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# **Saudi Arabia Enters The 21st Century:**

## **V. Economic, Demographic, and Social Challenges**

***Final Review***

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## **V. Economic, Demographic, and Social Challenges**

Saudi Arabia faces structural economic, demographic, and social problems that may well be far more significant than foreign threats, the politics of its royal family, its speed of “democratization,” and its Islamic and sectarian problems. It must transform and diversify its economy over the next decade to catch up with population growth and fund continuing social change.

Oil wealth will still underpin the Saudi economy, but there is no way that the petroleum sector can provide enough revenue to meet Saudi Arabia’s future needs or employ all of the large number of young Saudis flooding into the labor market. Diversification is also needed to repatriate much of the vast amount of Saudi private capital that is now invested abroad, to attract foreign direct investment, and to create a more efficient economy that not only offers jobs, but meaningful jobs centered around a globally competitive, and knowledge-based economy.

### **The Dynamics of Recent Demographic Change**

There is no way to be sure of just how great the Kingdom’s demographic challenge is. Saudi Arabia does use advanced sampling techniques to obtain some base population data, and there is rough agreement on the total population and the number of native and foreign residents. However, there are no precise estimates of Saudi Arabia’s past or current population, and there has been no comprehensive census. Consequently, much of the information needed to understand Saudi Arabia’s future labor problems is missing or contradictory.

The Saudi Ministry of Planning issued estimates in the Seventh Development Plan in 2000 that put the total population of the Kingdom at 21.4 million in 1999 – with 15.7 million native Saudis and 5.7 million non-Saudis -- using techniques developed for the 1992 population census. It estimated the total population of the Kingdom at 29.7 million in 2020, a rise of 89.2 percent and that the annual growth in the Saudi population of working age would remain high, ranging between 3.5% and 4.1% during 2000-2020.<sup>1</sup>



## **Trends in Total Population**

The Saudi Central Department of Statistics estimated in 2001 that the Kingdom's total population was 22.01 million in 2000, that population growth was 3.6% in 1995 and 3.2% in 2000, and that the average rate of growth was 2.9% during 1992-1999. It estimated that Saudis accounted for 16.2 million, or roughly 75% of the population, while non-Saudis accounted for 5.8 million or roughly 25.1%. It estimated that native Saudi population increased at an average annual rate of 3.5% during 1995-2000, and from 13.59 to 16.21 million persons or 73.4% of the total Saudi population. While the fertility rate of Saudi women had declined from the levels of over 6% that existed throughout the 1980s, it was still 5.5 infants per women in 2000. This compared with a global average of 2.7 and a MENA average of 3.5. At the same time, the population was increasing in size because of the positive effects of improved health care, which have increased the life expectancy of the average Saudi to 72 years.<sup>2</sup>

The same Saudi estimates indicate that the size of the foreign population increased at an average annual rate of 2.1% during 1995-2000, and from 5.21 to 5.80 million or 26.4% of the total. The Makkah region was home to 25.2% of the population, Riyadh had 22.5%, and the Eastern province had 14.5%. As of 2000, some 73% of the population was 29 years of age or younger. These Saudi estimates of population growth differ from those of other government ministries, however, which often estimate average population growth rates of well over 3.0%. Additionally, these estimates may also undercount illegal foreign residents.<sup>3</sup>

Some more recent Saudi estimates produce slightly slower growth rates for the 1990s. The Saudi Central statistics bureau has recalculated some demographic data for the mid-1990s, which it issued in June and September 2002. Chart 5.7 provides graphs showing the differences between the 2001 and 2002 estimates. Regardless of which figures are correct, they do not materially affect the demographic trends and projections discussed in this chapter.

Outside estimates differ somewhat from Saudi estimates. US State Department estimates indicate that Saudi Arabia had a total population of only 4.8 million people at the time of the June 1967 Arab-Israeli conflict. This population reached 5.4 million people by 1970, 6.2 million people by 1975, and 9.4 million people by 1980. It was 13.2 million people in 1990, 18.6 million by 1995, and more than 21.7 million in 2000.<sup>4</sup> US Census Bureau statistics indicate that Saudi

Arabia had a total population of 3.86 million in 1950, 4.72 million in 1960, 6.11 million in 1970, 9.95 million in 1980, 15.85 million in 1990, 18.63 million in 1995, and 22.02 million in 2000.<sup>5</sup>

World Bank estimates, issued in 2001 and 2002 indicate that Saudi Arabia had a population of 9.4 million people in 1980 and 20.7 million in 2000, and that the population would increase to 32.1 million in 2015 and 46 million in 2030.<sup>6</sup> These trends are compared to those in other Gulf states in Chart 5.1.

### **Trends Towards Urbanization**

Regardless of the differences between estimates, it is clear that extremely rapid population growth has taken place. This growth has been accompanied by massive social changes. What was once a rural and isolated Saudi society, divided into regional and tribal groups, has become a society that is largely urbanized, though tribal links still remain powerful. It is a society that is exposed to a wide range of electronic media and has become dependent on a modern, petroleum-driven economy.

According to the World Bank, roughly 49% of the total population was urbanized as early as 1970, and 12% of the population was living in cities with a population of one million or more. By 1980, 66% of the total population was urbanized, and 19% of the population was living in cities with a population of one million or more. The percentage of the population living in cities reached 79% by 1995, when the total population had reached a total of roughly 14.9 million people, and 21% of Saudi Arabia's population lived in cities of over one million by 1995. Urbanization reached 86% in 2000, with 25% in cities of over one million.<sup>7</sup>

The number of people living in Riyadh – Saudi Arabia's largest city – rose from 16% of the population to 19% in 2000. By 2015, the percentage of Saudis living in cities with a population over one million may reach 30%.<sup>8</sup> In the process, the number of Saudi males employed in agriculture dropped from roughly 45% as late as 1980 to under 7% in 1998.<sup>9</sup>

### **Trends Towards Education**

The increase in urbanization has been matched by a major increase in the level of education, although much still needs to be done if Saudi Arabia is to compete in skill and knowledge levels on a global basis. CIA and World Bank statistics indicate virtually all children

now receive education through the secondary school level. The CIA estimated in 2002 that Saudi Arabia's once largely illiterate population had reached an overall literacy rate of 84.2% for males and 69.5% for women. The World Bank indicates that the illiteracy rate for adult males dropped from 33% in 1980 to 17% in 2000, and from 67% to 33% for adult women. During that same period, the expected years of schooling for men increased from seven to nine years for men, and nearly doubled from five to nine years for women.<sup>10</sup>

As has been discussed earlier, the Saudi government reports that the number of males graduating annually from secondary school rose from 2,437 in 1970 to 68,643 in 1999, while the number of female graduates rose from 369 to 98,145. Female graduates were only 15% of male graduates in 1970, but they totaled 143% of male graduates in 1999. The number of males graduating annually from university rose from 795 in 1970 to 21,229 in 1999, while the number of female graduates rose from 13 to 21,721 – ending in a total that slightly exceeded the number of male graduates.<sup>11</sup>

The number of Saudi women graduating from university has grown at an average rate 2.5 times that of male graduates during the last decade, and these trends in education reflect a general pattern in education in the Gulf.<sup>12</sup> Social and professional restrictions on women are leading them to stay in school longer than men, and to qualify for more advanced degrees. This obviously has a specific impact in Saudi Arabia, because though it needs highly educated “person power,” it continues to impose exceptionally serious de facto limits in terms of numbers and types of jobs for women.

### **Population Exposure to Media**

The growth in the Saudi population and education has been accompanied by radical changes in the flow of information. Saudi Arabia ceased to be a closed, rural-tribal society even before the oil boom began in 1974. Education outside the Kingdom, large numbers of foreign teachers and the widespread availability of transistor radios had already led to the widespread circulation of Nasserite ideas and propaganda by the late 1950's, Saudi Arabia has since leapfrogged into the electronic age. It had over 260 television sets per 1,000 people in 2000, and over 95% of the Saudi people had exposure to radio.<sup>13</sup>

According to CIA analysts, the Kingdom had 117 television stations by 1997, establishing virtually universal coverage in its populated areas, and one television set for every three people in the Kingdom. Satellite dishes are common, as are shortwave radios, fax machines, and access to the Internet. In fact, the Saudi government estimates that the average Saudi spent 50% to 100% more time watching television in 2000 than his or her US or European counterpart. This almost certainly is caused partly by religious practices that limit the availability of other social activities.

These changes continue to accelerate. Radio has provided widespread access to outside news media for decades, and Saudi censorship has never been particularly effective in blocking the flow of foreign publications. However, the recent increases in satellite receivers, TV and radio broadcasts by neighboring states, and access to the Internet, have sharply increased the number of Saudis with personal direct access to outside news over the last decade. A majority of native Saudis probably had access to such sources of information by 2002. As a result, outside media and news reach a large percentage of Saudis in ways that are beyond the government and clergy's control. These developments are putting an end to effective censorship and their impact continues to grow in spite of occasional efforts to control the Internet, satellites, or inflow of foreign publications and faxes.

## **The Future Pace of Demographic Change**

Even if the Saudi birthrate declines slowly in future years, the pace of demographic change will continue to accelerate. There is no way to accurately estimate how quickly Saudi Arabia's population will grow in the future. Chart 5.1 provides one estimate, and it is important to note that these increases are likely to take place even though the World Bank estimates shown in Chart 5.2 assume that Saudi population growth will drop from an annual average growth rate of 4.0% during 1980-1999 to only 2.9% during the time period from 2000-2015.<sup>14</sup>

Population momentum ensures, however, that the labor force will grow faster than the total population, because the Saudi population is so young. The World Bank estimates that the Saudi labor force will grow from 3 million in 1980 to 7 million in 2000, and 10 million in 2010, with an average growth of 4.5% from 1980-2000, and 3.4% during the time period 2000-2010. Social change has also meant major changes in the role of women. The female portion of the total labor force grew from 7.6% in 1980 to 16.1% in 2000.<sup>15</sup>

The US Census Bureau provides another source of detailed estimates of Saudi Arabia's population, and these estimates are compared with the World Bank estimate in Chart 5.2. Chart 5.3 shows the assumptions behind the Census Bureau estimate of future Saudi population growth and that this estimate is dependent on a shift in Saudi family size and social behavior which cuts the rate of population growth from a peak of 4.9% during 1970-1980, and today's rate of 3.3%, to 2.3% after 2040. Even if Saudi Arabia's population growth rate is cut back to a much more moderate annual average of 2%, however, its total population will exceed, 25 million in 2010, and 31 million in 2020.<sup>16</sup>

Demographic shifts towards a lower birth rate are common in developing states, particularly as urbanization increases, women enter the labor force, and economic pressures lead to smaller families. So far, however, the impact of such shifts on Saudi Arabia has been limited. In fact, Saudi demographers in the Ministry of Planning raised their estimates of the current annual population growth rate from 3.2% to 3.4% in February 2001.

Several sources also show that the Saudi growth rate is not steadily decreasing with time. The CIA estimates that the Saudi growth rate rose to 3.45% in 1995 and 3.6% in 1996, declined to 3.32% in 1997, rose to 3.41% in 1998, and declined to 3.39% in 1999, 3.28% in 2000, and 3.27% in 2001 and 2002.<sup>17</sup> The US Census Bureau projects that population growth will only decline from 3.1 % in 2000 to 2.9% in 2025.<sup>18</sup> Chart 4.4 shows how estimates of Saudi population growth compare to those of estimates of the population in similar states, and it is clear that Saudi growth rates are exceptionally high.

Saudi figures provide additional insights into these trends. The estimates for the Seventh Development Plan (2000-2004) indicate that the native Saudi population will increase from 16.2 million in 2000 to 29.7 million in 2020, a rise of 89.2%, with an average annual growth rate of

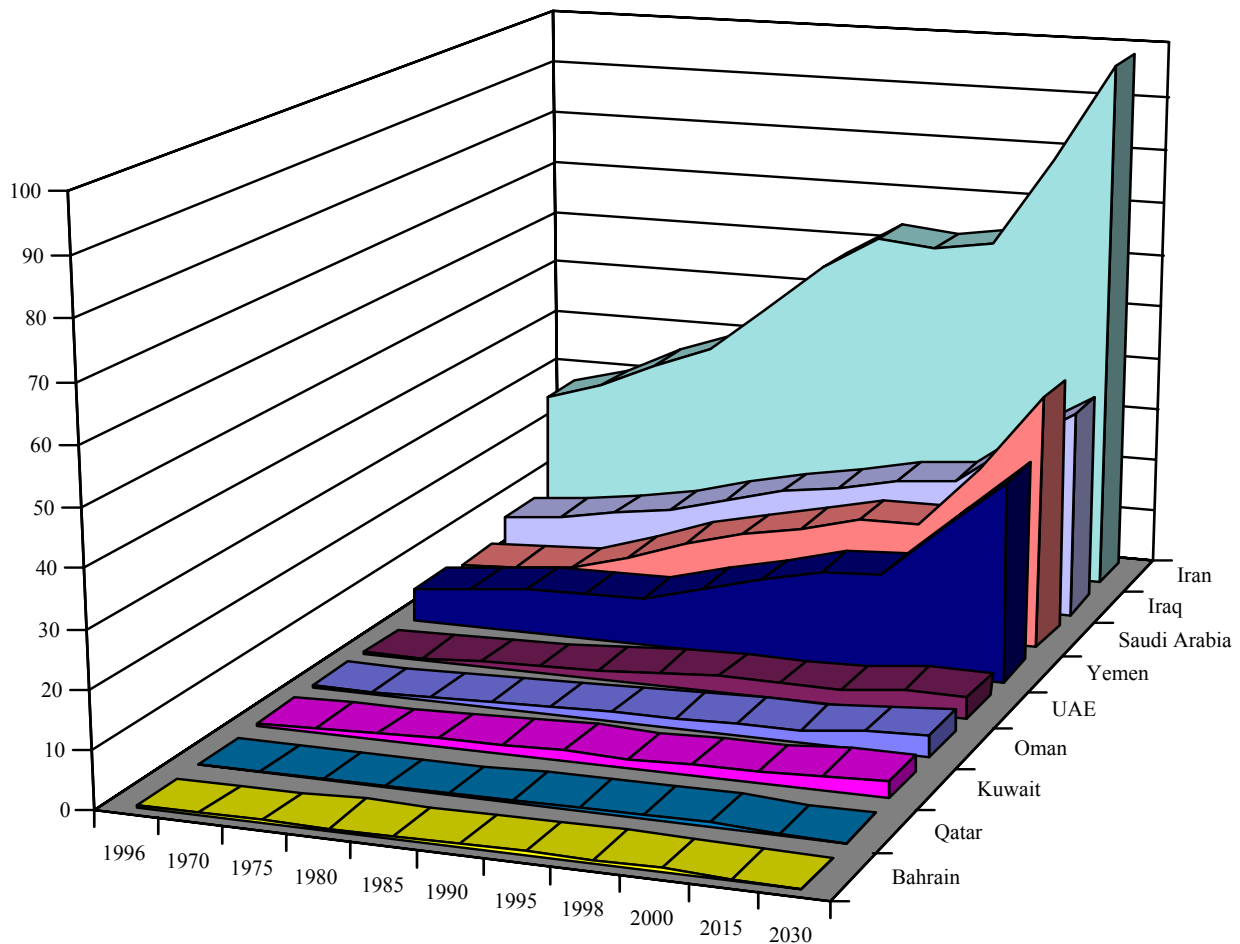
3%. Other Saudi government agencies estimate that the total population will increase from 22.0 million in 2000 to 33.4 million in 2020, an increase of 51.4% with an average annual increase of 2.1%. This would mean that the non-Saudi population would be 3.7 million in 2020, or 11.1% of the Kingdom's total population.<sup>19</sup>

These Saudi estimates of population growth do not offer a notably easier future than the estimates of the World Bank and CIA. While any such judgments are speculative, the Kingdom will need to reduce its native population growth to figures much closer to 2% than 3% in order to ensure economic reform, the expansion of infrastructure and education, and that social services can be funded by the probable rate of development in the Saudi economy.<sup>20</sup>

All of these estimates show that the extent to which the rate of Saudi population growth does or does not drop after 2000 will have an immense impact on Saudi Arabia's stability, its political future and on its economic wealth and development. It will determine the size of the labor force, the scale of the problems created by Saudisation and unemployment, the burden in maintaining subsidies and welfare payments, and the size of the investment needed in infrastructure and education. Like compound interest, even small shifts can also have a massive cumulative impact.

Chart 5.1Living in a Crowded Desert: Saudi Population Growth Compared to Trends in Other Gulf Countries

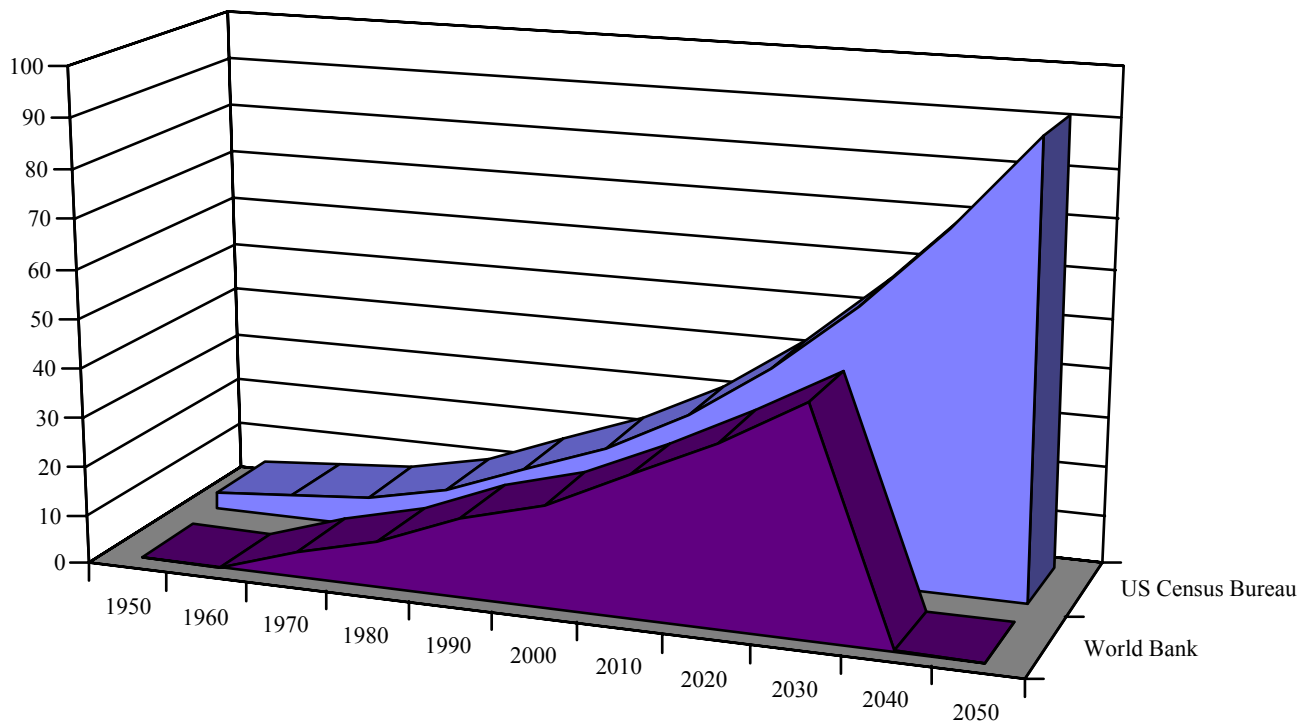
(Population in Millions)



	1966	1970	1975	1980	1985	1990	1995	1998	2000	2015	2030
■ Bahrain	0.18	0.22	0.3	0.4	0.4	0.5	0.6	0.6	0.6	NA	NA
■ Qatar	0.07	0.09	0.14	0.3	0.3	0.4	0.5	0.6	0.7	NA	NA
■ Kuwait	0.5	0.8	1	1.4	1.7	2.1	1.7	1.9	2	2.7	3
■ Oman	0.6	0.7	0.8	1.1	1.5	1.8	2	2.3	2.4	3.3	4
■ UAE	0.2	0.3	0.7	1	1.6	2.3	2.8	2.7	2.9	3.8	4
■ Yemen	6.1	7.2	8.3	8.5	8.4	11.6	14.1	16.6	17.5	27	36
■ Saudi Arabia	4.8	5.4	6.2	9.4	13.2	15.9	18	20.7	20.7	32.1	46
■ Iraq	8.2	9.4	11.1	13	15.7	18.4	19.9	22.3	23.3	31.2	38
■ Iran	26.8	30.1	34.9	39.1	47.6	56.9	63.1	61.9	63.7	80.4	98

Adapted by Anthony H. Cordesman from data provided by the US State Department, the World Bank database for World Development Indicators, 2000, pp. 40 and 44, and the World Development Indicators, 2002, pp. 48-50. The World Bank does not report on Bahrain and Qatar. World Bank figures are otherwise used for 1980, 1998, 2000, and 20015.

Chart 5.2  
World Bank versus Census Bureau Estimates of Saudi Population and Population Growth  
(Population in Millions)



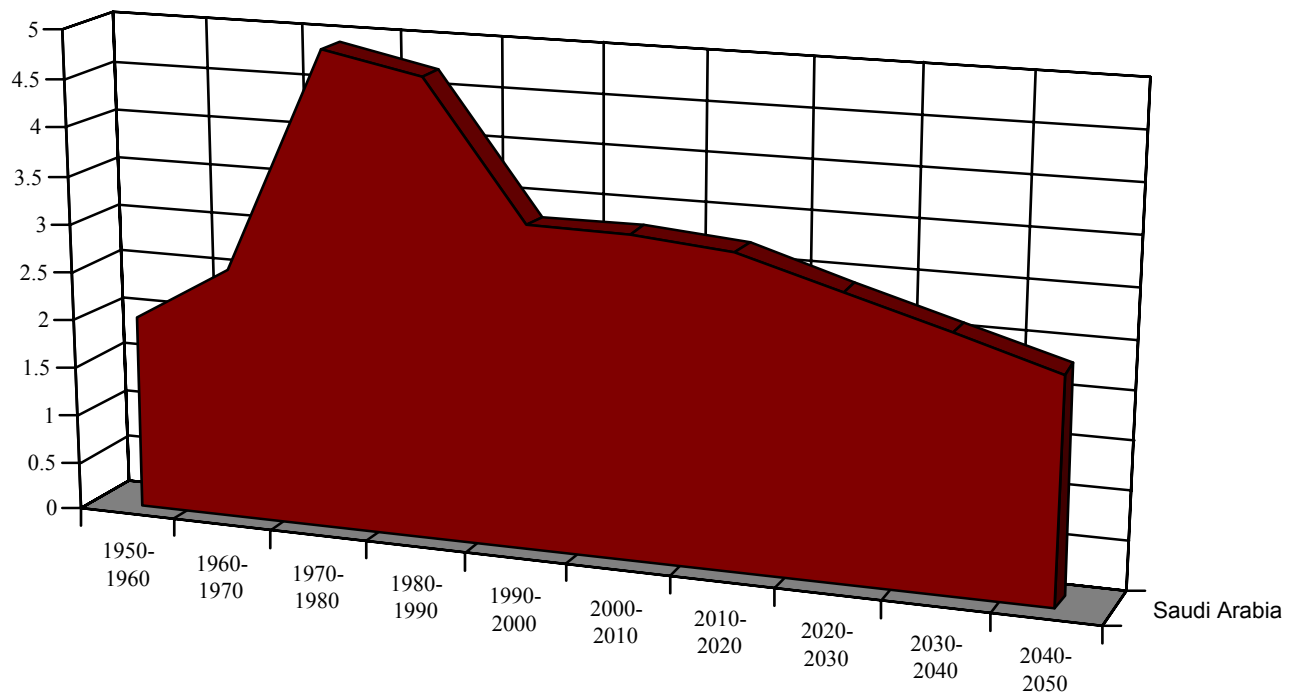
	1950	1960	1970	1980	1990	2000	2010	2020	2030	2040	2050
■ World Bank	NA	NA	5.4	9.4	15.9	20.7	28.3	36.4	46	NA	NA
■ US Census Bureau	3.8	4.7	6.1	9.9	15.8	22	30.5	41.9	55.8	72.3	91.1

Adapted by Anthony H. Cordesman from data provided by the US State Department, the World Bank database for World Development Indicators, 2000, pp. 40 and 44, the World Bank World Development Indicators, 2002, p. 50, and US Census Bureau IDB summary demographic data base on <http://www.census.gov/cgi-bin/ipc/idbsum?cty>



Chart 5.3Estimated Trends in Saudi Population Growth: 1950-2050

(Annual Growth Rate per Country in Percent)

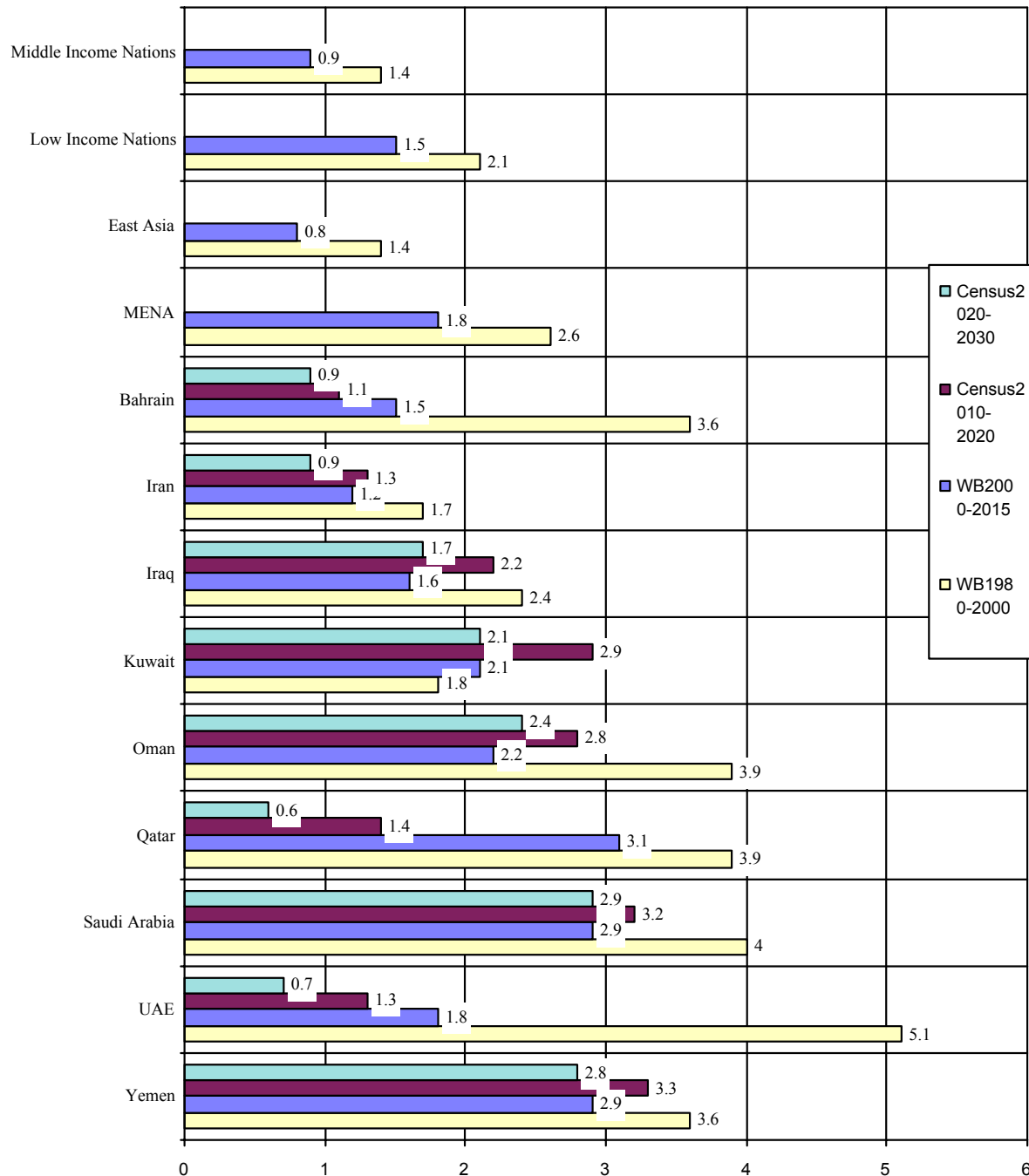


	1950-1960	1960-1970	1970-1980	1980-1990	1990-2000	2000-2010	2010-2020	2020-2030	2030-2040	2040-2050
■ Saudi Arabia	2	2.6	4.9	4.7	3.3	3.3	3.2	2.9	2.6	2.3

Adapted by Anthony H. Cordesman from World Bank, *World Development Indicators*, 2000, pp. 38-40, and US Census Bureau IDB summary demographic data base on <http://www.census.gov/cgi-bin/ipc/idbsum?cty>.

Chart 5.4Saudi Arabia and Comparative Birth Rates in the Gulf

(Average Percent of Annual Growth)



Adapted by Anthony H. Cordesman from World Bank, World Development Indicators, 2002, pp. 48-50, and US Census Bureau IDB summary demographic data base on <http://www.census.gov/cgi-bin/ipc/idbsum?cty>, accessed March 28, 2002.

## Demographics, Per Capita Income, and Consumption

Demographics interact with economics to determine relative wealth and per capita income. The economic impact of explosive Saudi population growth has already been shown in Chart 5.1, and it is clear that population growth has already had a major impact on the relative wealth of the Saudi people. So have the trends in economic growth, and these trends have failed to match the increase in population.

This mix of demographic and economic trends is not easy to analyze. There are a wide range of conflicting data on the Saudi gross national product (GNP), gross domestic product (GDP), and population. Conversions into constant Saudi Riyals or US dollars often use different deflators and standards of conversion. Effort to add estimates of the non-market value of economic activity to the GNP and GDP (the so-called purchasing power parity or PPP estimate) use such diverse and undefined methods that the value of any PPP data is extremely uncertain. The PPP method of calculating GNP and GDP also tends to level out the rise and fall of market activity by estimating economic “growth” in response to a growing population. As a result, both the total “PPP,” GNP and GDP, and per capita income figures almost certainly sharply understate the Kingdom’s true economic and demographic problems.

Furthermore, Saudi Arabia revised some of its economic reporting for the 1990s in June 2002 in ways that produced notably more favorable figures in terms of GNP, growth, and per capita income for the Kingdom. The Central Department of statistics added some 60 billion Saudi Riyals (\$16.2 billion) to the size of the Saudi economy for 1996-2001 by reestimating the role of the non-oil sector in previous years. It also suddenly cut its population estimates.

The resulting figures are shown in Table 5.1, and are compared with earlier projections in Chart 5.7. They have not yet been incorporated in the data issued by the Ministry of Planning and other Saudi reporting available as of October 2002 and they are somewhat questionable. There are indications that Saudi Arabia did undervalue its private sector during the 1990, but the revisions may be partly the result of politics of economics rather than more accurate methods of reporting.<sup>21</sup>

## Historical Patterns of Inadequate Real Economic Growth

Even so, some common trends do emerge out of the mix of conflicting sources. The Saudi Ministry of Planning provides detailed historical data on the growth of the Saudi GDP in constant 1994 prices for both the oil and non-oil sectors. These data indicated that the Saudi economy grew by 14.5% in real terms between 1969 and 1974, by 8.0% between 1974 and 1979, but then dropped to -1.8%% between 1979 and 1984. There was virtually no real growth between 1985 and 1989. The sudden rise in Saudi oil revenues caused by the Gulf War led to a 9.5% rise in 1990 and a 10.3% rise in 1991 – although the economic impact of the rise in oil revenues was largely offset by the outflow of Saudi expenditures on the war.

Real growth then dropped to 2.0% in 1992 and averaged less than one percent annually between 1993 and 1995. It rose to 1.3% in 1996, 1.6% in 1997, and 1.8% in 1998. It dropped by 0.9% in 1999 because of low prices, only to rise by 4.7% in 2000 as a result of a sudden peak in oil revenues.<sup>22</sup> GNP growth is estimated to fall well below population growth for the decade between 1992 and 2001, and this is scarcely good performance for any developing country. Sustained real development generally requires economic growth rates that are at least two percent above the population growth rate, and the Saudi population growth rate was well over three percent.

The Saudi Seventh Development Plan (2000-2004) projects average annual real growth of 3.16% during 2001-2005, including 5.04% in the non-oil sector.<sup>23</sup> These goals seem optimistic in view of past trends, but even if they are achieved, they would still produce a small decline in real Saudi per capita or leave per capita income static, given current projections of population growth,

Outside estimates of the trends in the Saudi GNP are less favorable. World Bank estimates of Saudi economic growth are shown in Chart 5.1, which includes Iran as a point of comparison. They indicate that Saudi Arabia's population rose by over 110% during 1980-1995, but that its GDP dropped from \$156.5 billion in 1980 to \$125.5 billion in 1995. This is a drop of nearly 20% in current dollars and well over 30% in constant dollars. US estimates indicate that the Saudi GNP dropped by over 35% during the same period. More recent World Bank data show better results, but they still show zero growth in the Saudi GDP during the period from

1980-1990, and only 1.5% growth from 1990 to 2000 – only about half the rate of population growth during the same period.<sup>24</sup> More recent World Bank estimates show an average annual growth in GNP of only 2.3% during 1998-1999, in spite of rising oil revenues.<sup>25</sup>

The World Bank fails to provide the estimates of future economic growth for Saudi Arabia it does for other countries for reasons it does not explain in its reports.<sup>26</sup> The World Bank does, however, forecast that economic growth for oil exporting states, in the long run, will average 2.7%, in comparison to growth for nations with a more diversified slate of exports, whose economies are expected to grow at an annual average rate of 4.3%.<sup>27</sup> Additionally, the International Monetary Fund, in its December 2001 World Economic Outlook, predicted that as a result of slowing sales of oil post September 11, Saudi Arabia will see GDP growth of 1.6% in 2002, compared to a growth rate of 2.3% in 2000.<sup>28</sup>

Table 5.1A Saudi Estimate of Trends in the Saudi GDP, Budget, Per Capita Income, and Oil Income: 1994-2002

	<u>1994</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002e</u>
<u>Nominal GDP</u>									
In SR Billions	450.0	478.6	590.8	617.9	546.6	603.6	706.7	698.4	685.5
In \$US Billion	120.0	127.6	157.5	164.8	145.8	161.0	188.4	186.2	182.8
% of Annual Change	1.4	6.4	n/a	4.6	-11.5	10.4	17.1	-1.2	-1.8
<u>Real GDP (% of Annual Change)</u>									
Total	0.10	0.00	1.40	2.60	2.80	-0.80	4.90	1.20	0.20
Oil Sector	0.20	0.27	2.10	-1.40	3.20	-7.50	6.90	-1.20	-5.80
Non-Oil Private Sector	0.70	0.30	1.10	4.60	2.60	4.20	4.30	3.50	4.20
Government	0.00	-0.30	1.30	6.10	1.90	0.90	3.20	1.70	1.00
<u>Budget</u>									
Revenues (\$US billions)	34.4	39.1	47.8	54.8	38.1	39.2	66.1	61.3	58.7
Expenditures (\$US Billions)	43.7	46.4	52.8	59.0	50.4	48.3	54.1	68.0	63.7
% of Surplus/Deficit	-9.28	-7.31	-5.07	-4.21	-12.27	-9.07	12.00	-6.70	-5.06
Budget Balance as % of GDP	-7.7	-5.7	-3.2	-2.6	-8.4	-5.6	6.45	-3.6	-2.8
<u>Impact of Oil Revenues</u>									
Average Production in MMBD	-	8.02	8.10	8.01	8.28	7.65	8.09	8.02	-
Average Price of Saudi Light Crude/BBL (\$US)	-	16.73	19.85	18.80	12.24	17.40	26.81	24.70	-
Average of all Saudi Oil	14.50	15.65	19.00	18.25	11.50	17.45	27.00	21.50	21.75
Oil Export Value (\$US billions)	-	43.4	54.1	53.2	32.5	44.7	72.1	-	-
Oil Revenue Contribution to Saudi Budget (\$US billions)	-	28.19	36.26	42.66	21.33	27.86	57.17	49.33	-
<u>Population (Millions)</u>									
Total	18.2	18.5	19.1	19.0	19.4	19.9	20.9	21.4	22.0
Saudi	12.8	13.2	13.6	14.0	14.4	14.9	15.6	16.0	16.5
Non-Saudi	5.2	5.3	5.5	5.0	5.0	5.02	5.26	5.40	5.5
<u>Per Capita Income (\$US)</u>									
GDP	6,060	6,896	8,244	8,663	7,502	8,092	9,038	8,691	8,309
<u>Unemployment</u>									
% of Saudi Native Labor Force	-	-	-	-	-	-	14.0	15.0	15.0
<u>Cost of Living (% Change)</u>									
	0.6	4.8	1.3	0.0	-0.2	-1.2	-1.0	-0.8	-0.5

Source: Adapted from Brad Bourland, The Saudi Economy at Mid Year 2002, Saudi American Bank, Riyadh, August 2002, [www.samba.com.sa](http://www.samba.com.sa), pp.2, 32, and 37.

## **Population, Per Capita Income, and Relative Wealth**

Saudi Arabia does not analyze per capita income in its financial reports or project it in its five-year plans. This is a major—perhaps critical—defect in Saudi reporting and planning. It is compounded by issuing what sometimes seem to be politicized figures designed to make the Saudi economy seem more favorable, and by a tendency to adopt “input goals” in almost all of Saudi Arabia’s reports on its budgets, five-year plans, and development rather than measures of the extent to which per capita income or employment will increase or decrease or decrease, or given actions and trends will meet projected need.

The Kingdom only reports data like on its achievements and plans the number of schools built, jobs created, hospital beds. It does not analyze how the facilities and services provided meet the trends in demand and the growth of the Saudi population. As a result, virtually every benchmark and spending figure publicly reported by the Saudi government is useless in determining how well it meets the needs of the Saudi people or deals with the steady increase in Saudi Arabia’s population. Unfortunately, this same attitude seems to affect Saudi leaders and technocrats. They rarely analyze “outputs” in terms of per capita benefits, income distribution, or other measures of actual achievement in human or social need. They quote figures on gross progress without regard to benchmarks in meeting requirements.

There also are no figures on the distribution of income within Saudi Arabia and no meaningful data on unemployment. The Saudi Central Department of Statistics issued its first estimates ever Saudi Central Department Statistics issued its estimates ever of Saudi unemployment data in September 2002. These data reported the situation at end-1999 and showed a native unemployment figure of 8.1%, with 6.8% for males and 15.8% for women. The unemployed rate for non-Saudi labor was put at 0.83%. These figures are extremely suspect, however, and assume that only 19% of the population, and 35.3% of the population of working age, actually participates in the labor force. This 19% compares with 33% in the rest of the Middle East, 41% in Latin America, 45% in Europe, 50% in the US, and 56% in East Asia. Taken at face value, it implies that sheer lack of Saudi participation in labor force amounts to a socio-economic disaster and is far worse problem than unemployment per se.

Other estimates indicate, however, that direct Saudi unemployment among native males is 11.7% rather than 6.8%. Rough estimates by outside experts of the combined impact of direct and disguised unemployment (unemployment plus employment make work jobs with no meaning or productive output) put the figure at at least 17% and at levels that could reach 20-30%.<sup>29</sup>

The failure to look at income distribution makes per capita income data of dubious value in a highly oligarchical monarchy where the rich seem to be getting richer while the middle class seems to be declining in per capita income and poorer Saudis seem to be getting poorer in relative terms.

This Saudi unwillingness to develop realistic unemployment data seems to be a deliberate failure to come to grips with some of the critical problems in Saudi demographics, and is compounded by an unwillingness to analysis disguised unemployment and employment in terms of productivity gain. This hides major problems in employing native Saudis in government and private sector jobs that are little more than make work for political and family reasons, the problems in Saudisation, and the problems in making productive use of women. Furthermore, the Kingdom has no meaningful data on job retention and training, which makes its estimates of Saudisation uncertain to say the least, and has no regional or sectoral data to track employment, Saudisation, and per capita income trends in detail. These are crippling deficiencies from the viewpoint of development planning and compound the problems created by a recent tendency to politicize other aspects of econometric data.



Western analyses of the Saudi economy suffer from different problems. There is no agreement among various sources, and even the various agencies of the US government are unable to agree on how to properly define and measure the Saudi GDP and GNP. Estimates in “constant” dollars are not fully explained, and the various contradictory methods the West uses to correct estimates of the Saudi GDP and GNP to add non-market value, and come up with a purchasing power parity or PPP number, range from mathematical “black boxes” to black magic. Both Saudi and Western estimates also seem to exclude much of the large private income Saudis earn from overseas investments. As a result, the true income of Saudis is often understated.

Nevertheless, Western estimates of Saudi per capita income do seem to provide broadly accurate insights into the key trends in the Saudi economy in terms of relative wealth. Both World Bank and US estimates indicate that Saudi Arabia’s per capita income has declined to less than 40% of its peak at the height of the oil boom in the late 1970’s and early 1980’s, although the resulting figure is still high by the standards of most developing countries. The World Bank estimates that Saudi Arabia’s per capita income totaled \$7,230 in 2000. This compares with \$34,100 for the US, but with 2,090 for the Middle East and Africa (MENA) as a whole, and \$1,080 for East Asia. (A fact that must always be kept in mind in comparing Saudi growth rates to those of Asia.) From the perspective of other Gulf states, it compares to \$570 in Iran, \$1,680 in Iraq, \$18,030 in Kuwait, and \$370 in Yemen (Bahrain Oman, Qatar, and the UAE are not reported).<sup>30</sup>

The Saudi American Bank estimates that the Saudi participation GDP was \$18,000 in 1981, roughly equal to that of the US. Between 1981 and 2001, however, the Saudi per capita income dropped to lows of than \$7,000. If one accepts a Saudi recomputation of the GDP and population in June 2002, it then rose from \$6,660 in 1994 to \$8,309 in 2002, in current dollars. By the same method of calculation, however, the while the US per capita income rose to over \$35,000.<sup>31</sup> Using a period of peak oil revenues and lower population like 1980 as a standard of reference may set an artificial benchmark, and many Saudi economists argue that the more recent trends shown in Table 5.1 provide a more realistic standard of reference. However, the years of peak oil wealth are still a standard that many Saudis still see as the “proper” level of oil wealth that should be used in assessing Saudi economic progress. This is a reality that is very unlikely to ever again be the case.

Furthermore, even if one looks at trends that do not involve preferences to peak oil revenues, any comparison of Saudi economic growth and population growth still creates concern, although scarcely a near-term risk of economic crisis:

- The data in Table 5.1 and Chart 5.7, estimated by the Saudi American Bank, show a relatively high per capita income in current dollars during 1994-2002. These data also show a nominal growth in current dollars 1991 and 2001. However, this means little real growth in constant dollars occurred and other estimates by the Saudi American Bank indicate that the “boom” and “bust” cycle in oil prices also reduced per capita income in current dollars by 14% between 1996 and 1998 and then raised it by 27% between 1998 and 2000. Such volatility is scarcely desirable, either socially or as a means of encouraging stable government and private sector investment.
- Chart 5.5 shows the trends projected by the World Bank. In other reporting, the World Bank estimates that Saudi Arabia’s per capita income dropped by an annual average of 2.9% during 1970-1995, and by a total of nearly 20% during 1985-1995. More recent World Bank estimates show an annual average growth in GNP per capita of only 0.5% in the more than two decade period from 1965-1998, and a decline of –1.0 % during the 1998-1999, in spite of rising oil revenues.<sup>32</sup> According to other US estimates, the Saudi GDP per capita dropped from over \$20,000 in 1981 to under \$6,800 in 1994 (in constant 1994 US dollars).<sup>33</sup> Although Saudi per capita income rose back to well over \$7,000 in 1995-1997, this scarcely marked a “recovery” and it dropped again during 1988-1997, until oil prices rose again in mid-1999.
- Chart 5.6 uses US State Department data to provide a broad indication of such trends, and shows just how quickly the Saudi population has grown since the sudden rise in oil revenues following the Arab oil embargo in 1974. It also shows that population growth has since interacted with a decline in real oil revenues to affect per capita income.

Population growth, entitlements, and changing living standards have also interacted with fluctuations in oil export earnings to affect the relative portions of the GDP/GNP that go to Saudi consumption and investment. Saudi Arabian private consumption rose from \$34.5 billion to \$52.0 billion during 1980-1995. This growth in consumption reflected both the impact of population growth and a growing social dependence on imports and commercial services. Private consumption rose from 22% of the GDP in 1980 to 35% in 1997 and 41% in 1998, decreasing to 33% of GDP in 2000. Government consumption rose from 16% in 1980 to 30% in 1997, and then 32% in 1998, decreasing to 27% in 2000. At the same time, gross domestic investment dropped slightly from 22% in 1980 to 20% in 1997. Gross domestic savings dropped precipitously from 62% of GDP in 1980 to 35% in 1997, 25% in 1998, and 16% in 2000.<sup>34</sup>

## **Redefining “Oil Wealth” in Macroeconomic and Human Terms**

The importance of the ratio of total population to total oil and gas earnings is as important as the ratio of total population to GDP/GNP because of the special character of the Saudi

economy. Saudi Arabia's economy is still shaped largely by its earnings from oil and gas exports. It is easy to call for economic diversification and privatization, and the Kingdom has made increasingly serious efforts along these lines. At the same time, though, there are limits to what market forces and any economic reform program can hope to accomplish, particularly as long as the native labor force is not globally competitive in terms of education, skills, work ethic, productivity, and cost.

Saudi Arabia does have iron, gold, zinc, and copper resources, and its Seventh Development Plan calls the development of eight projects in these areas, but its resources are relatively marginal in terms of projected Saudi income needs and the world market. Saudi Arabia also has major bauxite, magnesite, and phosphate resources, and its Seventh Development Plan calls one major project in each area, including the Al-Jalamid project at what Saudi Arabia claims is the largest phosphate deposit in the world.<sup>35</sup>

The cost-effectiveness of such mining at competitive returns on investment is uncertain, however, and long-needed reforms in its mining laws have still not been implemented. A new rail system is needed to mine most such resources, and Saudi estimates of the cost-benefits of such mining seem over-optimistic.<sup>36</sup> The Kingdom has made progress by creating the Saudi Arabian Mining Company (Ma'aden), a state-owned autonomous joint stock company, in 1997, although it has as yet been more exploratory than productive. It continues to review a new mining code, and it created a new railroad executive program in June 2002. It will be well over a decade, however, before it is clear whether mining can supplement oil and gas production with any major macroeconomic benefits.<sup>37</sup>

As is analyzed later, agriculture is already heavily influenced by subsidies and entitlements and there is little room for added productive diversification. Only about 2% of Saudi land is arable. Although some pasturage is available in 56% of Saudi territory, most is desert and of very marginal value. Only 6% of the Saudi GNP comes from agriculture.<sup>38</sup> Much of this revenue comes only at the cost of subsidies that distort the Saudi economy, and which increase the Kingdom's water problems. Agriculture's share of the GNP would be much lower if the agricultural sector had to operate in competitive terms.

There also are serious near to mid-term limits on the potential growth of the industrial, trade, and service sectors. The growth in Saudi manufactures and industry is closely tied to the petroleum sector, and the value of downstream products. While Saudi figures estimate that the contribution the petroleum sector makes to the GDP dropped from 56.1% in 1969, and 65.3% in 1974, to 35-36% from 1990 to 1999, these numbers present more the image of diversification than the reality. About 17-18% of the “non-oil sector” of the GDP actually consists of government services financed by oil revenues, and another 6.3-6.5% comes from highly subsidized agriculture.

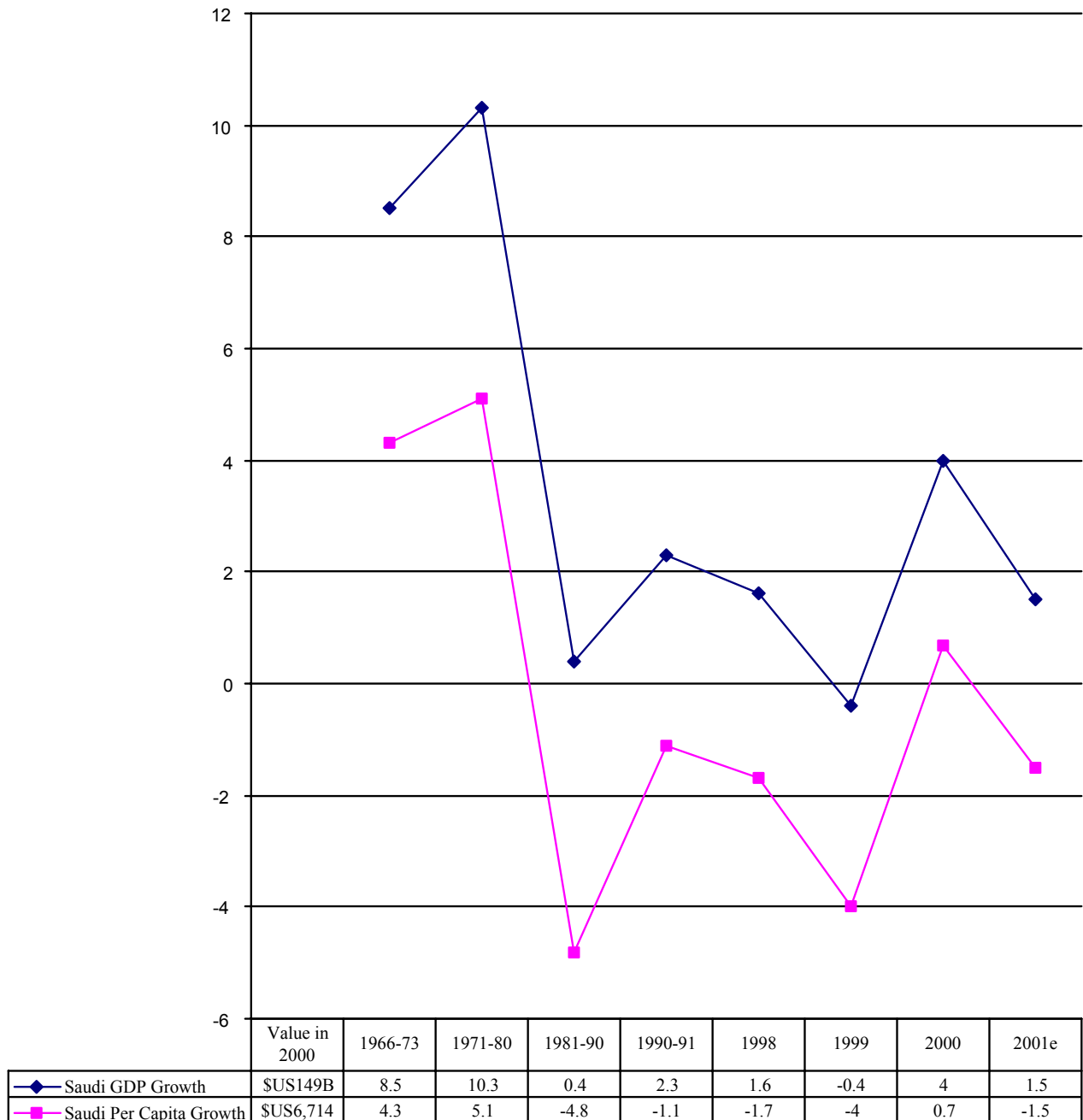
While a precise estimate of the component parts of Saudi GDP is impossible, another 18% comes from service industries, transportation, and activities that are actually dependent on petroleum related revenues and investment. The manufacturing sector only contributes about 5% of the GDP, and exhibited no real growth from 1985 to 1999, with the amount of value added to GDP increasing from only 8% in 1990 to only 10% in 2000. The only other major market-related activity is construction – which includes a significant amount of petroleum related activity. This activity declined from around 15% of the GDP in the mid-1980s to around 11% in the late 1990s.<sup>39</sup>

Saudi Arabia is still heavily dependent on petroleum exports, and this dependency is greater than some Saudi figures imply. The Saudi Arabian Monetary Agency (SAMA) reports that “mineral products” (oil and gas) accounted for 88% of all Saudi exports in 1997 – a figure that is typical for the late 1990s. These figures, however, understand the true role of oil and gas in the economy. They do not include another 2.5% in plastics exports and 4.9% in chemical products. As a result, petroleum actually accounts for something approaching 95% of all exports.<sup>40</sup> Estimates by the Saudi Ministry of Planning indicate that crude oil accounted for 74.2% of all exports in 2000, and petroleum products for 17.1%, bringing the total to 91.3%.<sup>41</sup>

All of these factors limit the Kingdom’s actual “oil wealth.” Saudi Arabia is only “wealthy” in oil and gas terms to the extent its export revenues preserve a high ratio of oil and gas income per capita. While no precise statistics are available, this ratio seems to have dropped by more than 65% between the peak of the oil boom in the early 1980s and the worst point in the “oil crash” of 1998. Chart 5.8 provides a comparison of Saudi estimates of the trends in the value of both the GDP petroleum production in constant 1994 Riyals relative to the trend in

population. There are data problems in oil petroleum export earnings that combined with the previous uncertainties in population data to make it impossible to provide an accurate picture of oil income per capita, but it is all too clear that the population is rising significantly faster than oil revenues. Estimates by the Department of Energy, for example, indicate that a combination of higher population and lower oil prices cut the value of Saudi per capita oil export revenues from \$23,820 in 1980 to \$2,563 in 2001, as measured in constant 2000 US dollars.

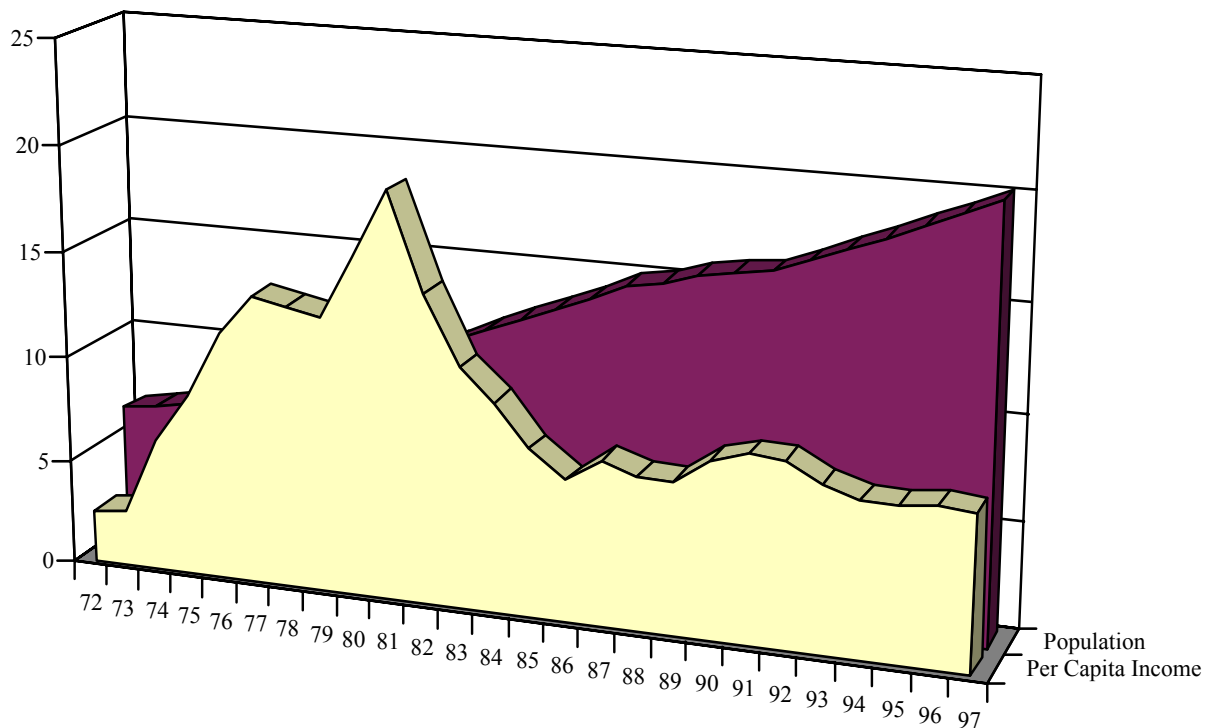
The importance of such trends is also indicated by what happened during the sudden drop in oil prices during late 1997 to 1998. As has been touched upon earlier, the Saudi economy was severely hit. GDP fell by 11-12.3%; the budget deficit rose to \$12.3 billion; and the current account recorded a \$13.1 billion deficit—the first in three years.<sup>42</sup> Real GDP grew only about 0.4%, less than one-eighth the rate of population growth. Saudi Arabia is not a poor country, and its per capita income is scarcely low even if it is only a fraction of its peak level. It may be well able to solve its problems through economic reform and privatization, but it must come to grips with demographics. The Economic Intelligence Unit forecasts that economic growth in current dollars will be 2.5% in 2002, and 2.0% in 2003 – well below the rate of population growth.<sup>43</sup> The Saudi American Bank estimated real growth at only 1.5% in 2001, and 2.0% in 2002.

Chart 5.5Saudi Annual Growth in GDP and GNP Per Capita: 1966-1999  
(In Percent)

Adapted by Anthony H. Cordesman from World Bank, Global Economic Prospects: 2000, Washington, World Bank, 2000, pp. 152-153, and Global Economic Prospects: 2002, Washington, World Bank, 2002, pp. 230-234.

**Chart 5.6**  
**Boom and Bust in Per Capita Wealth: Saudi Arabia: Population Growth in Millions and**  
**Per Capita Income in Constant 1997 US Dollars**

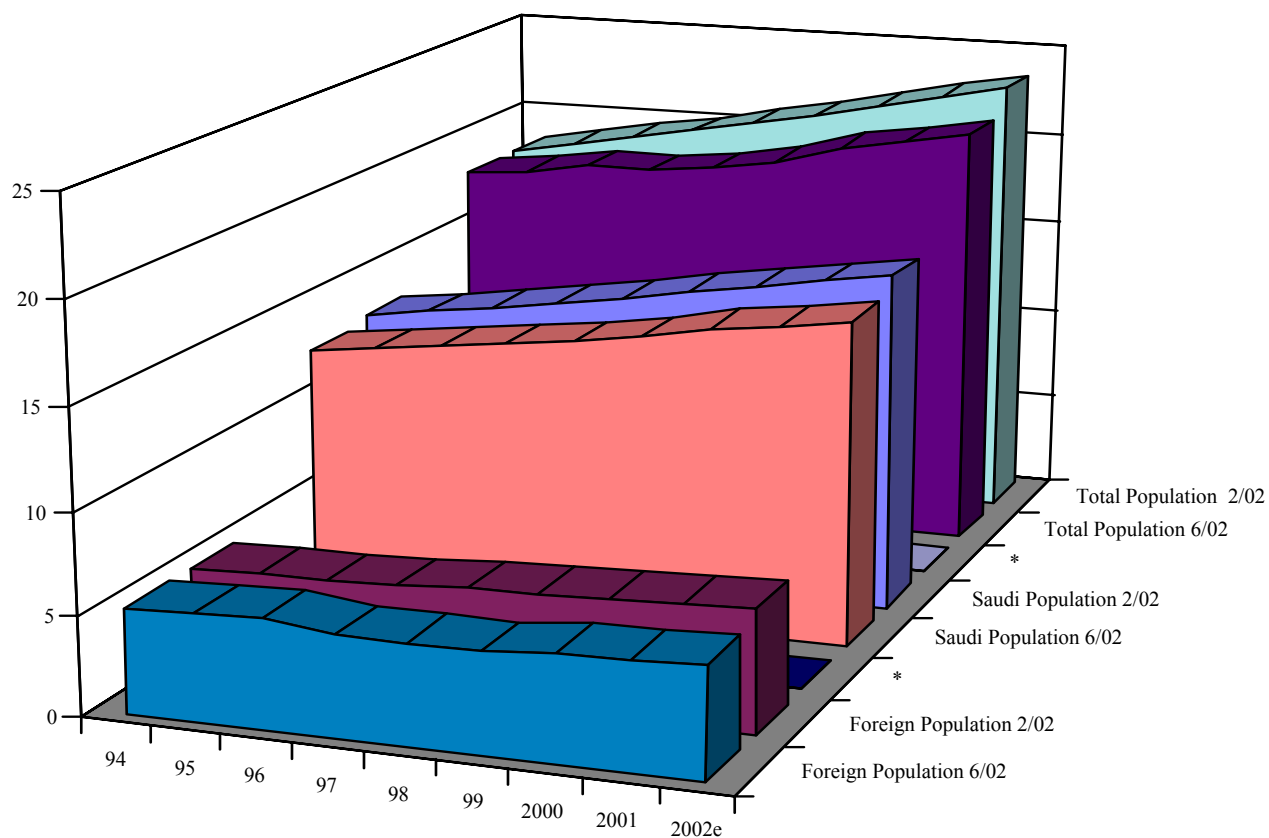
(Population in Millions; Per Capita Income in Thousands of Constant 1997 \$USD)



	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97
■ Per Capita Income	2.4	2.6	6.3	8.6	12	14	13	13	16	19	15	11	9.8	7.9	6.6	7.7	7.2	7.2	8.3	8.8	8.7	7.8	7.3	7.2	7.4	7.3
■ Population	6.5	6.8	7	7.3	7.7	8.2	8.8	9.5	10	11	11	12	13	13	14	15	15	16	16	16	17	17	18	19	19	20

Adapted by Anthony H. Cordesman from data in various editions of World Military Expenditures and Arms Transfers.

**Chart 5.7**  
**Comparative Projection of the Trends in the Saudi GDP Per Capita in Current Dollars and**  
**Population: The View of the Saudi American Bank –Part One**  
 (Population in Millions)



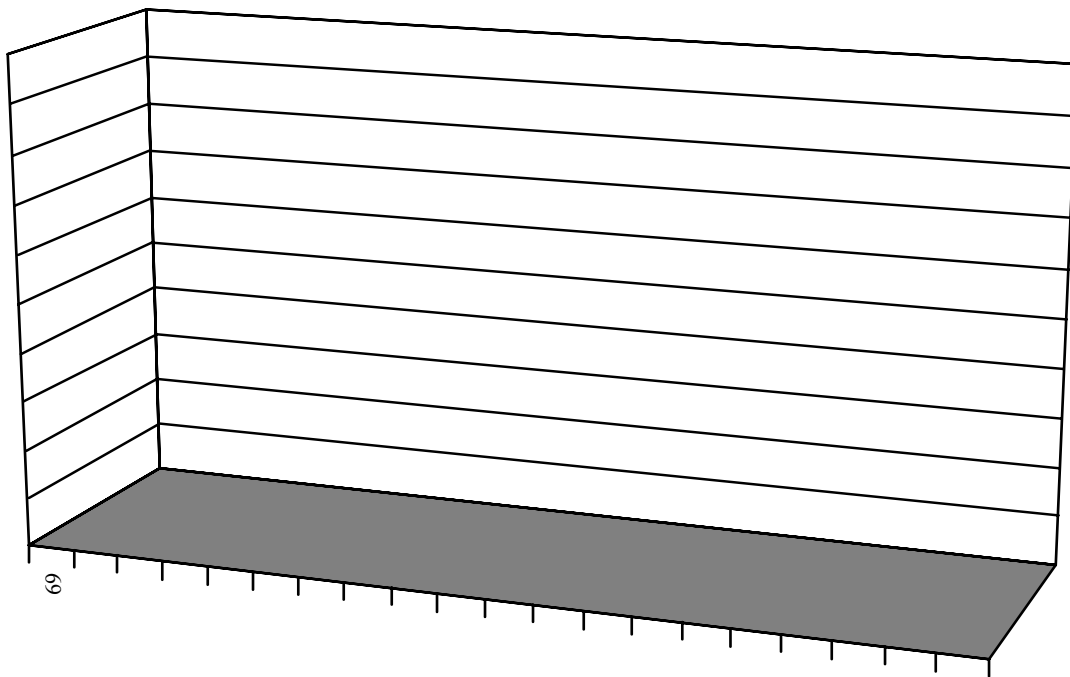
	94	95	96	97	98	99	2000	2001	2002e
Foreign Population 6/02	5.2	5.3	5.5	5	5	5	5.3	5.4	5.5
Foreign Population 2/02	5.1	5.2	5.3	5.4	5.6	5.7	5.8	6	6.1
*									
Saudi Population 6/02	12.8	13.2	13.6	14	14.4	14.9	15.6	16	16.5
Saudi Population 2/02	13.1	13.6	14.1	14.6	15.1	15.7	16.2	16.8	17.3
*									
Total Population 6/02	18.2	18.5	19.1	19	19.4	19.9	20.9	21.4	22
Total Population 2/02	18.2	18.8	19.4	20	20.7	21.3	22	22.7	23.4

Adapted by Anthony H. Cordesman from data in Brad Bourland, *The Saudi Economy in 2002*, Saudi American Bank, February 2002, and in Brad Bourland, *The Saudi Economy in Mid-Year 2002*, Saudi American Bank, August 2002. The data show the difference resulting from a recalculation of basic economic and population data, driven in part by increasing the estimate of the role of the private sector, made by the Saudi Central Statistics Bureau in June 2002.



Chart 5.8

Boom and Bust in Per Capita Oil Wealth: Saudi Arabia: Population Growth in Millions versus  
Total Petroleum Income and GDP in Constant 1994 Riyals  
(Population in Millions X 10; Economic data in Billions of Constant 1994 Saudi Riyals)



Adapted by Anthony H. Cordesman from data in Kingdom of Saudi Arabia, Ministry of Planning, Achievements of the Development Plans 1970-2001, Facts and Figures, Riyadh, Ministry of Planning, 2001, 19<sup>th</sup> Issue, p. 200, and population estimates taken from data provided by the US State Department and Saudi Central Bureau of Statistics.

## **Demographic Pressures on Saudi Society and the Saudi Labor Force**

Population pressures have already put a heavy pressure on the Saudi budget as well as the Saudi economy, and interact with other forces for social change. For example, the Saudi budget allocated 18% of its resources to education in 1996. This percentage grew to over 25% in 1999.<sup>44</sup> These same population pressures require a steady expansion of the Saudi labor force, although estimates of the Saudi labor force and future job needs are contradictory and uncertain. The Saudi government estimates that the labor force will grow at an annual rate of at least 3.2% between 1998-2015.<sup>45</sup>

The estimates of the changes in the Saudi labor force made for the Seventh Development Plan are shown in Table 5.2. They indicate that the total Saudi labor force was 7.17 million in 1999 (out of an eligible base of 9.7 million), and would reach 10.76 million in 2020. The number of native Saudi workers would increase from 3.17 million to 8.26 million between 1999 and 2020 – growing at an average annual rate of 4.7%. The number of foreign workers would decline from 4.0 million to about 2.5 million. It would decline at an average annual rate of 2.57% during the Seventh Development Plan (2000-2004) and by 2.25% during 2000-2020. There would be 9.6 million workers in the private sector in 2020, or 89.7% of the total. The remaining workers would involve one million workers in the government sector (9.1%) and 100,000 workers in the oil and gas sectors (1.2%).<sup>46</sup>

### **Estimating Future Job Needs**

Saudi labor statistics are sometimes contradictory– a major problem in a country where accurate labor statistics are absolutely critical to effective economic and educational planning, and Saudisation, and where far more detailed government projections are needed of the relationship between job creation and the number of young Saudis entering the labor force.

For example, the Saudi Central Department of Statistics reported government civilian employment at 916,000 in 1999, while the Ministry of Civil Service reported it at 668,000 in 1998. Nevertheless, the Saudi Central Department of Statistics seems to be a source and Saudi perceptions of the Kingdom's labor problems and its estimates track in very rough terms with

those of the World Bank. The Saudi Central Department of Statistics estimated in 2001, that the Saudi native labor force was 3.3 million in 2000, and would rise to 8.3 million in 2020.<sup>47</sup>

The same Department reported in September 2002, however, that the Saudi labor force at the end of 1999—defined as males 15 years of age or older who were job holders or job seekers—was only 2.82 million, and that the foreign labor force was only 3.02 million out of 5.02 million. These figures seem to have a strong, political bias towards underreporting unemployment—a problem common even in sophisticated Western countries like Germany—but, they do illustrate how hard it is to get meaningful Saudi data.<sup>48</sup>

The Saudi American Bank has made similar estimates and its numbers differ in virtually every category. The Saudi Central Department of Statistics bases its estimates of a 6.77% rate of unemployment among Saudi males at the end-1999 on a male labor force of 2,41,006 of which 2,247,720 are employed, and 163,286 are unemployed. The Saudi American Bank estimates a Saudi male direct unemployment rate of 11.93% in 2002 based on a total native Saudi male labor force of 2,422,720 with 2,422,720 employed and 328,286 unemployed. The unemployment rate is driven by the estimate that 340,000 Saudi males enter the labor force each year, but that only 175,000 jobs are created.<sup>49</sup>

Chart 5.9 provides another estimate of the possible growth in the Saudi labor force between 2000 and 2025, using US Census Bureau estimates. As has been touched upon earlier, the World Bank estimates that the Saudi labor force has already grown from 3 million in 1980 to 7 million in 2000 and must grow to 10 million by 2010. This is an average annual growth rate of 4.5% during 1980-2000, and is based on a projected growth rate of 3.4% during 2000-2010.<sup>50</sup>

This projection, however, falls far short of the steady increase in the number of male and female Saudis entering the labor force during this period and does not seem to allow for significant increases in the percentage of women employed in the labor force. The World Bank estimate also differs from Saudi estimates in that more Saudi women are excluded from the labor force. Saudi women grew from 7.6% of the labor force in 1980 to 16.1% in 2000, a lower percentage than in Saudi estimates.<sup>51</sup>

## **The Labor Force Implications of the Seventh Development Plan**

The Seventh Development Plan provides a more structured estimate of the future Saudi job market, although one drawing on data generated in 1999. Table 5.2 shows that it calls for the creation of 328,000 new job opportunities and raise total employment from 7,176,3000 in 1999 to 7,504,900 by 2004. Virtually all of these jobs are to come from the private sector, which is projected to create 311,000 out of the 328,000 jobs, with only 16,100 new jobs in the government sector (4.9% of the new jobs.) This would cut government employment from 12.8% of all jobs in 1999 to 12.4% in 2004.

A significant number of the projected new jobs are in areas where Saudis have been reluctant to take jobs in the past. These include 81,400 new jobs in construction, 72,000 in manufacturing, and 24,400 in agriculture. Some 9,000 jobs are estimated to take place in attractive service sector jobs like management and administration and an additional 15,500 jobs in professional and technical positions. However, 93,100 jobs are estimated to come in less attractive areas of the service sector like sales, services, and clerical. Accordingly, even if all of the new jobs called for in the plan were created, they would require significant social shifts in employment of a kind that seems unlikely to occur at the required rate. In contrast, even agriculture is estimate to grow three times more quickly (0.9%).<sup>52</sup>

The planned rate of job creation in the Seventh Development Plan raises the most serious issues. The average annual rate of job creation in 0.9% versus a population growth rate that has averaged well over 3.0% and over 3.5% in recent years. The Plan Organization puts the average annual growth rate in the working population at 3.9% (and says the rate below working age has dropped to 2.6% which seems unrealistically low). It can only guess at employment for women, but estimates that in will increase from 32.8% of the labor force in 1999 to 34,1% by 2004.

The Seventh Development Plan projects negligible absolute growth in employment in traditional areas. The oil sector is estimated to have a growth rate of 0.3%, government services, 0.3% in the oil and gas sector, and oil refining 0.3%. Only 700 new jobs are projected in petrochemicals. It is private manufacturing (2.4% average annual growth), construction (1.5%), and finance and real estate (2.3%) that dominate job growth – all areas largely outside the control of the government and involving only limited direct government investment in the plan.

Job creation is also far easier to call for than achieve. Foreign Minister Saud al-Faisal has suggested that each billion dollars invested in new energy projects should produce 10,000-16,000 jobs. The Saudi American Bank estimates that \$5,000 million has been invested over the last 25 years in foreign direct investments and has created 54,000 jobs while joint venture projects by the Kingdom created a further 21,000. As a result, only after a major restructuring of the Saudi labor force, to eliminate foreign labor from existing jobs, can significant improvements be made. It is also clear that the government still lacks a viable national manpower strategy that can actually achieve the goal of replacing 60% of the foreign labor force with Saudi nationals.<sup>53</sup> Saudi Arabia's declining real per capita income, persistent budget deficits, and over-dependency on oil revenues will not be easy to change.

Moreover, the estimates in the Seventh Development Plan indicate that the vast majority of employment opportunities must come from Saudisation or the retirement of existing workers. The Plan estimates that there will be 817,300 new employees, but only 328,000 new jobs. Furthermore, the number of new employees just happens to exactly coincide exactly with the Plan's new estimate of total entrants to the labor market during 2000-2004. As Table 5.2 shows, this is made possible by estimating a continued high dependency rate to limit the number of job applicants, and a low participation rate in the labor forces.

### **Skill Levels, and the Saudi Labor Force**

All Saudi estimates ignore the fact that much of the estimated employment has occurred at the cost of serious disguised unemployment of Saudis in non-productive jobs in the state sector, petroleum sector, and private sector. This disguised unemployment is both the result of past government policy and an extended family and social safety net that creates large numbers of jobs that are not needed to perform productive tasks.

While it is impossible to do more than make sophisticated guesstimates, Chart 5.10 provides a rough indication of the fact that Saudi Arabia must have very high level of disguised unemployment in the form of jobs that do not contribute much – if any – productive output to the economy. While there has been progress in terms of absolute numbers, the growth of Saudi held jobs in the private sector has been very slow relative to the number of Saudis entering the labor force, and the number of foreigners in the private sector actually increased through 1998.

Accordingly, while Saudi government officials privately estimated native Saudi male unemployment at 15-18% in April 2002, the real figure could be anywhere between 25% and 35%.

Chart 5.11 shows that virtually all of this work force must find non-traditional jobs in urban areas. Traditional rural and agricultural jobs are vanishing from the economy as a percent of the work force, and although agricultural jobs are now subsidized, they will continue to steadily shrink as a percent of the labor force even if subsidies continue.

The Saudi government clearly recognizes the need to expand the native Saudi labor force and to ensure that younger Saudis have the education and motivation necessary to become globally competitive. Senior Saudi officials talk about a knowledge-based economy as the key to giving young Saudis both jobs and jobs that are globally competitive enough to ensure that they receive relatively high salaries. It gives both creating new jobs and increasing education levels a high priority.

Saudi labor statistics show that the Saudi labor force already has substantial skills, although Saudi statistics do exaggerate the technical skills of the present Saudi labor force. Saudi figures show that Saudi Arabia had 1.1 million scientific and technical jobs in 1999 or 15.6% of the entire labor force. The rest of the labor force was divided to include 534,000 in clerical jobs (7.4%), 134,000 in administrative and business jobs (1.9%), 507,000 salesmen (7.1%), 551,000 in agriculture and fishing (7.8%), and 2,189 million in construction and production works (30.5%). Some 916,000 workers were in government services.<sup>54</sup> Another 98,900 of 7.176 million worked in the oil and gas sector plus 21,500 in oil refining and 9,400 in petrochemicals. This compares with 557,900 still working in agriculture.

The problem with these figures, however, is that they imply Saudis are working productively in skilled or white-collar jobs where the reality may be limited skills or disguised unemployment. Moreover, 2.217 million out of the total labor force worked in finance and real estate, while 1.037 million worked in trade. These are job categories where the extended family often creates jobs regardless of whether they are needed or not.<sup>55</sup>

Other data show that the Saudi government is making real progress in raising the educational standards of new entrants to the labor force. The level of education and

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qualification for the new entrants to the labor force estimated in Table 5.2 is impressive. It does not track in detail with other Saudi demographic data, and is subject to all of the problems in Saudi education that have already been discussed. It also shows that 290,000 out of the 817,300 entrants will have limited or poor education. Nevertheless, the Saudi totals in Table 5.2 are still very good for a developing country. Saudi Arabia will have a higher percentage of well-educated entrants than in a number of Asian countries and many countries in the Middle East with a much longer history of modern education.

There is no one solution to these interactions between demographic, economic, and social problems. Saudi Arabia clearly needs to encourage smaller families and engage in efforts to reduce population growth. There are few prospects, however, that Saudi Arabia can prevent major future population growth. Its population is so young that its “demographic momentum” will produce major future growth even if the birth rate drops. In fact, Saudi Arabia has a population momentum ratio of 1.6, which is one of the highest in the world and about 45% higher than that of high-income countries. As a result, Saudi Arabia must privatize and diversify its economy far more rapidly than in the past, expand oil export capacity as rapidly as possible, develop far more comprehensive infrastructure and water supply plans, and take more aggressive steps to eliminate most of its foreign labor.

Table 5.2

The Labor Force Numbers and Qualification Estimates  
Used in the Seventh Development Plan –Part One  
 (Manpower numbers in 1,000s)

Projections of Total Native Saudi Population and Labor Force

<u>Category</u>	<u>Number in</u>		<u>Change 1999-2004</u>	<u>Average Annual Growth Rate (%)</u>
	<u>1999</u>	<u>2004</u>		
Population below Working Age	5999.2	6814.8	818.6	2.6
Working Age Population	9662.2	11705.5	2043.3	3.9
Total population	15658.4	18520.3	2861.9	3.4
Population in Work Force	3172.9	3990.2	817.3	4.7
Dependency Ratio (%)	62.1	58.2	-	3.8
Aggregate Labor Force Participation Rate (%)	32.8	34.1	-	1.2

Manpower Supply and Demand Projections

<u>Category</u>	<u>1999</u>	<u>2004</u>	<u>2020</u>	<u>Average Annual Growth Rate</u>	
				<u>2000-2004</u>	<u>2000-2020</u>
Supply					
Total Saudi Population	15658.4	18520.3	29717.0	3.41	3.10
Total Saudi Labor Force	3172.9	3990.2	8263.0	4.69	4.66
Demand					
Government Services	916.2	932.3	984.0	0.35	0.34
Crude oil and gas	98.9	100.4	127.0	0.30	1.20
Private Sector	616.2	6427.2	9635.0	0.99	2.15
Total	7176.3	7504.9	10746.0	0.90	1.94
Supply/Demand Balance					
Non-Saudi Labor Force	4003.4	3514.7	2483.0	-2.57	-2.25



Table 5.2

The Labor Force Numbers and Qualification Estimates  
Used in the Seventh Development Plan –Part Two  
 (Manpower numbers in 1,000s)

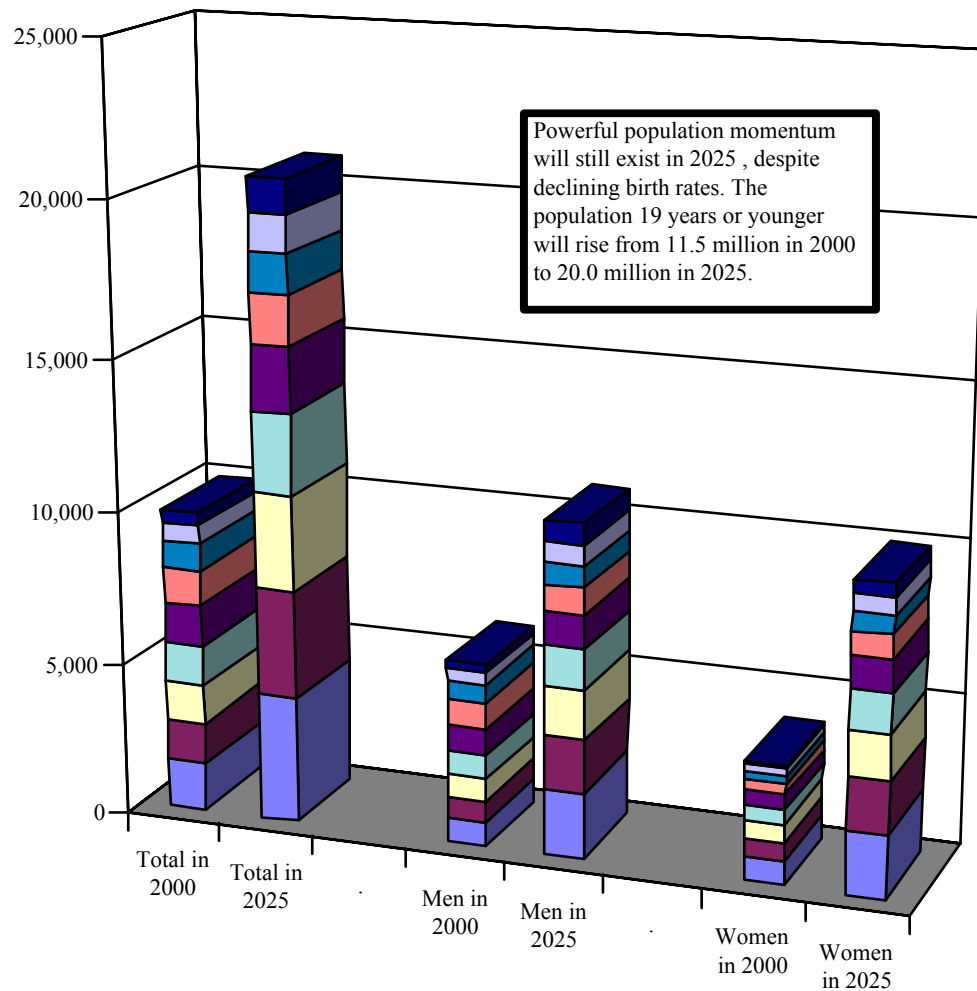
Qualifications of New Native Saudi Entrants During 2000-2004

<u>Category</u>	<u>Number</u>	<u>Share (%)</u>
Tertiary Level		
Universities	178.6	21.9
Teacher Training Institutes	36.7	4.5
Intermediate Technical Colleges	16.7	2.0
Subtotal	232.0	28.4
Secondary Level		
Secondary (General)	213.9	26.2
Technical and Vocational	78.7	9.6
Subtotal	292.6	35.8
Primary Level		
Intermediate	143.1	17.5
Elementary	92.3	11.3
Sub-total	235.4	28.8
Total Educated Entrants	760.0	93.0
Other Entrants	57.3	7.0
Total New Entrants	817.3	100.0

Source: English language version of the Seventh Development Plan 1420/21-1424/25 AH (2000-2004 AD), Riyadh, Ministry of Planning, 2001, pp. 77-78 and 162-164.

Chart 5.9

**The Challenge to Come: Growth in the Saudi Labor Force: 2000 versus 2025**  
(In Thousands in Prime Working Age)

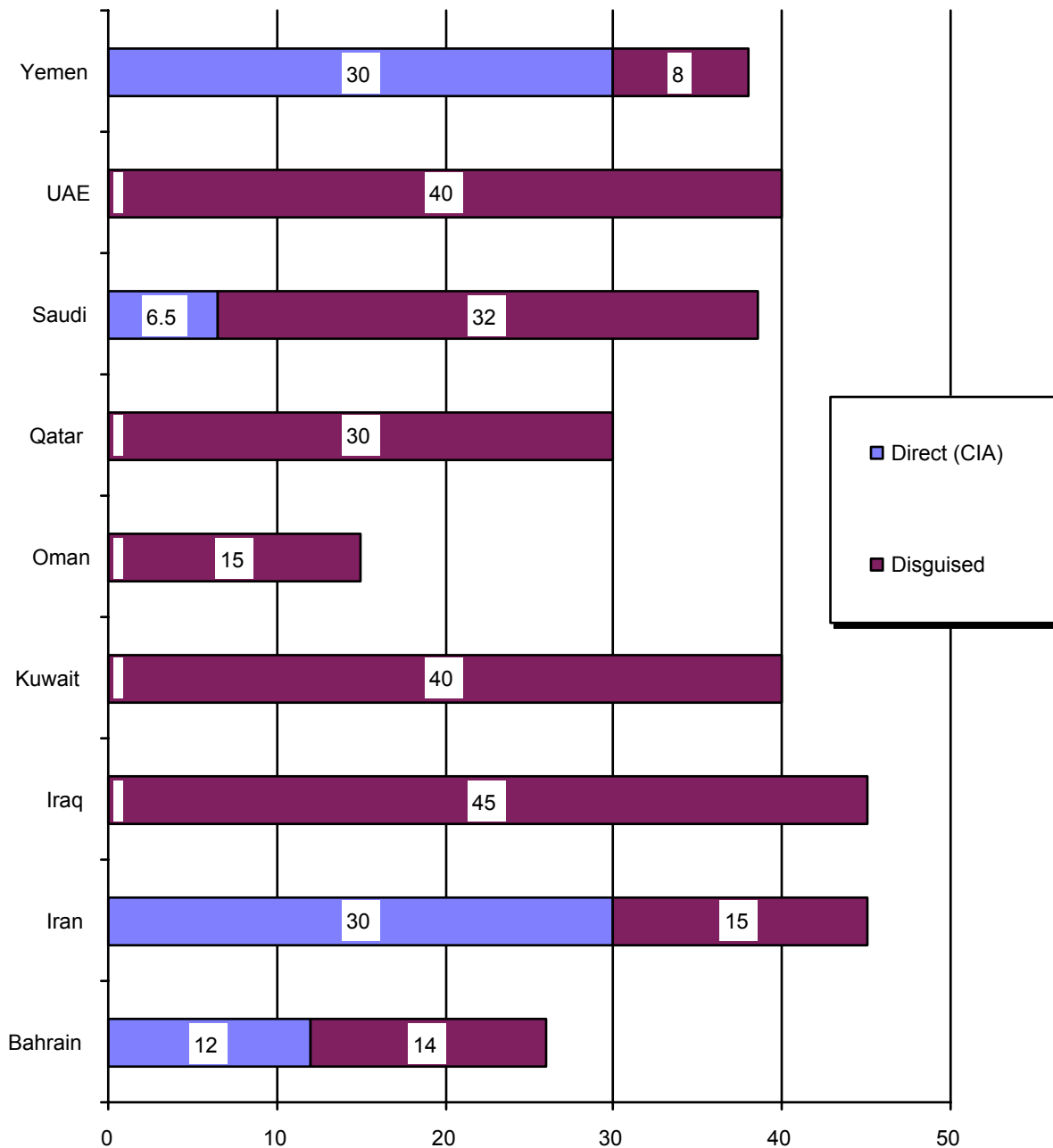


	Total in 2000	Total in 2025		Men in 2000	Men in 2025		Women in 2000	Women in 2025
■ Age 60-64	415	1,143		265	683		151	460
▣ Age 55-59	616	1,220		421	677		195	543
▤ Age 50-54	888	1,291		621	688		266	603
▥ Age 45-49	1,165	1,597		802	839		363	758
▦ Age 40-44	1,332	2,139		874	1102		457	1038
▧ Age 35-39	1,308	2,643		796	1346		511	1297
▨ Age 30-34	1,309	3,100		728	1590		581	1511
▩ Age 25-29	1,318	3,543		692	1809		626	1733
■ Age 20-24	1,588	4,153		818	2119		771	2034

Source: Adapted by Anthony H. Cordesman from US Census Bureau on line demographic data for Saudi Arabia, accessed May, 2001.

Chart 5.10

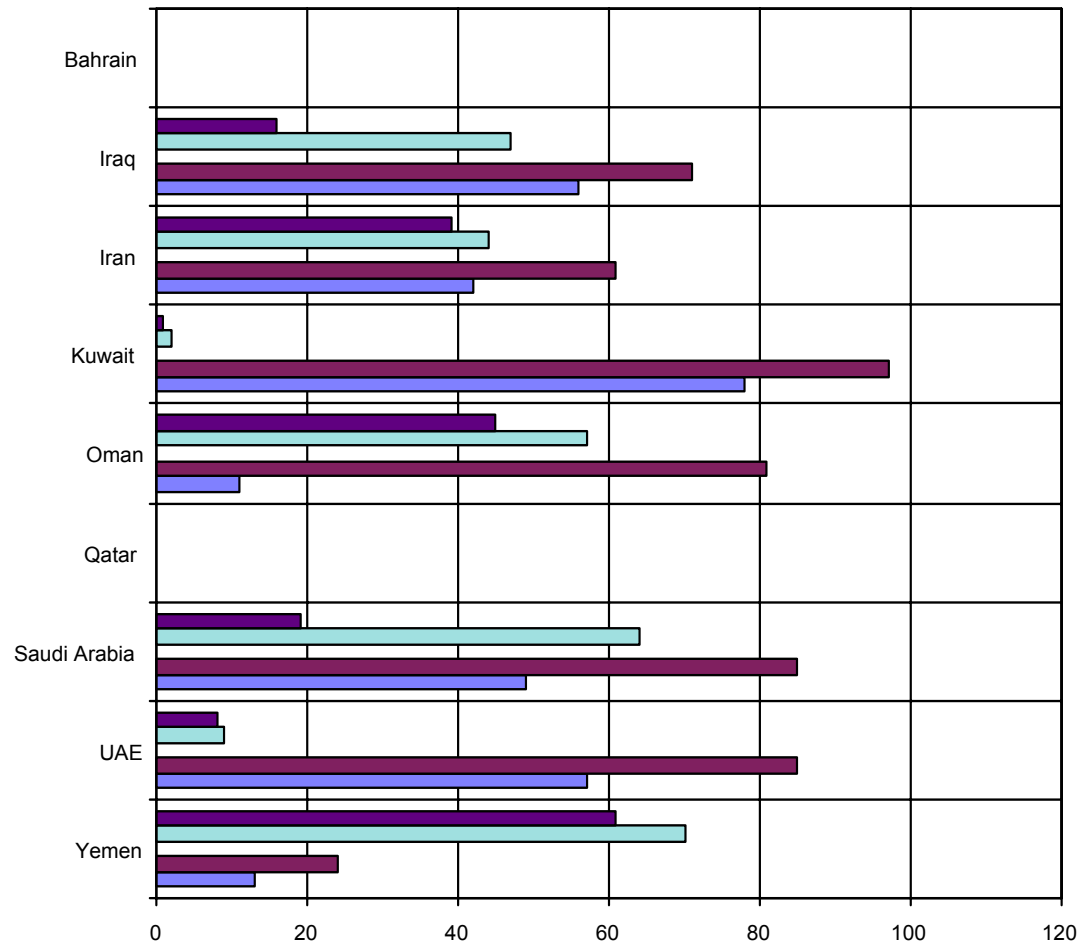
Over-dependence on Non-Productive Government Jobs Has a Cost: Estimated Comparative  
Direct and Disguised Unemployment Rate in the Middle East; A Rough Estimate  
(Rate measured in Percent)



Rough estimate by Anthony H. Cordesman based on informal estimates by experts in the US government and an international financial organization for 2002. Disguised includes public sector, civil service, and private sector jobs with no use economic output.

Chart 5.11Massive On-Going Pressures for Social Change: Massive Urbanization and Sharp Decline in the Role of Agriculture

(Labor in Agriculture in Percentages of labor force and Urbanization as Percent of Total Population)



	Yemen	UAE	Saudi Arabia	Qatar	Oman	Kuwait	Iran	Iraq	Bahrain
■ Labor in Agriculture in 1998	61	8	19	-	45	1	39	16	-
■ Labor in Agriculture 1970	70	9	64	-	57	2	44	47	-
■ .									
■ Urbanization in 1998	24	85	85	-	81	97	61	71	-
■ Urbanization in 1970	13	57	49	-	11	78	42	56	-

Source: Adapted by Anthony H. Cordesman World Bank, World Development Indicators, 2000, pp. 26-28.

## The “Youth Explosion,” Foreign Labor, and Saudisation

Saudi Arabia already faces the equivalent of a “youth explosion,” and one that inevitably creates pressures to create massive numbers of new jobs for Saudi men and women, and to reduce the numbers of foreigners employed in the Kingdom. The World Bank has estimated that the total number of young Saudi men reaching job age (15-19 years) will rise from 789,000 in 1990 and 1.0 million in 1995 to 1.3 million in 2000, 1.5 million in 2010, 1.8 million in 2015, and 2.1 million in 2020.<sup>56</sup> Chart 5.12 provides a comparative estimate of the number of youths entering the labor market in various Gulf countries, and the CIA estimates that 221,000 native Saudi male citizens reached the age where they should enter the work force in 2000, and 223,400 in 2002. If women are included, the total number of potential annual entrants to the workforce in 2000-2002 exceeded 440,000.<sup>57</sup>

The US Census Bureau does not estimate the size of the Saudi labor force per se, but does estimate the total number of young Saudis in the 15-19 age group. This will increase from 2,125,000 (1,076,000 males) in 2000 to 3,120,747 (1,599,000 males) in 2010, 4,169,000 (2,130 males) in 2020, 5,815,000 (2,968,000 males) in 2030, 7,472,000 (3,816,000 males) in 2040, and 9,032,000 (5,019,000 males) in 2050. If one calculates the annual average by dividing the five years in the 15-19 age group by five, this means that 425,000 men and women reached job age each year, beginning in 2000, and 624,000 will reach job age beginning in 2010, 834,000 beginning in 2020, 1.16 million in 2030, 1.49 million in 2040, and 1.8 million in 2050. This averaging method obviously understates the real number slightly.<sup>58</sup>

These trends – as well as the previous figures on job creation – explain why the Saudi government puts so much emphasis on Saudisation, although scarcely without limits. For example, the Saudi Ministry of Labor issued an announcement in May 2001 that it intended to cut foreign jobs by 85% over the next 30 years, from 7.2 million to 1 million. At the same time, it still projected that foreigners would make up 10 million out of a projected 39 million people in 2030.<sup>59</sup>

It is far from clear, however, that the government can meet any of the various goals it has set. While Saudi Arabia has actively pushed for Saudisation since its Fourth Development Plan, Chart 5.13e shows that it has so far had little real success, except in the government sector—an

area where more efficient organization and methods could easily—if not massively—lead to significant reductions in total employment. Anyone who visits Saudi Arabia and goes on tours of “Saudiized” plants and facilities also finds that many of these tours reveal that many – if not all – of the Saudis involved have already left these jobs, that job training is often wasted, and that Saudi workers not only will not stay in low prestige jobs but refuse even long commutes -- much less relocation away from their extended families. While just cases are anecdotal, it is clear that the government is only tracking input to Saudisation, not the end result in terms of performance and retention.

Saudisation also involves gender issues. Estimates of female employment in Saudi Arabia is a statistical morass, complicated by a failure to distinguish between native and foreign labor and develop effective methods for defining employment and the number of native women who want to enter the labor force versus those estimated to actually be seeking jobs. Chart 5.14 shows that the employment rate for Saudi women is well below the potential requirement if the percentage of women employed is to approach the percentage in other Arab and developing countries.<sup>60</sup>

The new data the Saudi Central Department of statistics issued in September 2002 date back to end-1999, and have serious problems, but also illustrate this point. The Department estimated a total of 2.82 million job holders and job seekers: 2.41 million were male and only 413,000 were female, and Saudi males earn about twice as much as Saudi females with the same level of education. A total of 2.60 million Saudis were actually employed: 2.25 million were males and 347,000 were females. This put the unemployment rate for males at 6.8% and 15.8% for females.

Even these figures, however, only assume a 6% female participation rate as a percent of the total participation versus 32% for males. This labor participation rate for males is bad enough. It compares with 49% for the rest of the Middle East, 51% for Sub-Saharan Africa, 55% for Latin America, 61% for East Asia, 72% for Europe, and 77% for the US. Even allowing for Saudi Arabia’s young population, it implies that Saudis are some of the least production people in the world.

The 6% for Saudi women, however, compare with 17% labor participation for the Middle East as a whole. It compares with 27% for Latin America, 37% for Sub-Saharan Africa, and 51% for East Asia—where female productivity has been a key driving force in development. The figures are 18% for Europe and 23% for the US, but they are skewed by a rapidly aging population and large numbers of elderly female dependents. The labor participation rate among young females is much higher.

These Saudi data may well sharply underreport female participation. At the same time, they are probably broadly accurate in reflecting a level of discrimination and religious and cultural barriers to female employment that creates a productivity crisis in the Saudi labor force and where massive rapid changes are needed to take advantage of the comparatively high educational standards of young Saudi women. The failure of Saudi economic planners to address this ignores a critical priority in Saudi economic reform.<sup>61</sup>

This problem of analyzing present and future Saudisation for women is further complicated by the Saudi employment patterns for the foreign women shown in Chart 5.15. Most of the women shown in Chart 5.15 work as servants or menials, as do a significant number of the men, and the data in Chart 5.15 understate the problem because they only include jobs reported by the government. Most Saudis are not willing to work at such jobs, and rightly so. The goal for both Saudi men and women must be to secure jobs which are fully competitive in market terms and which deliver real productivity gains and that match the education and skills of new generations of Saudis. Saudisation that menializes the native Saudi work force is the last thing the Kingdom needs.

Chart 5.16 shows the distribution of both the total current Saudi population by age and sex, and of the native population. Chart 5.17 shows how the total population divides between the native and foreign population by age. The number of foreigners is much larger in the older age groups, and most foreign women give up working in the Kingdom – where they are employed largely as servants – by their early thirties. Even so, the Census Bureau estimates that 43% of the Saudi population was 14 years of age or younger in 2000.<sup>62</sup>

Chart 5.18 shows that the CIA makes similar estimates. It reports that over 42% of the population was under 15 years of age in 2000, and more than 58% of the Kingdom's population

was under the age of 17. Even allowing for the fact that some men and a larger number of women never enter the labor force, these CIA estimates indicate that the creation of over 440,000 jobs a year is already required to fully employ young Saudis. This must take place in a country where the CIA estimates the total labor force is only seven million, 35% of the population in the age group from 15-64 is foreign, and the maximum number of Saudis employed in that labor force is only 4.6 million.<sup>63</sup> It also is quite clear from Charts 4.16 and 4.17 that this requirement for new jobs can easily double in the next decade.

Saudi statistics make these points even more clearly. It is clear from Chart 5.17 just how young the Saudi native population really is. It is also clear just how heavily Saudi Arabia now relies on its foreign population for labor. According to Saudi data, the foreign population made up 5.02 million out of a total population of 19.90 million in 1999, or roughly 25% of the total. If one looks at the key age groups that contributed to the labor force, however, the non-Saudi population totaled 3.53 million while the native Saudi population totaled 6.60 million.<sup>64</sup> These figures are somewhat speculative because there are still significant numbers of illegal foreign workers.

A study by the Saudi American Bank issued in February 2002, using data from the Saudi Central Department of Statistics, summarizes the Kingdom's demographic challenges as follows.<sup>65</sup>

- 45.6% of the population is 14 years of age or younger.
- 73.9% of the population is 29 years of age or younger.
- 38% of the 16.75 million Saudi nationals alive in 2001 were born after Iraq's invasion of Kuwait in 1990.
- The fertility rate of native Saudi women was 5.5 infants per woman in 2000, compared with a world average fertility rate of 2.7 and a Middle East average of 3.5.
- While 210,000 Saudis graduated from secondary school in 2001, 402,000 entered elementary school.
- The population of Saudi nationals is projected to almost double by 2020, expanding the Saudi labor force from 3.3 million in 2000 to 8.3 million in 2020.



- The Riyadh region had 4.49 million people in 1999, and the Mecca region, including Jeddah, had 5.2 million.

## **The Blessings and Curses of Saudisation**

The possible “blessing” inherent in Saudi Arabia’s present dependence on legal and illegal foreign labor is that expelling most of the foreign population could, in theory, create large numbers of job openings for young Saudis as they mature and enter the labor force. However, the “curse” of the present level of dependence on foreign labor is that many of the non-Saudis are working in jobs which young Saudis do not prefer, which often have little or no social value, and where the productivity is often so low that the jobs would not exist in their present form if the employer had to pay Saudi natives. Turning Saudisation theory into practice means restructuring much of the present labor market to create the new types of knowledge-based jobs that young Saudis want and expelling and replacing roughly two million foreign workers over the next decade.

Fortunately, a large part of the foreign work force *is* highly skilled and does now occupy jobs that Saudis may well accept in an era of more realistic expectations. Saudi statistics show there are nearly as many foreign university graduates in Saudi Arabia as native Saudi university graduates (536,000 versus 594,000), some 232,000 more foreigners with diplomas, 565,000 of whom completed secondary school, and 598,000 with an intermediate education. This is a total of 1.9 million foreigners, or nearly half of the 4.1 million foreigner of adult age.<sup>66</sup>

However, the bottom of the foreign work force will never be Saudiized and never should be. There were some 1.7 million foreign females in the Kingdom in 1999. Nearly one million were in the 15-49 age group, and a very large number worked as servants. These jobs are not going to be replaced by Saudi men or women. Similarly, Saudi officials estimate that something like 800,000 foreign males out of a total of 3.3 million worked in menial or low status jobs.<sup>67</sup>

Data issued by Saudi Central Department of Statistics in September 2002 also shows that native Saudis earn about two to three times as much as non-Saudis even in low quality jobs. The average Saudi earned 84,516 Riyals (\$22,538) a year. The average non-Saudi earned 37,860 Riyals (\$10,096) a year. If one looks at monthly compensation in 2000 in Saudi Riyals, and illiterate Saudi earned 3,155 Riyals versus 1,136 for a non-Saudi. The comparisons for

employees with basic literacy were 3,450 versus 1,260 Riyals. Primary school graduates earned 4,600 versus 1,378, secondary school graduates earned 7,200 versus 2,580; intermediate college earned 6,810 versus 2,880; and university graduates earned 10,893 versus 5,581. The average for native Saudis was 7,043 Riyals versus 2,354. It is obvious that the Saudi economy cannot afford to replace current non-Saudi jobs at twice their present cost, much less three times the present cost. Even if Saudis wanted jobs at the bottom of the labor market, Saudization could not possibly occur at anything remotely approaching a one-for-one basis.<sup>68</sup>

Foreign jobs have other negative economic consequences. Most foreigners expatriate capital to their home countries and almost none invest their savings in Saudi Arabia. Foreign workers face major barriers in any kind of entrepreneurial activity. The Kingdom must organize its infrastructure and many of its social services to support foreign labor, and significant numbers of foreign workers become de facto permanent residents – both legally and illegally.

Saudi government estimates of the outflow of capital because of foreign workers seem to be based purely on formal transactions and sharply undercount the real total, but it is well in excess of \$5 billion a year and some estimates go well over \$10 billion. There are no meaningful estimates of the related costs of infrastructure and social services, but even though foreign workers generally receive a lower share of services than natives, they still account for at least 15% of Saudi expenditures.<sup>69</sup>

### **Real World Progress in Saudisation**

The problems in Saudisation also become clearer when history is compared with rhetoric. The Saudi government has been actively pursuing Saudisation policies for more than a decade, and the previous charts have already shown how much of Saudi Arabia's total population remains foreign. To put the numbers in these charts in further perspective, the 1993 Saudi census calculated that Saudi Arabia had 4.6 million foreign residents out of a total population of 14.6 million. Saudi government estimates put the number of foreign workers at 4.9 million in 1999 and the number of Saudi workers at 2.5 million.<sup>70</sup> This estimate suggested that foreign workers constituted 65% of a work force numbering 7.2 million.

The International Institute for Strategic Studies (IISS) estimates that roughly 73% of Saudi Arabia's population was native in 2000, of which Bedouin still make up 10%. The other

27%, or 4.6 million people, is foreign: 8% other Arab, 21% Asian, 2% African, and less than 1% European and American.<sup>71</sup> The CIA estimates that roughly 4.2 million foreign workers were employed in the government or the service sector in 2000. It estimates that as much as 60% of Saudi Arabia's labor force, and 26% of its total population, were still foreign. The Saudi government has issued estimates that suggest the presence of up to six million expatriate workers, including over one million Egyptians, 800,000 Indians, and 600,000 Filipinos.<sup>72</sup>

The CIA estimates that 40% of the total labor force worked in government in 2000, 30% worked in services, 5% in agriculture, and 25% in industry, construction, and oil. Other estimates indicate that 85% of Saudi Arabia's foreign workers worked in the private sector -- 50% in industrial and related jobs. Roughly six out of every seven jobs in the Saudi service sector were held by foreign workers. As a result, foreign workers repatriated between \$13 and \$15 billion a year. This figure adds up to roughly 10% of the Saudi GDP, and compares with total repatriation payments of around \$8 billion a year in the early 1980s -- when the Saudi GDP per capita was much higher.<sup>73</sup>

The practical problem is to go from recognizing the problem to actually solving it. Good intentions and plans are a meaningless, if not destructive, substitute for effective action. The Saudi Fourth Development Plan (1985-1990) attempted to reduce these problems by seeking a 600,000-man reduction in the Saudi labor force by 1990. In fact, the foreign labor force increased by 200,000, despite the hiring of large numbers of native Saudis by creating significant numbers of unproductive and unneeded jobs in the state sector. No progress on Saudisation took place under the Saudi Fifth Development Plan (1991-1995), and the number of foreign workers employed in the Kingdom actually increased by a rate of 8% to 10% per year during 1993-1994. As a result, foreign workers in Saudi Arabia sent home \$15.25 billion in 1994 and an estimated \$17.6 billion in 1995 -- an increase of 40% over total remittances in 1989.

About 500,000 more work visas were issued in 1995 than in 1994, and the total number of expatriate workers and their families living in Saudi Arabia rose to 6.2 million.<sup>74</sup> This led the Kingdom to raise the cost of work permits for foreign laborers, increasing the fee from 1,000 Riyals to 2,000 Riyals (\$533). The London-based Saudi paper Al-Hayat reported that the Kingdom expected to make 80 million Riyals (\$21.3 million) from the work permit fees.<sup>75</sup>

King Fahd recognized the failure of Saudisation as a key problem Saudi Arabia had to deal with when he reorganized his cabinet in 1995. He called for increased privatization to aid Saudisation, and provided guidance for review of the Kingdom's Development or five-year plan.<sup>76</sup> In July 1995, Prince Naif, the Minister of the Interior, made a statement calling for major reductions in foreign labor, and on July 20, 1995 the Saudi government announced new measures to reduce foreign labor.<sup>77</sup> Following this announcement, the Saudi government issued, in October 1995, major new directives calling for increased Saudisation. For example, these directives required hotels to increase the Saudi portion of their labor force by 5% per year. They also established penalties for firms that did not "Saudis," including denial of subsidies and loans, refusal of new applications to import foreign labor, and barring them from competing for government contracts.

The Saudi Sixth Development Plan (1995-1999), which was issued in July 1995, again called for accelerated Saudisation. It set a goal of creating 191,700 new jobs, 148,700 vacancies as a result of turnover, and the creation of an additional 319,500 jobs by replacing non-Saudis with Saudis. It also called for the creation of 660,000 new jobs in the private sector.<sup>78</sup> Saudi words, however, remained stronger than Saudi actions.

This, however, changed when the "oil crash" that began in 1997 created a crisis in Saudi revenues, and led Saudi Arabia to take still stronger measures. In 1997 the Saudi government stepped up its efforts in dealing with the problem of foreign labor. It offered an amnesty, which expired in October, under which foreign laborers in Saudi Arabia illegally were to volunteer for deportation; in exchange, the Saudi government waived the penalty to which they were subject. Under this amnesty, more than 500,000 illegal foreign workers left the country. Following the expiration of the amnesty, Saudi police began rounding up thousands of illegal workers. Reports surfaced of Saudi police surrounding entire neighborhoods in Jeddah to search for expatriates, and that the Saudi police had arrested almost 2,500 illegal immigrants from Africa and Asia. Additionally, the government also increased recruitment fees for many positions including housemaids.

The government took further measures in 1999, including denying visas to foreigners applying for certain job categories. The government also ordered all state departments and agencies to have their foreign consultants in management contracts set up training programs for

Saudi nationals. Other Saudisation measures included restricting fruit and vegetable market traders' jobs for nationals only. According to one Saudi estimate, the net effect was to cut total remittance outflows of one billion dollars a year to \$14,060 million in 1999. Additional steps were taken in 2000. The Saudi government declared that all private firms employing more than 20 people must increase their Saudi-born staff by 25% by October 1, 2001. It also set an objective to replace 60% of the total foreign national workforce.<sup>79</sup>

### **The Current Level of Progress and Non-Progress in Saudisation**

These figures make it clear that the government has never fully enforced many of its measures to reduce Saudi dependence on foreign labor.<sup>80</sup> The US State Department issued the following assessment of the progress and problems with Saudisation in February 2000:<sup>81</sup>

Saudisation is the Government's attempt to decrease the number of foreigners working in certain occupations and to replace them with Saudi workers. To accomplish this goal, the Government has taken several long-term steps, most notably limiting employment in certain fields to citizens, prohibiting renewal of existing contracts, and requiring that 5 percent of the work force in private sector companies be filled by citizen workers. The Government also requires firms to increase the proportion of citizen workers by 5 per cent each year. There are a limited number of persons, both influential and otherwise, who attempted to circumvent the requirements of the law. For example, employers have altered job descriptions or hired foreigners for nominally low-level positions but in fact had them fill positions reserved for citizens. Influential persons effectively may circumvent the law because the Ministry of Labor is simply unwilling to confront them.

The ongoing campaign to remove illegal immigrants from the country has done little to Saudiize the economy because illegal immigrants largely work in low-income positions, which most Saudis consider unsuitable. However, the campaign did improve overall working conditions for legally employed immigrants in low-income positions. The Government is carrying out the campaign by widely publicizing its enforcement of existing laws against illegal immigrants and Saudis employing or sponsoring illegal immigrants.

In addition to deportation for illegal workers and jail terms and fines for Saudis hiring illegal workers, the Government announced in 1998 that houses rented to illegal aliens would be ordered closed. In 1997 the Government offered an amnesty of several months duration, which allowed illegal immigrants and their employers or sponsors to avoid the possibility of prosecution by voluntarily seeking expeditious repatriation. As of September, as many as 1.1 million persons departed the country under terms of the amnesty or were deported for violating residence and labor laws in the past 3 years.

During this process, the Government bowed to domestic pressure and granted grace periods and exemptions to certain categories of illegal immigrants (such as servants, drivers, and shepherds), thereby allowing many illegal immigrants to legalize their status without leaving the country. The effect of the expeditious repatriation of some illegal immigrants and the legalization of others has been to improve overall working conditions for legally employed foreigners. Illegal immigrants generally are willing to accept lower salaries and fewer benefits than legally employed immigrants. Their departure or legalization reduced the competition for certain jobs and thereby reduced the incentive for legal immigrants to accept lower wages and fewer benefits as a means of competing with illegal immigrants. Furthermore, their departure or legalization removed a large portion of the class of persons most vulnerable to abuse and exploitation because of their illegal status.

The government has not yet succeeded in addressing the fact that its proposed salary scales, welfare charges, and regulations requiring the firing of Saudi employees create a major deterrent to hiring native labor. For example, the salary scales proposed for unskilled laborers in 1997 called for a salary of 600-800 Riyals for expatriates and 1,500-2,000 for nationals. The scale for skilled laborers was 1,500-2,000 Riyals for expatriates and 3,000-4,000 for nationals. The scale for experienced employees was 3,500-4,000 Riyals for expatriates and 5,000-7,000 for nationals, and the scale for engineers was 3,000-4,000 Riyals for expatriates and 6,000-8,000 for nationals.

The government has also failed to come to grips with the fact that a viable Saudi economy cannot be created by creating or sustaining unneeded government jobs or unproductive jobs in the private sector, particularly when the Kingdom must be competitive on a global basis. Given the low work ethic and productivity of many Saudis, the main incentive to hire a Saudi national has often been that a prospective employee was a relative or son of a friend, or to meet some quota. The main success of the Saudisation program has also been in government jobs – which often are awarded without demanding the proper qualifications and performance -- and white-collar jobs like the banking sector, where local workers account for 75% of the staff. Significantly, however, the gap between the salary paid to the expatriate and the salary paid to the average local worker is narrow, with the former earning a monthly average of \$1,746 versus \$1,762.

In those cases where salaries are higher, the lack of experience and skills in domestic staff has proved a serious obstacle. Saudisation also often prevents efficient restructuring and downsizing. The new Saudi Electric Company chairman, Suleiman Alkadi, for instance, wants to restructure and downsize the system, laying off 5,000 staff members. This move will run into tremendous opposition, as it will require firing some native employees. In those cases where salaries are higher, Saudis feel that that much of the work done by foreign labor is beneath them. One Saudi woman comments, “Even if a Saudi woman is starving, she would not work for anyone else (in a housekeeping capacity) ... we do need the Indians to do the menial work. These are jobs difficult for the Saudi to do.” This sense of pride in being Saudi creates a mindset that undermines the underlying philosophy of Saudisation.<sup>82</sup>

## **Saudisation and Native Saudi Unemployment**

An analysis by the Saudi American Bank paints a somewhat different picture of how Saudisation relates to the native Saudi workforce, and how to estimate the current levels of direct unemployment of native Saudis. Using data from the Saudi Central Department of Statistics, it estimates that there were 659,900 entrants to the Saudi labor market between 1995-1999—although the basis for distinguishing “entrant” from the larger total for those in the age group is unclear. The Ministry of Civil Service reports that 118,570 Saudis were added to already swollen government payrolls during 1995-1998, an annual average of 30,000 a year. This gives a projected total of 148,570 additional jobs for 1995-1999. A large portion—if not most—of this job creation, consisted of introducing additional unproductive jobs or added productive jobs, without eliminating existing unproductive government jobs. In practice, much of this job creation total effectively consists of disguised unemployment. Nevertheless, Saudi plans called for creating roughly 30,000 more government jobs a year in 2000 and 2001.

The private sector added 220,000 jobs to the labor force from 1995-1999 in firms with 20 or more employees. The Saudi American Bank estimates another 50,000 were added to smaller firms for a total of 270,000 new jobs. Saudi figures, however, underestimate the number of new hires that leave the labor force, and make no attempt to calculate unproductive jobs created for the sons of family members and friends, and disguised unemployment. They also assume a largely male labor force, ignoring the fact that Saudi women not only are a critical potential part of the labor force, but are now better educated than Saudi men.

If one ignores disguised unemployment and productivity outside the petroleum sector—where productivity is high, because extremely intense capital investment and automation occurs with little job creation—the number of persons now unemployed would total 241,330 according to the Saudi American Bank, versus 418,570 new jobs out of 659,900. Combined with an existing base of 95,000 persons unemployed, according to 1994 Saudi estimates, this would produce 337,330 unemployed Saudis at the end of 1999, creating an unemployment level of around 12% in 1999.

Here, however, population momentum and the “youth explosion” may account for much of the difference. The problem in the unemployment data the Saudi central Department of Statistics issued in September 2002 have already been mentioned, and they show an unemployment rate of 6.8% at the end of 1999, when the real rate is likely to have been at least 11.7%. Nevertheless, they still show major employment problems for young Saudis. Unemployment for Saudis between ages 20-24 was still 28%, and it was 9.8% for Saudis between 25-29. The rate for Saudis over 30 was only 0.9%. These figures also show very little employment for Saudis 15-19 years old (only 67,113) although the Seventh Development Plan says that about 28% of the new entrants to the labor force (some 50,000) are dropouts from high school or below. These data not only dramatize the impact of the youth explosion, they indicate that the Saudi government is in a state of near denial in facing the full scope of the problem.<sup>83</sup>

The Saudi American Bank estimates that 817,000 Saudis will enter the labor market between 2000-2004, or an average of 163,000 a year. It also assumed an average of 30,000 new public and 50,000 new private sector jobs a year. This means 80,000 annual hires out of the 163,000 annual new entrants, leaving an additional 83,000 unemployed per year. This would add a total of 166,000 unemployed in 2000-2001, and raise the total unemployed to 503,330, which would constitute 15.3% of the estimated total labor force of 3.3 million Saudis in 2001. This unemployment level would only be 7% if all foreign labor were eliminated, although it should be noted that far more Saudi youths come of age each year, and that the number of unemployed relative to employed will increase sharply each year, unless job creation increases equally sharply. Further, the impact of even perfect Saudisation on native Saudi unemployment will drop sharply over time because the number of foreign jobs will remain relatively constant while the pool of potential entrants to the native Saudi labor force is rising.<sup>84</sup>

### **The Impact of the Saudi Seventh Development Plan**

The Saudi Seventh Development Plan (2001-2005) makes an interesting contrast to the Sixth Development Plan. As has already been shown in discussing the data in Table 5.2, it calls for accelerated Saudisation. The Seventh Development Plan “places special emphasis on the development of human resources and provision of adequate job opportunities. This is attributed to the plan’s keenness to enhance the participation of national manpower, raise their efficiency to meet the requirements of the national economy, and replace non-Saudi manpower with Saudis.”



It calls for the creation of an additional 488,600 jobs, in contrast to 319,500 in the Sixth Development Plan, by replacing non-Saudis with Saudis. Additionally, it calls for rationalization of the recruitment of the non-Saudi labor force, while limiting jobs in some occupations and sectors to native Saudis only.<sup>85</sup>

The Ministry of Planning states that,<sup>86</sup>

The Seventh Development Plan expects the provision of 328,600 job opportunities to meet the development needs of the labor force, thereby increasing total employment from 7,170,000 workers in the base year 1419/1420 (1999) to 7,500,000 in 1424/25 (2004). Employment in the non-oil private sector is expected to increase from 6,160,000 in the base year 1419/1420 (1999) to 6,470,000 by the end of the plan 1424/25 (2004). Thus, the total number of job opportunities available in the private sector will be 311,000, or about 94.6% of the total job opportunities available during the period.<sup>87</sup>

These are good intentions, but such intentions are not particularly reassuring ones. The Ministry of Planning figures are not consistent from section to section and raise more statistical questions than they answer. Like almost all Ministry of Planning figures, they do not really show how the goal is to meet the need, and they do not attempt to estimate either the percentage of young Saudis entering the labor forces that will get jobs or the overall level of real and disguised employment that will result. It is unclear how they address Saudis in the military and National Guard, and there is no attempt to address the issue of the employment of women. The Ministry of Planning data imply a freeze on the creation of government jobs and severe limits on the turnover of jobs in government held by foreigners or retiring Saudis, but the reports on the plan do not explicitly address these issues.

Most important, if these figures are taken at face value, they imply a steady and serious deterioration in the economic situation. Job creations relative to the number of young Saudis would steadily decline to below 50% of the total demographic need, even for males. Moreover, virtually all meaningful Saudisation and job creation in the plan now must come from the private sector. There already are about half a million young Saudis that do not even have a token job, and over 150,000 males already enter the labor force each year, of which a large number do not have more than secondary education. As a result, the Seventh Development Plan provides little evidence that the Saudi job market will keep up with the growth in its population, create the labor force needed for a globally competitive information based economy, or anywhere near the progress in Saudisation the Kingdom actually needs.

## **Saudi Economic Development versus Saudi Education**

The Saudi government faces equally serious and directly related challenges in providing the proper level of education and it faces additional challenges in its efforts to restructure Saudi education to properly train young Saudis for jobs. Table 5.2 has already provided the favorable estimate developed by the Saudi Ministry of Planning. However, studies by the ILO and World Bank, in the late 1990s, indicated that the Saudi educational system was failing to adequately educate either male or female students for future jobs, and that it is steadily deteriorating in quality and economic relevance. Analysts claimed that only 17% of the 600,000 Saudis entering the labor force between 1995 and 1999 had college degrees. Furthermore, there were only 10,000 engineering graduates out of 114,000, compared with 48,000 in social sciences and literature.<sup>88</sup>

### **A Mixed Picture of Strengths and Weaknesses**

Saudi figures provide a mixed picture of overall developments in education. They indicate that there were 3,999,778 students in general education in 1998/1999, with slightly more men than women, but do not report on percentages in school versus total numbers in the population. The Ministry of Planning does report that the number of number of Saudi students in elementary and intermediate education lagged slightly behind population growth from 1995-2000, and the construction of new schools fell behind need.<sup>89</sup> At the same time, the number of actual graduates from general education rose from 309,000 in 1994 to 452,000 in 1999.<sup>90</sup>

Enrollment in secondary education increased at an average annual rate of well over 10% during 1999-2000, substantially faster than the population in the age group. The Saudi government reports only 452,000 students enrolled in secondary education programs in 1995.<sup>91</sup> There were 704,566 students in secondary school in 1999, and the ratio of students to teachers was also a relatively low 12:1.<sup>92</sup> The annual number of graduates increased from 87,000 in 1994 to 167,000, in 1999.<sup>93</sup>

The average annual rate of increase in higher education was in excess of 15% during 1995-2000, although most of this increase took place in colleges and technical schools rather than universities.<sup>94</sup> In 1995, Saudi Arabia had some 306,548 male and female students enrolled at the Kingdom's seven universities, 70 colleges, and 78 institutes of higher learning. These included 297,830 undergraduates, 7,288 postgraduates, and 1,466 students studying for

doctorates. Saudi Arabia had nine universities and 76 university departments or colleges in 1999. Additionally, Saudi Arabia had 186,650 students enrolled at a university, and a teaching staff of 10,018, which is a student to teacher ratio of 19:1, but still acceptable.

Women made up almost exactly 30% of the student body at universities, 18% of the faculty, and 27% of new entrants. Saudi Arabia also had six more colleges of education and technical colleges in 1999, and at total of some 138 other teaching centers or colleges. If the number of students in these schools were added to the total for the universities, the total number would be 371,552 students.<sup>95</sup> This is a significant increase over 1995, but it does not seem sufficient to keep up with the growth in Saudi population.

While the figures for universities alone show a low ratio of women, a total of 120,666 new students enrolled in universities and specialized colleges in 1999, and 54% were women. The disparity is partially explained by the fact that some 145,000 Saudi women were enrolled in women-only colleges, and 146,000 were enrolled in other educational agencies, versus 3,890 males enrolled in similar all male institutions. (Only males are enrolled in the technical colleges and industrial colleges in Jubail and Yanbu.)<sup>96</sup>

### **Progress in the Sixth Development Plan**

As is the case with Saudisation, the government is trying to correct some of these problems. The Sixth Development Plan Development Plan emphasized redirecting education towards job opportunities, by expanding technical and vocational training and limiting college scholarships to those fields that will enhance Saudi manpower.<sup>97</sup> As a result, several Saudi Chambers of Commerce and Industry created major training programs focused on realistic job opportunities. The Ministry of the Interior has set up a manpower council that meets regularly to discuss training needs for the country as a whole. Nevertheless, effort still fell far short of the need, and Saudi Arabia continued to expand Islamic education more quickly than it took action to make native Saudis more employable.<sup>98</sup>

The Saudi government reports that technical and vocational school enrollment rose 29-fold between 1970 and 1996.<sup>99</sup> However, the total registration still amounted to only 28,972 students at technical schools and 9,653 at vocational institutes in 1996. In the same year, there were a total of around 62,534 students if one includes all the students training at Saudi Arabia's

six colleges of technology, eight industrial institutes, and numerous vocational centers.<sup>100</sup> The total number of males enrolled at the institutions for technical education and vocational education totaled only 46,058 in 1999, and only 11,666 graduated that year. Less than half of these received training related to non-white collar jobs in the private sector.

The data on women's education also indicate that they are being trained largely for teaching and clerical jobs, severely restricting their access to the labor market.<sup>101</sup> In general, these figures reveal a very limited total output of Saudis relative to both the total labor force and the total number of young men and women entering the labor force each year. Saudi and Western businessmen also indicate that the output of vocational schools was often poorly trained in the skills needed for real-world jobs.

On paper, Saudi Arabia can draw on some 114,700 post-secondary graduates it produced during 1995-1999. However, the areas of specialization among these graduates illustrate the severity of some of the problems in the structure of Saudi education. Roughly 8.8% graduated in engineering (10,100); 13.5% in the natural sciences (15,500); 7.1% in medical sciences and health (8,100); 14.7% in commerce, mathematics, and computer science (2,900); 2.9% in agriculture, zoology, and nutritional science (2,900); and 10.9% in teacher training (12,500). Some Saudi educators note, however, that many of these graduates do not have the equivalent of a Western junior college education, and that even at the post-secondary level, far too few teachers insist on the proper performance level or are willing to fail Saudi students. They are particularly concerned with the low quality of teacher training and a tendency to emphasize Islam at the expense of teaching skills in core areas. This is particularly disturbing because the Saudi government is attempting to create 86,000 Saudi teacher jobs to reduce unemployment in the 2002 budget.

A total of 42.2 % of 114,700 post-secondary graduates produced from 1995-1999 are also graduates of "social sciences and Islamic studies," a category that largely includes students with no meaningful job skills. Given the reality that Saudi Arabia had 659,900 male job entrants in 1995-1999, many of which graduated from heavily Islamic programs, the fact that 48,400 of the 114,700 post-secondary school graduates came from such low-grade programs is not reassuring.

## **The Impact of “9/11”**

There is nothing wrong with Islamic education provided that it sets the proper overall standards. The reality, however, is that the quality of Saudi education has been sacrificed for quantity. Long before September 11<sup>th</sup>, however, many Saudi educators felt that the Kingdom combined set inadequate standards for teacher qualification and performance and that a focus on Islam led far too much of Saudi education to require the proper educational standards and depth in other areas. Some also noted that some of the religious materials had an anti-Christian and anti-Semitic character.

Since that time, Saudi Arabia has had good cause to reflect on the costs of supporting Islamic studies while failing to properly educate Saudi youth. While both the government and many Saudi educators have tended to publicly deny such failures, the attacks on the World Trade Center and the Pentagon have led to a great deal of quiet examination. As a result, many members of the Saudi political and religious elite—including some senior members of the Al Saud family and Al Sheikh families—privately admit that the Kingdom made serious mistakes that it may now take up to a decade to recover from.<sup>102</sup>

Very senior Saudi officials found serious problems when they surveyed the content of Saudi teaching materials and schools following “9/11.” One of Saudi Arabia’s most senior ruling princes stated privately that the government found a great deal of content that attacked Islamic practices in other Muslim countries and was anti-Semitic and anti-Christian. He stated that “five percent of this content was horrible, 10% was suspect, and the other 85% was alright.” He also stated that the review also revealed the emphasis on rote learning discussed earlier, the lack of emphasis on problem-solving skills, and a lack of quality in technical and language skills.

Experts in the Ministry of Education were more optimistic about the quality of Saudi education, but also admitted that some of the course content was dated and biased, and noted that the Ministry was considering measures to constantly reevaluate the performance of teachers and schools, and to provide more standardized and competitive forms of examination.

These numbers disguise other problems. Saudi sources indicate that one reason Crown Prince Abdullah abolished a separate management structure for woman’s education in 2001, following a tragic school fire where a number of young women died, was the discovery of poor

physical plant facilities and poor overall management. The rush to create new schools has not always create good, or even competent ones.

Saudi experts privately indicate that the educational standards in Saudi institutions are much lower than comparable foreign institutions, and only 1,500 Saudi students graduated from foreign universities in 1999, versus 41,450 from local universities.<sup>103</sup> As a result, a “generation gap” is growing up between today’s graduates and older, foreign-educated Saudis and that far too few of current students are trained to enter business or are studying in the technical or specialized areas needed by the government and private sector. Some Saudi professors feel that King Saud University is now the only Saudi institution of higher education that is really competitive in global terms. This university has a total enrollment of 7,938 – all of whom are males. At the same time, the events of “9/11” have made it harder for Saudis to study in the US and created a backlash against studying in countries with anti-Saudi and anti-Arab prejudices.

The problems in education also interact with Saudi prejudices against many types of jobs, a lack of a work ethic, and a lack of experience with globally competitive and merit based hiring and promotion present further problems. As has been touched upon earlier, much of the native Saudi labor force now works in government and in the service sectors, and much of it does not work at real jobs.

A total of 34% of the entire labor force worked for the government in 2000, and 22% more worked in services. Only 28% of the labor force worked in industry and oil and 16% in agriculture. Many of these industrial jobs were in state-related positions that were overstaffed or not really needed, and many of the agricultural jobs were made possible by state subsidies for agriculture. As a result, the distribution of the native Saudi workforce represented a serious lack of productive employment within the private sector. Saudi officials are the first to state that government and government-related jobs often employ three to four Saudis for every real job and then hire a foreigner to do the actual work. Some estimate that as many as half of the Saudis now employed do not perform any real economic function. At the same time, there are social barriers to productive labor. Many Saudis still feel that work in the private sector has less status than work in government, and that government employees have better or more secure jobs. The end result is that many young Saudi males seek a job or non-job in government, rather than risk

losing social status, or reducing their marriage prospects, by seeking to do something truly productive.<sup>104</sup>

### **Progress Planned in the Seventh Development Plan**

That said, the Saudi government did seek to make major improvements in the quality of Saudi education long before “9/11.” The government steadily increased funding for education, and was already examining the quality of problems in the government’s current teaching staff, and in Saudi secondary and higher education. Saudi technocrats and businessmen were both pushing hard for more demanding and practical education programs, and some Saudi firms were pursuing a policy of only hiring on a competitive basis and merit-based promotion.

The Seventh Development Plan (2000-2004) called for higher educational standards for the new Saudi entrants to the labor market it estimates will leave school during this period. It not only projected that 28.4% would be college or university graduates, and that 35.8% would be secondary school graduates it projected that only 28.8% would dropped out of secondary school before graduating. This compares with 31.3% dropouts during the previous five-year period.

The Seventh Development Plan set ambitious goals for improving educational quality, such as:<sup>105</sup>

- Providing educational opportunities to all eligible Saudis, upgrading special education, opening more technical secondary education institutions, and giving more attention to women’s technical education and vocational training.
- Improving educational standards by updating educational programs and curricula in line with labor market needs.
- Expanding the private sector’s participation in financing educational programs.
- Expanding on-the-job training programs.
- Expanding technical education at every level and providing training in all regions of the Kingdom.
- Improving training in advanced technology.
- Developing academic research and post-graduate studies programs oriented to meet the needs of the private sector.
- Reconsidering the size of employment in the government sectors. Considering the possibility of directing surplus manpower in the government sector to work in the private sector.

- Increasing the absorptive capacity of universities, technical education, and vocational training institutions in the specializations required by the national economy, as well as directing admission policies in the higher education institutions to meet the needs of the labor market.
- Ensuring the participation of the private sector in the continuous review of curricula and the proposal of new academic trends that are commensurate with the actual needs of the labor market.
- Developing a manpower information system and establishing a unified information network for all labor offices in the Kingdom to ensure regular provision of labor market related information to manpower, employers, students, and education and training institutions for utilization in the selection of jobs and occupations.
- Improving the productivity of the national labor force, upgrading skills, and preparing it to keep up with technical developments.
- Increasing job opportunities for Saudi women and enhancing their share in the labor market in conformation with Islamic Sharia.
- Developing a national plan for the use of information technology, as well as the use of information sources, develop databases for use by the public and private sectors, and establishing a national integration information system with regional sub-networks.

There are still serious problems, however, in both the goals set forth in the Seventh Development Plan and in the numbers it uses. The Ministry of Planning uses somewhat different statistics in its plan from its report on achievements, but it states that the total number of students entering the general education system will increase from 4.40 million in 1419/1420 to 4.52 million in 1424/1425. This is only a 2.7% increase over five years, and does not make sense in terms of population growth or school expansion plans. The total number of annual general education graduates is to increase from 3.16 million to 4.53 million over the same five-year period. This is an increase of 43% and tracks much better with population growth and the Kingdom's needs.

The number of students in higher education is also supposed to increase from 263,000 to 480,000, an 83% increase. This not only would do much to keep up with population growth, but would help correct for much of the existing shortfall. Interestingly enough, the total annual number of males graduating from higher education will increase from 69,000 to 127,000 while females will increase from 85,000 to 146,000. This again illustrates a massive shift in Saudi society, where more females continue to graduate from higher education than males, and the number of highly educated females potentially entering the job market rises by 72% over five years. This will make it even more critical that the Saudi economy make full competitive use of female labor.



The total number of students in the technical education system will only increase from 33,000 to 55,000, and in vocational training from 12,000 to 17,000. These are reasonable percentage increases, but the absolute numbers do not come close to providing an adequate training base for diversification of the economy and projected growth of the private sector.

The statistics shown in other parts of the Seventh Development Plan are summarized in Table 5.3, and it is all too clear why the Kingdom faces major challenges in the short term in expanding both the quality and quantity of its education that will continue well beyond 2030. Saudi plans for higher education alone during 2000-2004 require a 1.4% average annual rise in students, a 13.6% rise in new entrants, a 16.8% rise in graduates, and a 19.5% rise in Saudi staff (with a 6.5% annual cut in foreign staff).<sup>106</sup>

Table 5.3

Male and Female graduates in Saudi Education During the Seventh Development Plan

(In Thousands)

<u>Stage</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>
Graduates (Male)						
Elementary	180	190	200	211	222	235
Intermediate	128	130	136	138	142	146
Secondary	80	86	92	97	102	107
Teachers Colleges (4 years)	3.2	2.5	2.6	2.8	2.9	3.1
Graduates (Female)						
Elementary	166	168	173	178	182	188
Intermediate	138	143	146	149	154	163
Secondary	95	107	118	130	144	159
Teachers Colleges (2 years)	6.8	7.1	7.4	7.7	8.0	8.2

Source: Kingdom of Saudi Arabia, Ministry of Planning, Seventh Development Plan, Riyadh, 2000, p. 259.

## Looking Towards the Future

Saudi Arabia has set the right general priorities in education, but its goals and means are not yet adequate to solve the problem. A serious mismatch will remain between educational

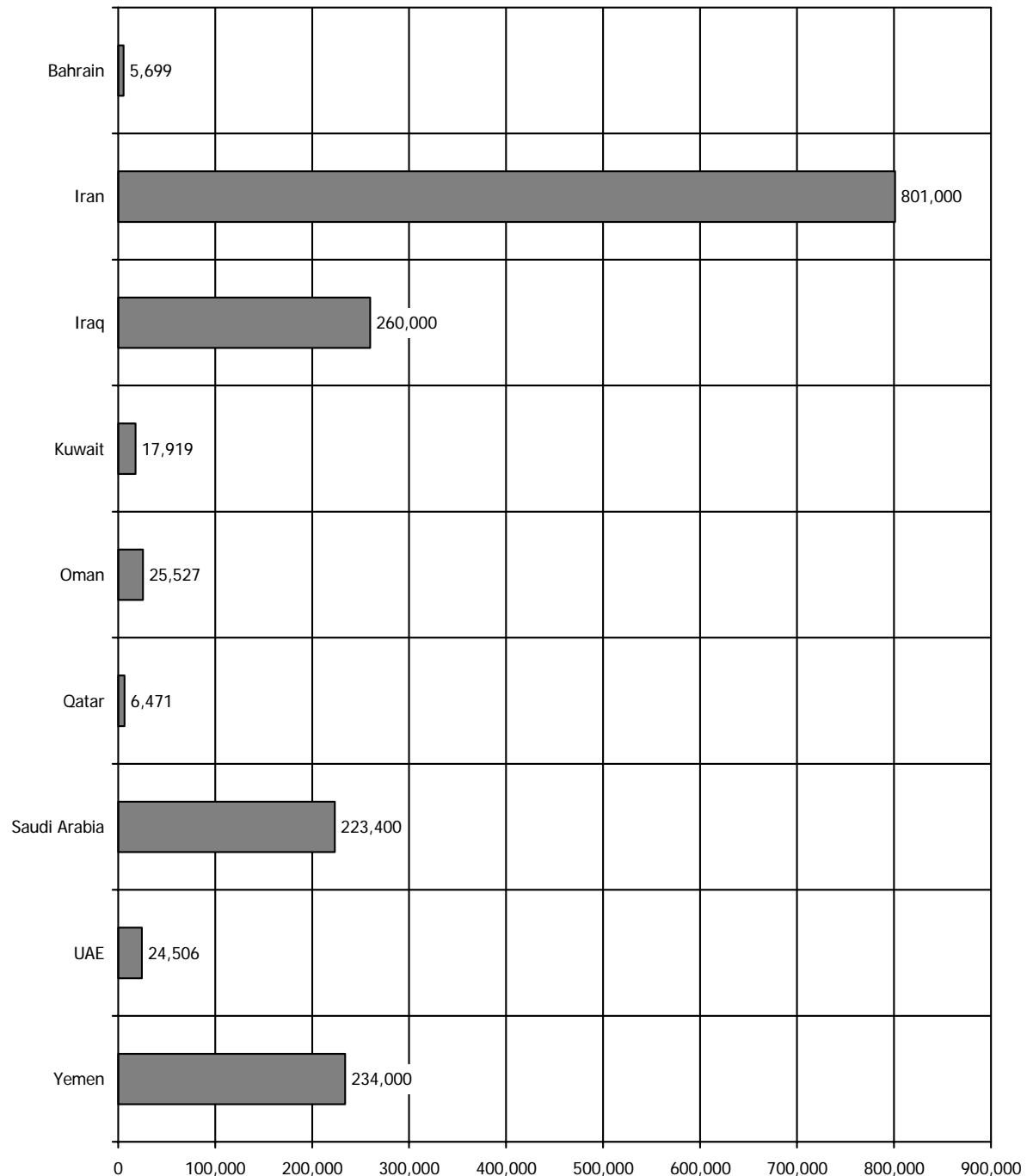
output and quality, and the expansion of the job market, even if the Kingdom meets all its goals. Saudi educators are also among the first to admit that the Kingdom has yet to demonstrate that it will purge and update its curriculum, raise standards for teachers to the proper level and evaluate their performance, properly evaluate school performance, and set realistic national competitive standards for educational qualifications. Above all, it has not shown that it will abolish reliance on rote learning and place the proper emphasis on creative learning and problem solving.

As is discussed in the following chapters, it is also far from clear that the Kingdom is giving realistic attention to the need to create “job pull” in the private sector, as distinguished from “education push.” Educators sometimes live in a fantasy world where education alone is felt to create job opportunities, and educators feel they can somehow predict the needs of the job market without systematic surveys and constant efforts to tailor and update the curriculum.

The reality has been very different. Education per se does not increase jobs, and government officials and academics have demonstrated on a global basis that they are not competent to predict the educational needs of business. Coupled to problems with work ethic, job status, and hiring women, it is far from clear that the Saudi private sector will really get the “person power” it needs, or that young Saudis will really get the opportunities they deserve. Things should get slightly better, but it is obvious that any real solution to these aspects of the Kingdom’s internal stability problems will have to come after the Seventh Development Plan and will require a radical new degree of self-honesty and decisive action to deal with critical problems in the sectors most critical to the Kingdom’s stability and future.

Chart 5.12

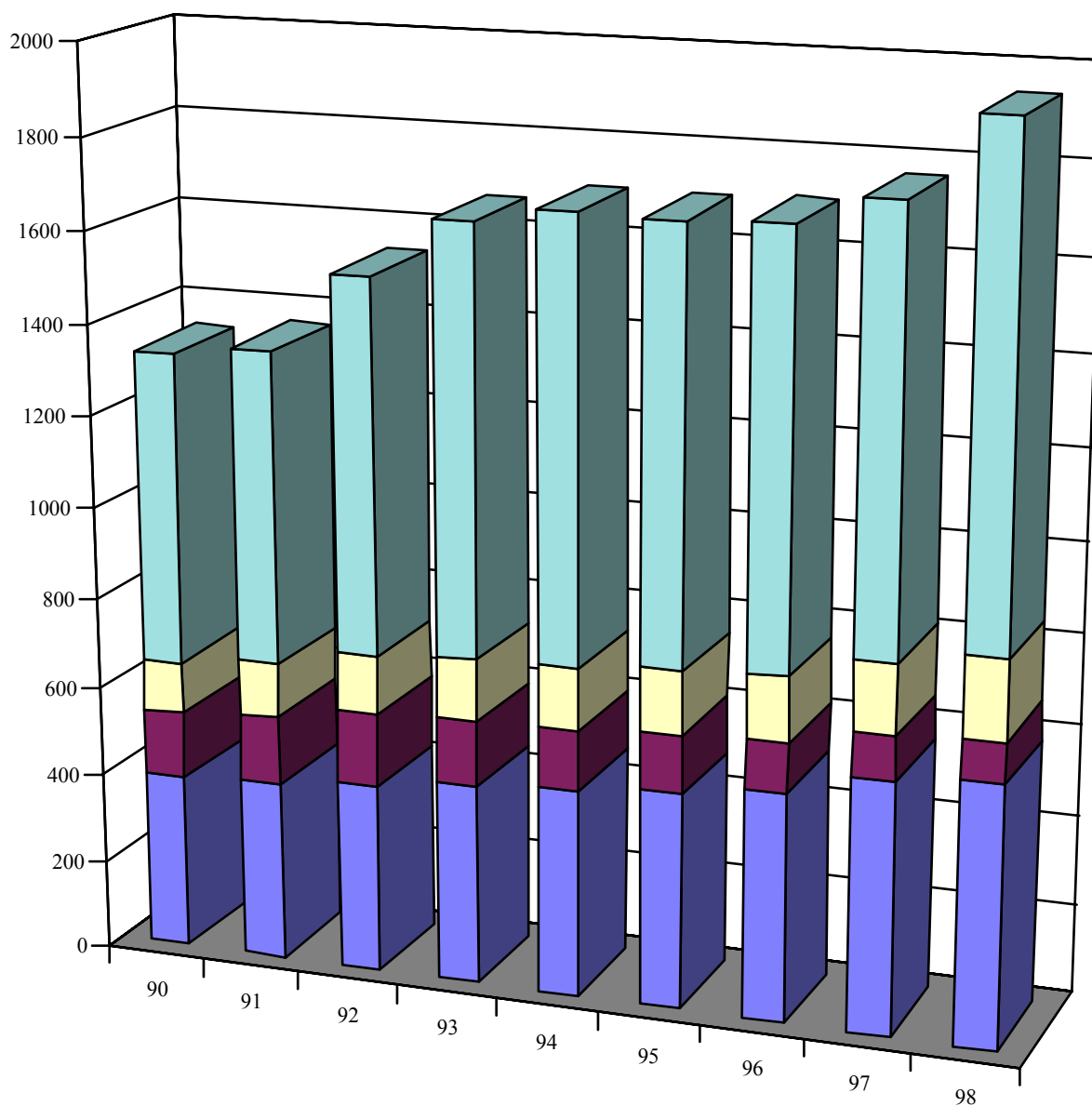
The Search for Jobs: CIA Estimate of Number of Young Males Entering the Labor Market Each Year



Adapted by Anthony H. Cordesman from CIA, World Factbook, 2002

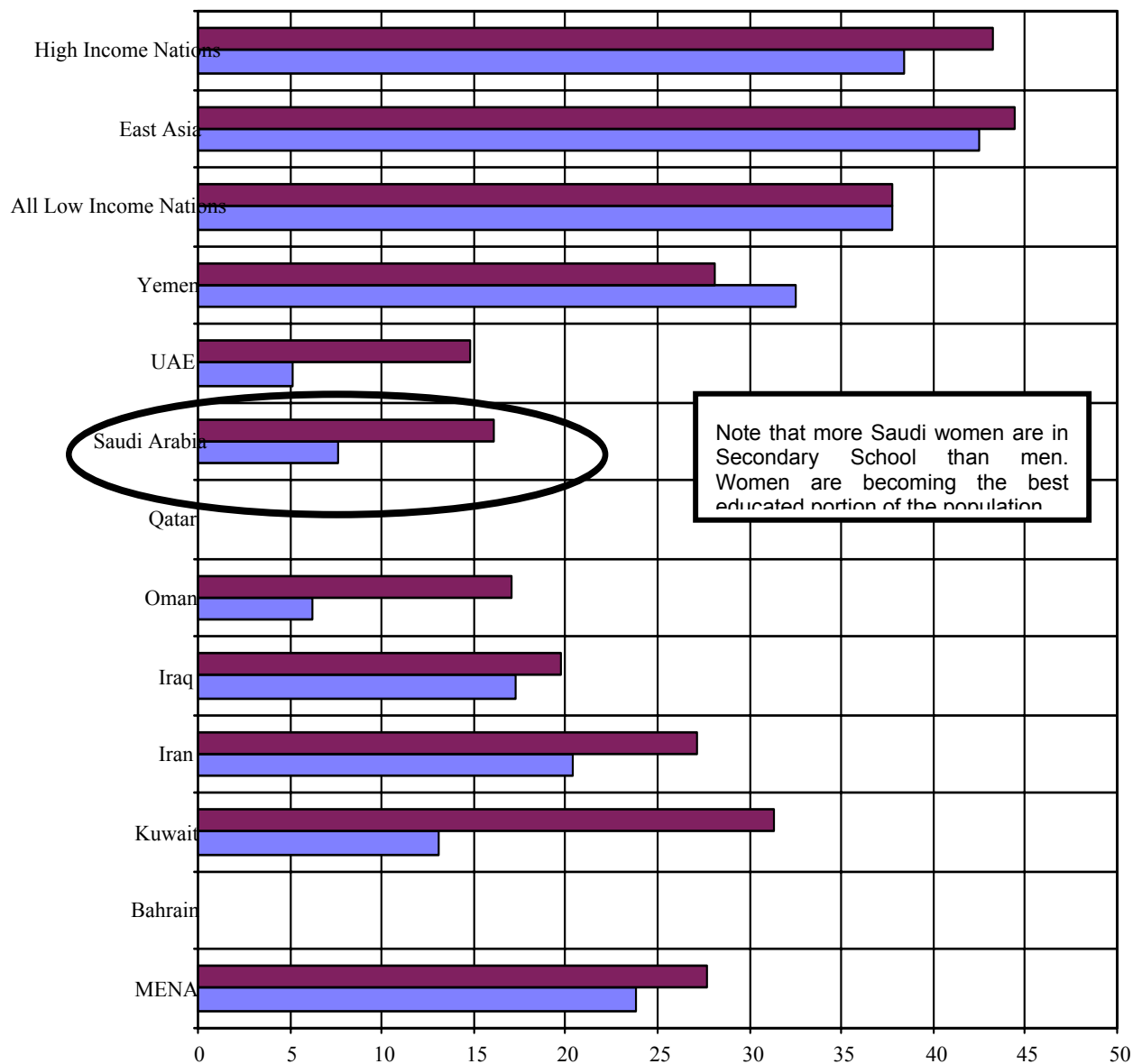
Chart 5.13

Recent Trends in the Saudi Labor Force: Saudisation is Failing in the Private Sector  
(In Thousands)



	90	91	92	93	94	95	96	97	98
Foreigners in Private Sector	686.2	686	822.2	938.1	964.4	945	940.8	949.6	1097.8
Saudis in Private Sector	114.2	122.2	128.9	136	137.1	137.6	142.7	155.3	173.6
Foreigners in Government	147.9	151.6	159.6	144.9	133	128.7	109.7	96	89
Saudis in Government	386.8	396.9	420.7	444.4	460.8	480.3	506.6	560.7	579.4

Adapted by Anthony H. Cordesman from data in Saudi Arabian Monetary Agency, *Thirty-Sixth Annual Report*, 1421H (2000G), Riyadh, SAMA, 2000, Tables 4 and 5, and population estimates taken from data provided by the US State Department.

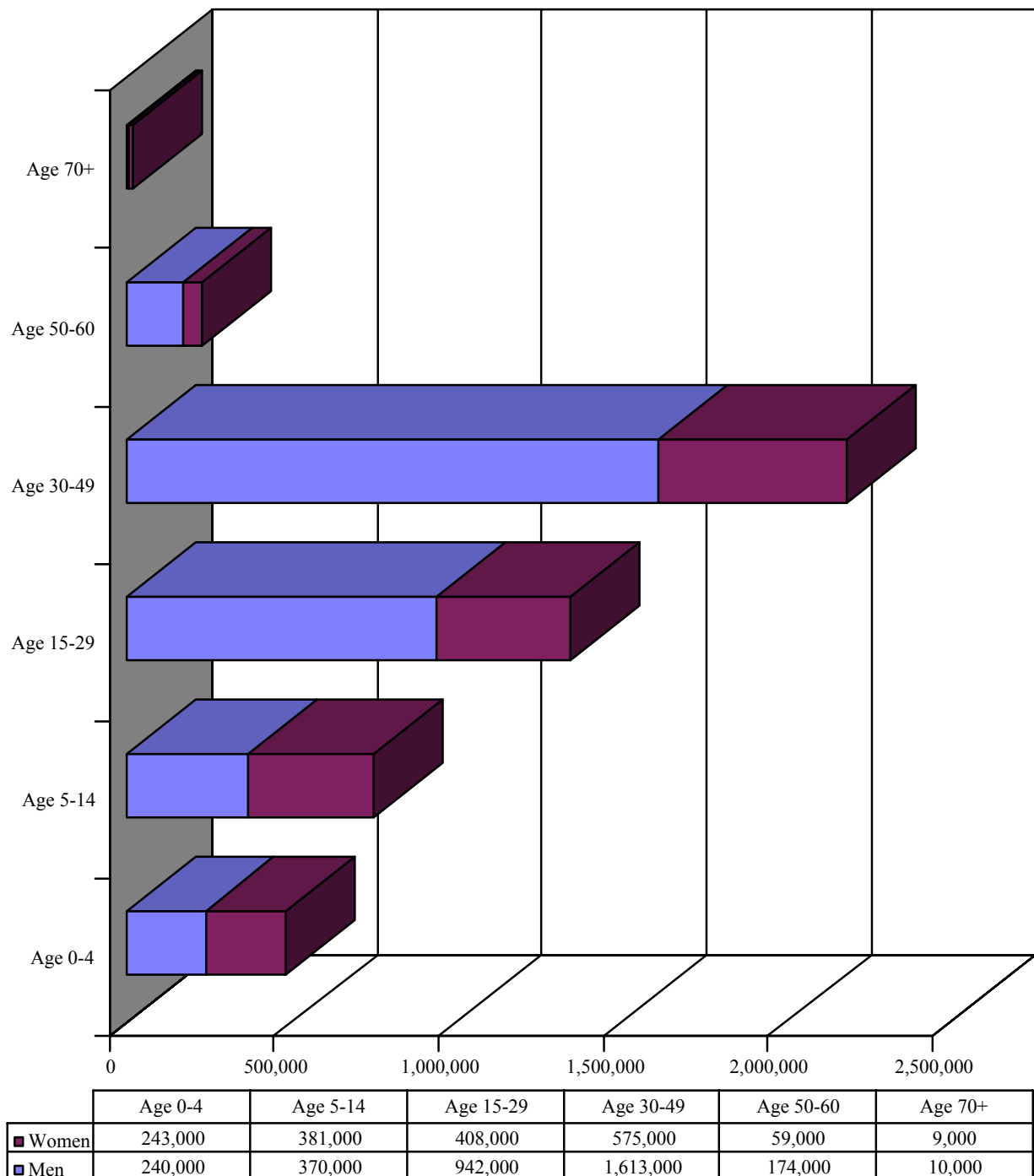
Chart 5.14Women as a Percent of the Labor Force: Pace of Social Change

	MENA	Bahrain	Kuwait	Iran	Iraq	Oman	Qatar	Saudi Arabia	UAE	Yemen	All Low Income Nations	East Asia	High Income Nations
■ 2000	27.7	-	31.3	27.1	19.7	17.1	-	16.1	14.8	28.1	37.8	44.4	43.2
■ 1980	23.8	-	13.1	20.4	17.3	6.2	-	7.6	5.1	32.5	37.8	42.5	38.4

Adapted by Anthony H. Cordesman from World Bank, World Development Indicators, 2000, pp. 46-48; World Bank, World Development Indicators, 2002, pp. 52-54.

Chart 5.15

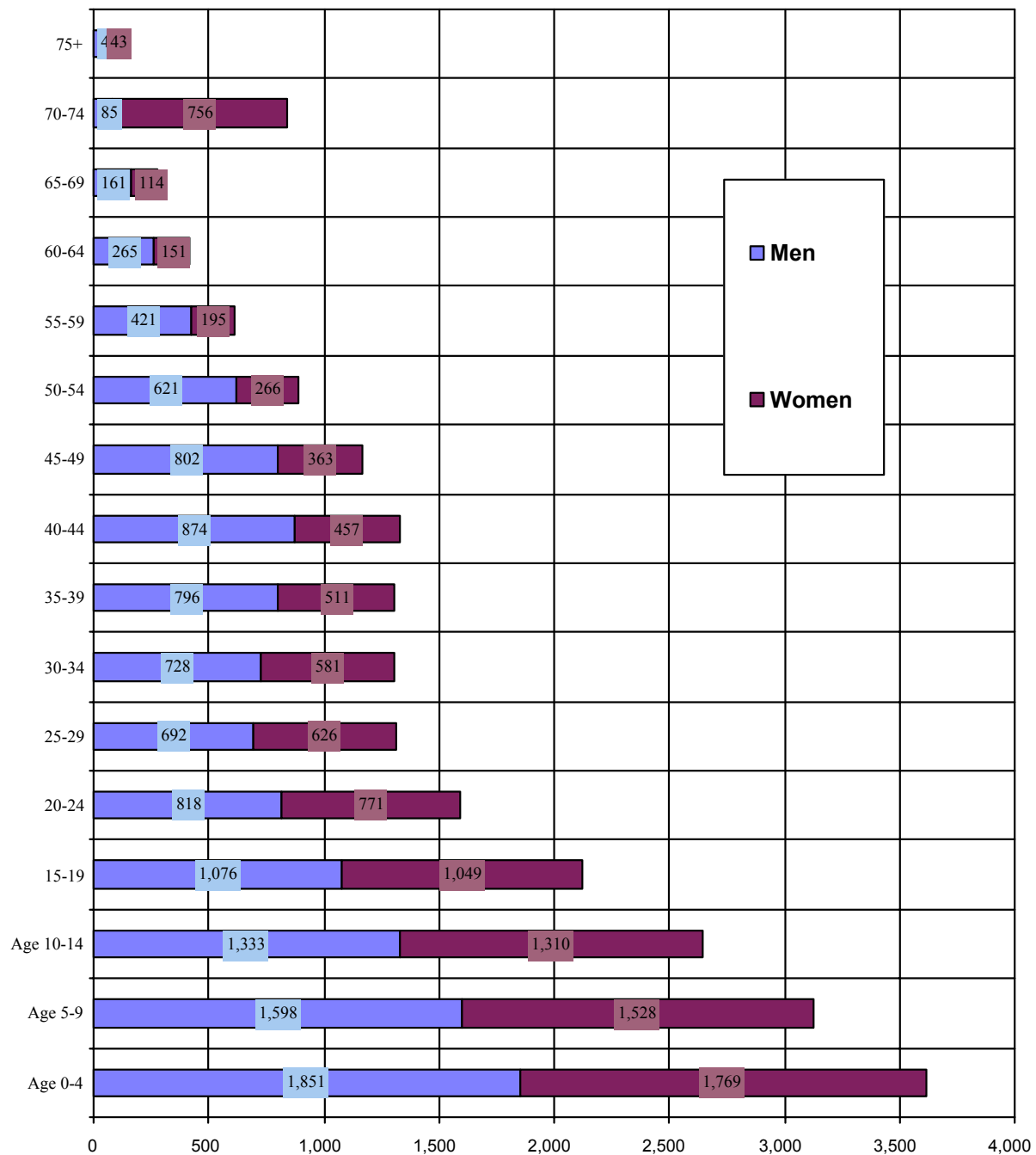
The Challenge of Saudisation is Greater than it Appears: Far Too Many Current Jobs are Now Held by Foreign Women, Many as Servants



Adapted by Anthony H. Cordesman from data in Saudi Arabian Monetary Agency, Thirty-Sixth Annual Report, 1421H (2000G), Riyadh, SAMA, 2000, Table 16.3.

Chart 5.16The “Youthening” of Saudi Arabia – Part One

US Census Bureau Estimate of the Distribution of the Total Native and Foreign Population by Age and Sex in 2000  
(In Thousands)



US Census Bureau, IDB Summary Demographic Data for Saudi Arabia, May, 2001, [www.census.gov/cgi-bin/ipc/idbsum?cty=SA](http://www.census.gov/cgi-bin/ipc/idbsum?cty=SA).

Chart 5.16The “Youthening” of Saudi Arabia – Part TwoSaudi Central Department of Statistics Estimate of the Distribution of the Total Native Population by Age and Sex in 2000

(In Thousands)

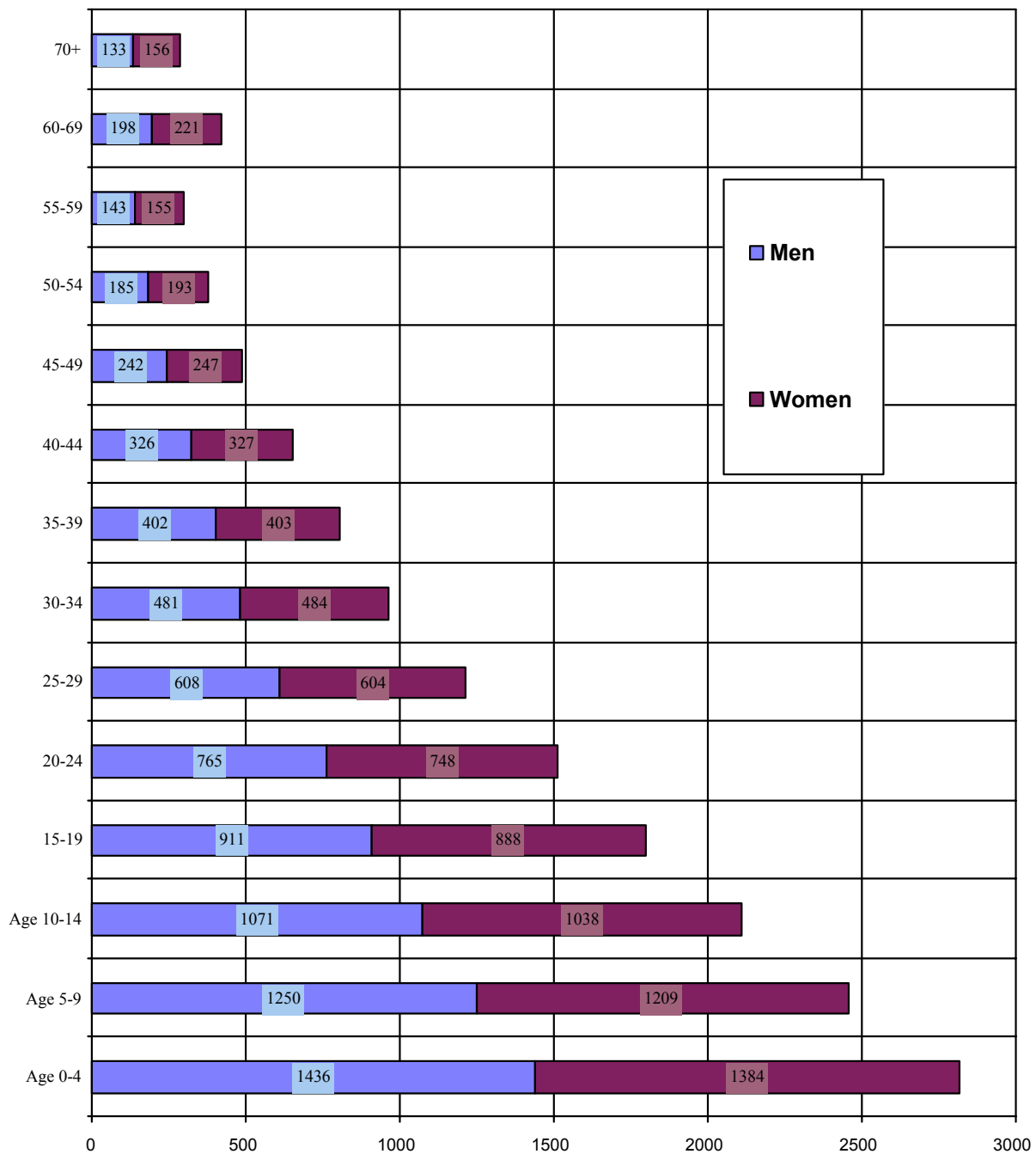
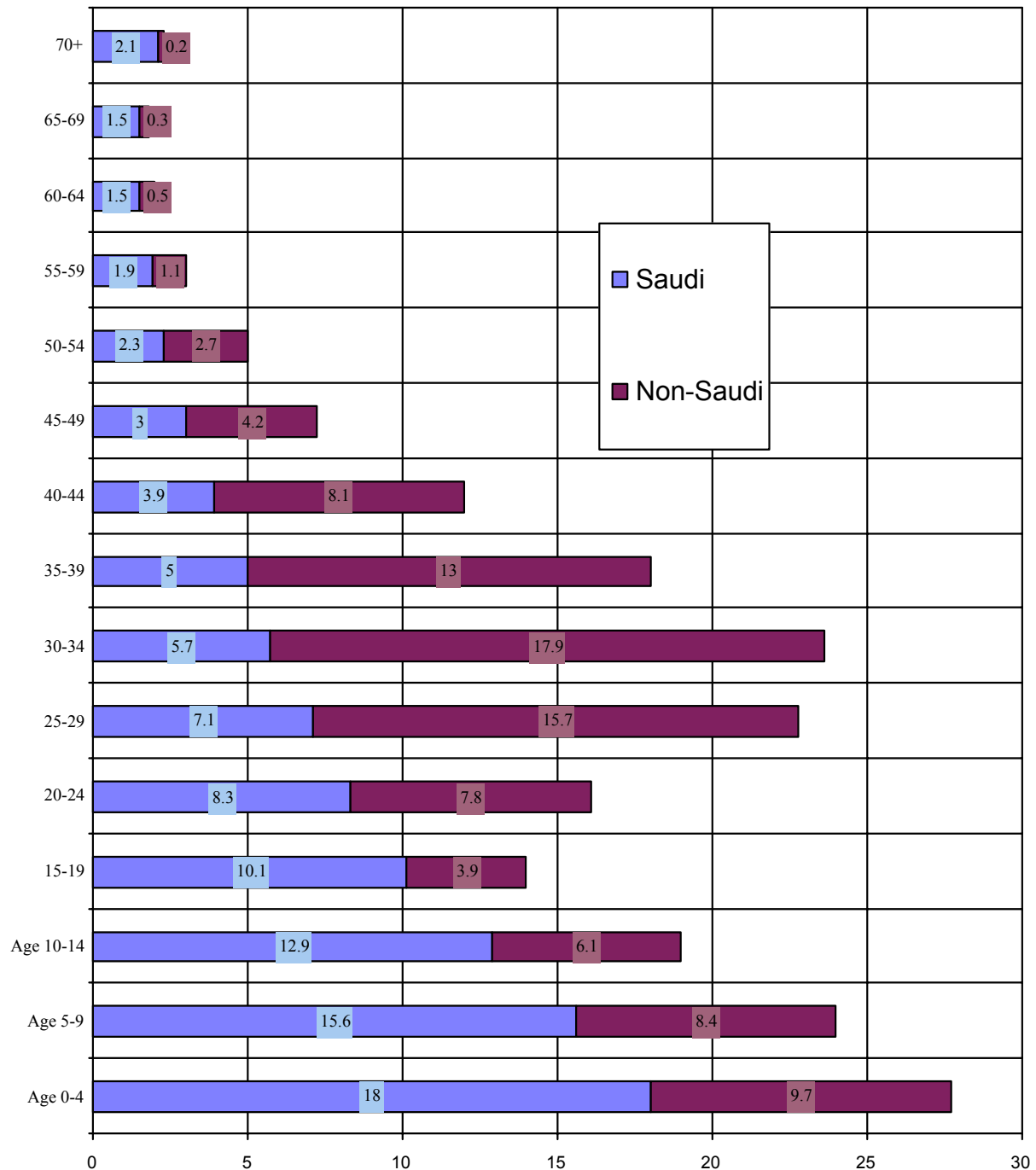
Source: Adapted from SAMA, 37<sup>th</sup> Annual Report, Riyadh, 2001, pp. 268-269.



Chart 5.17

The “Youthening” of Saudi Arabia: Saudi Estimate of the Distribution of the Total Native and Foreign Population by Age and Sex in 1999  
(In percent of total population)

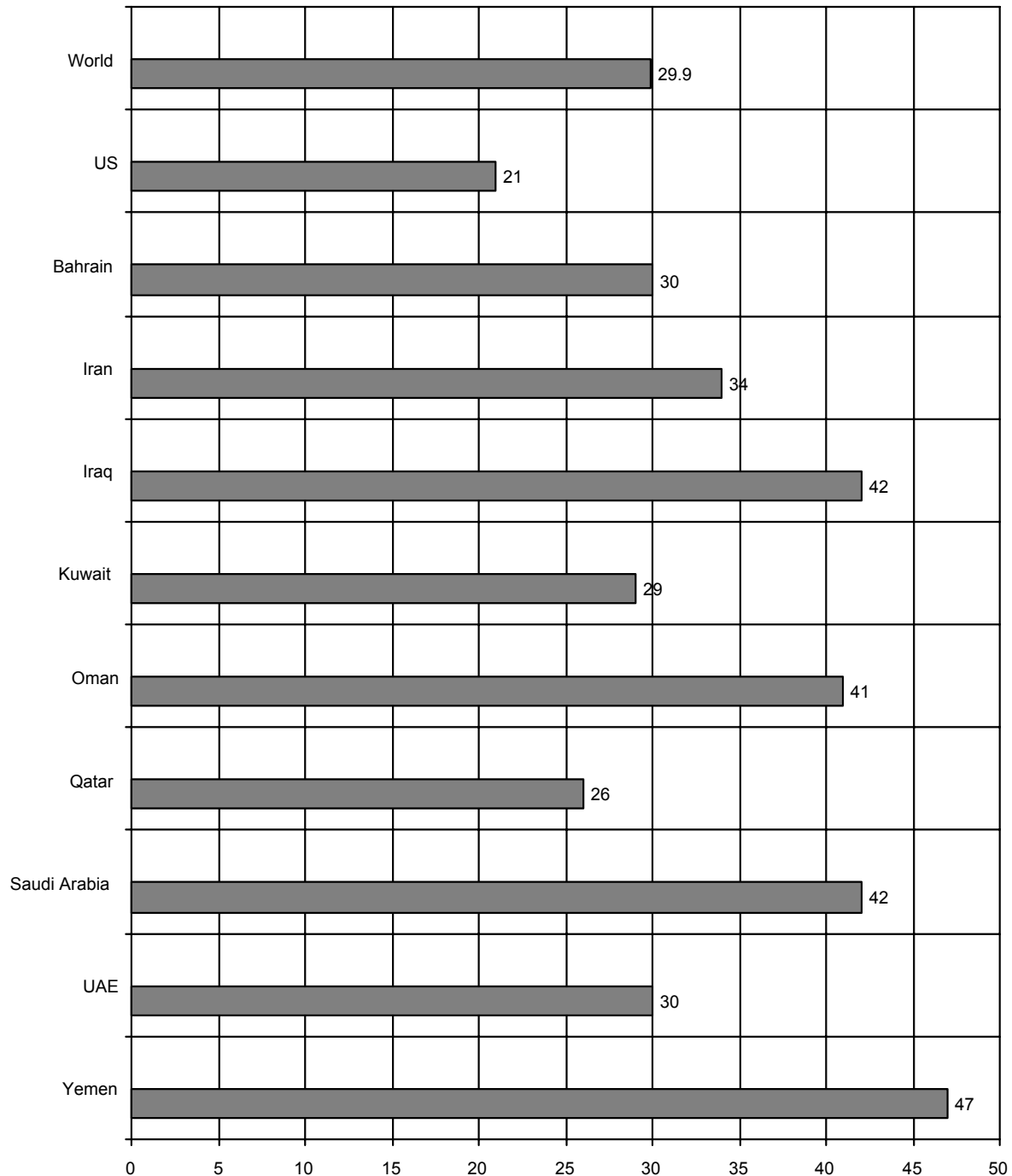


Adapted by Anthony H. Cordesman Saudi Arabian Monetary Agency, *Thirty-Sixth Annual Report, 1421H (2000G)*, Riyadh, SAMA, 2000, pp. 250-257; Saudi Arabian Monetary Agency, *Thirty-Seventh Annual Report, 1422H (2001G)*, Riyadh, SAMA, 2001, p. 268. Figures do not total 100% because they had to be extrapolated by the author from graphic data.

Chart 5.18

Population Momentum and Pressure on the Job Market: CIA Comparative Estimate of the “Youth Rate”

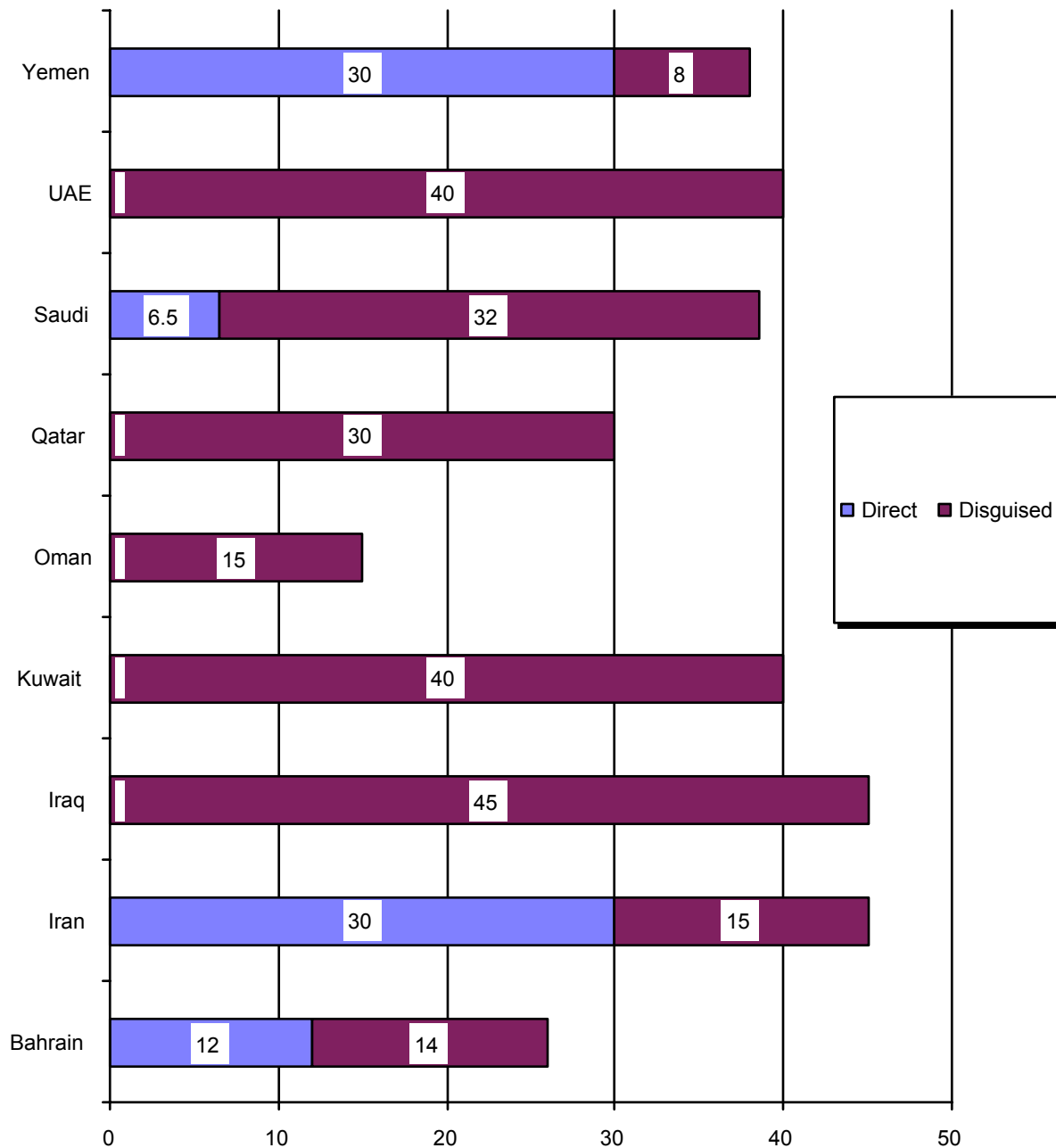
(Percentage of the Population Aged 14 Years or Less in 2002)



Adapted by Anthony H. Cordesman from CIA, World Factbook, 2002

Chart 5.19Estimated Comparative Direct and Disguised Unemployment Rate in the Middle East in 2001; ARough Estimate

(Rate measured in Percent)



Rough estimate by Anthony H. Cordesman based on CIA and World Bank staff working estimates. Disguised includes public sector, civil service, and private sector jobs with no use economic output.

## **Saudi Entitlements, Infrastructure, and Diversification Problems**

Population pressure puts increasing pressure on its national budget. It makes its subsidy and entitlement programs less and less affordable. It also puts a steadily growing pressure on Saudi Arabia's existing infrastructure while it creates a growing demand for rapid and continuing expansion. Saudi government sources do not always report on the relevant trends, and various Saudi sources report in ways that make it very difficult to track trends and estimate total costs. Nevertheless, the scale and importance of the problem is clear.

### **Pressure on Budgets and Entitlements**

Unlike most Middle Eastern countries, Saudi Arabia provides a wide range of detailed reporting on its budget. This reporting is not always consistent or transparent, particularly in the national security sector, and it is sometimes impossible to separate government operating expenses, spending on investment and economic development, and spending on entitlements. Chart 5.20, however, provides what seems to be a relatively accurate picture of how the total budget is currently divided.

There are several things about the data in Chart 5.20 that are important. There are no rules as to how given nations divide out their budgets. It is clear, however, that Saudi Arabia gives human services, welfare, and entitlements a high priority. Its direct spending on development and infrastructure is relatively low, but the public administration sector includes substantial investment expenditures, as well as spending on government operations and human services.

The data in Chart 5.20 only cover two years of spending and reflect a period of relatively high oil revenues. The year 2000 had particularly high revenues, and produced a significant increase in human services, welfare, and entitlements. Chart 5.21, however, shows just the opposite economic trends. It uses different reporting categories to show the cuts in both investment and entitlement expenditures that have to be made in a period of low oil revenues. A review of a wide range of Saudi budget data shows that the budget is comparatively inelastic in the short term: Cuts in revenue force cuts in outlays, even in human services and entitlements. At

the same time, the Saudi budget is less rigid in areas like social security, subsidies, health, etc. than the US budget.

Somewhat similar patterns emerge in social security and social insurance expenditures, although these expenditures have cumulatively increased over time. All social security assistance averaged about 1.3 to 1.5 billion Riyals during the late 1980s to early 1990s. It rose to 2.5-3.0 billion in the late 1990s, because of an increase in regular versus relief assistance in the mid-1990s.<sup>107</sup> The same is true of medical services and facilities, which did not grow in proportion to the population during the 1990s – although a very young population normally does not require high levels of medical services and such growth may not have been necessary.<sup>108</sup> As a result, there is only a rough correlation between some aspects of budget expenditures and population growth.

In broad terms, the Saudi government must increase its “Human Resource Development” spending as fast as young Saudis require such services. This not only has been the case in the past, but young Saudis can only compete for skilled jobs if such expenditures keep pace with the need for better education, medical services, etc. Since Saudi Arabia must also continue to provide better services for its existing population, this probably means an average real increase in spending on services of at least 5-7% will be needed for the next 10-15 years. This is not an inconsiderable pressure on the Saudi budget since such expenditures already consume more than 25% of the total. Such expenditures will also have to rise at levels that will be far more costly than any savings the Kingdom can make in subsidies and pure welfare.<sup>109</sup>

Similar patterns are likely to affect medical services, which will have to be expanded at a significantly faster rate by the late 2000s as today’s youth explosion begins to age enough to require significant medical care. The Seventh Development Plan attempts to address some of these issues by improving preventive health services, and enhancing the role of the private sector. It also calls for substantial increases in many medical facilities: Constructing 61 new hospitals and rehabilitation centers, 80 emergency centers, and 500 primary health centers, as well as adding 4,530 new hospital beds and opening 60 emergency centers that have been constructed.<sup>110</sup> Other Saudi data, however, indicates that such developments will at best cope with a backlog in improvements that were under funded in the 1990s.

Infrastructure, transportation, water, sewers, and power are other costly areas where the Kingdom must spend in proportion to the increase in its population. This spending must take account of the fact that much of the infrastructure bought before 1986 is now undersized or requires refurbishment. Further compounding the infrastructure problem is that the Kingdom has under spent in some areas over the last decade. As a result, the Kingdom will face steadily growing pressures on its budget for more than the next decade, unless it changes its revenues to include significantly higher levels of taxation or can make major cuts in defense spending.

## **The Challenge of Subsidies**

Entitlements are only part of the problem. The oil wealth that Saudi Arabia obtained in 1974 led it to establish many subsidies that still affect the Saudi budget.<sup>111</sup> Chart 5.22 shows the fluctuation over time in the cost of direct subsidies. A slightly more recent estimates puts the peak cost of subsidies at 12.1 billion in 1984, and then estimates that they declined to 5.3 Riyals in 2000.<sup>112</sup> The Saudi government reports that cuts have taken place in social security, foodstuffs, and electricity, and have had only limited increases in subsidies for farmers.

These figures, however, sharply understate the actual level of subsidies in many areas, including a variety of additional lands; pricing of gas and electricity well below the cost of investment and maintenance; under pricing of domestic petroleum products; and indirect subsidies, like agricultural loans and pricing water, at roughly 5% of its cost.<sup>113</sup> They also disguise the fact that the government limited some costs simply by not paying its bills until a sharp rise in oil revenues in 2000 allowed it to reduce some of its arrears by paying contractors and agricultural debts through a budget supplemental. Moreover, previously suspended subsidies were reintroduced when oil revenues once again rose. For example, the government reintroduced the barely subsidies in mid-2000 that it had suspended in 1998, at a cost of around 4 billion Riyals (\$1.1 billion) a year.<sup>114</sup>

The Kingdom has long subsidized low-cost utilities, low-cost fuel, telecommunications, and airfares. It has also provided highly subsidized or free housing, education, and medical services. It has created direct and indirect subsidies for many forms of Saudi businesses, through offsets, tariffs, and investment and partnership arrangements. The subsidies for electricity, fuel and petroleum products alone cost the government an estimated \$2.7 billion in 1997 in world

market prices. Diesel fuel, for example, sold for 8.59 cents per gallon in Saudi Arabia, although it costs 12 cents per gallon to produce.<sup>115</sup>

The Saudi government has taken some steps to reduce the burden of such expenses. It cut loans by government development agencies to agricultural, industrial, and real estate projects by one-third in 1994. Direct subsidies for electricity, which had risen from 2 million Saudi Riyals in 1974 to 3.1 billion in 1984, have averaged around 210 million since 1994 -- although these figures do not reflect massive indirect subsidies by underpricing electricity.<sup>116</sup> The Kingdom raised fuel prices two to four times in January 1995. The price of premium gasoline was increased by 82%, kerosene went up by 150%, diesel fuel went up by 250%, gas oil went up 353%. The price of fuel oil and natural gas still, however, remained at a small fraction of the normal world market price.<sup>117</sup> In January 1995, the Saudi government doubled gasoline prices to 50 cents per gallon. This rise generated up to \$2 billion in revenues a year.<sup>118</sup> In an attempt to generate more revenue, the Saudi government increased the price of natural gas by 50%.

Unfortunately, the rise in oil revenues in 1995 and 1996 brought a temporary halt to these measures. Like many governments, the Saudi government failed to persist the moment the problem eased, and actually increased some subsidies for education and health. It ignored advice from the IMF and US, and reverted to its boom and bust budgeting policies.<sup>119</sup>

It took the “oil crash” of 1997 to force the Saudi government to consider further measures, such as raising service fees, cutting other subsidies, and considering privatizing some state sector firms, such as SABIC. In late 1998, the cabinet approved the unification of four regional power companies and six smaller subsidiaries into the Saudi Electricity Company (SEC).<sup>120</sup> This is expected to begin a larger process that will restructure and privatize basic industries.<sup>121</sup> The government also capped some government expenditures and began reducing others. It introduced a massive rise in the visa fees for foreign labor and attempted to enforce foreign labor restrictions more seriously.<sup>122</sup> Saudi Arabia is also attempting to increase revenues by reducing state-subsidies on gasoline, diesel fuel, water, electricity, and air travel.

The Saudi government also discussed other cost-cutting measures, including the institution of a three-tiered system for public utility billing. This system offered the electricity and water generation sectors the potential ability to break even by charging high-end users

substantially higher rates. As will be discussed shortly, such a reform is critical not only because of its revenue impact, but because of the challenges the Kingdom faces in expanding and modernizing its infrastructure.<sup>123</sup>

In practice, however, oil export revenues rose sharply in 2000, and before the Kingdom took decisive action to reform prices and subsidies. As of April 2002, water was left at about 5% of market cost to most consumers, electricity was left sharply under priced, a rise in gasoline prices was rolled back, and natural gas continued to be sold at about 75 cents per million BTUs, about half the \$1.25 to \$1.40 cost in other Southern Gulf countries.



Chart 5.20Pressures on the Saudi Budget: How the Budget is Spent (1999-2000)

(In billions of Saudi Riyals)

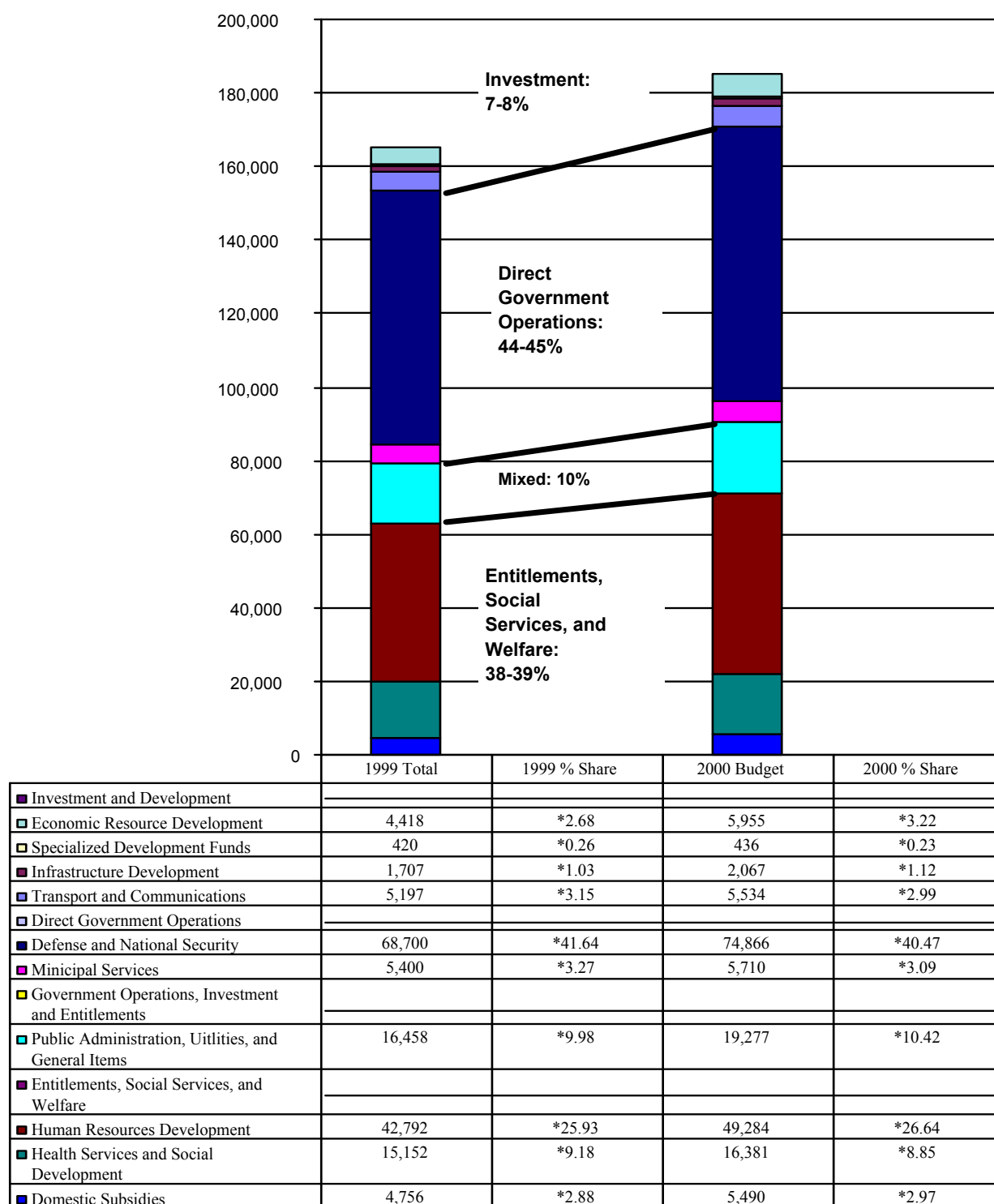
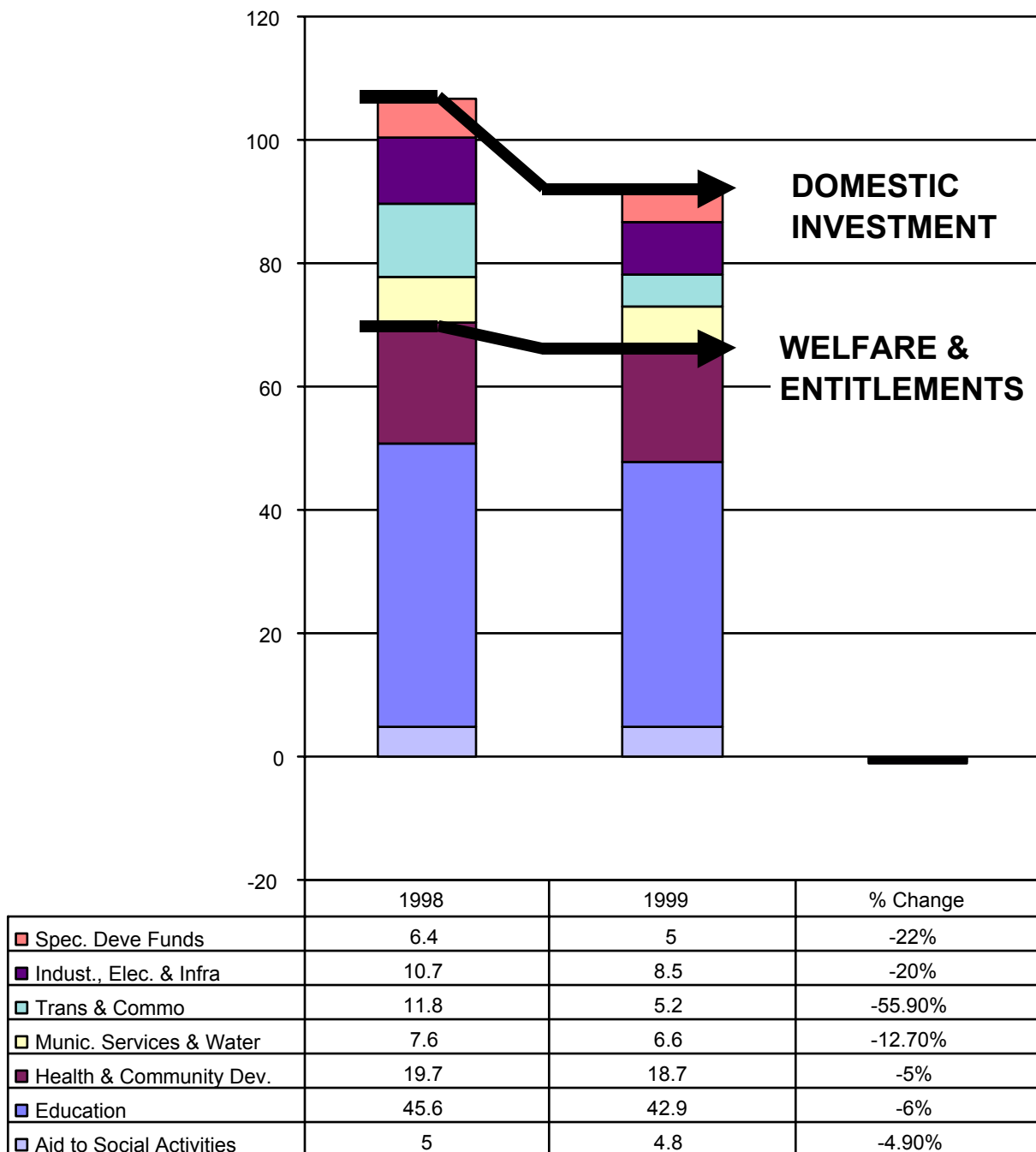
Source: Adapted by Anthony H. Cordesman from US-Saudi Business Brief, Winter, 1998, p. 1, and Reuters, December 28, 1998, 1728.

Chart 5.21

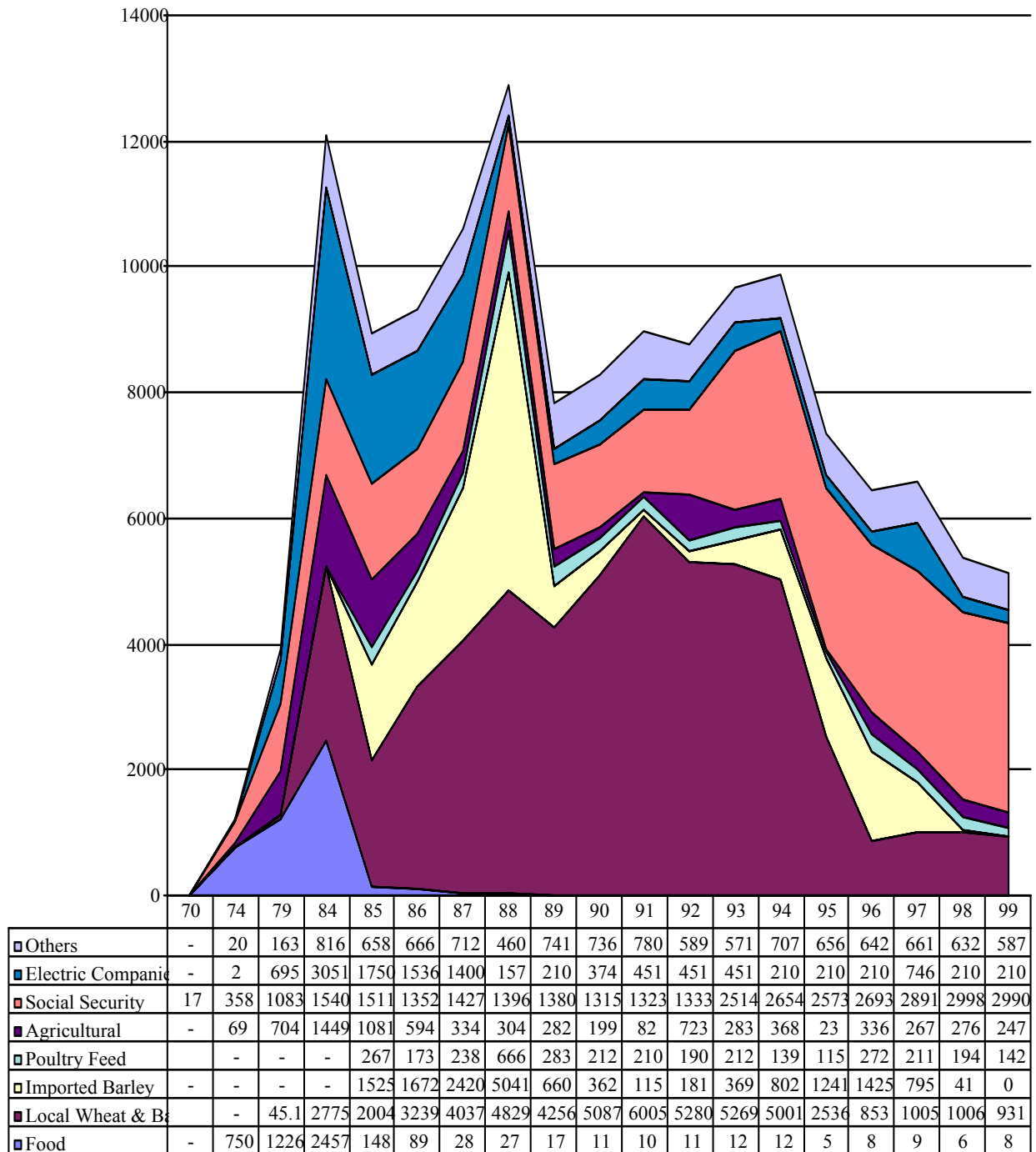
Pressures on the Saudi Budget: The Downtrend Following the Crash in Oil Prices in Late 1997  
(In billions of Saudi Riyals)



Source: Adapted by Anthony H. Cordesman from US-Saudi Business Brief, winter, 1998, p. 1, and Reuters, December 28, 1998, 1728.

Chart 5.22Pressures on the Saudi Budget: The Subsidy Problem Does Not Increase with Population but is Still Significant

(Million Riyals)



Source: Adapted by Anthony H. Cordesman from Ministry of Planning, Achievements and Development Plans, 1390-1420 (1970-2000), Riyadh, Ministry of Planning, 2001, Table Twenty-Six.

## Pressure on Infrastructure

The same demographic and economic factors affect infrastructure. While no precise figures are available, it is also clear that since 1990, Saudi Arabia has under invested in infrastructure. Indeed, it has built-up a substantial investment backlog in meeting its future needs for water, electricity, roads, housing, medical facilities, education, and every other aspect of the economic and social infrastructure of Saudi Arabia.

### Electricity as a Case in Point

Electricity is a good case in point. Saudi figures indicate that electricity demand increased by 35% in the period from 1990-1995. Annual per capita consumption increases by roughly one percent a year, and the number of customers increased from 2,815,500 in 1994 to 3,432,000 in 1999. The peak load increases from 17,373 megawatts to 21,927 megawatts during the same period. Total consumption increased at an annual rate of 4.2% during 1994-1998, while the peak load grew by an annual average of 2.7%.<sup>124</sup>

Population and economic growth will increase future demand at least as sharply. The World Energy Council forecasts an electricity demand increase from 22 gigawatts in 2000 to 58 gigawatts by 2020. The Seventh Development Plan estimated that total demand for electric power would grow at an average rate of 5.2% through 2004, and 4.5% per year through 2020. It estimated that 793,000 new customers would be created between 2000 and 2004, and that the peak load would increase from 22 gigawatts in 1999 to 28 gigawatts in 2004. It also estimated that the Kingdom would have to meet the needs of well over seven million new households by 2020.<sup>125</sup>

Charts 5.21 and 5.22 show some of its implications for Saudi Arabia. Meeting the rise in demand will be very expensive. According to some Saudi estimates, the economy must fund a rise in the total average need for electric power to over 60,000 megawatts in 2023. Saudi Arabia also must provide a massive additional capacity to meet the needs of peak periods, largely for air conditioning. This means an estimated need for up to 69,500 megawatts of total capacity. Put differently, this is an average increase of 1,500-2,000 megawatts, or at least one massive new generation facility, per year. Many studies also indicate that Saudi Arabia will need a natural gas

supply grid to meet the needs of its additional power stations, and consumer demand for thermal energy.<sup>126</sup>

Saudi figures indicate that meeting this need for power could require an investment of \$115 billion by 2020, with \$63.2 billion for generation, \$33.6 billion for new transmission capacity, and \$20 billion for upgrading the existing transmission system. The Saudi Ministry of Industry and Electricity has stated that an investment of \$117 billion is required over the next 24 years, averaging \$4.9 billion a year. According to some estimates 8-10 % of Saudi investments will have to be diverted to develop Saudi power generation capacity.<sup>127</sup> The Saudi government will face problems in self-financing such an effort, even though it is only one of the infrastructure problems the Kingdom faces. Others – like water – are easily as important.

This has led the government to employ financing mechanisms that are new to Saudi Arabia's electric power sector. For example, the PP9 power station in Riyadh is being funded with extra revenues generated by a special tariff imposed on heavy users since January 1995. Expansion of another power plant, Ghazlan, is being financed by an internationally syndicated commercial loan. Greater private sector involvement is planned for a 1750-megawatt Shuaiba power station project, which is being put out for bid on a build-operate-transfer basis. In addition, the Royal Commission for Jubail and Yanbu is launching a joint venture company to develop power and water utilities in Saudi Arabia's flagship industrial zones.<sup>128</sup> An estimate of the potential cost of this effort is shown in Chart 5.18.

A Swiss company, Asea Brown Boveri (ABB), has finalized an \$835 million contract to build the 1750-megawatt steam-powered Shuaiba power station. The contract involves the supply and installation of three 370-megawatt oil-fired generating units, with an option to build two more. The other two will become operational eight and 14 months after construction.<sup>129</sup> The power station is expected to increase the western region's capacity by 25%, and eventually to 50%.<sup>130</sup> A US firm, CMS Energy Corporation, is also reported to be the preferred bidder on a 320-megawatt privately owned power plant that is planned to be built at Jubail.<sup>131</sup>

The Saudi government faces the dilemma, however, that it is impossible to properly privatize a power, water, or gas industry that sells its output below cost. It is also impossible to convince foreign firms to invest, without guarantees that power will either be sold at market

prices or that the Saudi government can fund the resulting deficit. The government, therefore, not only faces the consequences of excessive population growth, but of a growth in demand based on years of subsidies and inefficient and wasteful use of power. It also faces the legacy of treating the nation's infrastructure as welfare, rather than as part of its economy, and of years of ignoring the need to create a strong private sector that the nation can rely on.

### **The Broader Infrastructure Problem**

Electricity is only one of the more dramatic aspects of the Saudi infrastructure problem. Saudi Arabia must finance similar investments in ports, roads, oil production and distribution, housing, education, etc., as well as in the physical plant to meet its social needs, and do so at a time when much of its earlier investment in infrastructure no longer meets current need or requires major renovation and modernization. One estimate indicates that Saudi Arabia will need 4.5 million additional housing units at a cost of \$261 billion, plus 22,500 new primary schools, 6,000 institutes of higher education, 5,400 clinics, and 360 hospitals.<sup>132</sup>

The effort to meet these goals and needs will again interact with the problems inherent in a declining real per capita income. Unless Saudi Arabia reduces both its population growth and dependence on foreign labor, current projections indicate that petroleum wealth per capita could drop by another 10%-20% by the year 2010. Even though Saudi Arabia will probably receive much higher total oil revenues in the future, a combination of increased population and increased development and production costs will outstrip that growth.

The Seventh Development Plan does, "stress...achieving continuous expansion of infrastructure facilities in a manner than conforms with growing demand for them arising from the steady population growth, and contributes towards preparing a conducive environment for the growth of all sectors of the national economy. The plan also gives attention to the maintenance of the existing infrastructure to upgrade the operational efficiency of the productive assets in addition to boosting the role of both preventive and normal maintenance in elongating the operational life of these assets."<sup>133</sup>

With regard to infrastructure, the plan sets the following main objectives:

- Preserve and maintain transport facilities.

- Achieve equilibrium between an adequate expansion of the domestic and international transportation network and expected demand and trends in traffic flow, taking into account safety aspects as well as the reduction of adverse impacts on the environment.
- Asphalt 1,600 kilometers of main municipal roads and 11,000 kilometers of secondary municipal and rural roads.
- Provide a modern telecommunications infrastructure within an integrated digital network for fixed and mobile services as a basis for the provision of all domestic and international services.
- Exert ongoing efforts to improve the productivity as well as the economic and financial performance of the telecommunication and postal services.
- Encourage private sector investments in telecommunications services and the establishment and operation of networks.
- Improve the operational efficiency of municipal facilities, infrastructure, and services, and ensure optimal utilization.
- Provide and develop residential lands in suitable locations. Provide about 110 million square meters of residential land to meet the demand for housing at a rate of 22 million square meters a year.
- Provide 57,000 loans for construction of 70,000 housing units at a total cost of 15.7 billion Riyals.
- Finalize feasibility studies of new projects and expansion of the railroads.
- Link more cities and villages to the main road network.
- Increase telephone service coverage to reach at least 22-25 lines per hundred people. Eliminate waiting lists, and eliminate disparities in the rate of coverage and service between urban and rural areas.

In broad terms, however, the Seventh Development Plan provides no real details as to how it will achieve its objectives, no real cost estimates, and no estimates of performance relative to need. It also often shifts much of the burden to the private sector without indicating whether market forces create the necessary incentives or what level of economic reform is necessary to both incentivize and allow the private sector to act. In general, it does a far better job of describing how well the Kingdom met the goals of the Sixth Development Plan than describing what the Kingdom needs to accomplish during 200-2004, and it provides no long-term view for the future. As is the case with most other aspects of the plan, goals and actions for 2000-2004 are never put in the context of long term need and costs, and overall efficiency in meeting both short and mid term goals.

The plan's goals are good ones, but the proposed scale of effort seems likely to lag behind the growth of the population and demand in many areas, and there is often a tacit emphasis on privatization to provide expanded services without addressing the practical details,

or how this would affect the cost of now-subsidized services. There is no analysis of the level of investment required or whether Saudi revenues and budgets can realistically provide the money required.

## **The Interaction Between Demographics, Water, and Agriculture**

Water is both a Saudi economic problem that inevitably grows with population, and a major Saudi strategic vulnerability. Saudi Arabia's annual rainfall is less than 100 millimeters in most areas. It has only about 2.33 million cubic kilometers of internal renewable water resources. These water resources provide only minimal amounts of water even for Saudi Arabia's current population. They total about 156 cubic meters per person -- less than one-seventh the total for a citizen of the US.

About 82% of Saudi Arabia's total present water use consists of non-renewable or "fossil" water obtained from deep wells, 14% is surface and shallow ground water, 4% is obtained from desalination, and less than 1% is reclaimed or treated water.<sup>134</sup> At least some of Saudi aquifers are already increasing in saline content. Saudi Arabia steadily increasing its number of dams, and has some 22 ongoing dam projects plus plans to build 62 more but these have limited value in a country with no major rivers and such limited rainfall. Saudi Arabia also produces some 1.5 million cubic meters of waste water a day, but only 340,000 cubic meters is used for agricultural purposes – around 23%.<sup>135</sup>

The Seventh Development Plan, however, projects a continuing massive increase in Saudi Arabia's water needs.<sup>136</sup>

- The total demand for water is projected to increase from 21.1 billion cubic meters in 2000 to 22.5 in 2004, and 27.8 in 2020. Water demand is estimated to increase by an annual average of 1.3% during 2000-2004 and 1.4% during 2000-2020.
- Domestic demand for water is projected to increase from 1.8 billion cubic meters in 2000 to 2.0 in 2004, and 3.10 in 2020. Water demand is estimated to increase by an annual average of 2.4% during 2000-2004 and 2.8% during 2000-2020.
- Industrial demand for water is projected to increase from 0.47 billion cubic meters in 2000 to 0.60 in 2004, and 1.66 in 2020. Water demand is estimated to increase by an annual average of 5.0% during 2000-2004 and 6.5% during 2000-2020.



- Agricultural demand for water is projected to increase from 18.8 billion cubic meters in 2000 to 19.9 in 2004, and 23.0 in 2020. Water demand is estimated to increase by an annual average of 1.1% during 2000-2004 and 1.0% during 2000-2020.

Saudi Arabia's rapid increase in population is causing its natural water resources per capita to drop sharply. The World Resources Institute and the World Bank estimate that Saudi natural per capita water resources dropped from 537 cubic meters in 1960 to 156 cubic meters in 1990 and will drop to 49 cubic meters in 2025. The government has raised water prices in recent years, but Saudi Arabia still wastes nearly 90% of its natural water on agriculture, versus 6% for domestic needs and 2% for industry because of government subsidies.<sup>137</sup> Agriculture used a total of 18.3 billion cubic meters of water in 1999, with about 8 billion cubic meters coming from renewable and surface water sources, and 0.1 billion cubic meters coming from sewage water. The remaining 88% of total consumption came from non-renewable ground water sources.<sup>138</sup>

Saudi Arabia must depend on an extensive system of desalinization plants for its drinking water. The production of such desalinated water increased from only 4.4 million gallons per day in 1970 to 491.6 million gallons per day in 2000. Saudi production accounted for 30.2% of all world production from such plants in 2000, and the Kingdom's growing dependence upon their production made them potentially lucrative military targets whose importance will increase with time.<sup>139</sup>

A separate agency called the Saline Water Conversion Corporation (SWCC) operated some 27 plants in 2000 that produced 827 million cubic meters a year. There were four major plants along the eastern coast at Jubail, and Al Khobar that produced a total of 441.8 million cubic meters in 2000, and 23 plants along the western coast that produced 385.4 million cubic meters. (The Red Sea plants include two facilities to service Jubail and Madinah, plus facilities to serve at Jeddah, Makkah, Tair and the Assir, plus other smaller facilities for Wajh, Duba, Khafji, Umluj, Firsan, Hagl, Rabigh, and Bark.

The growth of the Saudi population, economy, and agriculture, has led to the almost constant construction of new plants and pipelines, and output increased by over 29 billion cubic meters between 1998 and 1999. There were three major projects under construction in 2000.<sup>140</sup> Saudi near-term plans call for a total of 30 plants, with 24 on the Red Sea Coast and six on the

Gulf Coast. They will produce 2.9 million cubic meters of water a day, and 3,400 megawatts of electricity.

The pipeline network needed to distribute such water will grow to well over 4,000 kilometers with 29 pumping stations, 10 blending stations, and 164 storage tanks, with a capacity of over 9 million cubic meters.<sup>141</sup> Some key pipelines – such as Jubail to Riyadh – are over 400 kilometers long and are already beginning to show their age.<sup>142</sup> The partial failure of one pipeline caused serious water problems in Riyadh in 2001, and similar problems could occur in Jeddah. Sewer construction has also lagged behind in some areas, and presents an additional problem. The SWCC also recognizes that the majority of existing water facilities will reach an age where capacity begins to drop by 2050.

At the same time, some 75% of the water in the central and eastern regions still comes from non-renewable underground lakes. These reserves will be exhausted within 80 years at present rates of water usage – if not substantially sooner. The Kingdom is very reluctant to talk about increasing problems with the salinisation of its aquifers. <sup>143</sup> This depletion of natural water will eventually confront Saudi Arabia with far more serious problems than it faces today.<sup>144</sup>

The Kingdom's problems have been made much worse by creating a level of demand for water that in no way reflects its cost. Saudi Arabia has long treated the pricing of water as if were virtually free. In 1998, it officially sold for about 0.3 Riyals (\$0.08) per 35 cubic feet. This was less than 50% of the price of recovering all production, distribution, and maintenance costs, and many homes and businesses were never billed at all. In 2001, water rates still ranged from SR 0.1 per square meter (\$0.26) to SR 6.0 per square meter (\$0.26), where water consumption exceeded 300 square meters a month—although the higher rate was rarely charge and must industries paid different rates. As a result, water use is extraordinarily high for a nation with Saudi Arabia's overall level of economic development. Many experts feel it averages about 90 gallons per person per day—about twice the international average.

### **Water and the Goals of the Seventh Development Plan**

The Saudi Seventh Development Plan places particular emphasis on the water sector, but does not address key issues like allocation and cost. It sets the following objectives:

- Continue to supply potable water in sufficient quantities and good quality.
- Make water a basic factor and significant criterion in assessing the economic efficiency of public and private projects.
- Preserve water resources and rationalize water consumption.
- Enhance the private sector's contribution in the management, operation, and maintenance of water facilities.

The plan calls for the construction 2,500 kilometers of new water networks, replacing 2,000 kilometers, and implementing 130,000 domestic water connections. It also calls for the construction of 62 large, medium and small dams; completing construction of 22 dams, and renovating 25 dams. It would establish 12 new desalination plants with a total design capacity of 2.1 million meters of water and 2,502 megawatts of electricity. The plan gives a new priority to the use of waste water and would construct 2,800 kilometers of waste water networks, implementing 170,000 domestic waste water connections and building treatment plants with a capacity of 450,000 cubic meters a day. Special attention is given to Riyadh, which has limited surplus capacity and which has had water problems. A new transmission system would be made to provide 360,000 cubic meters of water a day from Al Hani.

Some estimates indicate that the total capital cost of meeting 50% of individual demand for water (300 liters per day per person) through desalination will total 46.5 billion Riyals (\$12.4 billion) through 2020. The average expenditure will be around 2.3 billion Riyals a year, or \$620 million.<sup>145</sup> These estimates seem low. The SWCC estimates the total cost of meeting the Kingdom's growing demand for desalinated water alone at \$54 billion by 2020.

A Saudi briefing issued in April 2002 -- based on Ministry of Agricultural and Water figures -- indicated that Saudi water consumption would rise from 7 million cubic meters per day in 2002, to 11.3 million in 2022. This was based on estimated population growth from 23.4 million in 2002 to 38-48 million in 2022, with a nominal estimate of 43.0 million. The cost was estimated to total of 180 billion Riyals from 2002-2022, including funding the construction of new desalination plants and rehabilitating old ones, along with costs for operations and maintenance. This effort, however, would only be part of the story. Preserving natural (brackish) water supplies and wellhead supplies will cost another 70 billion Riyals, providing increased distribution will cost 40 billion Riyals, and providing modern sewage and waste water recovery

capability with cost 130 billion Riyals. The total price of future water related projects will be 400 billion Riyals.<sup>146</sup>

### **The Impact of Agriculture**

Desalination is only part of the water problem and there is a clear interaction between the misallocation of water and a poorly managed Saudi agricultural policy. A great deal of Saudi Arabia's total water supply water still goes to subsidized agriculture because Saudi concerns over the Kingdom's growing dependence on Western food led to a policy of "self-sufficiency" in the 1970s that Saudi Arabia has pursued ever since.<sup>147</sup> Agriculture uses about 18,000 million cubic meters of water a year, but renewable underground water can only meet about 40% of Saudi needs.<sup>148</sup>

This policy led Saudi Arabia to begin paying massive subsidies for advanced modern farms at a time when most Bedouin and rural small farmers were finding other forms of work. Between 1970 and 1997, subsidies to agriculture made up about 55% of total government subsidies.<sup>149</sup> Although the total percentage of the work force devoted to agriculture dropped by over 60% from 1970-1995, the amount of cultivated land rose from only 0.5 million hectares to 1.6 million, the milling capacity of Saudi flour mills rose to 1.35 million tons, and Saudi Arabia invested in enough grain silos to store 2.38 million tons.<sup>150</sup> Saudi estimates indicate that between the years 1985 and 1990, agricultural production grew by an average of 13.4% a year.

Although Saudi Arabia claimed it had become self-sufficient in wheat as early as 1984, this did not stop the expansion of production. Saudi grain production rose from 258,000 tons in 1980 to a peak of 5.3 million tons in 1993 -- and the cost of direct agricultural subsidies rose to more than \$2 billion a year.<sup>151</sup> This increase took place even though the government cut its subsidy in half in 1984. The subsidy was so high that farmers invested in increased productivity and raised their yields from 2.12 tons a hectare in 1980, to 4.7 tons in 1988.<sup>152</sup>

Government aid also encouraged the excessive use of water by providing virtually free deep wells and low cost diesel fuel for pumps. These subsidies supposedly were reduced in 1995, but costs remained so far below free market prices that farmers had little reason to be efficient. Total water use increased from 643 billion cubic feet in 1994 to 653 billion cubic feet a year in 1996. This produced so much wheat that Saudi Arabia was exporting 600,000 tons by 1988, and

a peak of 2.4 million tons in 1992. Every ton exported cost the Saudi government a loss of \$300.

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The government reacted by sharply restricting its wheat subsidy and setting limits on what it would purchase from each farmer. As a result, wheat cultivation dropped from 907,000 hectares in 1992 to a low of 268,000 in 1996, and output from a peak of 4.07 million tons to 1.2 million. This, however, brought the total below the 1.8 million that Saudi Arabia had stated it needed for self-sufficiency. It also shifted production to crops that still had subsidies, like barley and alfalfa. The government left the price of barley at 267 Riyals per ton, and production rose from 73,000 hectares during 1991 to 317,000 hectares in 1994.

This shift increased water demand because barley used more water than wheat, and forced the government to make the same kind of cutbacks in barley purchasing in 1995 that it had previously made for wheat. By 1997, both wheat and barley production was rising again, and farmers were also increasing output for animal forage -- which used more water per hectare than either wheat or barley.<sup>154</sup>

The government did cut subsidies in 1998, because of the “oil crash,” but restored them in 2000 after a major rise in oil revenues. Ironically, the low price of water and other agricultural subsidies also led some farmers to go back into wheat. While the number of wheat farmers shrank from a peak of around 32,300 in 1994 to 14,200 in 1998, deliveries to the Saudi Grain Silos and Flour Mills Organization rose back to 1.7 million tons in 1998.<sup>155</sup>

Moreover, the Saudi Sixth Development Plan called for still further increases in agricultural output during 1996-2000. The output of the agriculture sector was supposed to increase at an average rate of 3.1% per year, and its value from 31.9 billion Riyals to 39.5 billion. This represented a cumulative increase of 24%.<sup>156</sup> This somewhat quixotic quest continues in the Seventh Development plan, with the goal of increasing agricultural output by 3 percent.<sup>157</sup> The Saudi Agricultural Bank alone paid some 6.6 billion Saudi Riyals for agricultural loans and subsidies in the 1999, most of which were short-term loans to finance operating expenses. This brought the total loans dispersed to a value of over 31 billion Riyals. By 1999, the government had also distributed some 2.9 billion hectares of fallow land. The fact that this

distribution went to over 90,000 individuals, and 18,800 agro-businesses, also created a growing constituency for agricultural and water subsidies.

Ironically, Saudi dependence on food imports has continued to rise because of the steady increase in population and a Saudi shift towards a more varied diet. Food imports rose in value from around \$3.5 billion in the early 1990s to around \$7 billion in 1997. According to the Ministry of Agriculture and Water, Saudi Arabia claims it is self-sufficient in wheat, dates and eggs and has high rates of sufficiency in many other areas. However, many of Saudi Arabia's claims of self-sufficiency in specific crops have a touch of absurdity. For example, Saudi Arabia has stated it is nearly self-sufficient in lamb, chicken, eggs, and milk. This "self-sufficiency was dependent on oil exports, so that the government could subsidize at least 65% to 75% of the total cost.<sup>158</sup> Furthermore, virtually all of the feed for Saudi Arabia's "self-sufficient" chickens is imported.<sup>159</sup>

### **Sustaining a National Water Problem**

The end result is a set of Saudi policies that mix the need for the constant expansion of desalination facilities with failed agricultural policies and massive and unnecessary problems in water use. The Kingdom remains largely in denial, however, about both the cost of treating water as a human right without seeking efficiency and recoupment of costs, and pursuing agricultural policies that are almost as silly in their own way as the very different kind of subsidies provided in the US and EU.

Saudi experts believe that Saudi Arabia can continue meet future demand for water, but question the efficiency of several important aspects of the Saudi effort:

- Whether water, pipeline, and sewer development and renovation projects will be begun and completed on time.
- Whether serious action will be taken to make water use and costs a basic criterion in assessing the economic efficiency of public and private projects.
- Whether the Kingdom can ever bring its water and agricultural policies into a cost-effective balance.
- Whether water will ever be priced in ways that both make use efficient and ensure suitable facilities can be funded without increasing the burden on the public.

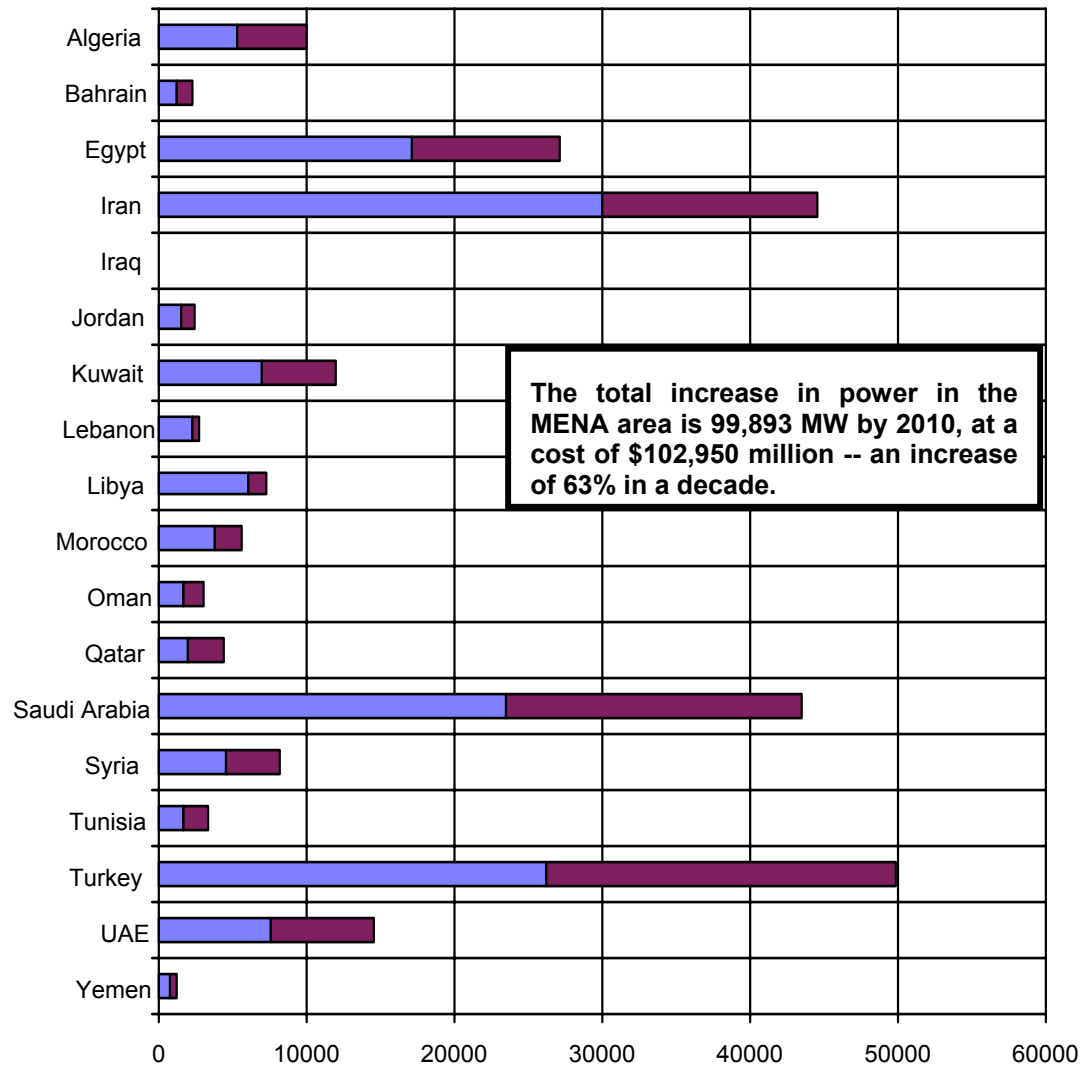
Saudi Arabia does recognize that it has not properly funded the maintenance and expansion of its pipeline system and faces a major future challenge both in funding such plants and in creating an effective management structure to ensure reliable service. As a result, it took water out of the functions of the Ministry of Agriculture in July 2001, and created a new Ministry of Water. This Ministry is responsible for oversight of water facilities, research of water resources, responsibility to establish water and sewer networks throughout the country, distribution of water resources, and regulation of water supplies. It is tasked with creating a new administrative structure for water tariffs and collecting fees.<sup>160</sup>

It also is responsible for financing, implementation, operation, and maintenance of water projects by the private sector. It also will issue licenses for new construction of water projects. This includes a shift to public-private partnerships to fund, undertake, and operate water projects. For example, the Kindasa Company has become the Kingdom's first fully private water utility company with its own desalination plant and sells over 10,000 cubic meters a day of water to private industry, with plans to expand to 60,000 cubic meters a day. The Jeddah Holding Corporation has requested a \$6 billion concession to expand water and sewerage services in Jeddah through 2020, and proposals have been forwarded to the Saudi Privatization Committee. Potential international investments could come from firms like Sumitomo, Ondeo, Vivendi, and Doosan Heavy Industries.

Far more cost-effective approaches to water may be possible if the government acts decisively. The actual appointment of a water minister, however, took until September 2002, and the appointment was the ambassador to the United Kingdom, ghazi al-Gosaibi who had come under political fire for publishing a poem praising Palestinian suicide bombers. He will also chair the SWCC, and this raises questions about how serious the Kingdom is in making the kind of hard choices it needs to make about water policy and prices.<sup>161</sup>

Chart 5.23

The Infrastructure Challenge will Be Acute During the Coming Decades: Electric Power as a Case Example



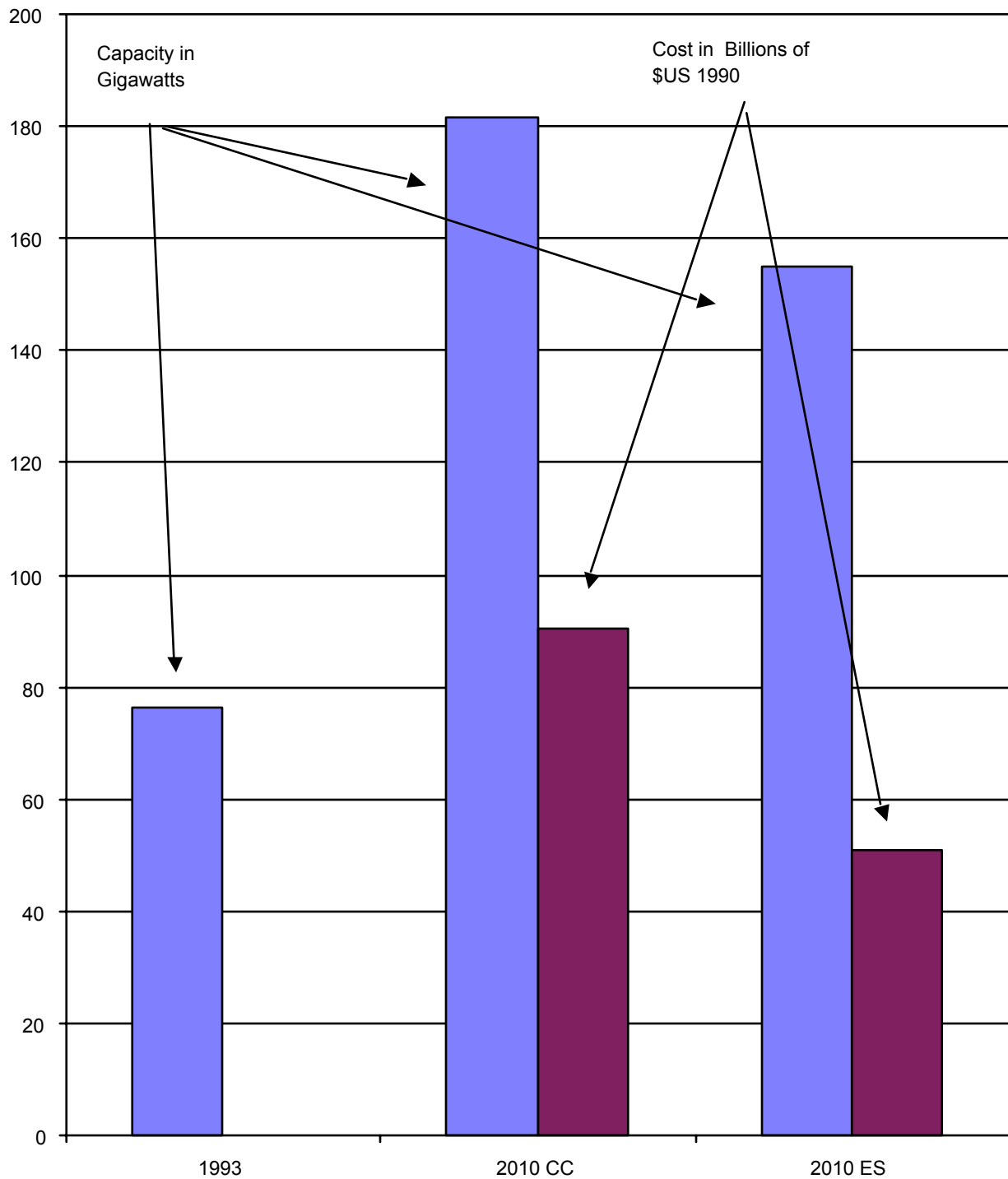
	Yemen	UAE	Turkey	Tunisia	Syria	Saudi Arabia	Qatar	Oman	Morocco	Libya	Lebanon	Kuwait	Jordan	Iraq	Iran	Egypt	Bahrain	Algeria
■ Demand Growth Rate in %	-	7.1	8.1	7	7	5.5	10	4.5	6	6	7	7	6.4	-	7	7	5	5
■ Projected Cost in \$Billions	*0.6	*8.0	*27.1	*1.0	*2.5	*30.1	*3.0	*0.8	*2.9	*1.8	*0.2	*3.6	*1.0	-	*7.5	*7.5	*1.0	*4.0
■ Additional MW Needed by 2010	500	7000	2360	1700	3600	2000	2500	1250	1900	1200	500	5000	900	-	1450	1000	1000	4740
■ Installed Capacity in MW	700	7600	2622	1600	4600	2343	1933	1735	3750	6000	2200	6900	1500	-	3000	1715	1260	5300

Adapted by Anthony H. Cordesman from Middle East Economic Digest, January 26, 2001, p. 24.



Chart 5.24

Saudi Arabia's Massive Needs for Infrastructure Investment:  
Electric Power as a Test Case



CC = Capacity Constrained or maximum production ES = Energy Savings, or reduced energy use.  
Source: Adapted by Anthony H. Cordesman from IEA, World Energy Outlook, 1996, pp. 189-191.

## Meeting the Kingdom's Economic, Demographic, and Social Challenges

Saudi Arabia has set some of the right goals, but it largely ignores the problems caused by its birth rate, has failed to come to grips with the true nature of its demographic challenges, and faces a daunting cumulative set of challenges. As the next chapter shows, there also is little prospect that oil prices will rise to the point where crude oil and product exports will allow Saudi Arabia to meet the economic expectations of much of its youth, or to sustain the present living standards of many families.<sup>162</sup> The problems must therefore be solved by limiting net population growth, achieving substantial growth in other sectors of the Saudi economy, and creating more jobs for native Saudis by shifting from a largely foreign labor force to one that is largely Saudi.

As Crown Prince Abdullah, and most senior Saudi princes and technocrats recognize, key to meeting the Kingdom's demographic and social challenges is the reform and diversification of the Saudi economy discussed in the following chapters. The previous analysis suggests, however, that economic growth and reform will not be enough. Saudis need to begin a serious debate to define the kind of society Saudi Arabia wants to create in the 21st Century.

- *The Saudi royal family, the government, and Saudi society as a whole need to face the fact that Saudi oil wealth is limited and that Saudi Arabia faces a potential demographic crisis.* Strong leadership is needed to persuade the Wahhabi Ulema that voluntary population control is needed, and to persuade Saudi families that they should limit their number of children. There needs to be a firm rational understanding that even the best economic development plan cannot maintain the present standard of real per capita wealth in Saudi Arabia without a much sharper decline in the birthrate, and that population growth is a major factor affecting political stability.
- *Job creation and Saudisation require more than good intentions.* Saudi Arabia will almost certainly not meet the goals it sets forth in its Seventh Development Plan. It must, however, truly enforce its Saudisation policies if it is to approach them. It also needs to give the private sector clear priority in economic development, and accelerate every measure that will aid the private sector in job creation.
- *Education and the development of a suitable mix of work ethic, job skills, and educational standards still need serious improvement and are Saudi Arabia's highest priority.* The Saudi education system is not expanding quickly enough at a number of levels, and needs to improve in quality and focus. This does not mean that education should not be Islamic, but it does mean that Islamic education must do a far, far better job of training young men and women to be truly competitive in the real world, and that it must be purged of Islamic extremism.
- *Existing population momentum will place massive pressure on the Saudi budget, and suitable infrastructure and services will probably require better sources of revenue such as a real income tax, reductions in entitlements, and prices much closer to market levels.* Saudi Arabia simply cannot afford a patriarchal solution to its youth explosion, or the cumulative under funding of key services and infrastructure.

- *Saudi economic planning is too decoupled from the responsibility for action, based on a weak analytic structure, and lacks a clear vision for the future.* The previous analysis, as well as the analysis in the next chapter, shows that Saudi planning is based on a very weak data base for human resources that lacks meaningful data on unemployment, Saudisation, and many areas of economics. The failure to provide proper cost estimates and to tie broad goals to specific methods of implementation and a clear picture of whether they meet estimated need is equally serious. So is the lack of any tie between the analysis of the period in the five year plan to longer term needs and objectives – a critical failure in a nation with so much momentum in its population growth. There are also indications that the Ministry of Planning has become too decoupled from the Ministries that must actually implement economic development and reform. A stronger Ministry of Economics, incorporating a more operational planning organization and activity, might be more effective.

Saudi stability requires the nations to look far more deeply into the implications of its current demographics, the analysis of labor trends and unemployment, investment needs, and social change. The Saudi royal family and government, as well as all educated Saudis, need to ask existential questions about the future of Saudi society and the role of young Saudis in that society. Far too many educated Saudi women now face a dead end at the end of their education, and most Saudi young men graduate into purposeless government and service sector jobs that offer little real future or productive value to the economy. Islamic values and tradition cannot be allowed to drift into Islamic extremism, or resistance to legitimate reform and change. There is no conceivable way that Saudi society can retreat into the past, but defining a truly viable Saudi future means looking beyond statistics and determining broader goals based on the modernization of Saudi values in ways that can actually work in a nation that must compete and survive in a global economy.

Both the Saudi ruling elite and the West need to recognize that Saudi Arabia's key security challenge is not external threats, or internal extremism, but the need to come firmly to grips with demographics, education, social change, and popular economic needs. The key economic challenge Saudi Arabia faces is not a matter of macroeconomics or budget deficits, but the creation of a form of capitalism that suits Saudi social custom, that is run and staffed by Saudis, that creates a knowledge-based labor force that is globally competitive, and that steadily expands the productive sector beyond oil and gas exports and large-scale downstream operations.

# Endnotes

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<sup>2</sup> Saudi Arabian Monetary Agency, Thirty-Sixth Annual Report, 1421H (2000G), Riyadh, SAMA, 2000, p. 45; Saudi Arabian Monetary Agency, Thirty-Seventh Annual Report, 1422H (2001G), Riyadh, SAMA, 2001, p. 265.

<sup>3</sup> Saudi Arabian Monetary Agency, Thirty-Sixth Annual Report, 1421H (2000G), Riyadh, SAMA, 2000, p. 45; Saudi Arabian Monetary Agency, Thirty-Seventh Annual Report, 1422H (2001G), Riyadh, SAMA, 2001, p. 265.

<sup>4</sup> These figures are taken from the database developed by the State Department for World Military Expenditures and Arms Transfers with updates for 2000 provided informally to the author.

<sup>5</sup> US Census Bureau, March 23, 2002, [www.census.gov/cgi-bin/ipc/idbsum?cty=SA..](http://www.census.gov/cgi-bin/ipc/idbsum?cty=SA..)

<sup>6</sup> World Bank, World Development Indicators, 2000, Washington, World Bank, 2000, pp. 40 and 44; World Development Indicators, 2001, Washington, World Bank, 2001, p. 46; World Development Indicators, 2002, Washington, World Bank, 2002, p. 50.

<sup>7</sup> Based on various editions of World Bank, World Development Indicators. The latest figures are taken from the 2002 edition, p. 172.

<sup>8</sup> World Bank, World Development Indicators, 1997, Washington, World Bank, 1997, pp. 12, 68, 116, 286; CIA, World Factbook, 2000, 2001, and 2002, "Saudi Arabia;" The World Bank, World Bank Atlas, 1999, Washington, World Bank, 1999, pp. 36-37; World Bank, World Development Indicators, 2000, Washington, World Bank, 2000, pp. 40 and 44; World Development Indicators, 2001, Washington, World Bank, 2001, p. 30; World Development Indicators, 2002, Washington, World Bank, 2002, p. 172.

<sup>9</sup> Author's estimate based on data in World Bank, World Development Indicators, 2000, Table 2.4 and CIA World Factbook, 2000; World Development Indicators, 2001, Washington, World Bank, 2001, p. 30 and 164.

<sup>10</sup> CIA, World Factbook, 2000, 2001, and 2002, "Saudi Arabia;" and World Factbook, 2000, Washington, GPO, 2000, Figure 2.12. World Bank, World Development Indicators, 2002, Washington, World Bank, 2002, p. 100. Further statistical and analytic background is taken from material provided by the World Bank, including "Will Arab Workers Prosper or Be Left Out in the Twenty-First Century?", August, 1995; "Forging a Partnership for Environmental Action," December, 1994; and "A Population Perspective on Development: The Middle East and North Africa," August, 1994.

<sup>11</sup> Kingdom of Saudi Arabia, Ministry of Planning, Achievements of the Development Plans 1970-2000, Facts and Figures, Riyadh, Ministry of Planning, 2000, Figure 44 and supporting text; and Kingdom of Saudi Arabia, Ministry of Planning, Achievements of the Development Plans 1970-2001, Facts and Figures, Riyadh, Ministry of Planning, 2002, 19th Issue.

<sup>12</sup> Kingdom of Saudi Arabia, Ministry of Planning, Achievements of the Development Plans 1970-2000, Facts and Figures, Riyadh, Ministry of Planning, 2000, Figure 44 and supporting text; and Kingdom of Saudi Arabia, Ministry of Planning, Achievements of the Development Plans 1970-2001, Facts and Figures, Riyadh, Ministry of Planning, 2002, 19th Issue.

<sup>13</sup> World Development Indicators, 1999; World Development Indicators, 2002, Washington, World Bank, 2002, p. 318. CIA, World Factbook, 1996, Washington, GPO, CD ROM, "Saudi Arabia," and CIA, World Factbook, 2000, 2001, and 2002, "Saudi Arabia;" The World Bank, World Bank Atlas, 1997, Washington, World Bank, pp. 36-37; and World Bank Atlas, 2001.

<sup>14</sup> World Development Indicators, 2001, Washington, World Bank, 2001, p. 46; World Development Indicators, 2002, Washington, World Bank, 2002, p. 50.

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- <sup>15</sup> World Bank, World Development Indicators, 2002, Washington, World Bank, 2002, p. 54.
- <sup>16</sup> Brad Bourland, The Saudi Economy in 2002, Riyadh, Saudi Arabian Bank, February 2002, p. 20.
- <sup>17</sup> World Bank, World Development Indicators, 1997, Washington, World Bank, 1997, pp. 12, 68, 116, 286; and various editions of the CIA World Factbook. Note that the CIA method of estimation means that the annual growth rates shown could be attributed to the previous calendar year with equal validity.
- <sup>18</sup> [www.census.gov/cgi-bin/ipc/idbsum?cty=SA](http://www.census.gov/cgi-bin/ipc/idbsum?cty=SA), accessed March 28, 2002.
- <sup>19</sup> Saudi Arabian Monetary Agency, Thirty-Seventh Annual Report, 1422H (2001G), Riyadh, SAMA, 2001, p. 270.
- <sup>20</sup> Saudi Arabian Monetary Agency, Thirty-Sixth Annual Report, 1421H (2000G), Riyadh, SAMA, 2000, p. 250.
- <sup>21</sup> Brad Bourland, The Saudi Economy in Mid-Year 2002, Riyadh, Saudi Arabian Bank, August 2002, p. 5, 7.
- <sup>22</sup> Saudi Arabian Ministry of Planning, Achievements of the Development Plans, 1390-1420H (1970-2000), Riyadh, Ministry of Planning, 2000, Tables 5-8; and Kingdom of Saudi Arabia, Ministry of Planning, Achievements of the Development Plans 1970-2001, Facts and Figures, Riyadh, Ministry of Planning, 2002, 19th Issue, p. 201.
- <sup>23</sup> Mimi Mann, "Saudi Arabia: New Development Plan-Development Plan: Saudi American Bank Say's Plan's Goals are Achievable," Middle East Executive Reports, April 2000.
- <sup>24</sup> World Bank, World Development Indicators, 1997, Washington, World Bank, 1997, pp. 12, 68, 116, 286; CIA, World Factbook, 2000, Washington, GPO, CD ROM, "Saudi Arabia;" The World Bank, World Bank Atlas, 1999, Washington, World Bank, 1999, pp. 36-37; World Bank, World Development Indicators, 2000, Washington, World Bank, 2000, pp. 184, World Bank, World Development Indicators, 2002, Washington, World Bank, 2002, p. 206.
- <sup>25</sup> World Bank, World Development Indicators, 2000, Washington, World Bank, 2000, pp. 12.
- <sup>26</sup> See the blank spaces in World Bank, Global Economic Prospects, 2000, Washington, World Bank, 2000, pp. 151-152.
- <sup>27</sup> World Bank, Global Economic Prospects, 2002, Washington, World Bank, 2002, pp. 208-209.
- <sup>28</sup> Middle East Economic Survey, 45:5, 4 February 2002, Volume XLV, Number 5, p. B-8.
- <sup>29</sup> Brad Bourland, "Saudi Arabia's Employment Profile," Riyadh, Saudi American Bank, October 6, 2002. The estimates on disguised unemployment were provided informally by analyst in the US government and international financial institutions.
- <sup>30</sup> World Bank, World Development Indicators, 2002, Washington, World Bank, 2000, pp. Sections 1.1 and 1.4.
- <sup>31</sup> Brad Bourland, The Saudi Economy in 2002, Riyadh, Saudi Arabian Bank, February 2002.
- <sup>32</sup> World Bank, World Development Indicators, 2000, Washington, World Bank, 2000, pp. 12, 24.
- <sup>33</sup> Bureau of Arms Control (formerly ACDA), US State Department, computerized database for World Military Expenditures and Arms Transfers, Table I.
- <sup>34</sup> World Bank, World Development Indicators, 1997, Washington, World Bank, 1997, pp. 12, 68, 116, 286 and World Development Indicators, 1999; CIA, World Factbook, 1996, Washington, GPO, CD ROM, "Saudi Arabia," and CIA, World Factbook, 2000, 2001, and 2002, "Saudi Arabia;" the World Bank, World Bank Atlas, 1997, Washington, World Bank, pp. 36-37; and World Bank Atlas, 1999; World Bank, World Development Indicators, 2002, Washington, World Bank, 2002, p. 238.
- <sup>35</sup> Kingdom of Saudi Arabia, Ministry of Planning, Seventh Development Plan, pp. 203-205.
- <sup>36</sup> Briefing by Saudi experts, April 17, 2002.
- <sup>37</sup> Kingdom of Saudi Arabia, Ministry of Planning, Achievements of the Development Plans 1970-2001, Facts and Figures, Riyadh, Ministry of Planning, 2002, 19th Issue, pp. 129-133.

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38 CIA World Factbook, 2002, “Saudi Arabia.”

<sup>39</sup> Saudi Arabian Ministry of Planning, Achievements of the Developments Plans, 1390-1420H (1970-2000), Riyadh, Ministry of Planning, 2000, Tables 11-14; World Bank, World Development Indicators, 2002, Washington, World Bank, 2002, pp. 210; and Kingdom of Saudi Arabia, Ministry of Planning, Achievements of the Development Plans 1970-2001, Facts and Figures, Riyadh, Ministry of Planning, 2002, 19th Issue.

<sup>40</sup> Saudi Arabia Monetary Agency, Thirty-Sixth Annual Report, 1421H (2000G), Riyadh, SAMA, 2000, pp. 360-361.

<sup>41</sup> Kingdom of Saudi Arabia, Ministry of Planning, Achievements of the Development Plans 1970-2001, Facts and Figures, Riyadh, Ministry of Planning, 2002, 19th Issue, p.57.

<sup>42</sup> Brad Bourland, The Saudi Economy in Mid-Year 2002, Riyadh, Saudi Arabian Bank, August, 2002, p. 2.

<sup>43</sup> Saudi Arabia, Vol. 17. No. 12., p. 1; Economist Intelligence Unit (EIU), eiu.com, March 2, 2001, 1143.

<sup>44</sup> Saudi Commerce and Economic Review, No. 22, February, 1996, p. 6; World Bank, World Development Indicators, 1997, p. 40 and World Development Indicators, 1999; U.S.-Saudi Business Brief, Vol.IV, No.1, 1999, pg.2.

<sup>45</sup> Briefing by Saudi government expert, April 16, 2002.

<sup>46</sup> Saudi Arabian Monetary Agency, Thirty-Seventh Annual Report, 1422H (2001G), Riyadh, SAMA, 2001, p. 270; Kingdom of Saudi Arabia, Ministry of Planning, Seventh Development Plan, 1420/1421-1424/1425 AH (200-2004 AD), Riyadh, Ministry of Planning, English edition, 2001, pp. 75-79.

<sup>47</sup> Brad Bourland, The Saudi Economy in 2002, Riyadh, Saudi Arabian Bank, February 2002, pp. 1 and 20-24; Saudi Arabian Monetary Agency, Thirty-Seventh Annual Report, 1422H (2001G), Riyadh, SAMA, 2001, pp. 271-275.

<sup>48</sup> Brad Bourland, “Saudi Arabia’s Employment Profile,” Riyadh, Saudi American Bank, October 6, 2002. The estimates on disguised unemployment were provided informally by analyst in the US government and international financial institutions.

<sup>49</sup> Brad Bourland, “Saudi Arabia’s Employment Profile,” Riyadh, Saudi American Bank, October 6, 2002. The estimates on disguised unemployment were provided informally by analyst in the US government and international financial institutions.

<sup>50</sup> World Bank, World Development Indicators, 2001, Washington, World Bank, 2001 p. 50; World Bank, World Development Indicators, 2002, Washington, World Bank, 2002, p. 54.

<sup>51</sup> World Bank, World Development Indicators, 2000, Washington, World Bank, p. 48; World Bank, World Development Indicators, 2002, Washington, World Bank, 2002, p. 54.

<sup>52</sup> The figures in this analysis are based on briefings by the Ministry of Planning and on the English language version of the Seventh Development Plan 1420/21-1424/25 AH (2000-2004 AD), Riyadh, Ministry of Planning, 2001, especially pages 158-167.

<sup>53</sup> Middle East Economic Digest, June 30, 2000, pp.22-37

<sup>54</sup> Saudi Arabian Monetary Agency, Thirty-Seventh Annual Report, 1422H (2001G), Riyadh, SAMA, 2001, pp. 276, 279.

<sup>55</sup> Saudi Arabian Monetary Agency, Thirty-Seventh Annual Report, 1422H (2001G), Riyadh, SAMA, 2001, pp. 276, 279.

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<sup>56</sup> World Bank, World Population Projections, 1996, Washington, World Bank, 1996 and World Development Indicators, 1999; Middle East Economic Digest, July 28, 1995, p. 11; CIA World Factbook, 1996, “Saudi Arabia” and CIA, World Factbook, 2000, 2001, and 2002, “Saudi Arabia.”

<sup>57</sup> CIA, World Factbook, 2000, 2001, and 2002, “Saudi Arabia.”

<sup>58</sup> US Census Bureau IDB summary demographic data base on <http://www.census.gov/cgi-bin/ipc/idbsum?cty>, accessed March 28, 2002.

<sup>59</sup> Bloomberg, May 9, 2001, 1737; Associated Press, May 9, 2001, 1435.

<sup>60</sup> Interviews in Saudi Arabia in February 2001.

<sup>61</sup> Brad Bourland, “Saudi Arabia’s Employment Profile,” Riyadh, Saudi American Bank, October, 2002, and World Bank, Social Indicators of Development, 2001, Washington, World Bank, 2001.

<sup>62</sup> US Census Bureau IDB summary demographic data base on <http://www.census.gov/cgi-bin/ipc/idbsum?cty>, accessed March 28, 2002.

<sup>63</sup> CIA, World Factbook, 2000, 2001, and 2002, “Saudi Arabia.”

<sup>64</sup> Saudi Arabian Monetary Agency, Thirty-Sixth Annual Report, 1421H (2000G), Riyadh, SAMA, 2000, pp. 250-257.

<sup>65</sup> Brad Bourland, The Saudi Economy in 2002, Riyadh, Saudi Arabian Bank, February 2002.

<sup>66</sup> Saudi Arabian Monetary Agency, Thirty-Sixth Annual Report, 1421H (2000G), Riyadh, SAMA, 2000, p. 258.

<sup>67</sup> Saudi Arabian Monetary Agency, Thirty-Sixth Annual Report, 1421H (2000G), Riyadh, SAMA, 2000, p. 258.

<sup>68</sup> Brad Bourland, “Saudi Arabia’s Employment Profile,” Riyadh, Saudi American Bank, October 6, 2002. The estimates on disguised unemployment were provided informally by analyst in the US government and international financial institutions.

<sup>69</sup> Interviews with Saudi officials in Saudi Arabia in 2000 and 2001.

<sup>70</sup> The most recent figures reported in Middle East Economic Survey by the Riyadh-based Consulting Center for Finance and Investment (CCFI) gave the number of expatriate workers in Saudi Arabia for 1998-1999 as 4,698,000 and Saudi workers as 2,456,000.

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<sup>72</sup> Executive News Service, July 20, 1995, 0306; Reuters, June 16, 1997, 0906; Christian Science Monitor, October 23, 1996, p. 2; CIA, World Factbook, 1997, “Saudi Arabia,” CIA, World Factbook, 2000, 2001, and 2002, “Saudi Arabia,” IISS, Military Balance, 1996-1997 and 1999-2000.

<sup>73</sup> Executive News Service, October 11, 1995, 1631; UPI, October 11, 1995, 1631; Wall Street Journal, September 12, 1996, p. A-1; CIA, World Factbook, 1997, “Saudi Arabia,” CIA, World Factbook, 2000, 2001, and 2002, “Saudi Arabia,” IISS, Military Balance, 1996-1997 and 1999-2000.

<sup>74</sup> Middle East Economic Digest, April 5, 1996, pp. 54-57.

<sup>75</sup> Reuters, May 6, 1999.

<sup>76</sup> Executive News Service, September 18, 1995, 1631; Wall Street Journal, “Saudi Arabia,” September 22, 1995.

<sup>77</sup> Executive News Service, July 20, 1995, 0306.

<sup>78</sup> Saudi Ministry of Information, October, 1995; Executive News Service, September 18, 1995, 1631; Wall Street Journal, “Saudi Arabia,” September 22, 1995, and May 27, 1997, special section.

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<sup>79</sup> Reuters “Saudi says Nationals Must Make 25 percent of Staff at Firms” September 27, 2000.

<sup>80</sup> Saudi Arabia, Volume 13, Number 1, January 1996, p. 3; Middle East Economic Digest, April 5, 1996, pp. 30-43.

<sup>81</sup> Bureau of Democracy, Human Rights, and Labor, 1999 Country Reports on Human Rights Practices, U.S. Department of State, February 25, 2000, [http://www.state.gov/www/global/human\\_rights/1999\\_hrp\\_report/saudiara.html](http://www.state.gov/www/global/human_rights/1999_hrp_report/saudiara.html); and 2001 Country Reports on Human Rights Practices, U.S. Department of State, March 4, 2002, <http://www.state.gov/g/drl/rls/hrrpt/2001/nea/8296.html>.

<sup>82</sup> Yamani, Mai. Changed Identities: The Challenge of the New Generation in Saudi Arabia Royal Institute of International Affairs: London 2000, pp. 81.

<sup>83</sup> Brad Bourland, “Saudi Arabia’s Employment Profile,” Riyadh, Saudi American Bank, October 6, 2002. The estimates on disguised unemployment were provided informally by analyst in the US government and international financial institutions.

<sup>84</sup> Brad Bourland, The Saudi Economy in 2002, Riyadh, Saudi Arabian Bank, February 2002, pp. 7, 21, and 22.

<sup>85</sup> Saudi Ministry of Information, October, 1995; Executive News Service, September 18, 1995, 1631; Wall Street Journal, “Saudi Arabia,” September 22, 1995, and May 27, 1997, special section.

<sup>86</sup> Saudi Arabian Ministry of Planning, Statement of the Ministry of Planning on the Seventh Development Plan, 1420-1425, Riyadh, Minister of Planning, October, 2000; Saudi Arabian Ministry of Planning, Seventh Development Plan, 1420-1425, Riyadh, Minister of Planning, ISSN: 4844-1319, 2001 (English version).

<sup>87</sup> Saudi Arabian Ministry of Planning, Statement of the Ministry of Planning on the Seventh Development Plan, 1420-1425, Riyadh, Minister of Planning, October, 2000; Saudi Arabian Ministry of Planning, Seventh Development Plan, 1420-1425, Riyadh, Minister of Planning, ISSN: 4844-1319, 2001 (English version).

<sup>88</sup> Middle East Economic Digest, June 30, 2000, pp 22-37

<sup>89</sup> Saudi Arabian Ministry of Planning, Achievements of the Development Plans, 1390-1420 (1070-2000), Riyadh, Minister of Planning, February 2001, Table 87; and Kingdom of Saudi Arabia, Ministry of Planning, Achievements of the Development Plans 1970-2001, Facts and Figures, Riyadh, Ministry of Planning, 2002, 19th Issue.

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<sup>92</sup> Saudi Arabian Monetary Agency (SAMA), Thirty-Sixth Annual Report, 1421(H) 2000G), Riyadh, SAMA Research and Statistics Department, 2000, pp. 235-241.

<sup>93</sup> Saudi Arabian Ministry of Planning, Achievements of the Development Plans, 1390-1420 (1070-2000), Riyadh, Minister of Planning, February 2001, Table 90; and Kingdom of Saudi Arabia, Ministry of Planning, Achievements of the Development Plans 1970-2001, Facts and Figures, Riyadh, Ministry of Planning, 2002, 19th Issue

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<sup>95</sup> Saudi Arabian Monetary Agency (SAMA), Thirty-Sixth Annual Report, 1421(H) 2000G), Riyadh, SAMA Research and Statistics Department, 2000, pp. 235-241.

<sup>96</sup> Saudi Arabian Monetary Agency (SAMA), Thirty-Sixth Annual Report, 1421(H) 2000G), Riyadh, SAMA Research and Statistics Department, 2000, pp. 235-241.

<sup>97</sup> Saudi Ministry of Information, “General Objectives and Strategic Bases of the Sixth Development Plan.”



<sup>98</sup> Saudi Ministry of Information, October, 1995; Executive News Service, September 18, 1995, 1631; Wall Street Journal, "Saudi Arabia," September 22, 1995.

<sup>99</sup> Saudi Arabia, Spring 1997, pp. 13-17

<sup>100</sup> Saudi Arabian Monetary Agency (SAMA), Thirty-Sixth Annual Report, 1421(H) 2000G), Riyadh, SAMA Research and Statistics Department, 2000, pp. 235-241.

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<sup>102</sup> Brad Bourland, The Saudi Economy in 2002, Riyadh, Saudi Arabian Bank, February 2002, pp. 21-23.

<sup>103</sup> Saudi Arabian Ministry of Planning, Achievements of the Development Plans, 1390-1420 (1070-2000), Riyadh, Minister of Planning, February 2001, Table 98; and Kingdom of Saudi Arabia, Ministry of Planning, Achievements of the Development Plans 1970-2001, Facts and Figures, Riyadh, Ministry of Planning, 2002, 19th Issue.

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<sup>105</sup> Saudi Arabian Ministry of Planning, Statement of the Ministry of Planning on the Seventh Development Plan, 1420-1425), Riyadh, Minister of Planning, October, 2000; Saudi Arabian Ministry of Planning, Seventh Development Plan, 1420-1425), Riyadh, Minister of Planning, ISSN: 4844-1319, 2001 (English version).

<sup>106</sup> Saudi Arabian Ministry of Planning, Seventh Development Plan, 1420-1425), Riyadh, Minister of Planning, ISSN: 4844-1319, 2001 (English version), p. 260.

<sup>107</sup> Saudi Arabian Ministry of Planning, Achievements of the Development Plans, 1390-1420 (1070-2000), Riyadh, Minister of Planning, February 2001, Tables 116-117; and Kingdom of Saudi Arabia, Ministry of Planning, Achievements of the Development Plans 1970-2001, Facts and Figures, Riyadh, Ministry of Planning, 2002, 19th Issue, p. 328.

<sup>108</sup> Saudi Arabian Ministry of Planning, Achievements of the Development Plans, 1390-1420 (1070-2000), Riyadh, Minister of Planning, February 2001, Tables 108-109; and Kingdom of Saudi Arabia, Ministry of Planning, Achievements of the Development Plans 1970-2001, Facts and Figures, Riyadh, Ministry of Planning, 2002, 19th Issue.

<sup>109</sup> These patterns become clear from even a cursory review on such data as provided in Kingdom of Saudi Arabia, Ministry of Planning, Achievements of the Development Plans 1970-2001, Facts and Figures, Riyadh, Ministry of Planning, 2002, 19th Issue. See pp. 39, 328, 329, etc.

<sup>110</sup> Saudi Arabian Ministry of Planning, Statement of the Ministry of Planning on the Seventh Development Plan, 1420-1425), Riyadh, Minister of Planning, October, 2000; Saudi Arabian Ministry of Planning, Seventh Development Plan, 1420-1425), Riyadh, Minister of Planning, ISSN: 4844-1319, 2001 (English version) .

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<sup>112</sup> Kingdom of Saudi Arabia, Ministry of Planning, Achievements of the Development Plans 1970-2001, Facts and Figures, Riyadh, Ministry of Planning, 2002, 19th Issue, p. 39.

<sup>113</sup> Saudi Arabian Ministry of Planning, Achievements of the Development Plans, 1390-1420 (1070-2000), Riyadh, Minister of Planning, February 2001, Table 76.

<sup>114</sup> Brad Bourland, The Saudi Economy: 2000 Performance, 2001 Forecast, Riyadh, Saudi American Bank, February 2001, pp. 7-88.

<sup>115</sup> Middle East Economic Digest, April 21, 1995, pp. 32-33.

<sup>116</sup> Kingdom of Saudi Arabia, Ministry of Planning, Achievements of the Development Plans 1970-2001, Facts and Figures, Riyadh, Ministry of Planning, 2002, 19th Issue, p. 40.

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- <sup>125</sup> Kingdom of Saudi Arabia, Ministry of Planning, Seventh Development Plan, Riyadh, Ministry of Planning, 2000, p. 226.
- <sup>126</sup> Middle East Economic Digest, June 13, 1997, p. 37; Bloomberg, April 25, 2001, 0319.
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- <sup>129</sup> Middle East Economic Digest, December 4, 1998, p. 22.
- <sup>130</sup> Middle East Economic Survey, Vol.42, No.10, March 8, 1999, p. B2.
- <sup>131</sup> Middle East Economic Digest, April 27, 2001, p. 16; Bloomberg, April 25, 2001, 0319.
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<sup>145</sup> Brad Bourland, The Saudi Economy: 2000 Performance, 2001 Forecast, Riyadh, Saudi American Bank, February 2001, p. 11.

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<sup>147</sup> Middle East Economic Digest, July 19, 1996, pp. 2-3

<sup>148</sup> SAMA, 37<sup>th</sup> Annual Plan (1422AH, 2001G) Riyadh, 2001, p. 229.

<sup>149</sup> Middle East Economic Survey, August 2, 1999. Data cited from Consulting Center for Finance and Investment.

<sup>150</sup> Saudi Arabia, March 1997, p. 3; Middle East Economic Digest, July 19, 1996, pp. 2-3, June 13, 1997, pp. 41-45.

<sup>151</sup> Saudi Arabia, March 1997, p. 3; Middle East Economic Digest, July 19, 1996, pp. 2-3, June 13, 1997, pp. 41-45.

<sup>152</sup> Middle East Economic Digest, June 13, 1997, pp. 41-45.

<sup>153</sup> Middle East Economic Digest, June 13, 1997, pp. 41-45.

<sup>154</sup> Middle East Economic Digest, June 13, 1997, pp. 41-45.

<sup>155</sup> Saudi Arabian Monetary Agency (SAMA), Thirty-Sixth Annual Report, 1421(H) 2000G), Riyadh, SAMA Research and Statistics Department, 2000, pp. 217-224.

<sup>156</sup> Saudi Commerce and Economic Review, February 1966, pp. 12, 15.

<sup>157</sup> Ministry of Planning “Statement on the Seventh Development Plan 1420-1425”; Saudi Arabian Ministry of Planning, Seventh Development Plan, 1420-1425, Riyadh, Minister of Planning, ISSN: 4844-1319, 2001 (English version).

<sup>158</sup> For more detail on Saudi agricultural production and its costs, see SAMA, 37<sup>th</sup> Annual Plan (1422AH, 2001G) Riyadh, 2001, pp. 223-230.

<sup>159</sup> CIA, World Factbook, “Saudi Arabia, various editions. Further statistical and analytic background is taken from material provided by the World Bank, including “Will Arab Workers Prosper or Be Left Out in the Twenty-First Century?”, August, 1995; “Forging a Partnership for Environmental Action,” December, 1994; and “A Population Perspective on Development: The Middle East and North Africa,” August, 1994.

<sup>160</sup> Middle East Economic Digest, November 9, 2001, p. 22, September 20, 2002, p. 20; Global Water Intelligence, August 2001, [www.globalwaterintel.com](http://www.globalwaterintel.com); Saudi government press release, July 18, 2002.

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