will become operational during the Third Development Plan.

Table 5 -24

**NEW TRAINING INSTITUTIONS IN GOVERNMENT
DURING THE THIRD DEVELOPMENT PLAN**

<u>Location</u>	<u>Training Center</u>	<u>Capacity</u>	<u>Estimated Graduates</u>
Riyadh	Industrial Training Center, Petromin	500	150
	Aerial Survey Training Center, Ministry of Petroleum and Mineral Resources	80	vary
	First Aid Training Inst (Red-Crescent Society)	300	150
	Electricity Training Center, Ministry of Industry and Electricity	250	200
	Industrial Training Center, Petromin	500	150
Jeddah	Industrial Training Center, Petromin	500	150
Dammam	Telecommunications and Broadcast Institute, PTT	200	75
	Health Training Institute, Ministry of Health	400	100
	Postal Secondary School, PTT	100	0
Medina	Human Resources Development Institute, Royal Commission for Jubail and Yanbu	1,000	vary
	Ports Training Institute, Ports Authority	vary	180
	Industrial Training Center, Royal Commission for Jubail and Yanbu	1,500	vary
Jubail	Ports Training Institute, Ports Authority	vary	200
	Telecommunications Institute, PTT	125	0
	Telecommunications Institute, PTT	125	0
Al Jawf	Postal Secondary School	100	0
Abha	Health Training Institute, Ministry of Health	400	0
	Ports Training Institute, Ports Authority	vary	200
	Ports Training Institute, Ports Authority	vary	200

Note: Five Nursing Schools will be opened in the various regions of the Kingdom.

5.4.3.3 Expanding the government training programs away from the three major growth centers will be a dominant feature of the Third Development Plan. During the previous plan periods coming to the urban core areas for technical training indirectly contributed to the rural-urban population shift. Dispersal of telecommunications and health training facilities to the Northern and Southwestern Regions will alleviate some of the problems of geographic mobility in employment.

5.5. CULTURAL AFFAIRS

5.5.1 Overview

A number of Agencies are involved in the provision of cultural services. These include the various educational agencies and institutions, the Ministries of Information, Labor and Social Affairs, and the General Presidency for Youth Welfare. The programs for these are generally described within the respective Plan chapters. This plan section covers the specific programs of the Department of Antiquities in the Ministry of Education.

5.5.2 Present Conditions

5.5.2.1 The vast majority of the targets established for the Second Plan was completed. Construction of the large new national museum in Riyadh is about to start and two Islamic museums have been created out of traditional houses in Jeddah and also been filled with displays of archeological and historical interest. Studies and designs have been completed for four specialized regional museums in areas of major archeological importance. Of the archeological area surveys planned, that in the Eastern Region was totally completed, those in the Northern and Central Regions were approximately 60 % and 40 % achieved respectively.

5.5.2.2 Detailed archeological surveys were completed in Tarut, archeological and aerial surveys in Tayma, and certain preservation works in Al Ukhud and Taji, areas of considerable archeological interest. A number of excavations was also undertaken south of Dhahran. A large part of the survey of Durb Zabaidah, one of the traditional land routes to Mecca was completed.

5.5.2.3 Publication of the national archeological magazine entitled "Atlat" began in 1398. Other publications include a book on Saudi Arabian antiquities, in both Arabic and English, as well as a number of brochures and posters.

5.5.3 Objectives and Policies

The basic objectives for the Third Plan will be:

- (1) To identify and survey areas of the Kingdom's historical and cultural interest, and to develop programs for the conservation of the Kingdom's archeological and cultural heritage.
- (2) To inculcate Saudis with a sense of knowledge and pride in their cultural heritage.

5.5.4 Third Development Plan Programs

In addition to continuation of the publication program, the following major programs will be undertaken during the Third Plan period.

5.5.4.1 Comprehensive Survey Program. Following completion of the survey of the Kingdom's archeological sites and their subsequent cataloging, excavation works will begin at various places including the following: Madain, Saleh, Tayma, Dumat Al Jandol, Al Qurayat, Al Bada'a, Al-Okhdood, Tajj and Tarut Castle.

5.5.4.2 Restoration Program. A major program of restoring and preserving sites of historical and archeological interest will be undertaken along the Darb Zubaidah, in Dariyah, including a number of old palaces.

5.5.4.3 Expropriation Program will be included to ensure that not only historical sites but also the land in their vicinity is preserved. Land for new museums and facilities will also be included in this program.

5.5.4.4 Regional Museums Program. The construction of museums in Tayma, Al Jawf, Al Ula, Najran, Jizan and Hofuf will begin early in the Plan period. The construction of museums in Jeddah, Abha, Dammam, Hail and Tabuk will begin later. The Ajiyed Castle and the Saeed Bin A' Ass in Medina will be converted to Islamic museums.

5.5.4.5 Training Program. A total of 53 persons will be sent abroad for training during the Plan period, 35 of these to obtain an MA, the remainder for specialized training in miscellaneous areas of archeological interest.

5.6 FINANCIAL REQUIREMENTS

5.6.1 Financial requirements for the human resource development sector are shown in Table 5-25.

Table 5-25

FINANCIAL REQUIREMENTS HUMAN RESOURCE DEVELOPMENT
(Current Prices SR millions)

	<u>Recurrent</u>	<u>Project</u>	<u>Total</u>
General education ⁽¹⁾	56,652.9	20,200.0	76,852.9
Higher education	20,467.7	25,164.5	45,632.2
Training ⁽²⁾	1,753.0	4,098.9	5,851.9
Labor Affairs ⁽³⁾	1,610.9	65.6	1,676.5
Total	80,484.5	49,529.0	130,013.5 ⁽⁴⁾

- (1) Financial requirements for Cultural Affairs programs are included in the Ministry of Education.
- (2) This category includes the financial requirements of the Directorate General for Vocational Training and the Institute of Public Administration. Financial requirements for other government training programs are not included here.
- (3) This category also includes the financial requirements of the Civil Service Bureau.
- (4) This total differs from the corresponding total in Table 3-1 on account of (3) above.

CHAPTER 7

PHYSICAL INFRASTRUCTURE DEVELOPMENT

7. PHYSICAL INFRASTRUCTURE DEVELOPMENT

7.1 OVERVIEW

To achieve the social and economic objectives of the Third Plan, it is necessary to maintain, improve and further develop the physical infrastructure of the Kingdom.

This section includes the Kingdom's plans for expanding, operating and maintaining its international and domestic transportation systems to accommodate the projected passenger and freight increases, and for further developing and expanding its telecommunications and postal services to a level commensurate with the anticipated demand. It also presents plans for the further development of municipalities and rural areas throughout the Kingdom into healthy and attractive locations, as well as plans for providing housing to accommodate the growing population.

7.2 TRANSPORTATION

7.2.1 Overview

7.2.1.1 For many years, transportation was among the leading sectors of the non-oil economy. In recent years, however, the major increases in construction and other government expenditures, as generated by the national development plan, have reduced its relative contribution to GDP. Nevertheless, the importance of the transportation sector has not been reduced as the growth and development of the economy's other sectors will continue to rely on its orderly development.

7.2.1.2 The demands placed on the transportation sector were most intense during the Second Development Plan and serious difficulties were encountered in coping with this demand. In some cases the transport sector was able to surmount the obstacles, but in others, complete remedies were not possible at the time, and solutions for their difficulties have been carried into the Third Development Plan.

7.2.1.3 The transportation sector satisfies two fundamental needs of Saudi Arabia. First, it is an important element upon which the continued development of the industrial, agricultural, and mining sectors, in particular, depends. Second, the transportation system provides accessibility to the population and fosters an equitable distribution of government services.

7.2.1.4 The structure of the transportation sector in Saudi Arabia is not unlike its counterparts in many other countries. Generally, the infrastructure of the industry is a public responsibility. Facilities are constructed by the Government and made available for the use of all. Sometimes fees are imposed for the use of public facilities, but these fees usually do not recoup the capital or maintenance costs of the facilities. Transport operations in Saudi Arabia are, for the most part, undertaken by private corporations, or in their place, public agencies whose mandate is to operate in a businesslike manner. Table 7-1 identifies principal responsibilities within the transportation sector in Saudi Arabia. The Third Development Plan includes plans prepared by the public agencies as shown in Table 7-1.

7.2.1.5 The only major agency which is not included in this Plan is the Saudi Arabian Public Transport Co. (SAPTCO) which is a public-private joint venture operating bus services. Its responsibilities include the operation of intercity and urban bus services in the Kingdom. The company was created in 1399, with ownership distributed 40% with the Government, 31% with Saudi co-founders and the balance of shares with the general public. Capital is SR 1 billion. A minimum return on investment of 15% is guaranteed by the Government (see Section 7.2.2).

SAPTCO's objective is first to establish routes within urban areas and later to expand into intercity services. SAPTCO has established comprehensive urban route networks in Riyadh, Mecca and Dhahran and has recently expanded to Jeddah. Major intercity routes are limited to the Western and Eastern Provinces, though long-haul services, complete with rest houses, are planned.

7.2.2 Deputy Ministry of Transportation

7.2.2.1 Background. In Saudi Arabia, like most other countries, a variety of public and private operators use public transport facilities. Buses, taxis, trucks, and private automobiles use the road system, for example, while passenger and freight carriers use the Kingdom's coastal waterways. Coordination of surface transport including rail, and the regulation of the operators using the facilities, are the responsibility of the Deputy Ministry of Transportation, a department within the Ministry of Communications. The Deputy Ministry licenses new surface transport carriers and regulates all carriers in terms of equipment standards, manpower qualifications, and rates.

The transportation sector in Saudi Arabia has exhibited remarkable growth in recent years. The quantity and quality of transport facilities have rapidly increased, and growth in the

Table 7-1

**PRINCIPAL TRANSPORTATION SECTOR RESPONSIBILITIES
IN SAUDI ARABIA**

<u>Transportation Mode and Function</u>	<u>Primary Responsibilities</u>
HIGHWAY SYSTEM	
<u>Construction & Maintenance</u>	
Intercity roads	- Ministry of Communications, Roads Department.
Urban roads and streets	- Ministry of Municipal & Rural Affairs.
<u>Operations</u>	
Taxis	- Private operators.
Bus services	- SAPTCO, private operators.
Trucking	- Private operators.
<u>Regulation</u>	- Ministry of Communications, Deputy Ministry of Transportation.
CIVIL AVIATION SYSTEM	
<u>Construction & Maintenance</u>	
Civil airports	- Presidency of Civil Aviation, International Airports Presidency.
Airspace control facilities	- Presidency of Civil Aviation.
<u>Operations</u>	- SAUDIA, International Airlines.
<u>Regulation</u>	- Presidency of Civil Aviation, International Bodies.
RAILROAD SYSTEM	
<u>All Functions</u>	- Saudi Government Railroad Organization.
MARINE SYSTEM	
<u>Construction & Maintenance</u>	
Navigational aids	- Royal Saudi Navy.
Major port facilities	- Saudi Ports Authority.
<u>Operations</u>	- Private operators.
<u>Regulation</u>	- Ministry of Communications, Deputy Ministry of Transportation.

number of private operators has paralleled development of the infrastructure. The industry is, in many respects, a new one, and the Deputy Ministry has oriented itself more toward its coordination tasks than its regulatory tasks. There has been steadily increasing emphasis on regulation, though, and this trend is carried into the Third Development Plan.

7.2.2.2 Present Conditions. In 1396, the Council of Ministers established the Deputy Ministry with its coordinating functions, including a mandate to prepare and review international agreements and to protect national transportation establishments, to prevent unnecessary duplications and deficiencies in service to the public, and to stabilize rates. Furthermore, the Deputy Ministry will continue its preparation of codes to regulate trucking and will continue to coordinate services in the transportation sector.

7.2.2.3 Objectives and Policies. The objectives of the Deputy Ministry of Transportation are: to coordinate transportation activities in the Kingdom such that efficient services are available at lowest prices to the consumer; to ensure adequate links with other Arab countries; and to support national development policies.

7.2.2.4 Third Development Plan Programs. The Deputy Ministry of Transportation will undertake five new programs in the Third Development Plan, as follows:

- (1) An annual subsidy will be provided for SAPTCO bus services;
- (2) An annual subsidy will be provided to the operator of the marine service linking Farasan Island with the mainland at Jizan;
- (3) A feasibility study will be conducted of the recommission of the Hejaz Railway;
- (4) A study of the transport difficulties of islands in the Southwestern Region and their access to Jizan will be conducted;
- (5) The organization of the Deputy Ministry's marine department will be examined.

7.2.3 Roads

Roads are a critical component of the Kingdom's transportation infrastructure. More

than two-thirds of all domestic intercity passenger trips are by highway, while in the freight sector, road transport is even more dominant.

The Roads Department of the Ministry of Communications is responsible for the design, construction, and maintenance of all interurban roads in the Kingdom. Roads and streets within urban areas are the responsibility of the municipalities.

7.2.3.1 Background. The first paved road in the Kingdom was constructed in 1371, less than 30 years ago. In 1383, when the first road development program was launched, the Kingdom had constructed 4,147 km. of roads. Prior to the First Development Plan in 1390, the Kingdom's paved road network exceeded 8,000 km.

The First and Second Development Plans displayed a strong commitment to highway development. In the past decade, Saudi Arabia tripled the length of its paved road network and increased by more than five times its rural road system. The progress in highway development is illustrated in Figure 12. This figure also underlines the increasing importance attached to the rural roads system. Rural roads are earth-surface roads of simple design whose purpose is to connect villages that otherwise have no access to main or secondary roads which are paved.

In recent years, the Kingdom has shown increasing interest not only in the quantity of the road network but also in the quality of the system. Toward this end there has been a shift in emphasis toward preventative maintenance, safety, and traffic flow improvements.

7.2.3.2 Present Conditions. Present conditions in the road sector have been strongly shaped by the accomplishments of the Second Development Plan. Principal objectives of the Second Plan were to construct 13,066 km. of paved roads and 10,250 km. of earth-surface rural roads. The Roads Department accomplished three-quarters of its paved road target and exceeded by more than 40% its target for rural road construction. The shortfall in main road construction will be rectified early in the Third Development Plan.

The principal needs of the highway system at present are to connect a still considerable number of people to the main road network; to augment safety; and to limit highway damage caused by high truck axle loading on some corridors. Generally, the capacity of the network is sufficient to accommodate present demand.

Figure 13 illustrates the Kingdom's main highway network. At the end of the Second

Figure.....12

**DEVELOPMENT OF THE ROAD NETWORK
IN SAUDI ARABIA:1371 – 1405**

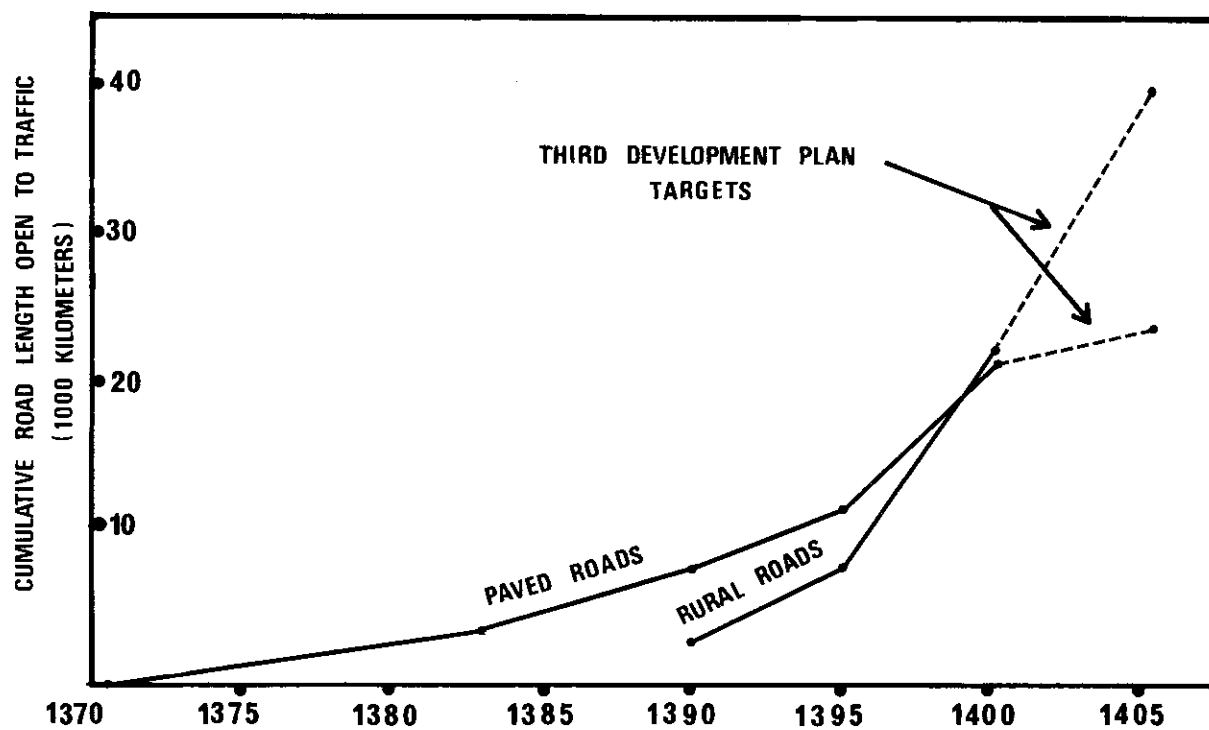
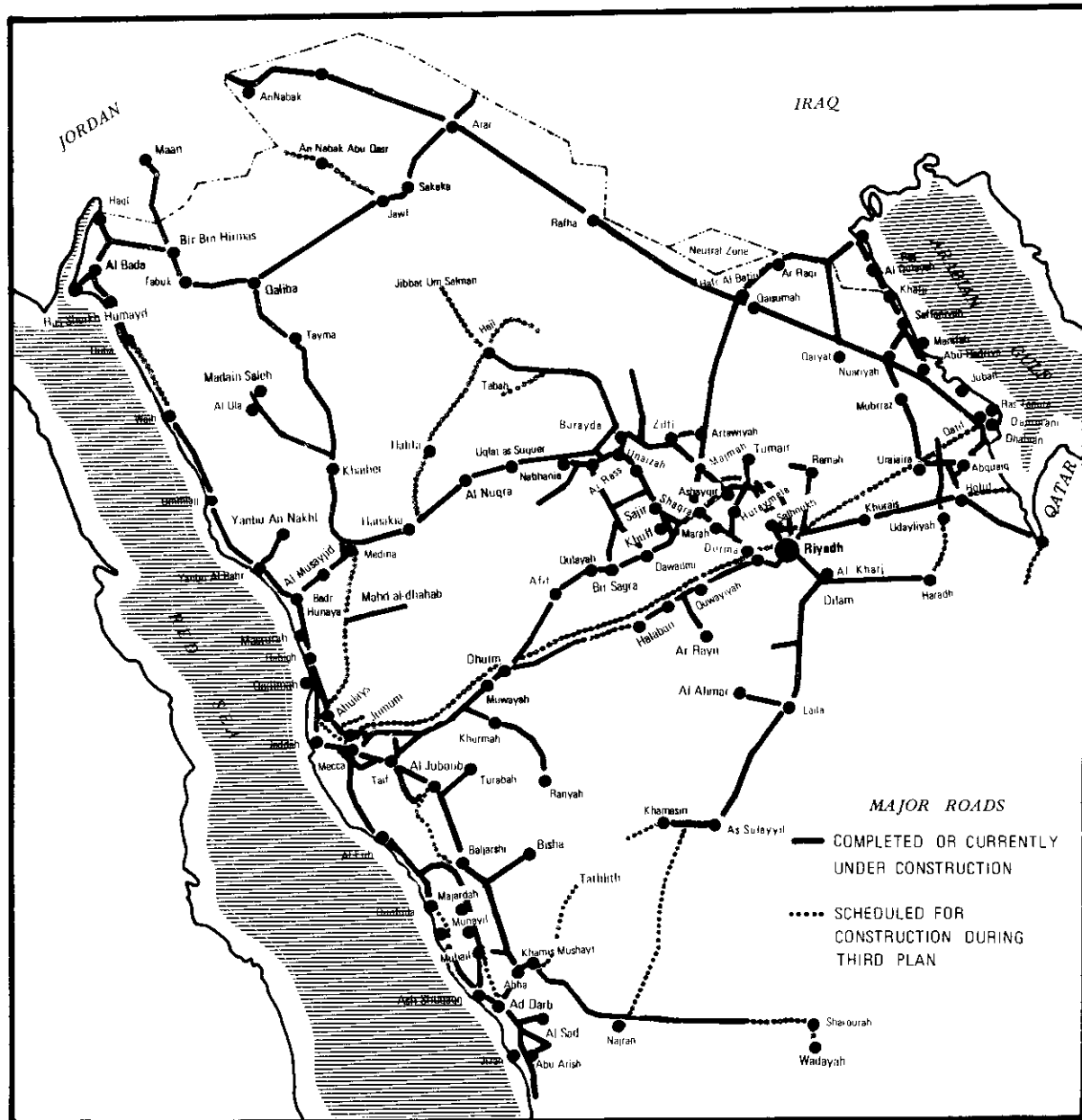


Figure.....13

THE HIGHWAY NETWORK OF SAUDI ARABIA, 1400



Plan, the road system consisted of 11,394 km. of main roads, 10,053 km. of secondary roads, and 23,180 km. of rural roads connecting 6,954 villages.

7.2.3.3 Objectives and Policies. The primary objective of the Plan is to facilitate domestic and international communications by making available to the population a readily-accessible and high-quality highway network.

The Plan reflects policies designed to:

- (1) Enhance highway safety;
- (2) Overcome bottlenecks in the road network;
- (3) Expand the highway network to areas and villages with economic and regional development potential.

The Plan's emphasis on thorough maintenance ensures that the Kingdom's high capital investment in physical infrastructure provides maximum returns.

7.2.3.4 Third Development Plan Programs. During the Third Plan period, the pace of road construction will be maintained but greater emphasis will be placed on improving the quality and capacity of roads and on road maintenance particularly preventative maintenance. The length of roads to be opened during the Third Plan will increase the paved network by 32% and the road network by 75%.

- (1) **Main Roads.** The main road construction program is presented in Table 7-2. A major portion of the road program comprises the completion of 28 road projects which were started in the Second Plan, almost half of which will be supplemented by new construction work. The Third Plan will complete the last 1,094.4 km. of the ongoing projects. The new main road construction program also outlined in Table 7-2 proposes to undertake 25 projects which will provide an additional 4,048.7 km. of new roads by 1405. In addition to new road construction various improvements are planned. These include the extension of roads already open to traffic; the construction of overpasses, bridges and mountain passes and road widening projects.

Table 7-2

MAIN ROAD CONSTRUCTION PROJECTS IN THIRD DEVELOPMENT PLAN

<u>Project Description (Lanes)</u>	<u>Projected Kilometers</u>
Ongoing Projects	
Taif-Abha-Jizan	764.7
Haji Road	292.4
Tihama Descent (2)	199.3
Odeiliyah-Abqaiq (4)	110.0
Hafar Al Batin-Al Zulfi (2)	356.0
Al Hanakiyah-Hail (2)	316.5
Dammam-Dhahran (4)	12.5*
Taif-Bani Saad (4)	101.0
Al Khamasin-Tathlith (2)	100.0
East of Jeddah Airport	87.4
Hofuf-Al Aqir (2)	116.0
Dammam-Na'iriah (6)	236.0
Dammam-Ras Tanura (6)	108.0
As Sulayyil-Najran (2).	347.0
Khulais-Medina (6)	19.0
Orayja-Halban Zalim (6)	537.0
Harad-Odeiliyah (2)	99.0
Al Dahna-Shaqra (2)	43.2
Najran-Sharourah (2)	374.0
Al Jawf-Tabarjal (2)	186.0
Jeddah-Mecca (8)	69.1
Assodah-Jabal Nahran (2)	20.0
Ar'ar Jadeedah Road (2)	69.8
Riyadh-Hejaz Road (4)	10.0
Riyadh-Al Kharj (4)	95.0
Safwa-Al Jubail (6)	52.0
Riyadh Ring Road (8)	140.4
Mecca-Arafat-Al Hada(6)	36.7
<u>Subtotal 28 Ongoing Projects</u>	<u>4,885.5</u>
(of which: Third Plan construction)	<u>(1,094.4)</u>
New Projects	
Riyadh-Dammam	383.0
Eastern Province Roads improvement scheme	107.0
Al Corniche-Aziziah-Half Moon Bay	44.0
Al Hofuf-Abqaiq	165.0
Mecca-Zima-Al Sail	98.0
Al Qunfudah-Quze-Khai'a	112.0
Al Wajh-Duba	150.0
Khamis Mushait-Tathlith	322.0
(with Al Urein Links)	
Mecca-Medina and Riyadh-Mecca Expressway	1,295.0
Al Riyadh-Salbukh-Al Madjma'ah	365.0
Al Darb-Rejarl Alma-Muhail	158.0
Adabi Al-dair-Adir-Jabal Fifa	82.0
Hail-Bakaa and Hail-Jubah	224.0
Farasan Road and bridge	70.0
Salwa-Assouda-Nethail	80.0
Radio and TV Stations roads	70.0
Dola Mountain Part II	11.0
Al Haram Ring Road & Giad-Coddi road	13.0
Hafar Al Batin-Azulfi	-
Taif-Bani Saad (last 3 sections)	247.0
Shurafaiya bridge	5.4
Juraifah-Al Ashaigr	24.0
Jeddah Mecca Bridge Section 6 and 7	8.3
Ar Ar Road bridge and crossroad	-
Al Hejaz-Al Adirab	15.0
<u>Subtotal: New Projects</u>	<u>4,048.7</u>
Third Plan Total	
Ongoing Projects	1,094.4
New Projects	4,048.7
Total	5,143.1

* Relates to road widening and, therefore, is not included in the above totals

(2) Secondary Roads. The secondary road programs for the Third Plan include projects for military roads, irrigation roads and selected individual projects but most are feeder roads which are generally short roads that link with the main road system. All new secondary roads will be two-laned paved roads which will increase the existing network by 1,421.6 km. Details of the secondary road projects are given in Table 7-3.

Table 7-3

SECONDARY ROADS CONSTRUCTION
(Kilometers)

	<u>Total Length</u>	<u>Third Plan Construction</u>
<u>Ongoing Projects</u>		
Irrigation roads	210.0	148.0
Feeder roads Phase I-III	1,945.0	65.0
Feeder roads Phase IV	1,942.0	118.0
Al Baha airport	47.3	29.8
Wireless station road (reconstruction)	7.0	7.0
Other roads	125.1	47.8
Subtotal	4,276.4	415.6
<u>New Projects:</u>		
Feeder roads Phases I-III	76.0	76.0
Feeder roads Phase IV	832.0	832.0
Thamama runway construction	34.5	34.5
King Faisal Hospital, roadway extension	37.5	37.5
Other roads	26.0	26.0
Subtotal	1,006.0	1,006.0
Total	5,282.4	1,421.6

An additional 6,400 km. of permanent and temporary roads, mainly feeder roads, will be constructed under the municipal development plan. These projects are outlined in Section 7.4.7.1.

(3) Rural Roads. The construction of rural roads during the Third Plan will exceed the construction rate of the Second Plan. By 1405 an additional 17,445 km. of rural earth-surface roads will be constructed to 4,579 villages. Various ongoing projects will augment the efficiency of the program including equipment replacement and maintenance and garage construction in Jeddah and Riyadh.

(4) Support Programs. Normal and preventative maintenance will be provided for existing and new roads; and new equipment for the Kingdom's materials testing, surveying and cartography facilities will be provided. In addition five ongoing studies will be completed, a reclassification of the Kingdom's roads will be undertaken to assist in evaluating and designing highway improvements, and design studies will be finalized for many new projects not scheduled for construction during the Third Plan.

7.2.4 Ports

7.2.4.1 Background. Saudi Arabia's ports system is the main corridor for the Kingdom's heavy trade with the rest of the world. None of the other transportation modes offers such high freight capacity at such low per-unit cost.

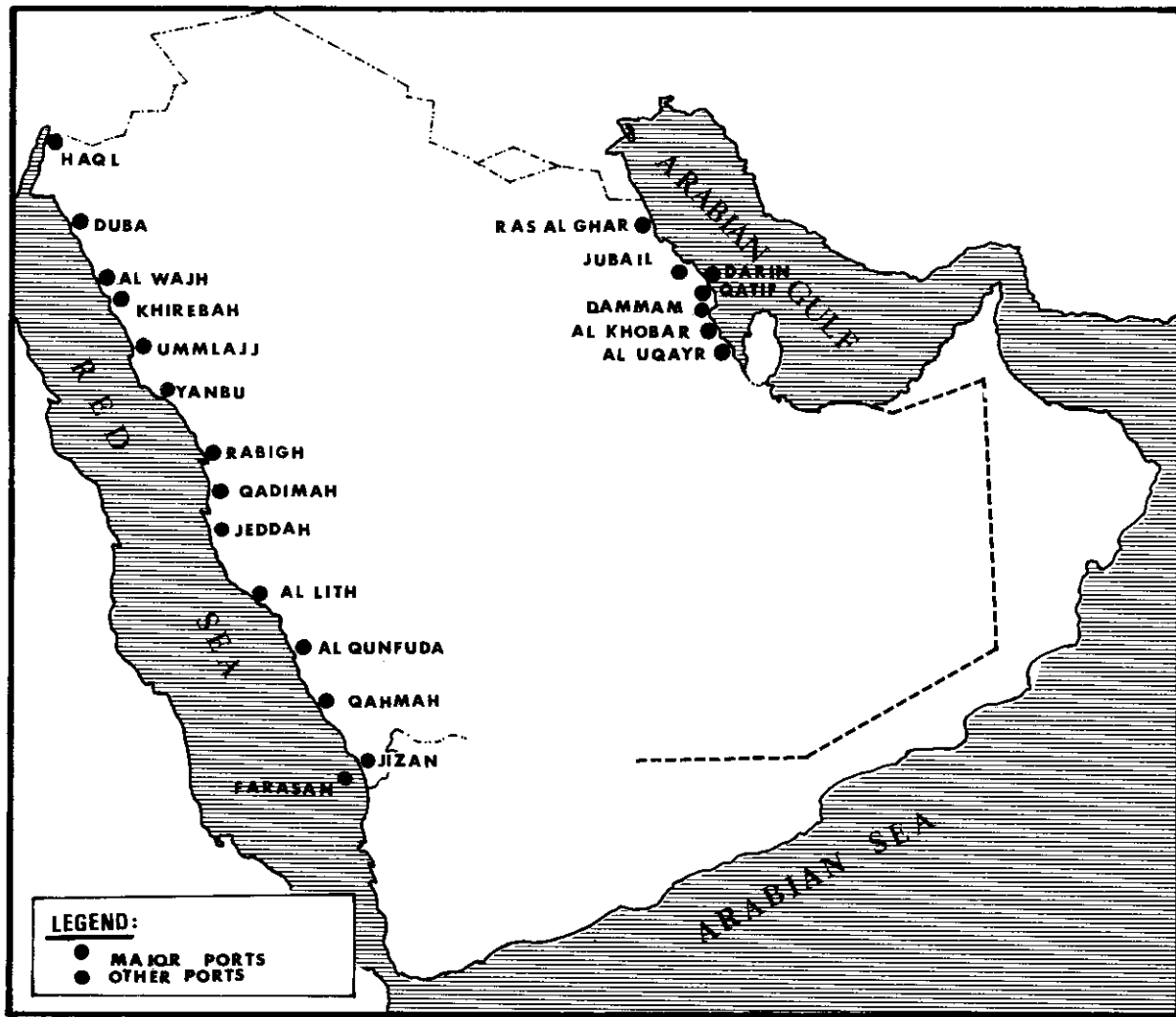
The Kingdom has five major and sixteen minor ports. All of the major ports - Yanbu, Jeddah, Dammam, Jubail, and Jizan - have been operated since 1396 by the Saudi Ports Authority (SPA). SPA also operates four small ports on the Arabian Gulf and ten on the Red Sea, but only two have been developed. The Ministry of Public Works and Housing operates port facilities at Ras Al Ghar and Qadimah. These will be transferred to the SPA during the Third Plan. In addition to these public facilities, the Navy operates ports for its own use. Figure 14 identifies the location of the Kingdom's port facilities.

The first substantial port facilities constructed in the Kingdom were an oil terminal at Ras Tanura in the 1350s and, in the late 1360s, general cargo terminals at Dammam and Jeddah.

The last decade has seen almost continuous construction at the Dammam and Jeddah

Figure..... 14

PORTS IN SAUDI ARABIA



Ports, which are the largest in the Kingdom. The handling capabilities of these ports were often exceeded as the national development plans escalated the demand for raw materials and finished goods. There has been an almost nine-fold increase in imports during the Second Development Plan as Table 7-4 shows.

Table 7-4

IMPORTS TO SAUDI ARABIA:1390-1405

(Millions of tons)

<u>Commodity Group</u>	<u>Actual</u>			<u>Estimate</u>	<u>Forecast</u>	
	<u>1390</u>	<u>1395</u>	<u>1397</u>	<u>1399</u>	<u>1400</u>	<u>1405</u>
Cement	0.5	0.7	5.5	11.1	9.4	10.8
Iron and steel	0.2	0.4	1.8	1.5	1.8	3.0
Food	1.0	1.0	2.3	2.4	3.1	5.2
Vehicles	0.1	0.2	0.5	1.4	1.5	2.0
Other commodities	0.4	0.8	4.1	7.6	10.9	19.7
Total	2.2	3.1	14.2	24.0	26.7	40.7

Source: Forecast data from the Inter-ministerial committee for estimating imports volume. Actual data from foreign trade statistics. 1390 data adjusted for some commodities that were measured in units and not in tons.

7.2.4.2 Present Conditions. During the early part of the Second Development Plan, congestion at all ports was severe. Imports in 1396 increased 138% over 1395, and then increased a further 75% the following year. In 1396, average monthly discharges from vessels in-port fell short of demand by 175,000 tons. At one point in 1396, 360 vessels carrying 1.9 million tons of cargo were awaiting discharge and delays of 40 days were not unusual. By 1397, prolonged delays were eliminated, largely as a result of changes in regulation, the imposition of surcharges on cargoes not quickly claimed, and improvements in efficiency.

During the Second Plan two new ports were opened at Jubail and Yanbu. Both are tied to major new industrial developments surrounding them. Furthermore, significant capacity improvements were achieved at Jeddah and Dammam. Only at Jeddah does present demand approach available capacity.

7.2.4.3 Objectives and Policies. The objectives of the Third Plan are as follows:

- (1) To expand berthing, cargo, and storage facilities at the ports sufficient to accommodate a 50% increase in imports expected in the Third Plan;
- (2) To improve efficiency and safety in the ports system;
- (3) To provide 25% reserve capacity for the ports system.

Toward this end, additional equipment and services at most major ports will be provided, and operating responsibility for Qadimah and Ras Al Ghar ports will be transferred to the SPA.

7.2.4.4 Third Plan Development. The main emphasis of development during the Third Plan will be to complete the port expansion programs now being implemented. As shown in Table 7-5 these will expand annual port capacity to 46.8 million DWT by 1405. Attention is also being given to support facilities and navigation.

Table 7-5
CAPACITY INCREASES IN THE SAUDI ARABIAN PORTS 1395 - 1405

Port	<u>Number of Berths</u>			<u>Tonnage</u> ⁽¹⁾	<u>Capacity</u> ⁽¹⁾	
	1395	1400	1405	1399	1400	1405
Yanbu	2	9	9	1.0	2.7	2.7
Jeddah	12	45	50	12.4	13.9	15.5
Jizan	1	4	14	1.1	1.6	5.6
Dammam	9	40	40	9.0	12.7	12.7
Jubail	0	16	16	1.1	5.5	5.5
Quadimah	0	8	8	-	2.4	2.4
Ras al Ghar	0	8	8	-	2.4	2.4
Total	24	130	145	24.6	41.2	46.8

Note: (1) Tonnage and capacity are measured in million of deadweight tons (DWT), equal to 1.016 metric tons. Capacity computations assume a 70% berth occupancy rate.

The major features of the Third Plan are summarized below.

(1) Port Expansion. In addition to the completion of the four phase expansion programs for Jeddah and Dammam ports which began in 1385 and 1386 respectively, five new berths will be constructed at Jeddah and railroad track will be constructed to all berths at Dammam. At Yanbu both the Pilgrim's Hall, begun in 1395, and the port expansion programs will be completed. Only modest improvements to Jubail are needed during the Third Plan because it is already a modern and well equipped port. The improvements planned include the development of berths, tank farm, and fishing harbor and the expansion of storage areas. By 1405 the ongoing port development program for Jizan which involves work on the fishing port, warehousing terminal and container freight station will be completed. A new complementary works project is also planned for Jizan which will provide new parking areas, roads, telephones, transit sheds, workshops, a control tower, a fire protection system and navigational aids.

Projects concerned with the development of minor ports will be continued. These include construction work at Al-Khobar, Qatif and Darin, the completion of a master plan for Ras Abu Kamis and additional buildings at Al-Khobar. No new programs are planned for the minor ports. During the Third Plan responsibility for the ports of Qadimah and Ras al Ghar will be transferred to the SPA. They will henceforth be used for general cargo. The joint capacity of Qadimah and Jeddah will be studied in 1404 to determine the need for future expansion or the construction of a new satellite port.

(2) Support Programs. A new navigation safety program will begin with the Third Development Plan. This program is to be implemented at all ports, and will be concerned with dangerous cargo areas, navigational aids, emergency communications, radar, and fire fighting system. Equipment for combatting water pollution by oil tankers will also be provided. In addition, a lighthouse will be constructed at Jeddah.

A new program will be introduced to improve port efficiency. This will include cargo handling equipment, floating equipment, construction of storage areas and ancillary structures, containerized freight facilities, communications facilities, and other related items.

The existing training program at the ports will be considerably expanded and improved including the provision of new facilities and new courses. Particular attention

will be given to orientation and on-the-job training for new recruits and special courses for those already on staff.

7.2.5 Airports

7.2.5.1 Background. The Kingdom's civil aviation system is highly developed compared to the other transportation modes. The air sector provides the primary means of transport for long-distance travelers in Saudi Arabia.

The Kingdom's civilian airports are operated by the Presidency of Civil Aviation (PCA—formerly known as the Civil Aviation Department), within the Ministry of Defense and Aviation. PCA is responsible for airspace administration, fire and rescue services, and the operation and maintenance of existing domestic and international airports. New airports under construction at Jeddah and Riyadh are the responsibility of another agency, the International Airports Program Office (IAPO).

Saudi Arabia laid the groundwork for a civil aviation system even before the Kingdom constructed its first paved road. It established a national airline when the airports system consisted of a few rudimentary airstrips. However, the air transport system rapidly expanded, due in part to the relatively restrained pace at which new roads were constructed.

Modernization of the Kingdom's airports was started on a broad scale in the mid-1980s but most significant progress was initiated late in the First Development Plan.

7.2.5.2 Present Conditions. The Second Development Plan proposed extensive investment in new airport facilities throughout the Kingdom, including new airports at Jeddah, Taif, Abha, and Tabuk and substantial improvements at Riyadh, Dhahran, Medina, Jizan, Najran, Hail and Badana. Furthermore, major investments in aviation safety and control were planned.

PCA was able to accomplish many of its plans but was overwhelmed by unprecedented increases in passenger traffic (which required construction of temporary facilities at the international airports), serious difficulties in expanding its staff, and equipment shortages. Some of its Second Plan projects will be completed in the Third Plan, including the Jeddah and Taif airports.

The Kingdom's civilian airports number twenty. Almost 80% of passenger activity,

however, is handled at the three international airports. Table 7-6 identifies the Kingdom's civilian airports and the traffic handled in 1398. The system has shown little change in the number of airports served, but remarkable change in traffic. Accommodating these increases in activity on the ground and in the air, has proved to be the most difficult problem faced by PCA.

7.2.5.3 Objectives and Policies. The objectives of civil aviation policy with respect to airports are as follows:

- (1) To increase the quantity and quality of aviation infrastructure commensurate with the growing volume of air traffic in the Kingdom;
- (2) To maintain international standards of flight safety, airport security, and fire protection;
- (3) To service and maintain all existing and planned airport facilities;
- (4) To increase emphasis on recruitment and training of Saudi nationals;
- (5) To improve passenger handling.

To accomplish these ends, the following policy actions will be taken:

- (1) Expand and upgrade the Kingdom's air traffic control system;
- (2) Increase the levels of compliance with current civil aviation regulation.

7.2.5.4 Third Development Plan Programs. In addition to the construction of new airports and the improvement of existing airports the Third Plan programs for Civil Aviation will give particular emphasis to improving the Kingdom's air traffic control and ancillary support systems. The major projects proposed are highlighted below.

- (1) **International Airports.** Essentially, projects concerned with international airports entail the completion of the new Jeddah Airport and the construction of a new airport in Riyadh. By 1400 Phase I of the new Jeddah International Airport will have been completed. This phase provides all the critical operational facilities necessary

Table 7-6

PASSENGER TRAFFIC AT SAUDI ARABIAN AIRPORTS

(Arrivals and departures, in thousands)

	<u>1396</u>	<u>1398</u>	<u>1404⁽²⁾</u>
<u>International Airports</u>	<u>3,762⁽¹⁾</u>	<u>10,677</u>	<u>20,937</u>
Jeddah	1,649	4,819	8,312
Riyadh	1,519	3,576	8,018
Dhahran	594	2,282	4,607
<u>Main Domestic Airports</u>	<u>889</u>	<u>2,085</u>	<u>4,637</u>
Medina	221	521	1,190
Abha	206	486	1,080
Jizan	226	372	800
Taif	113	304	654
Tabuk	92	225	493
Qasim	31	177	420
<u>Domestic Airports</u>	<u>178</u>	<u>313</u>	<u>884</u>
Hail	34	78	159
Bisha	36	63	148
Najran	27	51	139
Jawf	25	39	99
Sharourah	16	33	80
Badana	21	25	74
Wadjh	19	24	70
Yanbu (planned service)	-	-	115
<u>Local Airports</u>	<u>28</u>	<u>17</u>	<u>41</u>
Qurayat	7	7	20
Turaif	4	4	11
Qaisumah	12	4	6
Rafha	5	2	4
Total	4,857	13,092	26,499

(1) SAUDIA passengers only.

(2) Estimate.

for scheduled air carrier operations. Construction of Phase II facilities designed to accommodate all activities now conducted at the old Jeddah International Airport will be completed by 1403. Although most of the supporting infrastructure will be completed by 1403 and the new terminal buildings by 1404, the new Riyadh International Airport will be fully operational by 1405.

(2) Domestic Airports. To increase the nation's domestic air network, new domestic airports are planned at Taif, Hofuf and Baha. A program is also planned to improve and upgrade four of the Kingdom's main domestic airports enabling them to accommodate wide bodied jets. These improvements which include the widening of runways and taxiways, the expansion of terminal facilities and the strengthening of overlay and apron pavements will be made to Abha, Jizan, Medina and Taif airports. A new instrument landing system will also be installed at Abha airport. The terminal buildings at Dhahran airport will be expanded in accordance with the traffic forecasts; and to meet operational requirements, new minor construction projects will be undertaken at most of the remaining domestic airports.

(3) Air Traffic Control. Phase I of the air traffic control program, which is now nearing completion, established a system that satisfied the urgent requirement of both civil and military aviation. Within Phase II, which is scheduled for the Third Plan, a restructured airways system for the Kingdom will be prepared with the flight information region (FIR) split between Jeddah and Riyadh. The most important items of Phase II are three terminal radar installations, thirteen enroute radar systems, an area control center at Riyadh, three tower control centers and new navigation aids including 27 VORTAC installations and 103 microwave sites.

(4) Support Programs. To ensure the efficient and safe operations of the nation's air transport network considerable attention is being given to support projects. New fire-fighting and rescue facilities and equipment are being introduced including dispatch and alarm systems, water and fire extinguisher equipment at all major airports, and an intensified engineering and maintenance program to keep pace with the increased use of airport facilities. Other support programs proposed for the Third Plan period include those concerned with air transport and legal affairs, and the development of Saudi Arabian regulations, standards, procedures and policies effecting air safety, and those concerned with airport security.

7.2.6 SAUDIA

7.2.6.1 Background. The national airline of Saudi Arabia carries much of the long-distance passenger traffic to and from the Kingdom and provides domestic services as well. In international traffic, the national carrier competes vigorously with other international airlines according to bilateral arrangements. Domestically, the national carrier has exclusive rights.

The Kingdom's national air carrier is Saudi Arabian Airlines Corporation (SAUDIA). SAUDIA is owned by the Government, but acts as a profit oriented company.

The need for a national air carrier was recognized early in Saudi Arabia. In 1365, the Government decided to establish a national airline and signed an agreement with TWA to provide technical and management assistance.

Due to the relatively slow start in developing surface transportation facilities, aviation services became the backbone of long-distance domestic transport in the Kingdom. In the 1370s and 1380s the quality and quantity of these services expanded rapidly. Table 7-7 documents the pace of this growth up to the Third Development Plan.

Table 7-7

INDICATORS OF SAUDIA'S GROWTH : 1373-1398

(Millions)

	<u>1373</u>	<u>1385</u>	<u>1390</u>	<u>1395</u>	<u>1396</u>	<u>1397</u>	<u>1398</u>
Kilometers flown	1.8	6.8	14.6	32.3	44.7	63.4	74.3
Passenger-kilometers	53.0	194.0	500.0	1,999.0	3,359.0	5,189.0	7,089.0

Source: Data through 1390 from UN Statistical Yearbooks; after 1390 from SAUDIA.

7.2.6.2 Present Conditions. During the Second Development Plan, SAUDIA's traffic growth outstripped all estimates and continued the explosive trend of earlier periods. The number of passengers carried during the Second Plan increased at an average annual rate of 46% compared with plan forecasts of 18%. By 1399, SAUDIA was carrying many times the number of passengers it carried only a few years earlier.

In order to cope with traffic growth in the Second Plan, SAUDIA expanded and upgraded its fleet beyond its original objectives, rapidly acquiring new-generation L-1011 and B-737 aircraft. Nevertheless, its resources were continuously tested in accommodating the traffic growth. Expansion in the domestic route system, where demand was most acute, limited SAUDIA's ability to promote its international services, which are generally more profitable than domestic services.

SAUDIA's continuing struggle to cope with domestic traffic growth constrained its ability to achieve in full the Second Development Plan's objectives, namely, to increase Saudi participation in the workforce, to invest in operational improvements, and to improve the overall quality of its services. Given its environment, however, the airline's achievements have been remarkable.

SAUDIA's domestic fares, which are relatively low, were reduced by the Government in 1395 and have not been increased since that time.

SAUDIA's present domestic route network is illustrated in Figure 15. SAUDIA also serves 38 international stations.

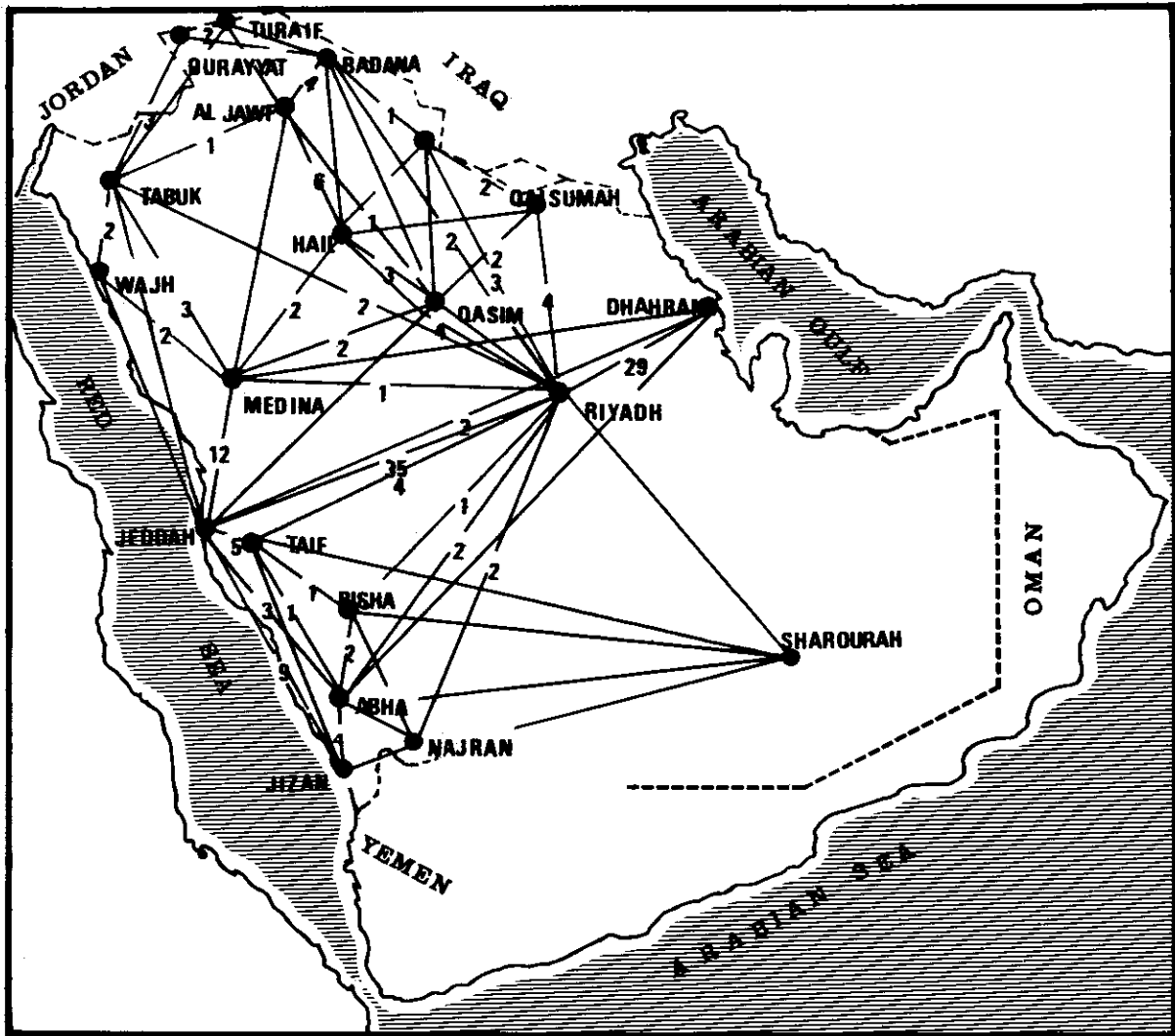
7.2.6.3 Objectives and Policies. SAUDIA's objectives for the Third Development Plan are as follows:

- (1) To provide domestic air services that respond to national and regional development plans and international services that contribute to international transport facilities;
- (2) To reduce the dependence upon expatriate manpower;
- (3) To achieve a financial balance in current operations in the domestic services.

To achieve these ends, SAUDIA will optimize fleet mix and operations strategies

Figure.....15

SAUDIA'S DOMESTIC NETWORK (Simplified)



concurrent with demand requirements, expand its training programs, improve its technical services, and curtail service on low-volume routes.

7.2.6.4 Third Development Plan Programs. Much of SAUDIA's effort for the Third Plan will be devoted to improving the efficiency of administration and operations and in acquiring higher capacity aircraft that will maximize yield on higher density routes. These improvements are required to facilitate the substantial growth planned during the next five years. It is estimated that available seat capacity in domestic services will increase at an annual average rate of 13.3% in the Plan years. The programs proposed for the next five years are summarized below.

(1) Administration and Communications. Significant improvements will be made to administration and communications during the period. The VHF and UHF radio services network and the communications training program will be expanded. New reservations facilities will be established in the Eastern and Central Regions and telephone and telegraph facilities will be installed. Airport communications will also be improved with the ongoing UHF area cover project and expansion to the air to ground radio service. In order to save manpower a number of routine personnel functions will be automated. Training programs will continue and a new training center will be constructed.

Several other projects will be implemented in order to improve SAUDIA's operating efficiency. These include the introduction of a new planning system; automation of SAUDIA's mail service, ticketing, reservations, and flight operations; the computerization of both IATA affairs and the maintenance management inventory.

(2) New Aircraft. A total of seven Boeing-747 aircraft, five Lockheed L-1011 TriStars and four short range wide bodied jets will be purchased during the Third Plan. Two of the Boeing-747s will be the long range SP model for SAUDIA's non stop service to New York City. The remaining 747s will be used for high traffic corridors within the Kingdom and between neighboring countries. The TriStar aircraft will complement the present fleet of 13. The development of SAUDIA's fleet of aircraft during the Third Plan period is shown in Table 7-8.

Table 7-8

SAUDIA FLEET PLAN⁽¹⁾

	<u>Total</u> <u>1399</u>	<u>Additions</u>					<u>Total</u> <u>1405</u>
		<u>1400</u>	<u>1401</u>	<u>1402</u>	<u>1403</u>	<u>1404</u>	
Boeing-747	0	-	5	-	-	-	5
Boeing-747 SP	0	-	1	1	-	-	2
Lockheed L-1011	13	4	1	-	-	-	18
Boeing-707	6	-	-	-	-	-	6
Boeing-737	19	-	-	-	-	-	19
Unspecified wide-bodied Jets	0	-	-	-	3	1	4
Total	38	4	7	1	3	1	54

(1) The above table excludes leased aircraft and equipment owned by SAUDIA's joint venture partners.

(3) Technical Services. To accommodate the increased number of aircraft operated by SAUDIA and to improve reliability and efficiency a major expansion of SAUDIA's technical services is contemplated.

New wide bodied simulators will be introduced and the engineering programs will be expanded including the development of a capability to overhaul jet engines within the Kingdom. New supporting accessory shops will be constructed and the line maintenance service will be expanded throughout the Kingdom. Other major technical services projects are the expansion of the system maintenance facilities at Jeddah and the construction of metallurgical and fluid analysis laboratories.

7.2.7 Railroads

7.2.7.1 Background. The Kingdom's railroad network consists of a line between Dammam and Riyadh, with a length of 562 km., and its branches. The railroad is an important carrier

for materials imported through the port of Dammam to the rapidly expanding capital of Riyadh. The system is owned and operated by the Saudi Government Railroad Organization (SGRRO).

The possibility of recommissioning the Hejaz railroad, abandoned more than 60 years ago, will be examined during the Third Development Plan, but the line is not expected to be operational within the Plan period.

The railroad network was constructed in 1371, coincident with the first paved road. For the most part, the network has remained unchanged since that time. Initially, the railroad carried substantial traffic from Dammam to Riyadh. Most of this traffic, however, was diverted to trucks by 1382 as the new road in that corridor opened. SGRRO initiated attempts during the Second Development Plan to win back this highly lucrative traffic. Figure 16 illustrates SGRRO traffic growth since 1385.

7.2.7.2 Present Conditions. The Second Development Plan brought about improvements in the operation of the railroad which enabled increases in passenger and long-haul freight traffic. During the Second Plan, more than 250 km. of track was replaced, with an additional 95 km. project continuing into the Third Plan; and rolling stock was increased almost 75%. A second passenger train was added to the Dammam-Riyadh route. Over the period of the Second Plan, long-distance freight and passenger traffic from Dammam to Riyadh both increased 50%.

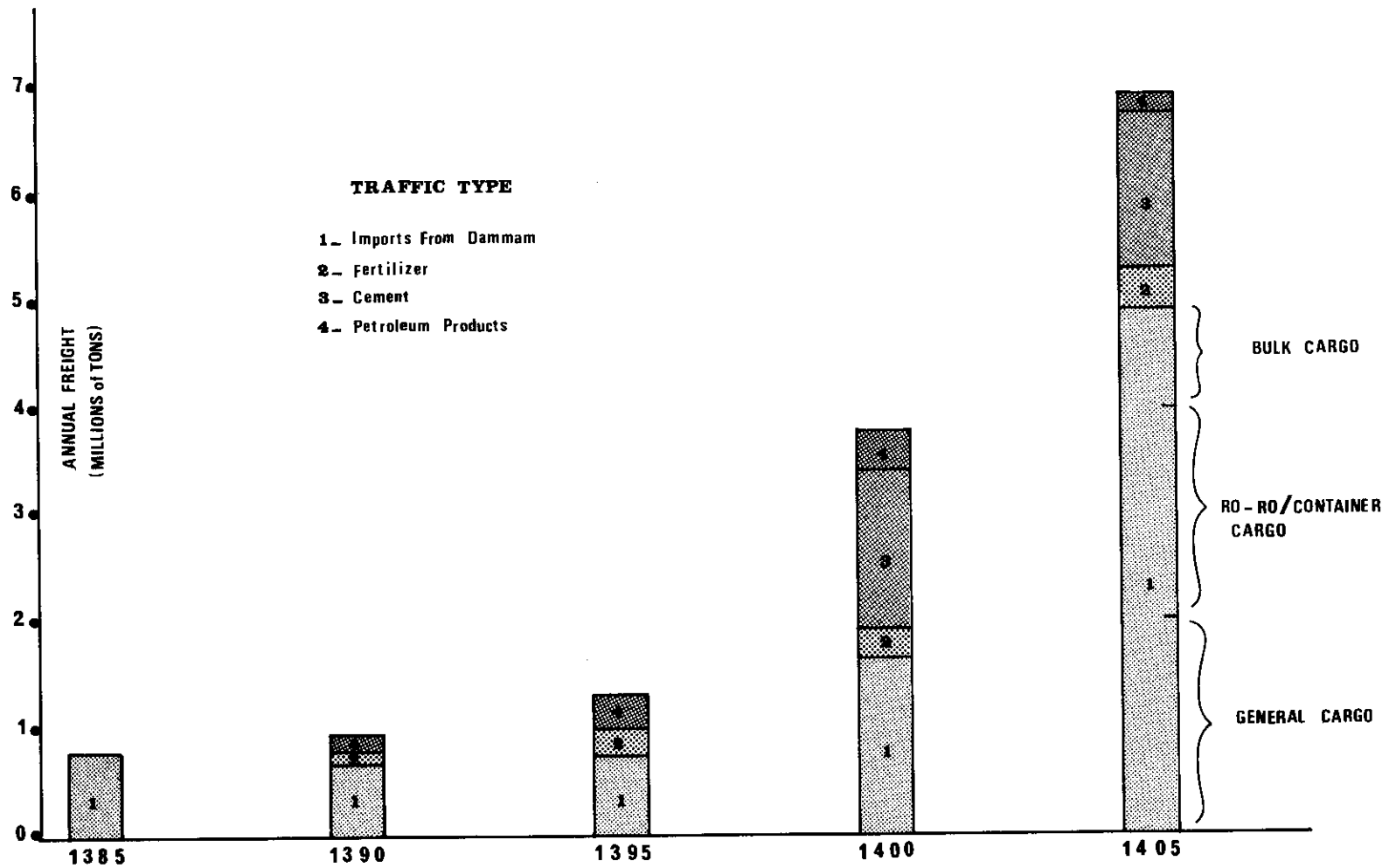
A substantial proportion of SGRRO's freight traffic consists of short-haul moves between Dammam and its port and certain captive products such as petroleum. The railroad has attempted to limit this traffic and pursue more lucrative long-haul traffic. Consequently, port and petroleum traffic showed little growth in the Second Plan, as Figure 16 illustrates.

The railroad's Second Plan objectives called for a rejuvenation of its attitude and performance in the important Dammam-Riyadh corridor. While impressive gains were made, the railroad was hampered by a route that demands rehabilitation and generates operational difficulties that in turn inhibit a high level of service.

7.2.7.3 Objectives and Policies. The principal objectives of the Third Development Plan are to accommodate increased traffic in high-value and bulk commodities destined for the interior and, at the same time, to increase operational efficiency such that a great market share of these commodities can be attracted and retained.

Figure.....16

SGRRO RAIL FREIGHT TRAFFIC:1385-1405



7.2.7.4 Third Development Plan Programs. As shown in Figure 16, during the Third Plan period the traffic on the Dammam Riyadh line is expected to increase significantly. To accommodate this growth SGRRO will undertake a major rehabilitation of its existing facilities including replacement of substantial distance of track, the acquisition of new passenger and freight stock and the continuation of the railroad personnel training programs. Details of the railroad programs are outlined below.

(1) Construction. During the next five years over 345 km. of the track will be replaced and 150 km. of second track will be constructed. In addition some 320 km. of single track will be constructed between Riyadh and Hofuf, which compared to the existing route, will reduce the distance by more than 100 km. This program will be completed by 1403/04 and will enable the railroad to offer adequate capacity into the Fourth Plan Period.

Other construction projects include a new freight terminal at Riyadh, new stations at Dammam, Riyadh and Hofuf, and new rolling stock maintenance facilities in Riyadh and Dammam.

(2) Locomotive and Rolling Stock. To complement the improvements planned for the track and ancillary facilities substantial new rolling stock is to be acquired. In addition to 36 new locomotives, 1,300 freight cars and 20 passenger coaches will be introduced. A new signalling system will also become operational.

(3) Study program. Several study projects are planned for the next five years of which a feasibility study for recommissioning the Hejaz Railway is the most notable. Other studies will include the feasibility of a Riyadh-Jeddah link, an evaluation of a commuter rail service and an electrification study.

7.3 POSTS AND TELECOMMUNICATIONS (PTT)

7.3.1 Overview

7.3.1.1 Adequate and reliable means of domestic and international communications are requisites to the achievement of social and economic goals. As the growth of the producing sectors becomes more decentralized and encompasses more of the Kingdom's geographical area, it is important that the installation of adequate means of communications precede anticipated growth so that they will be available as required. This has been the underlying strategy of the

Ministry of Posts, Telephone and Telegraph, the organization responsible for communications. Within the Ministry the Department of Telecommunications and the Department of Postal Services are responsible for the provision of domestic and international telecommunications and postal services respectively.

7.3.1.2 Domestic and international telegraph and postal services were initiated in the Kingdom several decades ago. High frequency radio communications for voice and teleprinters were established in the major cities in 1375. A telephone service was introduced somewhat later. Major international service links, using high-frequency radio were completed in 1383 including a link between Dammam and Bahrain. This provided service to the Arabian Gulf area as well as overseas teleprinter services.

7.3.1.3 Prior to the First Development Plan the postal service was small-scale using archaic methods. Of the 69 million pieces of mail processed in 1388, registered mail comprised 30% of the total. Only 210 localities had post offices. Modern equipment in use comprised 20 franking machines, seven stamp canceling machines, and 21,500 post office boxes.

7.3.1.4 By the beginning of the Second Development Plan period in 1395, substantial progress in the development of communications had taken place. There was an exchange line capacity of 126,000, and a modern long distance network comprising a coaxial cable connecting the cities of Jeddah, Riyadh and Dammam; a link between Jeddah, Medina and Yanbu; and some international links with nearby countries. By 1398 the volume of mail had increased to 300 million pieces per year. Although equipment and manpower have increased substantially to cope with the increased volume the mail service still needs improvement.

7.3.2 Present Conditions

The programs to provide modern telecommunications and postal services to facilitate the Kingdom's social and economic development received great impetus during the Second Plan period. While all aspects of the programs received emphasis, projects undertaken during the middle of the Plan period to meet demand for telephone service and the long distance network were most noteworthy. These programs, which will be fully operational soon after the beginning of the Third Plan period, plus the ancillary programs such as telex service and international links, provide the basic facilities for future development.

While the mail service has improved as it has expanded, additional plant is still required. Highlights of the major developments in telecommunications and postal services during the Second Plan are outlined in Section 7.3.2.1 and 7.3.2.2.

7.3.2.1 Telecommunications.

(1) Telephone Network. At the beginning of the Second Development Plan period, the capacity was 126,000 exchange lines. By 1399/1400, this had increased to 452,000 exchange line capacity including temporary exchanges which can be moved from place-to-place. The total exchange line capacity at the end of the ongoing expansion will be 697,000, and of this, 676,000 are expected to be working lines. In addition, a contract has been let to provide the infrastructure for 550,000 exchange line capacity.

Long distance service facilities at the end of 1399/1400 were at a ratio of 98 long distance circuits per 1,000 telephone exchange line capacity. This permitted the introduction of consumer direct dialing.

Two earth stations, at Taif and Riyadh, are utilized in international communications. In addition, mobile earth stations at 11 sites throughout the Kingdom and a main earth station at Riyadh provide domestic long distance service on an interim basis until the microwave system is completed. The mobile earth stations will be moved as required to provide adequate long distance communications throughout the Kingdom.

(2) Telegraph and Telex Service. Telegraph services are an important means of rapid communication of copy especially for residents of the smaller towns which do not have the telex service. Much of the Kingdom's telegraph equipment is obsolete and should be replaced or augmented. At the end of 1399/1400 there were 15,286 telex lines, providing a ratio of 23 per 1000 telephone exchange line capacity which compares favorably with corresponding densities for most countries.

(3) Monitoring. The Kingdom participates in the ITU program of spectrum control. This entails radio frequency monitoring and control. Under this program, radio broadcasters creating interference or operating on frequencies, schedules, or power outputs deviating from those assigned, are identified for appropriate action. At present

there is one small monitoring station at Jeddah. A fairly extensive program was proposed in the Second Development Plan, but for various reasons this has not been undertaken.

(4) Building Construction. Much of the building construction program has been associated with the telephone and long distance network expansions. In addition, a major complex is under construction in Riyadh.

(5) Manpower and Training. The rapid expansion of manpower in the Telecommunications Department requires a many faceted training operation. The core of the training program is the ITU/UNDP/Saudi sponsored telecommunications and broadcasting training centers. This activity has thus far been divided into two phases. Phase I focused on the establishment of a training center at Jeddah which is now operating. Phase II of the program entails the establishment of a center in Riyadh. In the meantime, training is proceeding at Riyadh in leased facilities. Since 1393, 875 students have been graduated of which 653 were sponsored by the Ministry of Posts, Telephone and Telegraph. Saudi Telephone as well as most of the contractors also undertake training activities related to the work being done. Except for orientation courses, the training is limited to Saudis.

7.3.2.2 Postal Services Development. The Postal Services Department made substantial progress during the Second Plan period toward the overall objective of providing the Kingdom with a fast and reliable postal service. This was accomplished despite a rapid increase in mail volume stemming from the burgeoning economy. Major developments within the postal service are highlighted below.

(1) Regional Coverage. The geographical coverage of the service was significantly expanded during the Second Plan. Many new buildings were constructed including a Riyadh airport post office, Dhahran airport post office, 15 branch offices in Riyadh; 15 branch offices in Jeddah; a postal unit in the Dammam area and also one in the Mecca area. By the end of 1399/1400 there were 383 assigned post offices serving the Kingdom with major postal complexes under construction in Riyadh, Jeddah and Dammam.

(2) **Organizational Development.** One of the major objectives of the last five years was to improve work methods and adopt efficient organizational systems. Management studies were undertaken and as a result there were changes in the formation of the regional hierarchy of the postal organization. Duties and responsibilities of management personnel were redefined. Surveys were conducted of all districts and postal routes were developed. All forms were reviewed and revised as required; and 677 local postmasters were appointed.

(3) **Postal Innovations.** In addition to the developments outlined above mobile post offices were introduced and a zip code system was developed.

(4) **Training.** With the introduction of two new training institutes in the Second Plan, training facilities now exist in Riyadh, Jeddah and Dammam. These offer one and three year courses. In 1398/99, 179 students were graduated. Current enrollment is 843 students.

7.3.3 Objectives and Policies

7.3.3.1 Objectives. Two objectives will guide the development of the communications sector during the Third Plan:

- (1) To have installed sufficient telecommunications capacity to meet the demand for services with a minimum inconvenience to users and potential users together with a tariff structure which will yield a return sufficient to cover recurrent costs and the capital costs of any necessary expansion;
- (2) To continue to improve postal services and extend their coverage to all parts of the Kingdom so that all mail will be delivered within 24 hours of being dispatched in major cities and within 48 hours elsewhere.

7.3.3.2 Policies. To accomplish these objectives the following policies will be implemented:

- (1) Complete the ongoing automatic telephone projects; and expand facilities during the Plan sufficient to meet the growing demand. This is expected to approximate 725,000 new exchange line capacity including the uncompleted portion of the ongoing program at the beginning of 1400/01.

- (2) Improve the domestic and international service by expanding the long distance network;
- (3) Upgrade the telegraph system so that all areas of the Kingdom will have an adequate means of rapid communication;
- (4) Improve the spectrum monitoring system;
- (5) Extend the regional coverage of postal services by opening additional offices and extending the use of mobile post offices;
- (6) Improve the efficiency of the postal system through greater mechanization;
- (7) Implement a program for increasing public awareness of postal services;
- (8) Expand the training programs for both postal and telecommunications services.

7.3.4 Third Development Plan Programs

The Second Plan made substantial progress in providing the Kingdom with basic postal and telecommunications services. Emphasis during the Third Plan will be to augment these services as required to meet the demand stemming from the social and economic development of the Kingdom. Particular attention will be given to manpower programs to increase productivity through greater mechanization.

7.3.4.1 Telecommunications. The major programs concerned with telecommunications are summarized below.

- (1) **Telephones and Telephone Network.** Provision will be made for 480,000 exchange line capacity in addition to the present program underway. This will result in an exchange capacity of 1,177,000 lines at the end of the Plan period. An ancillary telephone project will provide 16,000 mobile telephones. During the middle of the period, needs will be assessed to determine the program for the Fourth Development Plan and required action, if any, will be undertaken at that time to begin this program. A program to expand the microwave long distance links to the United Arab Emirates,

Qatar, Kuwait, Yemen, Jordan and Egypt will be undertaken early in the Plan period. The intra-Kingdom system will also be expanded to provide the following microwave connections:

- Al Ain-King Khaled City.
- Hofuf-Salwa-Dawaheen.
- Riyadh-Dormah-Zolam.
- Additional broadcast channels.
- Connect TV stations to network.

The long distance coaxial cable system will be extended to link Medina and Tabuk, and Dammam and Bahrain. Additional capacity will be provided between Taif, Mecca, Jeddah and Medina.

Completion of ongoing projects will provide an earth station at Jeddah and expansion of the one at Riyadh. At the completion of ongoing and proposed work, Riyadh will have an earth station to link with satellites over the Atlantic and Indian Oceans. An earth station at Taif will link with the satellite over the Atlantic Ocean; and the earth station at Jeddah will link with the satellite over the Indian Ocean.

(2) Telegraph and Telex Services. The telegraph will be modernized so that everyone in the Kingdom, including the residents of small towns where telex/gentex is not available, will have access to advanced transmission facilities. To achieve these ends the system will be modernized and expanded and services will be provided to some villages by HF/VHF. The telex system will be expanded by 15,000 lines making total capacity 30,286 lines.

(3) Monitoring. Projects will be undertaken to strengthen the spectrum monitoring function within the Kingdom including the establishment of four additional monitoring stations, four coastal stations, a calibration/measurement laboratory and the improvement of the existing system.

(4) Building Construction. New buildings will be constructed in 173 locations to house telecommunications facilities. These buildings will house the telex/telegraph operations and in some cases telephone exchanges. A telecommunications complex at Al Jawf will also be constructed.

(5) Manpower. The training center at Riyadh will be completed. Administrative offices, a mosque, gymnasium and other ancillary facilities will be constructed at the existing Jeddah Institute. A third telecommunications institute is planned for Dammam. Smaller schools to provide training in the regions are proposed at Medina, Abha and Al Jawf.

Graduates from the institutes will total 2,423 during the five year period. Output per year will be as follows:

<u>Year</u>	<u>Number of Graduates</u>
1400/01	346
1401/02	370
1402/03	374
1403/04	535
1404/05	798
Total	<u><u>2,423</u></u>

It is estimated that 13,410 additional employees will receive various types of training during the period. Most of these will be trained by Saudi Telephone.

(6) Organization. A study to develop recommendations concerning the future overall organizational structure of the telecommunications sector is being undertaken. Following this study, recommendations will be made as to whether the organization should remain a department of government, become a full fledged public utility, or be partially transferred to the private sector.

A working group will be established in the Telecommunications Department for forecasting telephone and other requirements by area. Recommendations concerning telephone or other expansions will be prepared each year prior to budget formulation.

An overall coordinating committee will be formed composed of representatives of appropriate ministries to review forecasts of the working group described above.

This review will tend to ensure that, to the extent possible, complete knowledge is available concerning growth trends and policies relating to them. The areas where the system is to be expanded are those which are emphasized according to the development policy at that time.

7.3.4.2 Postal Services. Major emphasis will be given to the expansion and improvement of existing postal services.

(1) **Regional Coverage.** This program includes the completion in 1401/02 of the complexes under construction in the three major cities. There are three additional construction projects proposed. The first covers construction of postal buildings at each of five smaller cities to be selected by the Department. The second comprises construction and equipping of central post offices at the five cities of Medina, Burayda, Abha, Jizan, and Sakaka. Construction of 30 branch offices is the remaining construction project. Designated growth centers will receive priority in the selection of locations for these post offices. In addition new post offices will be established in 100 villages.

(2) **Postal Services and Organization.** Several projects are planned to improve the efficiency of the services. These include greater use of shift work; establishment of an operations control room at Riyadh; improved record keeping; improved maintenance; and the establishment of postal zones at Mecca, Tabuk, Hail and Baha. In addition, ten mobile post offices for use during the Hajj and in rural areas, will be purchased along with 850 other vehicles. Additional post boxes, franking machines, and stamp dispensing machines will be provided and one automatic sorting machine will be installed in the mid-Plan period.

(3) **Public Awareness.** Greater attention is to be given to increasing the awareness of users of postal services concerning the services offered. To this end pamphlets will be used to promote the use of the postal system as well as radio and television news releases. The zip code system developed toward the end of the Second Plan, will be introduced.

(4) **Manpower and Training.** The manpower program consists of the construction of a secondary training center in either Medina or Abha as well as training programs within and outside the Kingdom. Training for 2,180 students will be provided at

institutions within the Kingdom while 175 will receive training outside. Total output from all types of training will be 3,000 personnel. A special effort is proposed to increase manpower. A total of 1,200 new posts is to be created and filled.

7.4 MUNICIPALITY AND RESIDENTIAL DEVELOPMENT

7.4.1 Overview

7.4.1.1 Few countries in the world have invested so much of their gross fixed capital formation in municipal and residential sectors in so short a time as Saudi Arabia. Fewer still have been able to change the conditions of their cities so dramatically. While the Kingdom has taken an enormous step forward in providing a strong and coherent urban and rural infrastructure much still remains to be done. The diversity of the nation's requirements is vast and the process should be considered long-term and continuous, for development objectives and strategies will change from the initial provision of basic facilities to their improvement and expansion.

7.4.1.2 The overall development policy of the sector is primarily concerned with controlled urban growth in predetermined areas. To achieve successful urban development, industrial and commercial growth will be encouraged in locations which have the capacity to be productive. Therefore, private and government investments will be directed and coordinated with the planned urban development of a few clearly defined locations.

7.4.1.3 The Ministry of Municipal and Rural Affairs (MOMRA), the Ministry of Public Works and Housing (MPWH), and the Real Estate Development Fund (REDF) play an important part in regional development. MOMRA commands overall responsibility for the provision of essential sanitation services; the planning and pavement of streets; the construction of parks; and the development of many other municipal services including the allocation of housing plots for low and middle income families. The Ministry for Public Works and Housing helps several government agencies plan and construct their buildings and facilities. It also executes the Kingdom's public housing program for households of limited incomes. The REDF is the principal government agency responsible for the promotion of private sector housing construction through the provision of interest free loans to individuals and real estate companies.

7.4.2 Present Conditions

As the Kingdom's population has sought employment in commerce, industry and

government, there has been a general migration to the cities. This, in turn, has created an expanding demand for buildings, an increase in construction activity, and a further influx of workers demanding goods and services. Together, these factors have created an explosive process of urbanization. The cities in Saudi Arabia need and demand the same essential services found in modern cities around the world. Providing them has dominated a large segment of the Kingdom's economy and social structure in the past and will continue to do so in the foreseeable future.

In the past decade, the number of localities designated as municipalities has increased from 54 to 106. The surge in spending on municipal infrastructure and services in the past half decade has created a flurry of activity which is keeping pace with the rapid increases in urban population.

7.4.3 Public Works and Municipality Achievements

7.4.3.1 Second Plan Progress. The Ministry of Municipal and Rural Affairs, has made substantial progress in extending and improving municipal services in the cities and villages of the Kingdom. During the last five years urban development investment, including residential building, has represented a significant part of the Kingdom's fixed capital investment.

Out of the total number of 1,995 approved projects summarized in Table 7-9, 506 concern land expropriation of which 480 or 95% have been implemented.

Table 7-9

PROJECTS OF MOMRA IN THE SECOND FIVE YEAR PLAN

	<u>Carried Over from First Plan</u>	<u>Approved During Second Plan</u>	<u>Total</u>
Central Ministry & General Directorates	92	166	258
Municipalities & Water/Sewerage Departments	547	1,190	1,737
Total	<u>639</u>	<u>1,356</u>	<u>1,995</u>

As Table 7-10 shows, out of the remaining 1,489 projects approved by the Ministry, 1,201 or 81% are completed. Another 77 projects (5%) are more than one-fourth finished; and only 211 projects are in the initial stages of construction or have not moved from the planning to the execution stage.

Table 7-10

STATUS OF THE SECOND PLAN MUNICIPAL PROJECTS
(Percent completed by 1400)

<u>Type of Project</u>	<u>100%</u>	<u>99-25%</u>	<u>Less than 25%</u>	<u>Total number of approved projects</u>
Water	72	5	19	96
Sewerage	13	8	19	40
Drainage	53	11	17	81
Urban streets	171	20	19	210
Temporary asphaltting	150	6	1	157
Street lighting	45	-	-	45
Municipal buildings	98	6	12	116
Slaughter houses	63	-	5	68
Markets	102	3	10	115
Cemetery fencing or mortuaries	191	7	8	206
Public toilets	97	2	3	102
Parks, gardens etc.	76	1	4	81
Miscellaneous (mainly studies)	70	8	94	172
Total	1,201	77	211	1,489

Significant success has been achieved in all categories of projects. Generally, the infrastructure projects demonstrated the lowest completion rates as they tended to be the most technically complex. Nevertheless the results were encouraging. Over 75% of water projects were completed during the Plan with an additional 5% approaching completion. These projects included the installation and construction of pipelines, the provision of water tanks and

the excavation and construction of wells. Out of a total of 81 approved drainage projects, comprising stormwater drainage and flood protection schemes, 78% were either substantially or entirely completed. Of all categories of projects planned the sewerage projects achieved the lowest completion rate. Only 32% of projects were entirely complete.

Higher success rates were achieved in the roadwork projects. Urban streets, comprising permanent asphaltting, sidewalks and street lighting were 81% completed and 95% of temporary asphaltting projects were finished as were 100% of the 45 approved street lighting projects.

More buildings were planned than any other type of project, and more buildings were finished than roads and infrastructure projects combined. These municipal office buildings, warehouses, repair facilities, and other buildings were necessary to establish the local seats of government during the Second Plan. Approximately 85% of approved administrative buildings were completed, 89% of the planned markets, and more than 96% of the 68 slaughterhouses were completed, leaving only 5 outstanding.

Other projects including the fencing of cemeteries, the construction of public toilets and mortuaries and the provision of parks and gardens achieved an overall completion rate of 94%. In addition there were some 172 approved miscellaneous projects which were essentially studies. Of these 70 were completed during the Second Plan period.

In addition to construction and land expropriation projects, the municipalities section of the Second Plan called for several specialized municipal activities. Considerable progress has been achieved in the collection and disposal of garbage in several national centers. Although the responsibility for construction and operation of water systems has not passed entirely from the hands of the Ministry of Agriculture and Water, the direction of change of this responsibility has been positive.

The success rate is more significant when viewed in relation to the recent development of the sector. Prior to the start of the Second Plan there were only 85 municipalities. The 21 settlements achieving municipality status during the period, together with the villages designated as MOMRA village clusters, began the Plan with no official administrative system or institutional structure, yet by its completion had made substantial contributions to the overall project completion rate.

7.4.3.2 Problems and Constraints. Despite the overall success in implementing the Second Plan

the sector, and in particular the Ministry of Municipal and Rural Affairs, has been constrained by a number of factors.

For example, difficulties experienced in recruiting and training the necessary people, especially outside the major urban areas, to organize and implement the work program has, to a certain extent, led to a fragmentation of objectives and has hindered the coordination of projects at both agency and regional levels.

A second, although not entirely unexpected problem has been the difficulty experienced in attracting building and contracting companies to undertake projects in rural areas. Despite attempts to combine projects into large packages sufficient to interest large international contractors the problem remains.

Finally, it has not been feasible to control the location of residential and commercial structures through legally enforceable planning and building codes. This has encumbered project execution activities by forcing municipal authorities to respond to the existence of residential and commercial structures that have sprawled beyond the municipal boundaries and service network. Uncontrolled growth has frequently caused a higher per unit cost of infrastructure investment than if buildings had been located only within an orderly and well planned water, sewerage, and drainage network.

7.4.4 Housing Achievements

7.4.4.1 Overview. Ten years ago most of the urban and rural population lived in substandard housing. During the First and Second Plans significant and impressive progress has been made in increasing the number of modern housing units and in improving the overall quality of housing stock. Today, over half of the urban and rural population lives in well constructed buildings, many of which have the same amenities as found in other developed urban areas.

At the beginning of the Second Plan an acute shortage of housing had developed which led to a rapid increase in construction and rental costs. In response, during the five year period the rate of house construction averaged more than 40,000 units per year compared to 17,500 units per year during the First Plan. This resulted in the construction of over 200,000 new dwellings.

7.4.4.2 Public Sector. The Ministry's contribution to these achievements has been significant.

About 3,600 apartments have been constructed in two rush high rise projects comprising thirty-two 18-story blocks located in Jeddah and Dammam. Construction on 1,152 apartments for Riyadh in the last rush high rise program was initiated in late 1399 and completion is expected by the close of 1402. Construction is also underway on 2,633 villas and 9,968 apartments scheduled for completion in 1402. The selection process for potential occupants of public housing projects is currently under discussion.

In addition, studies and designs for housing projects in Burayda, Medina, Mecca and the Southwestern Province have recently been completed. Construction is planned for completion before 1402.

Less success has been achieved in the Ministry's program to provide serviced plots for the construction of houses for low and middle income families. None of the 44,300 plots envisaged for the Second Plan have actually been allocated.

7.4.4.3 Private Sector. Mainly in response to the funding program of the REDF, the private sector was responsible for adding 150,000 dwellings to the Kingdom's housing stock, exceeding the estimated Second Plan target of 122,000. Table 7-11 compares the Second Plan targets with the achievements of the housing sector over the last five years.

Table 7-11
SECOND PLAN HOUSING ACCOMPLISHMENTS

	<u>Second Plan Target</u>	<u>Second Plan Achievements</u>	<u>Percent Achieved</u>
<u>Permanent Housing</u>			
Public	52,500	53,600 ⁽¹⁾	102
Private	122,100	150,000	123
<u>Temporary Housing</u>			
Project Housing	51,000	51,000	100
Total	225,600	254,600	113

(1) Including Government agency housing.

In addition to the increase of permanent housing to the stock, the need for temporary housing for additional manpower has also been met. Large contractors were required to house their employees, which forced them to import housing units. Camp housing suppliers brought in more than 51,000 units which were estimated to be the quantity required to meet the need.

Despite the overall housing surplus there is still a significant proportion of Saudi households living in unsuitable accommodation. Unless attention is directed toward those households which are unable to afford the market cost of houses, residential development is unlikely to continue with its impressive rate of construction in the immediate future.

7.4.5 Residential Credit.

7.4.5.1 Since making its first loan in mid-1395, the REDF has disbursed about SR 30 billion in more than 150,000 loans for the construction of new personal residential property. These loans are made to married citizens 18 years and older or unmarried citizens of 21 years age or older, regardless of social status, place of residence, or the need for a residence. The Fund has also disbursed SR 1.5 billion in approximately 7,500 loans to individuals and real estate companies to construct at least another 15,000 residential buildings for rent. These investment loans are made for about half of the estimated cost of construction for a new residential building. They account for about 9% of the total number of units constructed using REDF financing. The investment loans generally finance the construction of multi-family buildings of 3-15 units and deliberately encourage small-scale landlords to provide rental units for both Saudi and expatriate households. Investment loans are only reviewed and approved by one of the seven REDF offices in the Kingdom. Table 7-12 summarizes REDF lending since 1395.

Table 7-12
RESIDENTIAL CREDIT DISBURSEMENTS
(Current prices, SR millions)

<u>Type of Loan</u>	<u>1395/96</u>	<u>1396/97</u>	<u>1397/98</u>	<u>1398/99</u>	<u>1399/00⁽¹⁾</u>	<u>Total</u>
Personal residential	2,159	8,749	7,198	5,264	6,757	30,127
Residential investment	-	152	336	460	576	1,524
Total	2,159	8,901	7,534	5,724	7,333	31,651

(1) MOP estimate based on REDF records.

Source: REDF records

These loans were a principal factor contributing to the success of the private sector in exceeding their Second Plan target of 122,100 new dwelling units.

In the first three years of operation, the REDF allowed the branches of the two commercial banks to receive applications and disperse loans for personal residential construction before referring the documents to the REDF. Cooperating professional staff and contract employees on a part-time basis are also used to perform technical reviews and special administrative functions. In so doing REDF has been able to cut the time between applications and disbursement to an average of about 3 months.

In 1398, the REDF developed four lending levels for personal residential loans, varying between SR 100,000 and SR 300,000. It developed a loan and technical review process to assess work progress and the existence of sensible house plans prior to loan disbursement. It also began reimbursing assisting banks for placing and servicing loans and repayments. Recently it introduced an inducement program for personal loans repayments whereby borrowers making payment on time receive a 20% discount, with an additional 10% discount if payment is made in one lump sum. This replaced all prior repayment subsidies.

7.4.6 Objectives and Policies

7.4.6.1 Objectives. Five major objectives will guide urban and rural development during the Third Plan:

- (1) To promote better health, welfare, and general improvement of the living conditions of Saudi citizens in urban and rural areas through the provision of basic infrastructure, municipal services, and housing;
- (2) To develop commercial, industrial and residential potential of those cities and towns designated as being of national, regional or district importance;
- (3) To ensure that all Saudi households have access to adequate residential accommodation at reasonable costs;
- (4) To continue the promotion of private sector residential development through the provision of low cost loans to Saudi individuals and real estate companies;

- (5) To consolidate the organizational and administrative structure of the municipal and rural services sector.

7.4.6.2. Policies. In accordance with the above objectives the following policies will be implemented:

- (1) Operate and maintain existing and planned municipal systems effectively so that citizens receive services in a timely and economical manner;
- (2) Invest in and provide residential credit only for projects in centers with productive capacity, and only within the planned infrastructure network of those centers;
- (3) Develop and execute a structured strategy for municipal capital investment which will foster greater coordination of investment in each city. For the purpose of the Third Plan, this policy defines priority projects as the provision of drinkable water, adequate sewerage systems, storm drainage, and roads;
- (4) Focus residential policy on eliminating the constraints on housing encountered by low income population;
- (5) Continue the decentralization program by establishing more municipal administrative units;
- (6) Continue to send officials for training, making use of the facilities of the Institute for Public Administration to train Saudi nationals in municipal and residential administration;
- (7) Transfer water distribution systems presently operated and maintained by the Ministry of Agriculture and Water to MOMRA in the cities, towns, and villages where MOMRA has administrative designations;
- (8) Enforce the building code regulations when promulgated for private buildings in cities, towns and villages;
- (9) Study the possibility for developing revenues from user costs in respect to

municipal and rural services.

- (10) Assure that those cities, towns, and villages which have problems due to their topography or other reasons will get the proper storm drainage systems to protect lives and property.

7.4.7 Third Development Plan Programs: Municipal and Rural Services

The principal concern of the municipal and rural services programs is the planning, design, construction, operation, and maintenance of the majority of urban public utilities in the Kingdom's cities, towns, and villages. The programs will be implemented at several different administrative levels. Generally, the Central Ministry and General Directorates will undertake programs comprising studies, buildings, training, and operational projects, or projects that village and district centers do not have the administrative capacity to implement. The majority of projects, over 1,160 in all, will be administered by the 117 municipalities and towns. Essentially, these projects comprise the provision of basic infrastructure and services such as water, sewerage, drainage, roads, abattoirs, municipal buildings, and utilities. The remaining 700 projects will be undertaken at the village level and primarily comprise water systems, feeder roads, and markets, although nine model villages are also included.

It is anticipated that by the end of the Third Plan nearly all municipalities and villages will have water and sewerage systems plus a substantial number of paved roads. The detailed plans for the major project categories are described below.

7.4.7.1 Roadworks Projects. Approximately 6,400 kilometers of road construction are planned, of which permanent asphaltting comprises 1,587 km. and new rural connector roads 1,525 km. The regional distribution of these projects is shown in Table 7-13. As can be seen the majority of the roadwork projects will be located in the Central and Western Regions.

Table 7-13
ROADWORKS PROJECTS
(Kilometers)

<u>Type of Project</u>	<u>Central</u>	<u>Western</u>	<u>Eastern</u>	<u>Northern</u>	<u>Southwestern</u>	<u>Total</u>
Permanent asphaltting	281	814	175	178	139	1,587
Temporary asphaltting	1,090	1,004	583	195	436	3,308
Rural connector roads	155	530	29	313	498	1,525
Street lighting	624	476	383	204	161	1,848
Bridges	5	2	-	-	4	11
Beautification of streets	149	20	51	2	2	224
Total	2,304	2,846	1,221	892	1,240	8,503

7.4.7.2 Water Projects. New water supply projects are planned to serve nearly 720,000 additional households of which more than 50 percent will be located in the Western Region. In addition 167 new water reservoirs are to be constructed with 55 located in the Southwestern Region. These projects are outlined in Table 7-14.

Table 7-14

WATER PROJECTS

	<u>Central</u>	<u>Western</u>	<u>Eastern</u>	<u>Northern</u>	<u>Southwestern</u>	<u>Total</u>
Water supply networks (000' users)	72.4	386.3	110.6	67.7	82.6	719.6
Water reservoirs (number)	39	40	13	20	55	167

7.4.7.3 Sewerage Projects. It is estimated that an additional 473,000 households will be connected to main sewerage systems by 1404/05. Complementing the new collection system, new equipment will be installed to treat an additional 627,000 cubic meters of sewage. These projects will be located principally in the Central, Western and Eastern Provinces as shown in Table 7-15 below.

Table 7-15

SEWERAGE PROJECTS

	<u>Central</u>	<u>Western</u>	<u>Eastern</u>	<u>Northern</u>	<u>Southwestern</u>	<u>Total</u>
Sewage collection (000' users)	94.9	133.4	169.2	31.5	43.6	472.6
Sewage treatment (000' cubic meters)	272.0	258.0	15.6	33.3	48.0	626.9

7.4.7.4 Drainage Projects. Drainage projects are classified as priority projects for the Third Plan. Some 157 km. of isolated stormwater protection are to be implemented of which 142 km. will be installed by the end of 1403/04. Net stormwater drainage systems will be constructed to serve over 2.3 million inhabitants. These are shown in Table 7-16.

Table 7-16

DRAINAGE PROJECTS

	<u>Central</u>	<u>Western</u>	<u>Eastern</u>	<u>Northern</u>	<u>Southwestern</u>	<u>Total</u>
Stormwater protection (km.)	36	78	4	20	19	157
Stormwater drainage (000' inhabitants)	732.0	761.4	638.8	125.3	105.0	2,362.5

7.4.7.5 Building Projects. A total of 907 building projects is planned for the next five years. These are summarized in Table 7-17.

Table 7-17

BUILDING PROJECTS

(Number)

<u>Buildings</u>	<u>Central</u>	<u>Western</u>	<u>Eastern</u>	<u>Northern</u>	<u>Southwestern</u>	<u>Not Specified</u>	<u>Total</u>
Municipality buildings	36	37	17	20	39	6	155
Garages	6	4	6	2	7	-	25
Mortuaries	29	27	16	22	20	-	114
Commercial space	40	38	43	22	41	-	184
Warehouses & maintenance depots	11	19	8	8	9	-	55
Slaughter houses	6	13	4	17	9	-	49
Public toilets	7	297	11	-	3	-	318
Laboratories	-	-	-	1	-	6	7
Total	135	435	105	92	128	12	907

7.4.7.6 Other Projects. Various other projects are planned, including: 267 km. of cemetery fencing; the provision of 229 hectares of parks and gardens; 53.6 hectares of car parks and 121 study projects which will be implemented primarily by the Central Ministry.

In addition a diplomatic quarter is being constructed in Riyadh to provide housing and other facilities to accommodate the transfer of embassies and embassy staff from Jeddah.

The transfer of water management from the Ministry of Agriculture and Water to the municipal authorities will be completed.

7.4.8 Third Development Plan Programs:Housing

7.4.8.1 Housing Demand. The Kingdom-wide housing requirement for the Third Plan period is approximately 730,000 units. This includes units for new household formations; those needed as replacements for substandard construction; as well as replacement needed due to fire, deterioration and demolition. Of this total the need for urban housing dwellings in population centers of more than 30,000 persons, will exceed 450,000 units.

7.4.8.2. Housing Development. While not every Saudi household will have its own home by the close of the Plan, substantial progress will have been made, and over one-third of all households should have a modern dwelling. The Kingdom's housing program will be a combination of efforts of the public and private sectors.

7.4.8.3 Public Sector Programs. Government will continue its housing construction and finance programs throughout the Third Plan period. However, the emphasis will change by giving greater attention to making residential accommodation available to lower income families.

(1) **Ongoing Construction.** The principal target of the housing sector is to complete the public housing projects under construction or about to be remodeled before the close of 1403. These include 12,601 apartments and villas already under construction, three housing projects comprising 2,100 partially completed villas and the 1,152 apartments for Riyadh's rush housing scheme. On completion of the rush housing programs, residents' committees will be formed which will assume responsibility for the operation and maintenance of their dwellings.

(2) New Construction. During the Third Plan period the public housing sector will construct 10,000 new housing units which will be distributed as follows:

Table 7-18

NEW HOUSING CONSTRUCTION

Khafji	750	Riyadh	1,250
Mecca	3,000	Burayda	1,000
Medina	3,000	Qatif	1,000

To complement the construction of new dwellings a program will be introduced to provide serviced plots for lower income families. The program proposes the allocation of 14,800 plots in at least 15 different locations as indicated below. Of these, priority will be given to 8,500 plots which have already been identified and site designs prepared. The plots will be located as shown in Table 7-19.

Priority plots will be completed and allocated by the end of 1402/03 whereas new plots will be constructed and allocated by 1404/05.

(3) Special Housing Program. As indicated in Table 7-20 a special housing project will be undertaken to construct 7,000 housing units to assist lower income households find adequate housing.

(4) Studies Program. Two study projects will be implemented: a housing statistics study to document the number and condition of housing units in the Kingdom and a study to document the characteristics of substandard housing in the cities.

Other programs planned include the construction of housing for employees of government agencies. These agencies will also construct approximately 53,300 units under separate programs within the operating plans of several ministries and agencies. In addition, a project is planned at Mina to provide facilities for pilgrims.

These programs, together with the private sector housing construction described below are summarized in Table 7-21.

Table 7-19
REGIONAL DISTRIBUTION OF SERVICED PLOTS

<u>Priority Plots</u>	<u>No. of Plots</u>	<u>Other Plots</u>	<u>No. of Plots</u>
Mecca	2,000	Najran	750
Medina	2,000	Jizan	750
Burayda	2,000	Hail	750
Qatif	500	Abha/Khamis Mushayt/Bisha	750
Riyadh	2,000	Taif	800
		Tarut/Al Ahssa	1,000
		Unaizah	750
		Tabuk	750
Total	8,500		6,300

Table 7-20
SPECIAL HOUSING PROGRAM
(Number of Dwellings)

<u>Northern Region</u>		<u>Southwestern Region</u>	
Hail	400	Najran	300
Tabuk	400	Jizan	500
Sakaka	200	Dhahran al Janoub	200
Al-Hajar	600	Sabia	200
Eastern Region			
Hafr al Batin	200	Samtah	200
Al Ahssa area		Farasan	200
and Tarut Island	1,200	Abha/Khamis	
		Mushayt/Bisha	1,000
		Qunfudah	200
<u>Western Region</u>		<u>Central Region</u>	
Al Ula	200	Wadi Al Dawasir	200
Rabigh	200	Unaizah	400
Yanbu an Nakhl	200		

Table 7-21
HOUSING CONSTRUCTION 1400-1405
(number)

<u>Public Sector</u>	<u>Dwellings</u>	<u>Serviced Plots</u>
Ongoing villas and apartments	12,601	
Riyadh rush housing apartments	1,152	
Special villas project	2,100	
New housing program	10,000	
Special housing project	7,000	
Government agencies' employees housing	53,300	
Serviced plots scheme		14,800
Subtotal	86,153	14,800
<u>Private Sector</u>		
REDF personal loans	98,000	
REDF investment loans	5,000	
Other investment	5,000	
Non-REDF construction	73,000	
Subtotal	181,000	
Total	267,153	14,800

7.4.8.4 Private Sector Construction. The private sector housing construction will comprise houses built by private individuals for their own residences, by companies to house employees, and by individuals and real estate companies for rental accommodation. As shown in Table 7-21 above it is anticipated that over 50 percent of private houses built will be financed in one way or another by the REDF. (See Section 7.4.9). Altogether, it is estimated that the private sector will be responsible for the construction of 181,000 units or approximately 68% of total new dwellings entering the market during the Third Development Plan.

7.4.9 Third Plan Development: Residential Credit.

7.4.9.1 Housing Finance. The Government will continue to make available interest free loans to individuals for the construction of personal residences and in accordance with market needs

to individuals and real estate companies for the development of residential buildings for rent. Table 7-22 outlines the proposed lending schedule for the Third Plan period.

Table 7-22

THIRD PLAN RESIDENTIAL CREDIT DISBURSEMENT
(Current prices, SR millions)

	<u>1400/01</u>	<u>1401/02</u>	<u>1402/03</u>	<u>1403/04</u>	<u>1404/05</u>	<u>Total</u>
Personal loans	2,780	2,771	2,762	2,763	2,740	13,816
Investment loans ⁽¹⁾	162	161	161	161	160	805
Total	<u>2,942</u>	<u>2,932</u>	<u>2,923</u>	<u>2,924</u>	<u>2,900</u>	<u>14,621</u>

(1) Subject to market requirements.

The distribution of such loans will be made only for residences in those places listed as approved in national, regional or district centers.

Loans for personal residences will be made only in residential neighborhoods which already have public utilities installed or for which the municipality has plans for the installation of utilities. Construction will conform to the municipal town plans where they exist, and in all cases an assurance from representatives of the Ministry of Municipal and Rural Affairs will be required so that each individual house will be constructed within the actual or planned network.

A study will be initiated into the present state of the rental real estate market to examine such items as the number of vacant units, the rate of absorption of those units, and the estimated future demand for rental properties.

7.4.9.2 Organizational Development. Greater attention will be given to improving the collection rate of loan repayments. All legal documents and regulations concerning the enforcement of rules in the cases of loan delinquency and default will be finalized. Decrees deemed necessary for enforcement will be drafted for consideration by the Council of Ministers and the plan developed for administrative procedures to be followed in the case of delinquency and default. These procedures will be prepared and adopted by 1401/02.

Specifications for structural designs of houses suitable for Saudi Arabia will be introduced. These specifications will be made available to the general public at nominal cost. Applications for loans for houses based on these standard designs will receive quicker approval.

A housing study will be undertaken to look at the overall need for housing over the next twenty years, the capital availability, and the lending systems; and to make recommendations concerning the administrative, legal, and financial aspects of a housing policy which will put Saudi households in decent, safe, and sanitary dwellings.

By the end of the Third Plan the REDF will operate through a total of 60 branches nationwide.

7.5 FINANCIAL REQUIREMENTS:PHYSICAL INFRASTRUCTURE DEVELOPMENT

To implement the programs planned for physical infrastructure development, the financial requirements are as shown in Table 7-23.

Table 7-23

FINANCIAL REQUIREMENTS:PHYSICAL INFRASTRUCTURE DEVELOPMENT

(Current prices, SR millions)

<u>Sector Components</u>	<u>Recurrent</u>	<u>Project</u>	<u>Total</u>
Transport and Communications	27,725.8	115,292.3	143,018.1
Municipal and Residential Development	18,836.9	85,489.3	104,326.2
Total	<u>46,562.7</u>	<u>200,781.6</u>	<u>247,344.3⁽¹⁾</u>

- (1) This total differs from the corresponding total in Table 3-1 on account of the exclusion of Meteorology.

CHAPTER 8

TECHNICAL OPERATIONS AND RESEARCH

8. TECHNICAL OPERATIONS AND RESEARCH

8.1 OVERVIEW

A number of miscellaneous technical operations and research are undertaken by specialized agencies in the Kingdom. Those covered in this chapter embrace activities associated with the transfer and development of science and technology, the operation of meteorological and environmental protection services, mapping and the development of, and application of, product standards and specifications.

8.2 SCIENCE AND TECHNOLOGY

8.2.1 Overview

8.2.1.1 Saudi Arabia's general attitude toward science and technology is based upon a traditional respect for knowledge and appreciation of the human effort expended in its accumulation and development. The Kingdom has always appreciated the contribution that science and technology can make to social and economic development. Accordingly, the objectives of the national science and technology policy are two-fold. First, their concern is the transformation of society's material conditions through the selection, transfer and management of advanced technology while simultaneously preserving cultural values; and second, in the development of the Kingdom's natural and human resources their focus is on reducing the economy's dependence on foreign manpower and on depletable hydrocarbon resources.

8.2.1.2 It was recognized in the Second Plan that the successful implementation of this policy required the concerted efforts of a central organization. The Plan proposed to establish a council for science and technology. In 1397 the Saudi Arabian National Center for Science and Technology (SANCST) was established as an independent body administratively attached to the office of the Prime Minister.

8.2.1.3 Besides the formulation of a national science and technology policy SANCST also has the responsibility for promoting and coordinating scientific research in accordance with the Kingdom's social and economic development requirements, and evaluating the acquisition of foreign technology, while at the same time developing the scientific and technological potential

of the country. Initially one of the most important aspects of SANCST's work will be its contribution to the alleviation of the present shortage of Saudi manpower through the promotion of labor saving technology in the Kingdom's commercial and industrial enterprises. SANCST is organized into four directorates, each administering a separate area of the Center's responsibility: Science and Technology, Infrastructure, Scientific Research, Scientific and Technological Manpower, and National Research Institutes.

8.2.1.4 In discharging its responsibilities SANCST coordinates its activities with many government and private sector agencies including: the Universities, the Ministry of Agriculture and Water, the Civil Service Bureau, Petromin, and the electricity corporations.

8.2.2 Present Conditions

8.2.2.1 The activities of SANCST can be divided into two categories: those performed by the individual directorates and those performed under the auspices of international agreements.

8.2.2.2 Within the first group, concerned with scientific information, grants for applied research and the establishment of advisory working groups, work began on establishing a national science and technology information system. Two studies were completed in 1398 to determine the existing nature of the Kingdom's scientific information and resource base and a contract was awarded for the design and establishment of a national science data base.

8.2.2.3 A grants program commenced in 1398. From a total of 79 applications to date, 32 grants have been awarded for applied research programs. The average size of grant is half a million Saudi Riyals and the average length of project is two years.

8.2.2.4 After an initial survey to determine the interests of individuals, nineteen areas have been identified in which specialized working groups are to be funded.

8.2.2.5 In terms of internationally sponsored programs SANCST has four active projects:

- (1) Under a technical agreement with the United States of America five major areas for solar research and development have been identified. These are the availability of solar energy, thermal processes, storage and fuel production, generation of electricity and the evaluation of other related energy sources.
- (2) A program office has been established in Washington, D.C., which will, among other things, develop plans for identifying major research elements and the personnel and equipment to implement research programs.

- (3) SANCST has entered into a project agreement with the Canadian National Research Council for a national observatory project. The project will specify the software and configuration and detail of the optomechanical part of the 'seeing monitor' and will test critical components.
- (4) Two projects in the field of single cell protein manufacture and agriculture are to be implemented as a result of a technical agreement signed with the Republic of China.

8.2.3 Objectives and Policies

8.2.3.1 Objectives. There are two principal Third Plan objectives:

- (1) To transform the material conditions of society by the application and incorporation of science and technology;
- (2) To develop the Kingdom's natural and human resources thereby reducing the dependence on oil reserves and on foreign labor.

8.2.3.2 Policies. To achieve these objectives the following policies will be adopted:

- (1) Determine scientific and technological objectives consistent with the National Plan;
- (2) Organize and deploy the necessary infrastructure and equipment;
- (3) Identify and adopt technology to meet the requirements of the economy;
- (4) Monitor and evaluate research programs;
- (5) Monitor the development, transfer and application of science and technology.

8.2.4 Third Development Plan Programs

The programs of SANCST can be divided into two broad categories: those concerned with research and those concerned with supporting research:

8.2.4.1 Research Programs. A comprehensive survey of the distribution and character of the arid ecosystem will be undertaken to provide the basis for a detailed analysis of selected ecosystems and the development of holistic models to facilitate the analysis of implementing alternative land use patterns.

A study of the energy use pattern is planned which will recommend a policy of conservation and evaluate potential alternative energy sources.

Concerning the National Observatory, potential sites will be identified and assessed and recommendations will be made to the Council of Ministers regarding the magnitude of the program.

8.2.4.2 Supporting Research Programs. As part of the Kingdom's overall policy SANCST will appraise national needs in science and technology; identify priority areas; facilitate the adoption of appropriate technology; and encourage greater efficiency for manpower through the transfer of labor saving technology.

Attention will be given to increasing the availability of and access to scientific and technological information. As a result SANCST will establish a number of new data centers; provide for the standardization and maximum utilization of Saudi Arabian libraries; and participate in Arabic language related data processing, library information and research and development activities. Training will be given in scientific library techniques.

To provide specialized technical support to experimental research at universities and research institutes SANCST plans, in association with the Specifications and Standards Organization, to make well equipped modern research facilities available within the Kingdom; provide for instrument design, development, maintenance and calibration; conduct training services and make research facilities available to the private sector.

Important aspects of the SANCST support role will be the continuation of the grants program for applied research and the establishing of working groups to achieve and assist in development of national science and technology policy.

To create an environment which will enhance public interest and understanding of science and technology SANCST will develop a program to utilize mobile vans and publish newsletters and magazines for the dissemination of information; promote the translation to

Arabic of scientific materials; and publish books in Arabic on simple and advanced maintenance and related topics. In addition SANCST will encourage younger elements of society by promoting the formation of science clubs in educational establishments.

To ensure that adequate staff are available to meet SANCST's manpower requirements, without unnecessary encroachment on the staff of existing universities and other research establishments, scholarships will be offered to develop the scientific capabilities within the Kingdom.

A new headquarters building is planned to accommodate management and administrative staff.

8.3. METEOROLOGY AND ENVIRONMENTAL PROTECTION

8.3.1 Overview

8.3.1.1 The agency which takes primary responsibility in the Kingdom for development of meteorological and environmental protection services is the Meteorological Department of the Ministry of Defense and Aviation redesignated in 1399 as the Meteorological and Environmental Protection Administration (MEPA). MEPA collaborates with the World Meteorological Organization and International Civil Aviation Organization, and its affiliated regional units and sub-committees, to develop new functions and to upgrade and maintain standards useful in developing sound meteorological procedures and advisory services in the Kingdom and the Gulf Region. Cooperation with neighboring countries is active and Saudi Arabia is assisting Yemen through a foreign aid program to develop meteorological and environmental service programs.

8.3.1.2 The Ministry of Agriculture and Water (MOAW) collects climatological data at experimental farms within the cultivated areas, measures precipitation and stream flow at over 500 hydrographic monitoring stations, and provides agronomic support to MEPA where needed for collaborative work. MEPA develops selected agro-meteorological stations outside the cultivated areas. There is a permanent coordination committee to recommend on recording, processing, and publication of agro-meteorological data, determination of criteria for weather forecasts and warnings for the benefit of agriculturalists.

8.3.1.3 In the Hajj areas the Ministry of Health periodically requires information, from MEPA on the monitoring of human environmental hazards, particularly in the areas of water and air pollution. The Ministry of Health, however, has responsibility for implementing corrective measures and implementing or sharing enforcement activities with the appropriate enforcement agencies.

8.3.1.4 Meteorological and environmental services are thus a part of the various inputs to economic operations, socio-economic development and life saving efforts which are actually reported by other sectors.

8.3.1.5 Prior to the First Five Year Plan, limited services in meteorology and climatic observation were available. Two forecasting offices of the Meteorological Department of the Ministry of Defense and Aviation functioned mainly as aeronautical meteorological services. Agro-meteorological services data were gathered by the research department of the Ministry of Agriculture and Water at experimental farms in cultivated areas at scattered locations and by the water resources (hydrology) department. Fortunately, the need for technical and professional manpower and the lack of in-country institutional facilities to supply newly trained personnel and to develop and provide modern services to a number of sectors through a central meteorological service was recognized early. Between 1380 and 1395 more than 175 persons were trained abroad.

8.3.2 Present Conditions

8.3.2.1 Major accomplishments during the Second Plan period included improvements of facilities and the organization of programs for measurement and analysis of meteorological factors. The quality of information supplied to the military, civil aviation, and other agencies has been upgraded to match basic standards of the World Meteorological Organization (WMO) in areas where activities have been developed.

8.3.2.2 The number of surface observation stations was increased from 20 to 21. Improvements were made to six existing upper air sounding stations, and six additional stations were constructed to provide daily profiles of wind speed, direction and temperature. Three automatic observation stations in the Empty Quarter were constructed and equipment installed, and the stations are operating satisfactorily on isotopic power supplies in the harsh environment. A

satellite ground receiving station has been newly constructed at Dhahran for the purpose of receiving international weather satellite data covering the Gulf Region, and is fully operational. A staged upgrading of personnel, equipment and other weather service facilities at Tabuk and at Khamis Mushait has been completed, and local forecasting capabilities have been established at both stations. Riyadh and Medina weather service stations were improved to basic service levels.

8.3.2.3 Data have been accumulated and analyzed for a climate atlas for the Kingdom. Studies have been made of the feasibility of establishing a National Meteorological Center, which will facilitate services and stimulate international exchange programs and the conduct of research. Studies of the requirements for a marine meteorology program have been completed, and implementation of the program to provide services for the Navy and shipping will begin in 1400.

8.3.2.4 Four automatic weather stations at Mecca, Muna, Taif, and Al Kharj have been installed as a part of the weather observation network. These stations can be interrogated by the radio telemetry from the new Jeddah airport communications center and by land lines. MEPA is constructing 17 automatic surface weather observation stations to be interrogated by radio telemetry via satellite. Some of these stations will be equipped with marine meteorology sensors and others with air quality monitoring equipment. A storm detection radar installation at Taif has been completed which provides severe weather warning services to air operations and civil authorities. Two more units, at Jeddah and Medina, are in the process of completion.

8.3.2.5 The initial warning service is operational. A study of cloud seeding has been completed and has indicated positive results. A weather information dissemination system was established to give civil and domestic users accurate current weather information. Information is regularly furnished for pilot briefings, publications, and broadcasts by local sources, in weather reports, and in weather forecasts. More than 230 staff members have received formal training in maintenance and operation of meteorological equipment. Another 25 administrative and financial service personnel have received training in skills to support the meteorological and environmental protection operations. More than 100 personnel received formal training in technical areas of the Directorate's operations.

8.3.2.6 The accomplishments made during the Second Plan period were of major significance in providing the basic infrastructure for organizing meteorological and climatological services.

8.3.3 Objectives and Policies.

8.3.3.1 Objectives. The working objectives for the Third Plan period are, in brief:

- (1) To upgrade the ability to provide accurate, timely weather information and forecasts to meet the increasing requirements of military and civil aviation and marine navigation and safety, ground transport, agriculture, fisheries, and domestic users;**
- (2) To upgrade the climate observation and information resources and to complement efforts to develop agricultural production and expansion, water resources, and resource reclamation efforts that are strongly affected by climatic factors;**
- (3) To provide and develop a comprehensive environmental service by determining and promulgating standards for ambient air and water quality; to establish a comprehensive monitoring and surveillance of the air, water and solid waste disposal practices of the Kingdom; and to implement a broad public education program on the environment;**
- (4) To maximize developmental training opportunities and to upgrade and diversify the experience and skills of Saudi personnel.**

8.3.3.2 Policies. To achieve these objectives, the following policies will be implemented:

- (1) Acquire a comprehensive data base about the environment;**
- (2) Provide an effective information dissemination system;**
- (3) Develop skills required for performance of programmed duties and functions;**
- (4) Cooperate with regional and international environmental programs;**
- (5) Maintain national environmental standards and conduct research on important environmental problems.**

8.3.4 Third Development Plan Programs

Four principle programs will be undertaken during the Plan period. These are:

8.3.4.1 Expansion and Improvement of Meteorological and Climatological Services. This program includes facilities and observation stations and the development of a climate station. A marine meteorological observation network will be established. In addition to a program of meteorological research and expansion of the meteorological observation and communication facilities, a network of air pollution monitoring stations, 214 climatic stations, 26 automatic stations (nine in remote areas) and 12 upper air stations will be established. The network of surface observation stations will also be increased from 21 to 26. Vital forecasting stations will be established in Jeddah, Riyadh, Tabuk and Dhahran with other forecasting stations planned for Medina, Taif and Abha. Construction and operation of manned stations in Moya and Dawadimi will also be undertaken. A project will be undertaken to update and mechanize meteorological and environmental forecasting.

8.3.4.2 Establishment and Development of Environmental Protection Support Services. Initial projects will include the development of standards for air, water and marine ecology, and standards for solid waste disposal practices. An environmental modeling group to simulate air pollution problems is to be established. An oil spill emergency response plan is to be developed. Studies of the ozone-hydrocarbon relationships, environmental effects of the pilgrimage periods, agro-meteorological data uses, and basic meteorological research will be carried out as a basis for future policy actions. Four special purpose environmental stations are to be established, together with satellite receiving and processing facilities in Jeddah and an air pollution station in Jubail. Cloud studies will be continued throughout the Plan period. A program for supporting the Bedouin environment in land utilization will be introduced.

8.3.4.3 Operation and Maintenance Program. High priority will be given to the operation and maintenance of technical equipment throughout the Plan.

8.3.4.4 Training Program. Training programs will be established to provide training for new observers, forecasters and environmental protection technicians, and additional ongoing training for existing staff forecasters and observers. Training will be provided for up to about 545 meteorological and environmental personnel during the Plan.

8.3.4.5 Cooperation with those other departments responsible for climatological, and hydrological data collection, recording and publishing will be continued and strengthened.

8.4 AERIAL SURVEY AND MAPPING

8.4.1 Overview

The Aerial Survey and Mapping Department (ASMD) is an autonomous department within the Ministry of Petroleum and Minerals which provides comprehensive mapping services for the Kingdom's public and private sectors. The work of the department is continuous with constant updating required.

8.4.2 Present Conditions

8.4.2.1 Most of the targets set for the Second Development Plan were completed. A total of 6000 kilometers of the national geodetic network was covered and a land connection system in the Rub' al Khali was completed. Survey networks were set up for 30 towns and villages and 2260 traverse stations maintained. The initial work for the topographic mapping of about 70% of the Kingdom's areas was completed, and preparation of hydrographic maps of the Kingdom's west coast was completed. In addition final studies of the requirements for the information system were presented; the construction and equipment of the new computer and data bank center was completed in 1400.

8.4.3 Objectives and Policies

8.4.3.1 Objectives. Two primary objectives apply:

- (1) To provide comprehensive mapping services for the Kingdom in response to the requirements of national development plans;
- (2) To increase the efficiency and capability of the department's work force.

8.4.3.2 Policies. To achieve these objectives the following policies will be implemented:

- (1) Expand and maintain the national geodetic network;

- (2) Continue photography work as required by the mapping programs;
- (3) Continue the preparation of topographic maps for national resource surveys, industry, agriculture, and infrastructure sectors;
- (4) Commence the modification of topographic maps to large scales e.g. 1: 24,000 scale;
- (5) Prepare and provide detailed thematic maps;
- (6) Maintain and operate the central information bank and computer center to provide centralized survey map and photography information and avoid duplication in survey and mapping work;
- (7) Expand and improve the manpower training program.

8.4.4 Third Development Plan Programs

Work will concentrate on the extension and maintenance of the geodetic network, aerial photography and subsequent preparation of map series for regions of the Kingdom. Map production will be based on preparatory work undertaken during the Second Development Plan as well as new planned survey and photography work. The dissemination of survey and mapping information will be improved with the operation of the new computer and information bank. The recruitment and expertise of Saudi staff will be increased with the construction and operation of a training center in Riyadh. The following five programs will be implemented.

8.4.4.1 Topographical Mapping. This is the largest program and will be continuous and include basic topographic map production, coastal surveys and mapping, thematic geographic map production and related aerial photography.

8.4.4.2 Geodetic Network. Under this program an adequate, first, second and third degree geodetic points network will be established and 1400 traverse and paving stations maintained.

8.4.4.3 Central Information Department. Using the new computer facilities all types of survey information will be classified and stored with provision for easy access for government and private sector users. The capability to undertake geodetic computer calculations will also be developed.

8.4.4.4 Equipment and Furnishing. This program includes continuous expenditure to provide mapping equipment for ortho - photography and printing and field survey equipment.

8.4.4.5 Training. The construction and operation of a technical training center will be undertaken in Riyadh. When fully operational up to 40 employees at any one time will be able to receive training.

8.5 STANDARDS AND SPECIFICATIONS

8.5.1 Overview

8.5.1.1 The Specifications and Standards Organization (SASO) was created by Royal Decree number M/10 dated 3/3/1392. Its general function is to develop and promulgate standards; approve standards of other organizations; apply rules of quality marks and certificates of conformity; and participate in Arab and other international organizations relating to specifications and standards for products. The decree stipulates that Saudi standards are obligatory through the Kingdom unless an exception is agreed to by the SASO Board of Directors. SASO is part of the Ministry of Commerce.

8.5.1.2 SASO has two areas in which it operates to fulfill the responsibilities outlined in the Charter:

- (1) Research to develop specifications for products as required;
- (2) Metrology, which entails the calibration of equipment in the Kingdom.

8.5.2 Present Conditions

8.5.2.1 During the Second Plan SASO concentrated largely on the development and promulgation of standards. The concentration of effort has been in the areas deemed to be important to the nation's development, namely: foods, construction materials, and mechanical and electrical products.

8.5.2.2 The Second Development Plan target of 300 standard specifications was attained. The categorization of standards either approved or in process of approval is as follows:

	<u>Percent</u>
Food	25
Building and other Construction	19
Electrical	17
Mechanical	15
Petrochemical	10
Textiles	4
Metrology	10
Total	<u>100</u>

Another Second Plan target was to develop a system of quality marks for implementation during the Third Plan period. The lack of a laboratory has delayed the development of the specifications requisite to implementation of this program. SASO is overcoming this problem to some extent by working with the Ministry of Industry and Electricity to require industrial licensees to cooperate with SASO to ensure that appropriate quality control measures are adopted.

8.5.2.3 There are several organizations in the Kingdom engaged in the testing of products. This is an area where coordination is needed in order to avoid possible duplication of effort and/or to achieve specialization and the greatest return from the research effort expended.

8.5.3 Objectives and Policies

8.5.3.1 Objectives. During the coming period the policy will be to encourage standardization in the productive fields of industry, agriculture, and construction, in addition to commerce. General objectives are:

- (1) To establish standard operating procedures relating to specifications, methods of testing and calibration;
- (2) To unify terms, symbols, and units of measure;
- (3) To establish rules for quality control, and the issue of conformity certificates and quality marks;

- (4) To coordinate standardization practices in the Kingdom;
- (5) To propagate information concerning standardization;
- (6) To participate in international efforts directed towards achievement of standardization;
- (7) To increase training activities.

8.5.3.2 Policies. The foregoing will be accomplished by the following policy actions:

- (1) Stipulate that industrial licensees must consult with SASO relative to measures of quality control to ensure that acceptable product standards are maintained;
- (2) Take measures to enforce quality standards for imports. Inspection of goods will be made in the country of origin in those cases where this is appropriate;
- (3) Make special efforts to broaden the use of conformity certificates and quality marks;
- (4) Establish a calibration laboratory;
- (5) Establish a laboratory to determine qualities of various types of goods. The steps in this are as follows:
 - prepare standard specifications which relate to the needs of the Kingdom;
 - develop methods of examination of products;
 - study and research ways to overcome the obstacles to improve quality; ways to increase the use of local raw materials; and methods to improve quality control;
- (6) Disseminate information concerning specifications;

(7) Develop assistance programs from international organizations;

(8) Improve the organization.

8.5.4 Third Development Plan Programs

8.5.4.1 Standards Specification Program. Preparation of standard specifications for 400 products and the issuance of 300 specifications are targeted. The products will be selected according to the following criteria:

- (1) Products manufactured within the Kingdom;
- (2) Products relating to industrial safety and protection of the environment from industrial pollution;
- (3) Products relating to consumer protection;
- (4) Products which are widely used;
- (5) Products which are exported.

The schedule for the preparation of specifications will be revised each year to reflect the dynamic conditions that exist in the Kingdom. The currently expected categorization of products for which specifications will be issued are;

	<u>Number</u>
Foodstuffs	65
Building materials	55
Industrial safety and consumer protection	10
Mechanical products (method of testing)	40
Electrical applications and symbols	40
Chemical and petroleum products	30
Textiles	30
Metrology	30
Total	<u>300</u>

8.5.4.2 Certificates of Conformity and Quality Marks. The initial emphasis will be on conformity certificates with a limited number being awarded for products which are easy to

inspect. Quality marks are given to indicate that the products of a factory are always in accordance with the appropriate standard specifications.

8.5.4.3 Metrology Laboratory. Construction of a metrology laboratory and administration offices at Riyadh will begin and will be ready for operation at the beginning of the Fourth Plan period. The comprehensive program in the areas of testing, research, development and metrology will begin in leased facilities early in the Plan period.

8.5.4.4 Other Programs. Participation in international activities will continue, and all suitable means will be used to disseminate information concerning standards. Good quality trophies will be issued to companies meeting certain standards.

8.5.4.5 Training Program. A total of 279 workers is expected to be graduated during the five year period in the following types of programs:

Scholarships	12
Orientation	6
On-the-job training	<u>261</u>
Total	279

8.5.4.6 Organization. Early in the Plan period the Government will assess and clarify responsibilities of the several organizations having responsibility for product testing, and more effective coordination will be initiated between the various laboratories to eliminate apparent duplications. In addition, the separate enforcement powers in this area will be clearly defined.

8.6 FINANCIAL REQUIREMENTS

Third Development Plan expenditures for the activities outlined in this Chapter ⁽¹⁾ are as follows:

(SR millions in current prices,)

<u>Recurrent</u>	<u>Projects</u>	<u>Total</u>
1,097.6	2,079.5	3,177.1

- (1) Aerial Survey and Mapping Department expenditure is included in the Economic Resources total (Chapter 4).

THIRD DEVELOPMENT PLAN

1400 - 1405 A.H. ~ 1980 - 1985 A.D.

**KINGDOM OF SAUDI ARABIA
MINISTRY OF PLANNING**



HIS MAJESTY KING KHALED IBN ABDUL AZIZ

**IN THE NAME OF ALLAH
THE COMPASSIONATE THE MERCIFUL**

Praise be to Allah, Lord of the worlds; may His blessings and peace be upon our Prophet Muhammad.

It is a grace allotted to us by Allah that the Third Five Year Development Plan should be sanctioned tonight. It shall be, Allah willing, a new blessed step towards bringing about prosperity and welfare for our people and nation. We supplicate Allah Almighty, to bring our aims and aspirations to fruition, and to bestow upon our country permanent security, stability and progress, so that our nation may be in the forefront of developing and advanced nations.

The implementation of this new Third Plan constitutes a vast joint responsibility, which will only materialize when every official in the Kingdom perceives his responsibilities, carries out his functions sincerely, and cooperates with others, so as the lofty edifice we are erecting shall tower up, Allah willing.

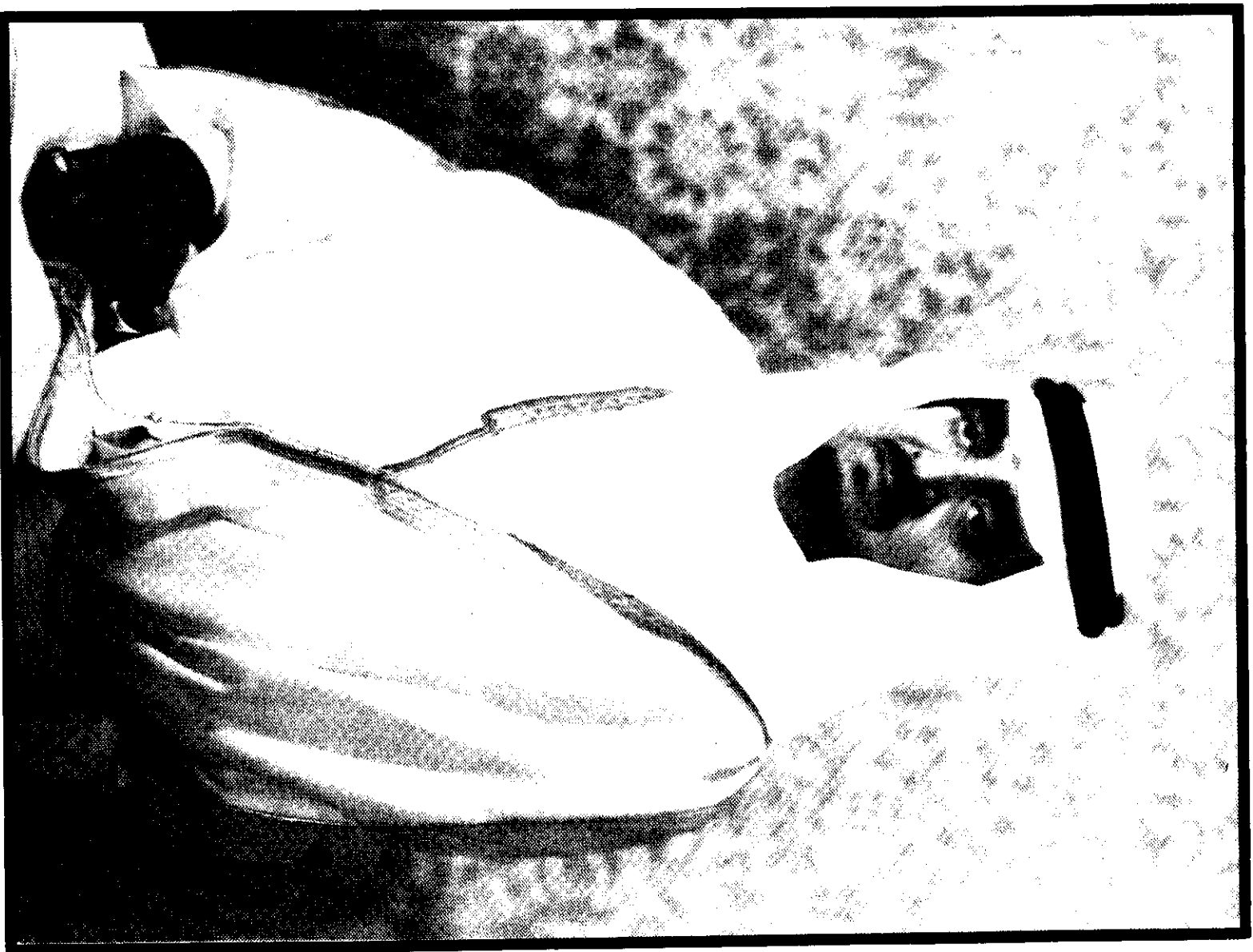
In this respect, my thanks are due to those men, foremostly H.E. the Minister of Planning, who have administered and superintended the preparation of this Plan, and who have spared no effort to finalize it in time.

Our aim is to all intents and purposes, to earn the pleasure of Allah, Whom we entreat to bolster our endeavor, to lead us to success and to render us always grateful and thankful for His Divine favors.

KING OF SAUDI ARABIA



**KHALID IBN ABDULAZIZ
19.6.1400 AH**



HIS ROYAL HIGHNESS PRINCE FAHD IBN ABDUL AZIZ
Crown Prince & Deputy Prime Minister

**THIS PLAN SHALL BE A FURTHER CONTRIBUTION TO
THE CONTINUED ADVANCEMENT OF THE PEOPLE OF
THIS COUNTRY AND THE WELFARE OF ITS CITIZENS.**

Crown Prince And Deputy Prime Minister

A handwritten signature in black ink, consisting of a horizontal line with a stylized flourish and a small dot above it.

Fahd Ibn Abdul Aziz

**Council of Ministers Resolution No. 96
dated 19/6/1400 AH (4/5/1980)**

The Council of Ministers,

**Having considered the letter of H.E. the Minister of Planning No. 0/275
dated 15/6/1400 A.H., and**

**Having reviewed the Third Development Plan for the Kingdom of Saudi
Arabia, covering the period from Rajab 1400 to Rajab 1405 A.H., prepared in
accordance with the specific strategy as outlined by the Council of Ministers
Resolution No. 222 dated 14/8/1399 A.H.;**

Decides the following:

- 1 Approval of the Third Development Plan, together with its attached
programs and projects;**
- 2 Council of Ministers Resolutions regarding the First and Second Plans
shall be taken into consideration in its implementation.**

PRIME MINISTER



PREFACE

This document of the Third National Development Plan represents a summary of the main results of an extensive process of preparation for the development of the Kingdom during the five year period 1400 - 1405. It, therefore, represents the contribution of many people throughout the country, who are engaged in numerous different activities and organizations in both the Government and the private sector, yet who have a common concern for the development of the country. At the same time, the National Development Plan represents substantially more than the sum total of individual contributions; it is a consistent statement of ideas and programs for action, founded on a broad agreement on the national priorities, and on an objective assessment of the economy's capabilities for development.

The Third Development Plan as a whole consists of three main parts:

First, the general guidelines and policies for development during the Third Plan Period, which will be followed by the government ministries and public sector agencies.

Second, the operational plans for each government ministry and public sector agency, which cover in detail their programs and allocations for expenditure whereby they will implement the policies for development.

Third, the analysis and projections of the whole economy, its manpower resources, levels of economic activity, and sectoral composition of output and expenditure.

This volume is a summary of these three parts of the Plan, and describes the main features of the Kingdom's approach to development and the achievements to date; it explains the strategy for the Third Plan in the context of the Kingdom's long term objectives for development; and reviews the most significant programs and projects which will be implemented by the various government ministries and the public sector agencies during the Third Plan Period.

SAUDI FISCAL AND HIJRA YEAR DATES AND GREGORIAN EQUIVALENTS

Saudi Fiscal Year

(1 Rajab to
30 Jumad II)

	Start on*		Hijra Year	Starts on*		Hijra months
1385/86	25 Oct.	1965	1385	1 May	1965	Muharram
86/87	16 Oct.	66	86	21 April	66	Safar
87/88	4 Oct.	67	87	11 April	67	Rabi I
88/89	23 Sept.	68	88	30 March	68	Rabi II
89/90	12 Sept.	69	89	19 March	69	Jumad I

First Development Plan Period 1390/91 thru 1394/95

1390/91	2 Sept.	1970	1390	9 March	1970	Jumad II
91/92	22 Aug.	71	91	26 Feb.	71	Rajab
92/93	10 Aug.	72	92	15 Feb.	72	Shaban
93/94	30 July	73	93	4 Feb.	73	Ramadhan
94/95	19 July	74	94	23 Jan.	74	Shawwal

Second Development Plan Period 1395/96 thru 1399/1400

1395/96	9 July	1975	1395	13 Jan.	1975	Dhul-Qi'dah
96/97	28 July	76	96	2 Jan.	76	Dhul-Hijjah
97/98	16 June	77	97	22 Dec.	76	
98/99	6 June	78	98	11 Dec.	77	
99/1400	26 May	79	99	30 Nov.	78	

Third Development Plan Period 1400/01 thru 1404/05

1400/01	15 May	1980	1400	19 Nov.	1979	Gregorian months
01/02	4 May	81	01	9 Nov.	80	January
02/03	23 April	82	02	28 Oct.	81	February
03/04	12 April	83	03	17 Oct.	82	March
04/05	2 April	84	04	7 Oct.	83	April

Fourth Development Plan Period 1405/06 thru 1409/10

1405/06	22 March	1985	1405	27 Sept.	1984	May
06/07	11 March	86	06	15 Sept.	85	June
07/08	28 Feb.	87	07	4 Sept.	86	July
08/09	17 Feb.	88	08	24 Aug.	87	August
09/10	7 Feb.	89	09	14 Aug.	88	September

* Dates are approximate for future years.

See Statistical Yearbook, (1398 A.H. 1978 A. D.) pp. 11 - 12 for starting dates of Hijra and Gregorian months in past years.

GLOSSARY OF TERMS AND ABBREVIATIONS

AD	Anno Domini (dates in the Gregorian solar year)
AH	Anno Hijra (dates in the Hijra lunar year)
ASD	Aerial Survey and Mapping Department
ASK	Available seat kilometers, i.e. one seat available for a Passenger's use for one kilometer of distance.
Billion	10^9 , e.g. two billion = 2,000,000,000
b/d	U.S. barrels per day
CDS	Central Department of Statistics
DGMR	Directorate General for Mineral Resources
DMCC	Deputy Ministry for Contractor's Classification
DMH	Deputy Ministry for Housing
DMPW	Deputy Ministry for Public Works
Exchange Line Capacity	Total number of telephone lines which could be provided as contrasted to the number of " working " lines which are actually in service.
GDP	Gross Domestic Product: The combined total for " value added " or " net output " in the economy <u>domestically produced</u> . It includes (1) employee compensation and operating surplus of enterprises (i.e. profits including depreciation); and (2) balance of indirect taxes and subsidies.
GNP	Gross National Product; The total value of all final goods and services produced by a nation's economy. GNP is equivalent to GDP minus the net factor payments abroad.
GOSI	General Organization for Social Insurance.
GPYW	General Presidency for Youth Welfare
GSFMO	Grain Silos and Flour Mills Organization
HIDA	Al-Hassa Irrigation and Drainage Authority
IAP	International Airports Project (or Presidency)
IMCOM	Inter-Ministerial Committee on Manpower
IPA	Institute for Public Administration
km.	Kilometer
Kwh	Kilowatt hours
Load Factor	Percentage of Total Capacity Utilized
M ²	Square meters
M ³	Cubic Meters

MEPA	Meteorology and Environmental Protection Administration
MIE	Ministry of Industry and Electricity
million	10⁶, e.g. three million = 3,000,000
MOAW	Ministry of Agriculture and Water
MOC	Ministry of Commerce
MODA	Ministry of Defense and Aviation
MOE	Ministry of Education
MOFNE	Ministry of Finance and National Economy
MOH	Ministry of Health
MOHE	Ministry of Higher Education
MOLSA	Ministry of Labor and Social Affairs
MOMRA	Ministry of Municipal and Rural Affairs
MOP	Ministry of Planning
MPTT	Ministry of Posts, Telephone and Telegraph
MW	Megawatts
MVA	Megavolt amps
O&M	Operation and Maintenance
p.a.	Per annum
PCA	Presidency for Civil Aviation
Project Costs	Cost included in Chapter IV of the Saudi Arabian Government budget for new and ongoing projects.
RCJY	Royal Commission for Jubail and Yanbu
Recurrent costs	Costs included in Chapters I, II and III of the Saudi Arabian Government budget for salaries, equipment and supplies, and subsidies.
REDF	Real Estate Development Fund
RPK	Revenue Passenger Kilometer, i.e., one passenger carried one kilometer -- used in air traffic analysis.
SAAB	Saudi Arabian Agricultural Bank
SABIC	Saudi Arabian Basic Industries Corporation
SAMA	Saudi Arabian Monetary Agency
SANCST	Saudi Arabian National Center for Science and Technology
SASO	Standards and Specifications Organization
SAUDIA	Saudi Arabian Airlines Corporation
SGRRO	Saudi Government Railroad Organization
SIDF	Saudi Industrial Development Fund

SPA	Saudi Ports Authority
SPAG	Saudi Press Agency
SR	Saudi Riyals
SRCS	Saudi Red Crescent Society
SWCC	Saline Water Conversion Corporation
Throughput	Refers to: (1) the volume of flow of goods, traffic, or pumped liquids that go through ports, across roads or through pipelines; (2) the volume of goods entering and leaving warehouses and other storage facilities; (3) the numbers of calls, letters, messages received through communications systems, etc.

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Figure..... 1

KINGDOM OF SAUDI ARABIA

