Situation Analysis of Children and Women in the Sultanate of Oman

Ministry of Development
Sultanate of Oman
and
United Nations Children's Fund (UNICEF)
Muscat
Sultanate of Oman
1995

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ERRATUM

Page No.	Paragraph No.	Line	Correction
19	3.18	7	Or 6,000 from the government for housing
19	4.1	6 and 7	Delete .... youth, conservation of the environment and water resources
20	4.4	1	Add, "and Sohar" after Salalah

PART A. THE NATIONAL CONTEXT

PART B. THE SITUATION OF CHILDREN AND WOMEN

PART C. UNDERLYING CAUSES AND FACTORS THAT INFLUENCE THE WELLBEING OF CHILDREN AND WOMEN

PART D. TOWARDS THE YEAR 2000 AND BEYOND: OPPORTUNITIES FOR THE FUTURE

PREFACE

The people of Oman have wisely used their oil income during the past quarter of a century to build a modern social and economic infrastructure where very little existed before. This has seen their quality of life increase briskly -- to the point where Oman has been a world leader in protecting child lives, and its quality of life compares favourably with other countries that are wealthier or that have enjoyed a far longer developmental momentum.

Yet, the era of improving human wellbeing primarily through government efforts in building and staffing social services facilities is coming to an end. The new gains in health and overall quality of life in Oman will have to reflect two parallel forces: one is continued government investment in social services projects and training, and the other is that families and communities should take greater responsibility for their own wellbeing. This will require a strategic combination of education, community participation, decentralisation, cost-sharing, and inter-sectoral collaboration -- an approach that has already been tried and proven successful to a great extent in Oman. Oman will also require new interventions and education efforts geared towards the new threats and challenges that confront it at this moment of its social transformation -- threats and challenges that stem from the modernisation process itself, such as environmental pollution, disparities linked to urbanisation or income, heart disease, and accidents.

The signs for changing times and priorities are clear, and they have been seen by Omani officials. Oman suffers few measurable disparities in nationwide access to health and education, which are uniformly good -- but there is increasing concern about disparities in income levels and economic opportunities between the urban and rural population. Rising standards of living for most Omanis are paralleled by the existence of some needy families and individuals, such as the disabled, low income large families, the unemployed, and residents of remote hamlets and villages. Also, Oman cannot sustain indefinitely its modern developmental progress at its current heavy rates of reliance on oil income and foreign workers and on the basis of the free, universal provision of government health and education services. Adjustments need to be made for the sake of sustainability, and Omani officials are hard at work examining the most feasible and reasonable options.

In keeping with Oman's recent history, His Majesty Sultan Qaboos has personally urged the adoption of ambitious strategies which will take Oman up to 2020 and should be action-oriented to meet the challenges of the next century -- most notably, more Omani participation in the workforce, a more activist public posture for women, and smaller families that can lower the very high population growth rate and ensure a better quality of life for all Omanis. He has repeatedly urged young Omanis to take up all forms of employment, including manual labour and service jobs that are now largely manned by expatriate workers, warning against "using academic qualifications as an excuse" for not working, because "there are available occupations that do not need such qualifications." He has urged women to play a greater role in public policy discussions in the Majlis esh-Shura, and "to roll up their sleeves and contribute to the process of economic and social development -- everywhere according to their capabilities, experience and their passion in life." He has spoken about "our duty to adopt permissible practices that do not go against God's law", in order to lower the average family size from seven to five, thereby reducing the burden of high population growth on the family and the community as a whole.

An analysis of the situation of children and women must address the total challenge of community health and welfare, rather than only health issues, because Oman's leading health problems today can no longer be tackled only through the health system. They must be dealt

with simultaneously by focusing on their underlying causes in the community, such as polluted water, environmental conditions, nutritional imbalances, high fertility and population growth rates, high illiteracy levels among females, the overall quality and relevance of education, ignorance of good health and safety measures, and distorted labour market trends.

Oman is diligently assessing these and other issues, and launching exciting strategies that might effectively respond to them. Perhaps more than ever before, Oman requires continued technical assistance from its international partners to be able to meet the challenges of this new phase of its national development -- just as it worked effectively with its international partners in recent decades to achieve record-breaking gains in maternal and child health. Oman stands on the threshold of new strategies for the transition to a post-oil economy -- strategies that many other countries can learn from.

This situation analysis has been produced jointly by the Ministry of Development and by UNICEF, with the active cooperation and assistance of other concerned governmental bodies, as a contribution to assessing the key factors that affect the condition and status of children and women. It will help identify the most effective use of UNICEF technical assistance by the Government of Oman to achieve the goals that Oman has set for itself by the year 2000 as the first phase in its long crusade towards 2020.

The data and analysis draw heavily on the knowledge, experience and views of Omani officials, and on a wide range of secondary sources prepared by the Government of Oman and Omani and international specialists. These are listed in the bibliography, and cited throughout the text and figures.

The situation analysis is intended to provide an overview of trends in the situation of children and women in the Sultanate of Oman, during a period of brisk change. It also indicates the areas where further research is required. The efforts of all those who have kindly shared their ideas and information in the compilation of this report are appreciated.

EXECUTIVE SUMMARY

1. Oman has been a global pace-setter in improving the wellbeing of its children and women. Now the Sultanate faces new health challenges that can be met by continued government activities, technical support from international partners, and the full participation of the private sector and the local community. Oman's 65 percent decline in its child mortality rate in the 1980s was the second highest in the world, and the highest in the Middle East/North Africa region. Over 94 percent of Omani children attend primary school, and over 97 percent of infants under the age of one are fully immunized against the seven leading childhood killer diseases. The new needs and threats that Oman faces today stem from its brisk transition into an increasingly urban, consumer-oriented society. Omanis are addressing unfamiliar problems related to a population in rapid transition, such as disparities in income and access to services, environmental degradation, water pollution, malnutrition due to poor quality of nutritional information, quality gaps in education, insufficient services for the disabled and pre-schoolers, and the impact of television, video and imported mass media. Young Omanis should be oriented towards a full range of private sector jobs, and all Omanis need to deal more effectively with new "modern" health threats such as car accidents, home injuries, smoking, obesity, cancer, diabetes, cardiovascular disease and others. Most of these challenges cannot be met only or even mainly by the health system or clinic-based services; they require, a) community-wide participation to improve family awareness and preventive health practices, instead of the existing sole reliance on an expensive system of free government health care delivered around the clock in every district of the country, and, b) community-based initiatives to treat the underlying causes of health problems, such as water and sanitation, nutrition awareness, care for the disabled, quality and relevance of education, increased female education, early marriage age, or high fertility. Oman is working to achieve these goals while adjusting to the profound implications of the impending post-oil era, which may require stringent cost-efficiences, privatisation and other measures that can sustain and expand current health gains.

2. The population of Oman was officially counted in the 1993 census as 2.018 million, of whom 1.483 million are Omanis and 534,848 are expatriates. Life expectancy at birth is 69.8 years (November 1991), compared to 47 years in 1979, and it has been rising at nearly half a year per annum during the past decade. Urbanisation is brisk, with residents of any towns and cities of over 2500 people, which are considered as urban centres, accounting for 72 percent of the total population -- compared to less than 25 percent a decade ago. The other 29 percent of Omanis live in small villages and hamlets scattered throughout the mountains, coastal areas, and inland desert fringe, often in hard terrain that is not easily accessible and that poses a great challenge to sustainability of basic social services.

3. The annual natural population growth rate of 3.7 percent, and the total fertility rate of 6.9 exert pressure on Oman's natural resource base and economic carrying capacity. A national birth spacing programme launched in 1994, combined with the fertility reduction impact of the successful breast-feeding initiative that saw all Omani hospitals declared Baby Friendly in 1994, should help relieve these demographic pressures while also contributing to morbidity reduction.

4. Oil income accounts for over 80 percent of government revenues and nearly 38 percent of GDP, yet present oil reserves may run out within two decades. Per capita GDP of $5435 in 1994 (current prices) is lower than the figure of $5544 in 1980, showing Oman's double vulnerability to high population growth and reliance on a single commodity with an unstable price. Low oil prices force the government to increase domestic and foreign debt, draw down

reserves, cut some budget expenditures, and speed up privatisation efforts, sometimes creating new pressures on large families of limited incomes. How well Oman develops its non-oil economic sectors and reduces reliance on oil income and expatriate workers will largely determine the long-term welfare of the Omani population in the future post-oil era.

5. The decentralised Ministry of Health gives significant authority to the 10 health regions, which are now devolving further to the level of the 59 wilayats (districts). The efficient, free government health system reaches 100 percent of urban families and 94 percent of rural families, and the use of the system is rather high (nearly six out-patient visits per person per year). Its main weaknesses are: heavy reliance on expatriate staff who do not speak Arabic, and overcrowding in out-patient clinics. Both these factors reduce the effectiveness of health education, which is partly offset by community-based support groups of volunteer women who teach other women about birth-spacing, breast-feeding, personal and home hygiene, and other relevant issues.

6. IMR has declined from 100+ in 1980 to an estimated 23 per 1,000 live births in 1994, while U5MR has dropped from 146+ to around 29 per 1,000 live births. There are no significant gender disparities in IMR/U5MR. Around 30 percent of infant deaths in hospitals relate to conditions originating in the peri-natal period, most of which could be avoided or attenuated by better social and community practices (nutrition, timely ANC checks, transport, age at marriage, fertility rates, birth-spacing). Peri-natal mortality is 18 per 1000 live births; 7.7 percent of all babies are of low birth-weight (1994), compared to 10 percent in 1992.

7. The leading causes of infant and child morbidity are ARI, diarrhoea, infectious and parasitic diseases, and accidents and poisonings. Immunization coverage of infants under one year is over 97 percent for BCG, DPT3, OPV3 and measles. Over 95 percent of pregnant women are immunized against tetanus toxoid. Care and rehabilitation facilities cater to less than five percent of the 28,350 disabled children documented in the 1993 census (the census only recorded visibly disabled children, and did not attempt to count children with mild disabilities, so the total number of disabled children is accepted to be higher than that).

8. Mild and moderate malnutrition afflicts around 12 percent of children under the age of 6, while around half of all adolescent girls may be underweight and half of adult women overweight or obese. Over 90 percent of infants are breast-fed exclusively for the first four months. Poor nutrition is a major underlying cause of health problems. Its causes are not well documented; it seems to be due to consumer ignorance, the impact of commercial marketing of fast foods, some cases of family financial distress, and poor access to nutritious foods in some remote communities.

9. The education sector, with some 500,000 students and staff, comprises over one-third of the Omani population, and is a key partner in promoting community awareness of good health practices and healthy lifestyles. The student population (grades 1-12) comprises 53 percent males and 47 per cent females, and enjoys nearly 100 percent nationwide access, with no significant regional disparities. Pre-school education and home-based early childhood stimulation are both limited and weak. The adult literacy rate (15+ years) is 71 percent for males and 46 percent for females, reflecting the virtual absence of schools before 1970. Illiteracy in Oman is now mainly a problem among older people, and is virtually eliminated among young people. Key issues in the education sector are quality and efficiency of basic education, training sufficient Omani teachers, and relevance of education and adult literacy training curricula to labour market needs.

10. The roles and status of women are changing rapidly in line with almost universal female education at primary school level. Girls are staying in school longer, marrying at a later age, having fewer children, working outside the home more frequently, and actively participating

in community development programmes. The maternal mortality rate is estimated at 27 per 100,000 births (1994). About 90 percent of births are delivered in hospitals by trained health personnel, and nearly 90 percent of pregnant women have at least one ante-natal check, but better ANC and PNC would both contribute significantly to improved mother and child health. Nearly seven percent of women work outside the home.

11. Oman's national development and MCH improvement policies comprise seven basic strategies that apply to all sectors and programmes: sustainability (in terms of costs, quality and coverage); inter-sectoral cooperation; regionalisation and decentralisation; community participation; empowering families with knowledge for healthy lifestyles; Omanisation of the labour force, training and capacity building; and, reducing disparities and assuring equity of service delivery by gender, location and socio-economic levels.

12. Oman has already achieved several of its mid-decade goals (maintaining 95%+ immunization of infants, BFHI, exclusive breast-feeding, diarrhoea incidence decline, 80%+ ORT use rate, elimination of neonatal tetanus, malnutrition reduction from 16% to 12% in children under the age of 6.); it expects to achieve the remaining goals by 1995.

OMAN BASIC DATA SHEET

(1993/94 data, unless otherwise indicated)

Total population (December 1993 census)	2.018 million
Omani nationals population	1.483 million
Total area	309,500 km2
Fertility rate	6.9
Crude birth rate (per 1,000 pop.)	39
Crude death rate (per 1,000 pop.)	7.2
Population annual natural growth rate	3.7%
Population annual net growth rate	4.0%
Life expectancy at birth	69.8 (Nov. 1991)
Urban population (population centre of >2500) as % of total population	72%
Age structure of Omani population (% of total population):	
0-1 years	3.5%
1-4 years	10%
0-14 years	52%
15-44 years	36%
45 and over	12%
Total number of Omani infants (0-1 years)	51,927
Total number of children under 15	768,459
Total number of reproductive age women	264,014
IMR (per 1,000 live births)	23
U5MR (per 1,000 live births)	29
Peri-natal mortality rate (per 1000 births)	18
Maternal mortality rate (per 100,000 live births)	27
Adult literacy rate (15 years+,male/female)	71%/46%
Primary school gross enrollment ratio	94%
Primary school net enrollment ratio	81%
Preparatory school gross enrollment ratio	84
Preparatory school net enrollment ratio	53%
Population with access to safe water	82%
Population with access to sanitation facilities	78%
Population/doctor	840
Doctors/10,000 population	13
Nurses/10,000 population	30
Per capita GDP	$5435

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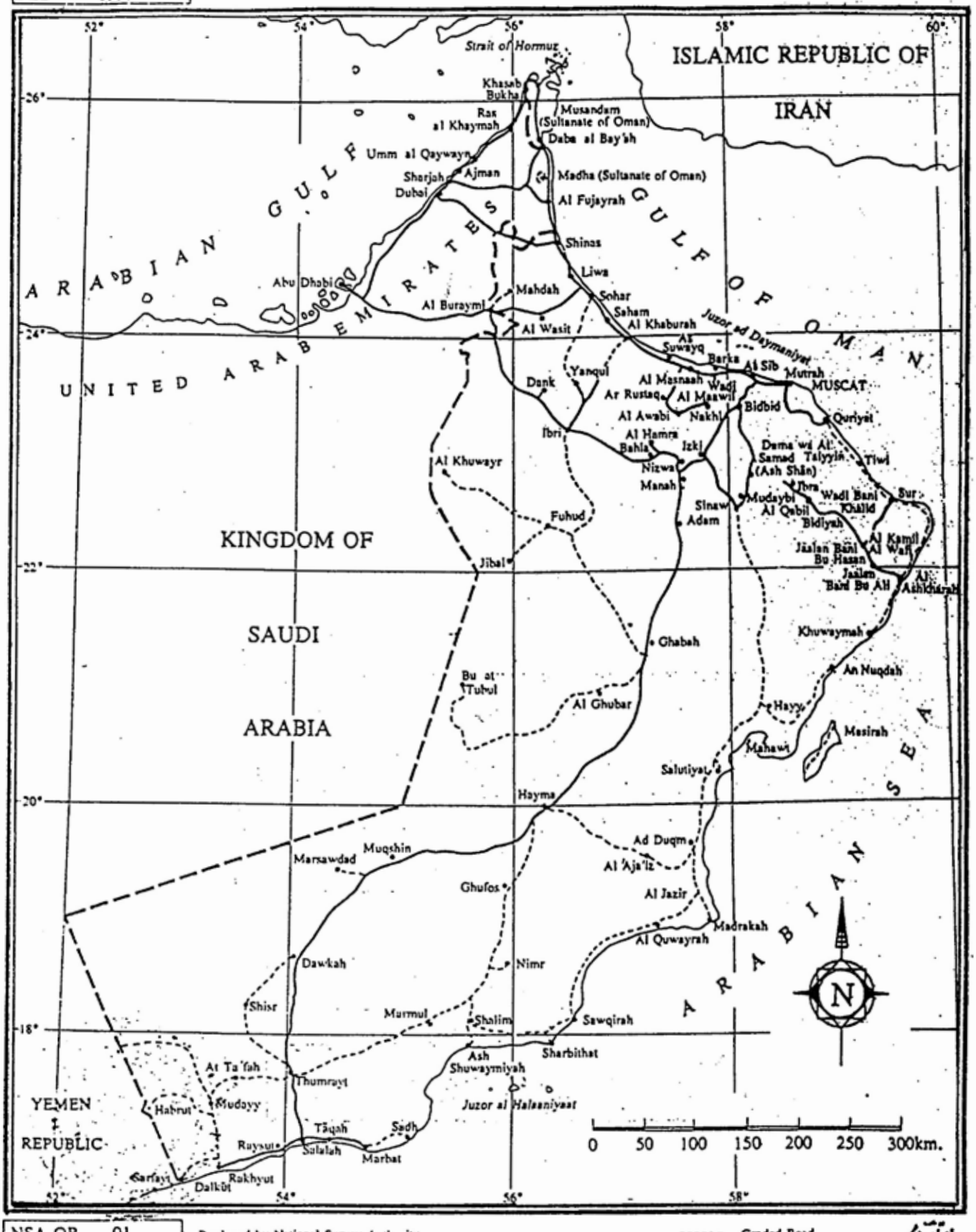
SULTANATE OF OMAN



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This map is not an authority on boundaries

Graded Road
Metalled Road
International Boundary

PART A: THE NATIONAL CONTEXT

- Land and history.
- The People.
- The Economic base.
- Political and administrative organisation.
- Social organisation and communication.
- Working for women and children.
- Regional progress, challenges and emerging disparities.
- Children and women requiring special attention.
- Oman, the Middle East and the world: a comparison.

1. Land and history

1.1. The Sultanate of Oman, situated in the south-east corner of the Arabian Peninsula, comprises a total land area of 309,500 km2. Over half the population of just over two million people live in the Muscat and Batinah regions, making much of the rest of the country very sparsely populated. The small Musandam Peninsula, in the north-east, is separated from the rest of the country by the territory of the United Arab Emirates. Oman's land area is composed of three principal types of terrain and climate: the mountainous region (15 percent of total land area), the fertile coastal plains (three percent, with a total of 1,700 km of coastline), and the semi-arid and desert regions (82 percent).

1.2. The climate is varied. In the summer it is hot and dry in the interior, and hot and humid along the coast, with a temperate year-round climate found only in elevated regions. Rainfall is low (averaging around 80-100 mm per year) and erratic, and in winter rain can cause flooding of many wadis (dry riverbeds) which temporarily restricts the movement of vehicles, even in and around urban centres. The climate in the south is more pleasant, and is characterised by heavy monsoon rains in June-September.

1.3. The rural Omani people exhibit several different lifestyles, corresponding to the environments in which they live. The coastal people live off fishing, seafaring, trading and agriculture. Along the Batinah coast, the south, and perennial and seasonal wadis in the interior, villagers practise irrigated agriculture using the ancient aflaj (singular: falaj) water conveyance systems that tap the water of underground mountain springs, which reaches the villages via long, narrow, and open stone canals that serve the entire village population. The bedouin lifestyle prevails in the semi-arid and desert interior regions, while the mountain people of Dhofar and Musandam practise a combination of farming and livestock herding.

1.4. History and identity. The people of Oman enjoy strong cultural traditions and a sense of identity that are based on a history of thousands of years, in a land that has always been a strategic cross-roads among the world's great civilisations. The earliest evidence of human activity in the land of Oman dates from around 14,000 years back, when Stone Age inhabitants of the mountain valleys lived off a combination of hunting animals and gathering wild fruits and vegetables. By the 3rd millennium BC, settled communities in Oman -- then known as the land of Majan -- traded copper, frankincense and other goods with the great

urban centres of Persia, India and Mesopotamia. Omani culture continued virtually uninterrupted for several thousand years, based on a combination of agriculture, fishing, mining and maritime trade. Members of the Azd tribe from Yemen, from which the present ruling family is descended, settled in Oman in the middle of the 1st millennium BC and regained it from Persian rule around the end of the third century BC. Between the 7th and 15th centuries AD, the people's seafaring and commercial prowess gradually expanded Omani rule into parts of East Africa, Persia and Baluchistan. Oman's ancient fortunes peaked under the leadership of Sayyid Said bin Sultan (1807-1856), who established official relations with the United States, Great Britain, France, Holland and other 19th century powers. The country's fortunes declined thereafter, until the revival of its international role and developmental drive in 1970, under the reign of the present leader, His Majesty Sultan Qaboos Bin Said Al Said.

2. The people

2.1. According to the 1993 census, the population of Oman was 2,018,074 in December 1993, comprising 1,483,226 Omanis and 534,848 non-Omanis, or 73 and 27 percent of the entire population, respectively. The total population includes 1,178,005 males and 840,069 females; Omani nationals comprise 755,110 males and 728,116 females. The total population was projected at 2.095 million in mid-1994.

Table 1
Total population by region

Gov./region	no. of households	Omani number	Omani percentage	non-Omani number	non-Omani percentage	total
Muscat	80,130	295,641	54%	253,509	46%	549,150
Al Batinah	77,852	472,065	84%	92,612	16%	564,677
Musandam	4,555	22,461	78%	6,266	22%	28,727
Dhahira	24,287	135,140	75%	46,084	25%	181,224
Dakhiliya	31,083	199,401	87%	30,390	13%	229,791
Sharqiya	40,722	219,251	85%	39,093	15%	258,344
Al Woustah	2,726	13,654	80%	3,413	20%	17,067
Dhofar	25,393	125,613	66%	63,481	34%	189,094
Total	**286,748**	**1,483,226**	**73%**	**534,848**	**27%**	**2,018,074**

(Source: 1993 Census)

2.2. About 55 percent of the Omani population lives in the Muscat (27%) and Batinah (28%) regions (table 2).

Table 2
Oman, population by region & sex (1993)

Region	Male	Female	Total
Dakhiliya	125,037	104,754	229,791
Sharqiya	142,959	115,385	258,344
Woustah	10,553	6,514	17,067
Dhofar	116,542	72,552	189,094
Muscat	343,300	205,850	549,150
Batinah	316,515	248,162	564,677
Musandam	16,539	12,188	28,727
Dhahira	106,560	74,664	181,224
Oman	**1,178,005**	**840,069**	**2,018,074**

(Source: 1993 Census)

2.3. About 52 percent of the Omani population (768,459) is under 15 years of age. The average age of the Omani population is 20.2 years, and the median age is 13.4 years. Eighteen percent of the Omani population (264,014) are females in the reproductive age group (15-44 years). A total of 519,629 Omani reproductive-age women and 0-4-year-old children are eligible for MCH services, representing 35 percent of the entire Omani population.

2.4. Oman is rapidly urbanising. The 1993 census showed that 72 percent of the population lives in urban regions (population of 2500 or more), compared to 33 percent in 1985 and 25 percent in 1980. The two principal urban regions are Muscat and Salalah. Muscat alone accounts for about 27 percent of the total population. The total urban population has grown at an annual average rate of 8 percent during the past 25 years. Around 24 percent of Omanis live in rural areas (mostly in villages of 500-1,000 population); less than 5 percent of the people are nomadic or semi-nomadic, and only 0.52 percent of Omanis are nomads who follow annual migration routes with their families and livestock herds.

2.5. Today, many places which were rural villages a decade ago have developed into small towns, and many of these feature as regional and sub-regional centres in the government's regional development plans. The government is aware of the dangers of rapid urbanisation, a disproportionate share of the population living in the capital region, and possibly irreversible rural-to-urban migration. Its current development strategy aims at raising regional living standards and economic opportunities by directing a proportionately larger share of new investments to provincial regions, in order to reduce urban/rural disparities.

2.6. The natural growth rate of the Omani population was estimated at 3.7 percent a year in 1993 (one of the highest in the world). The annual natural growth rate is expected to remain at its current level or even to rise slightly in the second half of the 1990s, due to the large number of women entering the reproductive age group every year. The total population growth rate of Oman (Omanis and expatriates) has fluctuated in recent decades, due to rises and falls in the number of expatriate labourers in line with economic trends. The total annual population net growth rate ranged between 0.6 percent and 5.8 percent in the period 1986-1991.

Table 3
Percentage distribution of population by age group & sex (Omanis & non-Omanis)

Age group	Male	Female	Total
0-4	7.07	6.84	13.91
5-9	7.33	7.19	14.52
10-14	6.45	6.33	12.78
15-19	4.65	4.37	9.02
20-24	4.32	3.08	7.40
25-29	6.18	3.03	9.21
30-34	6.10	2.59	8.69
35-39	5.42	2.24	7.66
40-44	3.83	1.58	5.41
45-49	2.35	1.27	3.62
50-54	1.68	1.03	2.71
55-59	0.89	0.58	1.47
60-64	0.86	0.61	1.47
65-69	0.36	0.30	0.66
70-74	0.37	0.38	0.75
75 & over	0.36	0.36	0.72
Total	**58.22**	**41.78**	**100.00**

(Source: Statistical Yearbook, Ministry of Development.)

It is expected to hold steady at its current rate of around 4 percent or increase only nominally in the mid-1990s, due to a slight increase in the number of expatriate workers entering the country coupled with the stable and high natural growth rate of the Omani population.

2.7. The government estimates that, at a growth rate of 3.5 percent annually, the Omani population will reach 1.953 million by the year 2000 and 2.755 million by 2010. Such high population growth rates, reflecting high fertility and children spaced relatively close to one another, may result in a decline of the quality of life, for several related reasons: parents may not be able to spend sufficient time with each young child, pressures on the mother's body may result in low birth-weight babies or infants who are not breast-fed for the recommended two years, quality of education and health services may drop due to rising demand pressures, and home-based life quality may suffer from a decline in the quantity and quality of available per capita water resources and sanitation services.

2.8. The combination of rapid urbanisation, brisk population growth, and sustained economic expansion could provide a context that gives rise to pockets of need in urban or peri-urban situations. More and ongoing research is required to monitor the impact of rapid urbanisation on families that may be vulnerable to the decline in the quality of life, due to their income level, large size, educational attainment, or other factors.

Table 4
Percentage distribution of population by age group & sex (Omani population)

Age group	Male	Female	Total
0-4	8.78	8.45	17.23
5-9	9.15	9.03	18.18
10-14	8.30	8.10	16.40
15-19	6.06	5.69	11.75
20-24	3.84	3.41	7.25
25-29	2.77	2.70	5.47
30-34	2.13	2.21	4.34
35-39	1.92	2.19	4.11
40-44	1.62	1.65	3.27
45-49	1.46	1.47	2.93
50-54	1.46	1.30	2.76
55-59	0.91	0.74	1.65
60-64	1.06	0.79	1.85
65-69	0.46	0.39	0.85
70-74	0.49	0.51	1.00
75 & over	0.48	0.48	0.96
Total	**50.89**	**49.11**	**100.00**

(Source: Statistical Yearbook, Ministry of Development.)

2.9. The crude birth rate is estimated at 39 per 1000 population (1994), a decrease from the rate of 45 in 1989 and 48 in 1985. The crude death rate is estimated at 7.2 per 1000 population (1994), a decline from 7.5 in 1991 and 13.3 in 1960. This reduction is due mainly to the fall in the infant mortality rate.

2.10. The Ministry of Health (MoH) estimates that 55,000 live births occur every year in Oman (1994), compared to 50,000 in 1985.

2.11. The total fertility rate for women is 6.9 children per woman, in part reflecting the deeply entrenched tradition of women marrying at the early age of 15-18. The 1989 Child Health Survey (CHS) showed a total fertility rate of 7.8 live births per woman for the period 1987-1988, which has subsequently declined to 6.9 (1993). There are significant disparities in the total fertility rate between women in urban areas (5.3), semi-urban areas (7), and rural areas (9.1). Birth spacing is actively promoted by the government health system. Less than one-third of all births are spaced at intervals of more than 2.5 years (CHS,1989). The 1989 CHS revealed an inverse association between level of education and fertility. Among women aged 35-39 years, current parity was four children for literate women and eight children for illiterate women. Fertility also varied with place of residence; 35-39-year-old urban women had a current parity of 5.7 births compared to 7.4 births among rural women.

2.12. The mean age at marriage for women is rising gradually, but continues to be relatively low. It was 20.7 years at the time of the December 1993 census, compared to 19.2

years in 1989 and 16.8 years in 1980. The 1991 Survey of the Health and Nutritional Status of Omani Families by Dr Abdulrahman Musaiger showed that 41 percent of mothers married before the age of 15 years, 49 percent married at 15-19 years, and just 10 percent married at 20 years or older. Mean age at marriage for men in 1993 was 24.7 years. Men and women in rural areas both marry at 2-3 years earlier than their urban compatriots. According to 1989 CHS data, there is an inverse relationship between educational levels of women and age at first marriage, with more educated women marrying at an older age, especially in urban areas. The census data shows a clear trend towards later marriage among the younger generations, especially in urban areas. Only 0.4 percent of girls were married by the age of 14, and 21 percent were married by the ages of 15-19, according to the 1993 census.

2.13. The average household size, according to the 1993 census, is 7 for the entire population (8 for Omanis and 5.3 for non-Omanis). Twenty-four percent of households had 1-4 members, and 35 percent had 10 or more members, reflecting a relatively large family size.

2.14. Polygamy is on the decrease throughout Oman; it was documented by the CHS at 10.8 percent of all marriages, and by the 1993 census at 6.8 percent of all marriages (with negligible urban/rural differences). Polygamy rises with age, as only 1.5 percent of 15-19-year-old married males had more than one wife, compared to 7.4 percent of 30-49-year-olds, and 10.8 percent of 50-54-year-old married males. Polygamy decreases as educational attainment of men increases -- 7.8 percent polygamy amongst illiterate married men and 3.8 percent among university graduates.

2.15. The 1993 census established that life expectancy at birth for Omanis in 1991 was 69.8 years, an increase from the figure of 61 years in 1980 and 66.5 years in 1985.

2.16. Though several thousand Omanis continue to work abroad, mostly in nearby Arabian Peninsula states, Oman is a net labour importer today, and the major migration pattern is Omanis moving within the country, from rural areas to the cities. Such migration largely comprises young and middle-aged working men, and some students. Yet, the migrants' links with their rural villages remain strong. One of the aims of the two-day weekend (Thursday/Friday) instituted in Oman in 1988 was to allow people working in urban areas to return to their villages on weekends, which seems to help keep them firmly anchored in their ancestral communities. In spite of these positive features and incentives, Omani officials are concerned about the implications of extensive internal migration, including whether today's rural children would have similarly strong ties to their villages after they work in the cities for years. It is possible that schools and clinics, by providing an added incentive for villagers to remain in their villages, may have helped to slow down large-scale rural-to-urban migration. The key determinant of migration patterns in the future is likely to be the ability of rural communities to make it economically worthwhile for educated young people to remain there, by creating sufficient income-generating activities for them and their families. Agriculture, for example, is manned largely by older men and expatriate labour, and may have to be developed in a more efficient and profitable manner in order to attract the direct involvement of intermediate, secondary school or even university graduates.

3. The economic base

3.1. The Omani economy grew at high levels for nearly 20 years, but since the late 1980s the growth rate has fluctuated due to its vulnerability to changes in international oil prices. Gross domestic product (GDP), at purchasers' value (current prices), increased by 10.4

percent in 1989 and 25.4 percent in 1990, declined by 2.8 percent in 1991, increased by 13 percent in 1992, and remained unchanged in 1993, when it has reached OR 4420 million ($11.5 billion).

3.2. The economy continues to suffer heavily from its reliance on oil exports, which accounts for over 80 percent of government revenues and 38 percent of GDP. Oil income remains the driving force of the economy, directly or indirectly, supporting nearly 90 percent of economic activities in Oman. Oil production increased from 142 million barrels in 1983, to 259 million barrels in 1991, and to 285 million barrels in 1993. Viewed over a longer time span, the Omani economy's reliance on the oil sector has declined from 68 percent of GDP in 1974 to 38 percent in 1993 (in current prices). The heavy reliance on oil is a major challenge to Oman for two reasons. The first is that in the short term, the country cannot influence international fluctuations in oil prices, which lead to significant and sudden changes in national income. The second is that when oil prices and income drop, the government is forced to reduce spending, draw from the reserves, and increase borrowing, which immediately affects negatively all sectors of the economy because the government budget accounts for 50 percent of GDP. In the longer term, the economy must diversify its base in order to reduce its reliance on oil income, if living standards and quality of life gains are to be sustained into the future. It is reliably estimated that Oman's proven oil and gas reserves will decline sharply, at current extraction rates, within the range of two decades.

Table 5
Gross domestic product by sectors, relative shares (%)
(million Omani riyals, current prices)

Sector	1981 GDP	%	1985 GDP	%	1988 GDP	%	1991 GDP	%	1992 GDP	%	1993 GDP	%
Petroleum	1474	59	1675	48	1188	40	1658	42	1875	42	1674	38
Non-petroleum	1044	41	1801	52	1780	60	2312	58	2594	58	2751	62
Total GDP (at purchasers' value)	2490		3454		2925		3917		4422		4370	
Population			1.408m		1.500m		1.762m		1.892m		2.018m	
GDP per capita (OR)			2450		1950		2223		2337		2165	
GDP per capita ($)			7102		5072		5782		6078		5631	

(Source: 1993 Statistical Yearbook)

3.3. Though the absolute value of non-oil exports has increased significantly in the past decade, oil exports continue to dominate the economy's total exports and income. Oil exports worth OR 1621 million accounted for 79 percent of total exports of OR 2063 million in 1993, a relative drop from their 96 percent share of total exports in 1980. Domestic non-oil exports have increased from OR 17 m. in 1984, to OR 79 m. in 1991, and OR 122 m. in 1993. The trade balance has remained consistently positive in recent years due to oil exports, but it has fluctuated considerably since the 1986 oil price crash. It was OR 411 m. in 1993, compared to OR 636 m. in the previous year.

3.4. Oman adjusted its long-term development goals in June 1995, when leading Omani

economists and development officials and some invited international colleagues gathered at the "Oman 2020" conference in Muscat to map out a sustainable vision of future socio-economic development. The conference identified the following principal challenges that have to be met in order for Oman to ensure sustainable development:

a) Controlling public spending, and eliminating budget deficits; b) reducing reliance on oil resources, in view of the anticipated gradual decline in oil reserves; c) diversification and expansion of the economic base, for the purpose of providing renewable resources of income to support the process of sustainable development, and for increasing government revenues from non-oil resources; d) enhancing the government's role in strategic and supervisory guidance, and diminishing its role in the goods and services sectors; e) enhancing the efficiency of the Civil Service, in order to achieve optimum utilisation of available resources and to increase its ability to deal with new developments; f) creation of a macroeconomic climate that is more conducive to private sector development, and strengthening the private sector's role in the national economy; g) increasing private savings and investment and limiting the mounting increase in consumption; h) upgrading labour market efficiency by correcting the existing disequilibrium, increasing labour's contribution to GDP, and rationalising the use of the expatriate workforce; i) development and training of human resources in an appropriate and efficient manner, so as to enhance its productive efficiency, contribution to the national economy, and interaction with the rapid changes in technology.

3.5. The meeting recommended several broads foundations for future policy:

a) developing human resources through a comprehensive strategy of training, general and vocational education, provision of basic human services, promoting women's participation in the workforce, and matching labour supply with market demand;

b) creating a stable macro-economic environment for sustainable, long-term development, which requires adjustments to the next five-year plan including limiting public expenditures, rationalising public financial support, promoting savings, expanding the government's revenue base, increasing the efficiency and productivity of government activities, and promoting free competition and private sector activity;

c) promoting privatisation of some public services, developing trade and investment laws, encouraging foreign investment, and enhancing the activities of the private sector so that it can increase its contribution to both economic and social development (a goal specifically mentioned by His Majesty Sultan Qaboos in his speech to the conference) ;

d) creating a suitable environment for economic diversification, so as to reduce reliance on oil and gas exports, better utilise Oman's natural resources and strategic advantages, promote exports, increase value-added economic activities, and promote the use of advanced technologies;

e) increasing the real living standards of all Omanis, extending the scope of social security services, encouraging self-reliance for community development, and reducing disparities in income and quality of life between regions and income groups;

f) developing the government's efficiency in providing basic services;

g) enhancing integration of the Omani economy with the global economy, through actions at the local, regional and global levels.

3.6. These macro-economic issues are critically important to maternal and child health prospects in the future, which can only be assured by the transition to an economy which is less dependent on oil exports and more dependent on domestic skills, high value-added, and increased productivity. Current government spending patterns are not sustainable in the very long-term, due to the non-renewable nature of oil reserves and the economy's vulnerably high

exposure to an erratic international oil market. This has important implications for health, education and other human development sectors that have relied heavily on government spending since the early 1970s. The cost-effectiveness and sustainability of recent health achievements (such as UCI) will have to rely less in future on government funding, and more on community-based forces, including cost-recovery, preventive action, awareness, and volunteer activities through NGOs and the public health system. The Ministry of Health is studying ways of achieving greater cost-efficiency and savings without affecting quality of services.

3.7. Major structural constraints which face the private sector include a relatively small domestic market, the slow development of the Gulf-wide GCC market or a broader Arab/Middle Eastern trading zone, the limited availability of indigenous raw materials, constrained agriculture and water resources, the relative lack of skilled and trained Omani workers and Omanis' higher pay expectations compared to expatriates. About 80 percent of the labour force in the modern business sector is expatriate, and just 20 percent is Omani, while over 60 percent of private Omani labour is in traditional sectors such as fishing and agriculture. Omanisation of the economy and assurance of decent family incomes in a post-oil era are crucial to sustaining long-term maternal and child health gains.

3.8. Industry. Natural resources and market constraints suggest that manufacturing will continue to be restricted to a limited range of items, but Oman is likely to develop a major non-oil industrial sector if it manages to develop its human resources and diversify its economic base in a proper manner. Despite existing constraints, the manufacturing sector has developed satisfactorily during the past 17 years, expanding from 10 industrial firms with investments of under OR 0.5 m. in 1975 to nearly 4,000 firms with investments of over OR 450 m. in 1993. Other fields with good growth prospects include fishing, agriculture (especially dates), and perhaps tourism.

3.9. The total fish catch has remained relatively steady in recent years at around 115,000-120,000 metric tonnes, but this sector has the potential to provide employment and income for a large number of Omanis. The traditional fishing sector of small boats and family operators comprises 17,000 fishermen, nearly double the number in 1984, though most of the newcomers are part-time fishermen who have other sources of income. The commercial fishing fleet increased from 300 boats in 1985 to 450 in 1989. Oman is self-sufficient in fish and already exports some of its catch, with a great potential to increase exports significantly. But this sector, like water and livestock sectors, is in danger of unchecked over-exploitation in some areas in the absence of strict government regulation of fishing practices. Fish and other marine animals are an important source of protein in family diets.

3.10. Agriculture continues to expand and become more efficient, in line with the rising awareness of farmers, market incentives and the introduction of new technology. Farming is conducted primarily on traditional family and communal village plots, and relies on the participation of the members of the whole family including women. Total available arable land is estimated as high as 2,000,000 hectares, of which around 60,000 hectares are cultivated. Agricultural production has increased slowly but steadily in recent years, but remains less than one million tons of field crops, fruits, and vegetables. Despite heavy government support to agriculture and a policy orientation geared towards encouraging people to remain on their farms, Oman still imports about three-quarters of its food requirements. Quality of water and its availability are the major long-term constraints on agriculture, as virtually all farming is irrigated because of the absence of lakes and perennial rivers. Many landowners accept relatively modest returns from farming, because they are absentees farmers and leave the business of farming to hired foreign workers. This sector holds out much

potential for generating employment for Omanis, assisting the balance of payments, and also contributing to improved family nutrition and health standards.

3.11. After rising sharply and steadily in 1971-1984, GDP per capita has fluctuated widely since 1985, reflecting rising population and sharp economic swings due to an erratic oil market. Per capita GDP in 1994 was OR 2087 ($5426), compared to OR 2411 ($6269) in 1990, but slightly less than the level of OR 2129 ($5535) in 1980. The static level of per capita income in the period 1980-94 decade reflects two of Oman's most immediate and long-term vulnerabilities: its high population growth rate, and its heavy economic dependence on fluctuating oil income.

3.12. Public debt doubled during the 1980s to $2.73 billion in 1990, rose slightly to $2.85 billion in 1992, and reached $3.8 billion in 1994. The debt/GDP ratio has increased in recent years from 22.4 percent in 1990 to 33.4 percent in 1994, while the debt service/exports ratio has dropped, from 14 percent in 1990 to 11.7 percent in 1994. Total debt service in 1992 was $529 million, which is slightly down from the $657 million level of 1987. Oman still enjoys a sound credit rating internationally and can raise international commercial loans at good rates, due to its substantial foreign reserves and its prudent fiscal management policies.

3.13. Public finance trends have suffered from the erratic behaviour of oil prices. Expenditures have increased steadily in recent years (from OR 1.57 billion in 1987 to OR 2.24 billion in 1993) but revenues have fluctuated widely on a year-to-year basis. Consequently, the government budget deficit has also fluctuated in recent years, from a low of OR 11 million in 1990 to a high of OR 518 million in 1993. To cover the deficit, the government issues domestic development bonds, draws on its foreign reserves and borrows from international markets.

3.14. The total labour force in Oman was 671,000 in 1993. The 1993 census showed that expatriates accounted for 61.4 percent of the total labour force, and Omanis 38.6 percent. The expatriate component of the labour market should start to decline in the coming years, as Omanisation policies promote greater employment of Omanis in the economy. The crude labour force participation rate was 35 percent in 1993, compared to an estimated 25 percent in 1985. The dependency ratio is 4.4 people per worker. The rate of economic activity among expatriates was 90.3 percent in 1993, and 37.9 percent among Omanis.

3.15. His Majesty Sultan Qaboos has repeatedly called on Omanis not to shun manual labour and service jobs. The 1993 census indicated an unemployment rate of nearly 12 percent among Omanis. In early 1995, His Majesty Sultan Qaboos also referred to "unemployment in disguise", meaning the excessive number of Omanis employed by the government. The census showed that the public sector accounted for 33.8 percent of the total labour force, and the private sector for 62.2 percent, though 66.2 percent of all Omani labour was employed by the public sector. Omanis accounted for 75 percent of public sector employees, while expatriates accounted for 85 percent of private sector employees.

3.16. In 1993, about 56 percent of Omani workers were employed in civil and defence government services, 9.3 percent in agriculture and fishing, 5.1 percent in trade and hotels, 1.9 percent in construction, and 1.8 percent in manufacturing. Of the non-Omani workforce, 24 percent was in construction, 21 percent in trade and hotels, and 13 percent in manufacturing.

3.17. Efforts to increase the Omani share of the labour force, especially in the private sector, are constrained by several factors, including: lack of basic skills among Omani workers, the tendency for the most capable Omanis to seek work in the public sector, the legacy of social conditioning that orients school graduates to seek government employment at relatively high pay scales with good fringe benefits, negative work attitudes towards manual

labour, services and private employment, a tendency for expatriates to preserve jobs for their fellow nationals, the common view among the private sector employers that training Omani nationals is an expense rather than an investment, the relatively high cost of Omani workers compared to expatriates, and the common Omani perception of private sector jobs as temporary stepping stones to government positions. Also, most existing training and educational facilities are geared towards public sector employment. The government has been tackling some of these constraints, and uses indirect policy measures to promote Omanisation in the private sector, such as banning some jobs to expatriates (taxi drivers, fishermen) and partly restricting other jobs (public relations officers).

3.18. Income levels. The law sets the basic minimum wage at OR 60 per month, but with allowances the minimum wage is closer to OR 100 in practice; important sectors such as government employees, farmers, domestic helpers, and small business employees are exempt from the minimum wage guidelines. The government feels the minimum wage is sufficient to meet basic family needs in view of the free social services system. Very poor families with a monthly income of less than OR 150 can secure a one-time payment of OR 6,000 from the government to get on their feet financially and professionally, and families with incomes of OR 250 or less are eligible for an interest-free loan to build a home.

3.19. Families or individuals in special need, such as orphans, the aged, unmarried and abandoned girls, divorced women, widows, the disabled, families without a supporter or adequate income, and families of imprisoned members benefit from the Social Security System. In 1993, a total of 40,664 individuals or families received such benefits, worth a total of OR 19 million ($49 million).

3.20. No recent nationwide data on family income levels is available in Oman, making it difficult to identify the potential danger of some families slipping into subsistence or poverty levels. Musaiger's 1991 survey showed that nearly one-third of families had incomes of OR 200 or below, while a 1986 rural households survey showed that 44 percent of households has an income of OR 100 or less. A 1989 NCDP household survey in Adam wilayat revealed that 21 percent of households had an income of OR 100 or less. Income levels and disparities is an area where considerable research is required to identify trends and to spot whether any families are falling behind the rest of the country in terms of their ability to afford sufficient food, health care, housing and other basic needs.

3.21. Inflation has been moderate since 1990, after having fluctuated in the 1980s. The national inflation rate has averaged around 1.5 percent in the last three years, mostly reflecting imported inflation; the rate is higher in the capital region than the rest of the country.

4. Political and administrative organisation: Impacting positively on child and maternal needs

4.1. Oman is an independent sultanate under the leadership of His Majesty Sultan Qaboos bin Said Al Said, who authorizes all laws and decrees. The administrative system of government under the Sultan consists of the Ministry of the Diwan of the Royal Court, the Council of Ministers, the Secretariat to the Council of Ministers, the Governorate of the Capital (Muscat), the State Advisory Council (Majlis esh-Shura), and specialised councils for development, financial affairs, education and training, youth, conservation of the environment and water resources, Sultan Qaboos University, and civil service. The highest executive authority is the Council of Ministers, which is responsible to the Sultan. The presence in the

specialised councils of ministers, senior government officials and prominent members of the private sector promotes efficient coordination and implementation in the executive branch of government.

4.2. The 80-member Majlis esh-Shura (State Advisory Council) is composed of one or more representatives from each of the 59 wilayats (chosen from a list of 2-4 names submitted by the people of each wilayat). Its representation reflects the national population distribution as revealed in the 1993 census. The council which was chosen in 1994 includes two women. The council discusses government programmes and laws, recommends amendments to laws, suggests measures to deal with socio-economic issues, and offers opinions on any other issues which the Sultan may refer to the Council of Ministers. The council questions ministers in televised public meetings and submits a report to the Sultan after every session. Permanent standing committees of the council meet more frequently throughout the year and can also call in ministers to discuss relevant issues. The council experience is relevant to maternal and child health issues because it represents a trend towards greater popular participation and community involvement in decision-making at the national and regional level. This trend is likely to have increasingly important implications in the future for community empowerment strategies at the region, wilayat, and local levels, particularly in terms of people taking more responsibility for decisions that affect their lives.

4.3. The country is divided administratively into eight regions and governorates, which are further subdivided into 59 wilayats (districts), each wilayat headed by an appointed wali, or district governor. The walis fall under the jurisdiction of the Ministry of the Interior. The wilayat system provides an efficient mechanism through which administrative, legal and executive decisions that are carried out at the national level can be implemented throughout the country. As Oman's social and economic development gives priority to regional issues, the walis will continue to play an increasingly important role in national development. Regionalisation and decentralisation are by now established strategic policies in almost every government ministry, and thus the administrative efficiency of the regional- and wilayat-level systems will become ever more crucial to the country's ability to maintain and increase the wellbeing of its people, especially its women and children.

4.4. Other than Muscat and Salalah, which have their own municipal authorities, towns' and villages' affairs fall under the jurisdiction of the Ministry of Regional Municipalities and Environment. There are a total of 3507 cities, towns, villages, hamlets and other permanent population settlements throughout the country.

4.5. The judicial system, based on Islamic (Sharia) law, is administered through a network of 45 Sharia courts under the direction of the Ministry of Justice, Awqaf and Islamic Affairs. A Court of Appeal in Muscat hears appeals of judgements issued by the Sharia courts.

4.6. The government's track record of focusing on social development issues is well illustrated in budget figures showing that public spending on health and education had been either steady or has increased during the past few years, at a time when budget cutbacks were made in other sectors. Government's current education expenditures as a percentage of total government spending have increased from 2.4 percent in 1975 and 7.6 percent in 1985 to 8.7, 8, and 8.9 percent respectively in the three years between 1991 and 1993; the corresponding figures for health spending were 2.2 and 4.3 percent respectively in 1975 and 1985, and 5.2, 5 and 5.4 percent respectively in the period 1991-1993.

5. Social organisation and communication: the child, society and family

5.1. Oman enjoys the benefits of a cohesive, self-assured society based on national and social traditions that date back thousands of years. Islam is the religion of the entire Omani population, and is a cohesive and constructive force that binds Oman to the rest of the Arab and Islamic world. Omanis display strong attachment to their Arab and Islamic culture, as exhibited by customs, dress, language, social behaviour and other aspects of society. Oman is trying hard to preserve the positive aspects of its traditional culture while providing its people with the advantages and conveniences of a more technologically advanced society.

5.2. Omani society is patriarchal, with men making most decisions and dominating political, economic, and social life. Women play a minor role in public life. But due to the advent of free, universal education, Oman is in the midst of significant changes in this respect, and women are expected to play an increasingly visible and substantial role in public and government life in the coming decades. They are also beginning to exhibit characteristics common to fast developing societies, such as later marriage age and lower fertility rate for women, and a rising percentage of working women.

5.3. Women play a very important role in family and home life, in both urban and rural areas. Along with assuming virtually total responsibility for running the household and for child-rearing (including physically demanding tasks such as fetching water and firewood in many rural areas) women are also active in their immediate micro-economy, particularly in farming and livestocking.

5.4. During the last two decades Oman has made a gradual transformation from a traditional, subsistence, agrarian and barter economy to a cash-driven, consumer oriented, semi-industrialized service economy. Oman's oil income and brisk development expenditures since the early 1970's have spurred the growth and, in some cases, the dominance of market oriented commercial forces. Relevant measures and policies to ensure a healthy and balanced development and to protect the Omani society from these latter forces would be of paramount importance. In particular, the government must pay special attention to the vulnerable and disadvantaged groups such as the disabled, the uneducated, low-income families or people living in remote communities.

5.5. Oman enjoys a strong legacy of local leadership and community participation, both of which are important for its future development strategy. Traditionally, villages have always responded to the advice and exhortations of the local tribal sheikh or village headman, who occupies a particularly respected and venerated position in the community. With the advent of the modern administrative structure of the state, these community leaders have been linked to regional governors and sub-governorate-level officials, and are very helpful in implementing nationwide or regional programmes because they enjoy the respect of their communities and are willing to assume leadership roles in local affairs. Community collective self-help has always been a central element of social and economic life in Oman, including traditions of collective work in maintaining aflaj, building homes, and harvesting date crops. If sensitively approached, this tradition of self-help can be modernised into the community participation dynamics that are needed to continue Oman's progress in community health and welfare standards.

5.6. The strong social and family structures of Oman are partly offset by a general lack

of knowledge by families of proper techniques in such fields as water conservation, environmental sanitation, and early childhood stimulation. Subjects such as these are becoming more important -- in some areas even critical -- to the quality of life of the next several generations of Omanis who will find themselves in a situation of deep social transition. This is particularly relevant to children's lives in a context of rapid social and economic transformation. The strength and support of the family-based social structure will become increasingly important as Omanis are challenged to work together and with the government at the local level to assure their basic needs and to achieve further improvements in their quality of life.

Communication and social mobilisation

5.7. Oman has three powerful assets that it can use to disseminate health and social communication messages to its population: very high government credibility, an extensive modern mass media network, and a strong system of interpersonal communication based on tribal and local community leadership hierarchies.

5.8. Oman's mass communication network of radio and television transmitters reaches virtually every household in the Sultanate. The 1989 Child Health Survey found that 74 percent of all households had a television set, and 82 percent had a radio. The MoH believes that over 90 percent of homes had televisions in 1993 and over 85 percent had radios. The 1993 pre-census listing of 168,000 households found that 87 percent of households enjoyed clear television reception and 95 percent enjoyed clear radio reception. These figures varied widely by region, with parts of Sharqiya, Dhofar and Al Woustah showing relatively poor mass media reception.

5.9. Television and radio are government-owned, and have special programmes that disseminate health education and social messages to the public. A regular health show on television includes interviews with doctors, while radio programming has less regular health components. The overall quality of mass media health-oriented programming can be further improved, and made more systematic, entertaining and relevant.

5.10. Total television transmissions of developmental programmes in 1993 accounted for 9 percent of TV hours (down from 17 percent in 1988) and for 11 percent of radio hours, religious programmes for 10 and 11 percent respectively, and cultural programmes for 8 and 15 percent respectively. TV and radio also transmit spots on health, education, environmental protection and other such issues. Nearly 200 spots have been developed for TV and radio.

5.11. The government-owned press includes one Arabic-language daily newspaper and one English-language daily newspaper. The other two Arabic-language daily newspapers, one English-language daily newspaper, four Arabic-language weekly magazines, and one monthly social magazine for women, are privately owned, but monitored by the Ministry of Information. All government and privately owned publications actively participate in information dissemination efforts linked to health, social affairs, and education.

5.12. The mass media, particularly television, was effectively used in the second half of the 1980s for nationwide dissemination of information related to the activities of the Ministry of Health, notably in such fields as immunization and ORT. These were largely 30- and 60-second spots that were relatively easy to produce. The spots are not being used regularly any more, due to quality constraints in the spots themselves and lack of access to sufficient free air time, due to intense competition from other developmental agencies that also want air time for their own messages. In the period 1992-1994, 36 television spots and ten half-hour programmes on a variety of health and social issues were produced with the help of NWCCP.

They were well accepted by the people, in part because of the high credibility of the government-owned media with the general public. Most Omanis -- especially people who are over 40 and who remember Oman several decades ago -- view the government as a valued provider of basic services, and therefore trust the government television and radio as a source of useful information.

5.13. A shortage of qualified Omani technical and creative personnel, including actors, actresses and scriptwriters, hinders the production of longer and more sophisticated programmes that are at once entertaining, relevant to society, credible, and educational. Such programmes are produced largely by expatriates resident in Oman or by foreign experts commissioned from abroad, or are purchased from other Arabic-speaking production centres abroad. They can be more effective if conceived, written, produced, and acted out by qualified Omani nationals, of whom there is a great shortage today. Expanding the pool of Omani talent is a long-term endeavour, given the complexities and long time horizons inherent in identifying and promoting indigenous creative talents.

5.14. Musaiger's 1991 survey found that 59 percent of mothers watch TV in the late evening and 18 percent in the afternoon, with 32 percent watching for one hour a day, 34 percent for two hours, and 34 percent for three hours or more. About 61 percent of mothers said they watched the MoH health programmes on TV (high of 73 percent in Sharqiya and lows of 46-47 percent in North and South Batinah). Lower viewership is probably due to a combination of reasons, such as clarity of reception, time of transmission, local lifestyles (agricultural vs. urban), and quality of programming. Three out of four mothers (74 percent) said they practised the advice they received on the various TV health shows, the most common practices being in child health care, infant-feeding, home hygiene, children's vaccination, and accident prevention among children.

5.15. Forty-eight percent of mothers said they listened to at least one hour of radio per day, 29 percent for two hours, and 24 percent for three hours or more, with morning being the favourite time for radio (84 percent). About 41 percent of mothers said they listened to the health and nutrition education programmes on radio, significantly lower than the 61 percent of mothers who watched similar television shows. Sixty-nine percent of mothers said the contents of the radio programmes were understandable to them, 26 percent said they were partially understandable, and only 5 percent said they were not understandable.

5.16. Posters are widely used in Oman for health and nutrition education, in health facilities, schools, women's centres and other locations. They are an important means of spreading knowledge because their pictorial content often can be understood by illiterate women and men. Musaiger found that 88 percent of mothers had seen the selected posters he chose for the survey (on complementary feeding, nutrition for pregnant women, and promotion of breast-feeding), while 12 percent had not seen them. The vast majority (80 percent) saw the posters in hospitals, 17 percent in health centres, 2 percent in MCH centres, and 1 percent in women's associations. However, not all women understood the messages in the posers. A full 50 percent of mothers did not give the right explanation of the message in the pregnancy posters and 32 percent gave a partially correct explanation. For the breast-feeding poster, 13 percent gave a wrong explanation and 17 percent gave a partially correct explanation, while for the complementary feeding poster 40 percent of mothers did not understand the message, and 31 percent partially understood it.

5.17. Much work needs to be done to assess the effectiveness of health education information delivered via the mass media. Because many middle-aged and older women are illiterate, the materials used to reach them (posters, flip charts, illustrated booklets) also need to be carefully assessed for appropriateness and effectiveness. This is particularly relevant in

view of the easy access to health facilities in most communities, which makes it easier for people to visit a health centre for curative care than to make the effort to learn proper preventive health habits.

5.18. Social mobilisation in rural villages relies heavily on television and radio messages and local community development workers, while activities in the cities and towns also draw on scouts and girl guides, the municipalities and government services, school health efforts, and other such institutional channels. A broad network of non-health sector partners has been developed to participate in health- and quality-of-life-oriented efforts, including immunization, CDD, breast-feeding, complementary feeding, and environmental sanitation.

6. Working for women and children: Building on a credible institutional base of services for the entire family

6.1. The National Community Development Programme (NCDP) of the Ministry of Social Affairs and Labour has 20 years of experience in working directly with local communities throughout the country, aiming to raise living standards through education, income-generating and self-help schemes. NCDP works in nearly 250 villages and 390 smaller population centres in 29 wilayats. It has developed a credible core group of people who can dialogue and work with local communities, identify their needs, establish cross-linkages with other developmental programmes or existing government agencies, and channel assistance to improve local living standards. NCDP emphasizes the development of rural women as pivotal elements in family and community development, and seeks to raise the level of women's cultural, educational, social and health awareness. It does this through training and literacy courses, meetings, lectures (on health, education, nutrition, safety, etc.), field visits, and the development of local women leaders. Other NCDP activities include aflaj maintenance, digging wells for irrigation and drinking water,improving drinking water sources, building public baths, establishing Koranic schools, establishing and equipping facilities aimed at women (notably pre-school facilities and income-generating projects), running skill-building and literacy courses, and constructing public meeting places, libraries, health centres and sports grounds.

6.1.1. NCDP programmes and staff provide an extensive base on which to build community-oriented strategies throughout the 1990s. They are also noteworthy because they reach men as well as women. In a typical year, their films and plays on environmental health and aflaj cleanliness would be seen by nearly 4,000 people in over 200 villages, with men making up over half the audiences. Of the 20,000 people a year who attend lectures and meetings on topics such as nutrition, environmental health, religion, and education, about 55 percent are men and 45 percent are women.

6.2. The Directorate-General of Women's and Children's Affairs (DGWCA) at the Ministry of Social Affairs and Labour seeks to improve the social and economic status of Omani women through several means: training and education for women leaders; establishing day-care centres and nurseries for young children; improving the legal status of women; promoting income-generating projects; and, undertaking educational, training or other activities in the fields of health, education, literacy, nutrition, safety, early childhood development, and other topics relevant to women and their families. Its top priority is to enhance the awareness of mothers about child and family health care, especially women's own

nutrition and health care. The directorate suffers from funding and technical manpower constraints, and needs to strengthen its research and studies capabilities so as to be able to identify existing problems and emerging needs.

6.2.1. DGWCA operates eight women's training centres and plans to open others, offering courses in sewing, hairdressing, embroidery, repair of electric appliances, and other fields. It also helps entrepreneurial women to obtain government or private credit to launch their own productive businesses. DGWCA operates on the principle that women leaders are an integral part of Omani society and its cultural legacy, with traditions of women leaders at the community level in the fields of health (TBAs and traditional healers), Koranic teaching, and formal education, and wives of local sheikhs who have often exercised their own leadership role -- potentially pivotal players in community-oriented strategies to achieve the goals of the 1990s. Orienting women to socially acceptable private employment is a big challenge today.

6.2.2. Many activities of the Directorate-General for Women's and Children's Affairs are undertaken through the Omani Women's Association (OWA), a government-supported association with 16 local branches and nearly 3,000 members throughout the country. Demand to open new branches is strong, but is often constrained by the low availability of qualified local women leaders who can manage the society. OWA activities include operating centres for disabled children, nurseries and pre-schools, and holding lectures, exhibitions, and workshops on issues related to family health and development, women's concerns, environmental protection, and children's needs (particularly disability).

6.3. Non-governmental and other organisations (NGOs) are very limited and young in Oman. They include the Omani Women's Association, the National Association for the Welfare of Disabled Children, and the Cultural Club (which promotes cultural projects and appropriate reading materials for children). No international NGOs operate in Oman.

6.3.1. Other institutions and organisations in Oman that have been, or could be, brought into the multi-sectoral nationwide effort to promote better woman and child health include the walis and municipalities, the Public Authority for Marketing Agricultural Produce, the defence forces and police, Petroleum Development Oman, the postal system, and a variety of commercial, banking and agricultural institutions and networks.

6.3.2. The Boy Scouts and Girl Guides of Oman are growing movements that are increasingly oriented towards community service. Both have been involved in projects to increase family awareness of good health and environmental protection habits, and both can play a more substantial role in social mobilisation. A total of 10,000 scouts and 4,700 Girl Guides (aged 7-24 years) are organised in local units whose focus is a combination of personal development and community service, including helping disabled students and adults; promoting vaccination, cleanliness and environmental protection at local level; conducting insect-control and health-awareness campaigns; and, promoting better family knowledge of nutrition and breast-feeding. They are closely linked to schools, training institutes, and community centres, and they initiate and participate in public activities with a community development focus (eg. annual celebrations of Arbor Day and Municipalities Day, clean-up campaigns, health-related lectures, symposia and public campaigns, and weekend or annual camps on themes such as environmental protection or afforestation).

6.4. The National Woman and Child Care Plan (NWCCP) grew out of the idea that mother and child health were not the sole responsibility of the Ministry of Health, but rather relied on services from a range of government agencies, private entities, and NGOs. It brings together officials and staff from many different sectors, with the aim of delivering information

to families in a manner that supports the health delivery services. The NWCCP Task Force monthly meeting brings together department-level directors from the ministries of health, education, social affairs and labour, information, regional municipalities and environment, interior, and justice, Awqaf and Islamic affairs, along with representatives from the OWA, the university medical school, the Public Authority for Marketing Agricultural Produce, the Chamber of Commerce, UNICEF and WHO. Other people from the public, private, NGO or international sectors are brought in as the subject under review requires.

6.4.1. NWCCP establishes MCH priorities, plans mass media and training programmes, and designs training, education, communication and information materialsfor use by all concerned institutions. It has emphasized manpower development and communications issues, seeking to enlarge the pool of well informed, experienced and committed people who can effectively dialogue and positively influence the community. Its example of effective multi-sectoral coordination at national level is now being gradually replicated at regional and wilayat levels.

6.4.2. Key to NWCCP successes has been the training of non-health workers to deliver heath-related information to the community as a whole. Important aspects of the NWCCP Task Force's success that may be relevant to Oman's future human development strategy are its informality, flexibility, and the capacity of its members to make decisions and implement them quickly by allocating the required resources.

6.5. Muslim religious leaders and institutions occupy a respected position in the community and have the capacity to bring great moral weight to bear on community-based efforts to improve women and child health practices. Muslim leaders and institutions played an important role in immunization and oral rehydration drives in the late 1980s, and their central role in the community can be used to support many other NWCCP components.

7. Regional progress, challenges and emerging disparities

7.1. Regionalisation and decentralisation are important means to prevent major disparities between urban and rural regions, or between population groups that may enjoy different levels of education, income, awareness or basic services. In the period 1970-1990, developmental expenditures were unavoidably concentrated in the capital region, because of the urgent priority of establishing the most basic national government agencies and infrastructural services. The task of assuring basic human services for all Omanis faces the reality that most of rural Oman comprises over 3,000 small, thinly populated and widely scattered villages and population clusters, amidst often rugged and inaccesible mountain or desert terrain. A 1989 survey of 32 villages in Adam wilayat, for example, showed that 13 of the villages had populations of less than 100 people, and 23 had populations of less than 250 people. These demographic conditions must be appreciated in the face of Oman's status as an oil-producer with a per capita GDP that has fluctuated significantly between $4,000 and $8,000 during the last decade. The fact that per capita national income is so volatile itself indicates the developing nature of Omani society, and the vulnerable state of the economy, given that the wellbeing of society as a whole relies almost exclusively on oil exports.

7.2. The Muscat region has over one-fourth of the total population of Oman, but has received half of all infrastructural investments during the last two decades. Table 6 indicates some disparities between the capital region and the rest of the country. It points out to the narrowing of the gap of some areas in recent years, but also indicated the areas where

disparities have worsened. Though the capital has clearly progressed much faster than the rest of the country, this has had the positive effect of creating what has been termed a "critical mass" for national modernisation, particularly in terms of institution-building and manpower development. The capital is a showcase of quality, cleanliness, good municipal services, civic consciousness, environmental awareness and care, and other positive aspects of development. Most Omanis see it as a model they take pride in, respect, enjoy, and seek to emulate. The current and next five-year plans emphasize the development of the regions outside the capital.

Table 6
Disparities between the capital and the rest of the country, and recent changes

Sector		Capital	Rest of Country
Population (1993)		27%	73%
Registered vehicles	(1988)	59%	41%
	(1991)	47%	53%
Phone lines installed	(1988)	57%	43%
	(1993)	50%	50%
Electricity consumption (% of national total)			
1985		75%	25%
1987		67%	33%
1988		68%	32%
1991		67%	33%
1993		61%	39%
Average industrial wage			
1980		1623 Riyals	1208 Riyals
1985		1804 Riyals	987 Riyals
Water consumption (1993)		74%	26%

(Source: 1993 Statistical Yearbook.)

7.3. Tables 7 and 8, based on data that is sometimes distorted due to the small numbers at wilayat level, nevertheless suggest patterns in quality of life disparities, with the regions of Al Woustah, Musandam, South Batinah and Sharqiya appearing to show the greatest tendency to fall below national averages in some indicators. Low birth-weight, for example, which is a good overall indicator of community health standards, varies from lows of 6-7 percent in Dhofar and North Batinah to highs of 10-12 percent in South Batinah and Muscat. In the regions of Dakhiliya and North Batinah, the PEM attendance rate per 1000 population under the age of 5 is nearly double the national average. Sharqiya and Al Woustah show diarrhoea and ARI incidence rates among under-fives that are significantly higher than the average of the rest of the country, while their IMR rates are also among the highest of all the regions. The prevalence rate of infectious and parasitic diseases per 10,000 hospital in-patients varies by great proportions, from lows of 28-75 in Muscat and South Batinah to highs of 264-288 in Musandam and Sharqiya.

7.4. Alongside these signs of disparities in quality of life indicators among different

regions, there are also signs that some regions are not improving their situations as fast as others. While IMR for all of Oman in the three years 1991-1993 fell from 27 to 23 per 1000 live births, it may have increased in Sharqiya, and it remained relatively high in Al Woustah and North Batinah. Similarly, the low birth-weight rate has declined consistently throughout the country, it seems to have increased in Al Woustah and perhaps also in Dhofar.

7.5. There is enough data on disparities by wilayat and by region to emphasize the need for more research to determine whether the statistical differentials mirror real disparities in life quality, or merely reflect the hazards of gathering accurate data in the developing world. If real disparities do exist -- and this is indicated by the available data -- their causes need to be identified in order to take remedial measures. It is difficult to say now whether the causes of some evident disparities are predominantly due to knowledge and behaviour of people, weaknesses in the health system, social or attitudinal factors embedded in the community, income disparities, environmental health and sanitation factors related to water and waste disposal, or a combination of these and other factors.

7.6. Uneven income distribution among rural and urban regions may be a cause of some maternal and child health problems (ie. nutrition), but this is not well documented. Partial or regional surveys often point out that the Muscat region has the smallest percentage of low-income families and the highest percentage of high-income families. An NCDP 1985 survey which was carried out in 42 villages, showed that more than a fifth of rural wage-earners had a monthly income of OR 50 or less -- though the implications in terms of urban/rural income disparity are not clear because of a lack of sufficient data on a national scale. Industrial wages data also indicates a gap between Muscat and the rest of the country, but the gap appears to be narrowing. The average annual industrial wage in 1980 was OR 1623 in Muscat and OR 1208 in the rest of the country; by 1985, it was OR 1804 in Muscat and OR 987 in the rest of the country, and by 1993 the average wage in Muscat was OR 1363 while for the entire country the average was OR 1307; yet, there remain significant gaps between the capital wages and wages in Batinah (OR 744), Dhofar (OR 800) and Dakhliya (OR 1000). It is difficult to determine whether the gap in rural-urban income differentials may increase or decrease in the near future. A continuing focus on promoting regional development should narrow them, but they may be widen due to other factors, such as rural regions' being characterised by lower literacy and education rates, a tendency for skilled and educated people to seek better paying jobs in urban centres, the prevalence of seasonal jobs, and limited private sector wage employment.

7.7. Despite indications of social, economic, and health disparities, absolute poverty is not a national problem. Imbalances in income and quality of life have not led to severe deprivation, homelessness, abandonment or absolute poverty in Oman. A strong tradition of social cohesion, based on family and tribal associations, combined with an extensive network of government health, education and social services, means that the basic human needs of all Omanis are being met. The government provides temporary financial support and low-cost housing to needy families, as well as free health and education to all its nationals. The relatively new issue that is being discussed by Omanis and that needs to be monitored is the emerging gap between the life standards and opportunities of high-income urban families and medium- and low-income families in rural and urban regions. Some large families may not be able to afford adequate nutritious food supplies and other basic necessities. Access to health care and clean water, along with other key health indicators, in some rural areas are well below national averages. More research is required to determine family income levels and other quality of life disparities by region, education level, employment, and other pertinent criteria.

Table 7. Oman health indicators, by region (1993)

	PEM attendance rate per 1000 population <5	LBW % of total hospital deliveries	stillbirth rate	infectious & parasitic diseases, in-patient discharges per 10,000 population	conditions of peri-natal period, in-patient discharges per 10,000 population	diarrhoea incidence rate, per 1000 population <5	ARI incidence rate, per child <5	mean number of ANC visits per woman	% of mothers making PNC visits
Muscat	44	10.1%	1.3%	28	25	334	1.3	5.9	37
Dhofar	21	6 %	1.5%	132	35	473	3.3	6.2	54
Dakhiliya	228	12.1%	1.4%	121	36	570	2.3	6.9	72
Sharqiya	98	8.8 %	1.1%	288	36	822	4.1	6.2	49
N. Batinah	254	7 %	1.3%	90	15	656	2.6	5.2	72
S. Batinah	125	10.2 %	1.5%	75	17	687	2.8	6.5	66
Dhahira	74	9 %	0.8%	176	33	582	3.1	6.8	81
Musandam	47	8.9 %	1.0%	264	16	626	2.9	5.4	85
Woustah	200	7.6 %	1.7%	249	10	1118	5.0	4.3	62
National	128	9.2 %	1.3%	110	26	582	2.6	6.1	60

	% SPR, malaria survey of 6-9 year-old students	IMR*	Physicians per 10,000 population*	primary students/class +	preparatory students/class +
Muscat	1.1%	23	4.8	40	34
Dhofar	0%	14	4.6	27	25
Dakhiliya	1%	19	3.5	36	32
Sharqiya	0.2%	22	3.0	32	30
N.Batinah	1.7%	21	5.1		
S.Batinah	2.6%	8.3	3.0		
Al-Batinah				36	32
Dhahira	1.8%	6	1.9	32	30
Musandam	0.05%	6.6	8.3	34	32
Woustah	0	23	6.0	22	12
National	0.9%	23		34	31

(Source: MoH 1993 Annual Statistical Report)
*(Source: WHO + MoH Wilayat-level statistics)
+ (Source: 1993 Statistical Yearbook)

Table 8.
Wilayat-level health indicators, Oman, 1993

Wilayat	IMR	physicians per 10,000 pop.	total hospital beds per 10,000 pop.	average no. of visits in the OPD/ health centre per person per year	ANC care during last pregnancy (percent of all live-births)	newborns with birth weight below 2500g.,as percent of live births
Wadi Bani Khalid	.14.2	3.4	13.0	5.0	122.7	3.5
Dima & Al-Tayeen	18.0	2.9	25.3	3.9	84.9	10.6
Al-Qabael	21.4	0.9	----	3.0	50.1	10.2
Bidiyah	20.6	3.5	18.1	6.4	97.6	5.0
Mudhaibi	20.2	6.5	23.4	10.3	87.0	9.2
Ibra	17.0	17.0	52.0	14.0	100.0	8.4
J. B. Bu-Hassan	23.0	7.9	27.2	5.9	89.4	3.7
Jalan B. BU-Ali	23.0	6.0	19.0	10.1	95.4	6.2
Al-Kamil & Al-Wafi	23.0	1.3	----	4.7	76.5	4.1
Masirah	24.0	12.9	41.8	10.7	1315	6.0
Sur	23.0	8.0	27.0	7.1	97.3	8.9
Al-Suwaiq	20.1	6.0	0.0	4.0	99.4	4.6
Al-Khaboura	24.4	6.0	26.0	6.5	97.8	5.6
Saham	27.8	7.8	58.0	4.3	97.2	5.5
Liwa	19.3	3.9	----	4.5	98.8	4.7
Shinas	26.7	7.6	----	4.3	92.2	4.4
Sohar	19.4	8.8	23.5	4.5	94.8	5.4
Madha	0.0	8.1	8.2	11.0	354.5	9.1
Diba	-----	9.0	46.5	12.0	101.2	5.7
Bukha	0.0	7.8	33.6	7.4	213.5	2.7
Khasab	10.0	11.4	31.7	9.7	114.9	9.2
Quriat	25.0	5.0	15.0	6.9	69.0	5.3
Al-Hajer	25.0	4.7	22.0	5.1	76.0	9.6
Seeb	23.0	0.7	----	2.3	176	9.6
Bausher	23.0	27.9	6.0	11.8	100.0	9.6
Muttrah	23.0	8.6	26.9	3.0	77.0	3.6
Muscat	23.0	1.9	0.4	2.4	43.9	9.6
Barkaa	12.6	2.8	----	3.9	94.4	6.1
Al-Musana'a	4.0	3.7	----	5.8	99.5	6.6
Al-Awabi	10.4	2.4	18.8	7.7	98.3	10.1
Wadi Al-Ma'awil	5.1	0.9	---	4.2	98.4	12.5
Nakhal	3.2	2.4	11.1	4.6	97.4	10.5
Al-Rustaq	9.0	9.2	27.9	8.4	98.6	8.8
Al Jazer	24.0	6.4	1.0	10.1	100.0	7.9
Mahoot	22.2	1.3	----	7.0	70.7	10.0
Mahda	0.0	1.3	2.6	3.2	100.0	8.0
Buraimi	3.7	13.0	17.0	8.0	98.6	4.5
Dhank	2.4	2.5	0.0	7.0	91.0	4.0
Ibri	9.0	5.7	14.8	7.0	97.7	6.7
Dhalqut	20.2	8.2	0.0	9.6	100.0	6.0
Sadha	24.0	7.2	43.4	12.4	76.0	0.8
Muqshan	23.0	20.0	0.0	11.3	100.0	0.0
Shaleem & Al-Halaniyat	21.6	5.2	0.0	5.7	93.0	6.0
Taqa	24.0	2.7	12.3	6.8	100.0	2.4
Mirbat	12.7	4.0	5.9	7.1	123.7	3.3
Rakhyut	26.1	7.9	47.4	10.2	92.7	3.3
Thumrait	23.0	7.6	0.0	10.0	98.0	2.4
Nizwa	16.8	13.2	31.1	8.4	93.4	9.0
Bahla	19.9	4.7	16.2	6.9	97.0	12.3
Adam	20.5	4.5	22.7	6.1	95.0	8.0
Al-Hamra	20.3	2.1	----	7.2	100.0	2.2
Sumail	20.0	7.7	24.1	7.8	99.8	11.9
Izki	23.7	2.1	20.0	5.7	102.2	9.2
Bidbid	19.2	1.1	----	4.0	94.0	7.3
Yankul	3.0	3.0	6.5	8.0	96.0	6.0

(Source: Ministry of Health and WHO.)

8. Children and women requiring special attention

8.1. Few if any Omanis suffer abuse, absolute poverty, or abandonment to the point that they need life-sustaining assistance. Neither does Oman suffer problems of street children, homelessness, slum and squatter areas, or other such conditions that lead to particularly difficult life circumstances. Nevertheless, several categories of people are relatively in more need of attention and services to compensate for their lack of access to social and human services in the past, and to assure them of adequate opportunities for intellectual, physical, social and economic development. The categories of women and children requiring special attention include disabled children and adults, isolated villagers living in remote areas, and low-income or poor families with a large number of children and family members. Also at some relative disadvantage are many young and middle-aged Omani women -- particularly in rural areas -- who did not have an opportunity to go to school, and who are still burdened by marrying at a young age, bearing many children in rapid succession, and having a social status that reflects male and family priorities.

8.2. Women need to be addressed in terms of their aspirations as individuals, and not only as mothers, daughters, sisters, or wives. There may be some instances of passive neglect of young children who do not spend enough quality time with their parents but instead spend much of their time in the company of expatriate maids, cooks, and drivers. A small number of children, especially in rural areas, are deprived of educational opportunities because they have to work in the family business or on the family farm. Pre-school children in general suffer from a serious lack of services, information, and facilities that are geared specifically to their developmental needs, at a crucial moment of their emotional and intellectual growth. None of these categories of women and children in circumstances of special need are well identified, and they all need to be better delineated as a first step towards formulating policies and programmes to respond to their requirements. Also, the cumulative consequences of rapid urbanisation, economic growth and population increase need to be closely monitored to identify any emergence of problems affecting women and children that require special attention.

9. Oman, the Middle East and the world: a comparison

9.1. Tables 9 and 10 show Oman's place among other countries of the world with a similar GNP per capita, and other Middle Eastern countries with whom it shares common cultural, social and economic traits. The data comes from UNICEF's 1995 State of the World's Children Report (some of the data is slightly different from figures in this situation analysis, because of the U.N.'s use of its own data sources).

Table 9
Countries in transition, according to State of the World's Children Report classification and statistical overview

countries	under-5 mortality rate,1992	GNP per-capita $, 1992	% of U5 children underweight	total fertility rate, 1992	maternal mortality rate	net enrolment rate	% immunization coverage		adult illiteracy 15+, %	
							DPT3/ OPV3	measles	M	F
High U5MR countries										
Libyan Arab Jamahiriya	104	5310	-	6.4	70	76	91	89	25	50
Iraq	80	1500	12	5.7	120	85	84	83	30	51
Turkey	87	1950	-	3.5	150	85	70	66	10	29
Middle U5MR countries										
Morocco	61	1040	9	4.4	300	52	86	83	40	68
Iran, Islamic Repr. of	58	2190	-	6.0	120	96	99	96	35	57
Egypt	55	630	9	4.2	270	85	89	89	37	66
Lebanon	44	2150	-	3.1	-	96	87	65	11	15
Syrian Arab. Rep.	40	1160	-	6.2	140	97	90	86	22	48
Saudi Arabia	40	7940	-	6.4	41	62	94	92	27	52
Tunisia	38	1740	10	3.5	50	86	98	89	26	49
Qatar	32*	15040*	-	4.5*	140*	93	90	87	23	28
OMAN	31	6490	16	6.8	27	84	97	95	39	58
Jordan	30	1120	6	5.7	48	93	94	88	11	25
Low U5MR countries										
United Arab Emirates	22	22220	-	4.5	-	100	90	90	30	37
Kuwait	17	16150	6	3.7	6	85	99	87	23	33
Bahrain	15*	7150*	-	3.8*	80*	92	96	90	18	31

* Human Development Report 1994, UNDP

Table 10

Country (GNP/pc)	1993 U5MR	measles imm.(%)	U5MR average annual % reduction rate (80-93)	F/M primary school % enrolment (86-92)	LBW	life expectancy
Oman ($6480)	29	95	9.2	92.0	10	70
Argentina (6050)	27	95	3.3	10 6	8	71
Portugal (7450)	11	9	6.6	96.0	5	75
Korea, Rep. (6790)	9	89	7.7	10 3	9	71
Antigua/Barbuda (5980)	24	99	5.2			
Seychelles (5460)	20	92				
Barbados (6540)	10	92				

(Source: State of the World's Children 1995, Unicef)

PART B. THE SITUATION OF CHILDREN AND WOMEN

- Infant and child mortality.
- Infant and child morbidity.
- Nutritional status of infants and children.
- Maternal mortality.
- Maternal morbidity, fertility, birth-spacing, lifestyle issues.
- Nutritional status of women and girls.
- Society in focus. Family eating habits: danger signs from the Bawsher survey.
- Disease threats to infants, children and women.
- Disability.
- Accidents.
- The work of UNICEF and other international partners in Oman.

10. Infant and child mortality

10.1. Oman is a world leader in infant and child mortality rate reduction. It achieved a 10 percent annual average decline in its under five mortality rate in the period 1980-1991, according to United Nations statistics. It was the leader in the Middle East and North Africa, and number two in the entire world after Colombia. According to the 1988/9 Child Health Survey (CHS) and the Ministry of Health's latest estimates, the infant mortality rate (IMR) in Oman was 23 per 1000 live births in 1994, compared to 27 in 1991, 64 in 1980, and over 100 in 1975. (See figure A).

10.2. The MoH estimates the under five mortality rate (U5MR) at 29 per 1000 live births (1994), compared to over 146 in 1975.

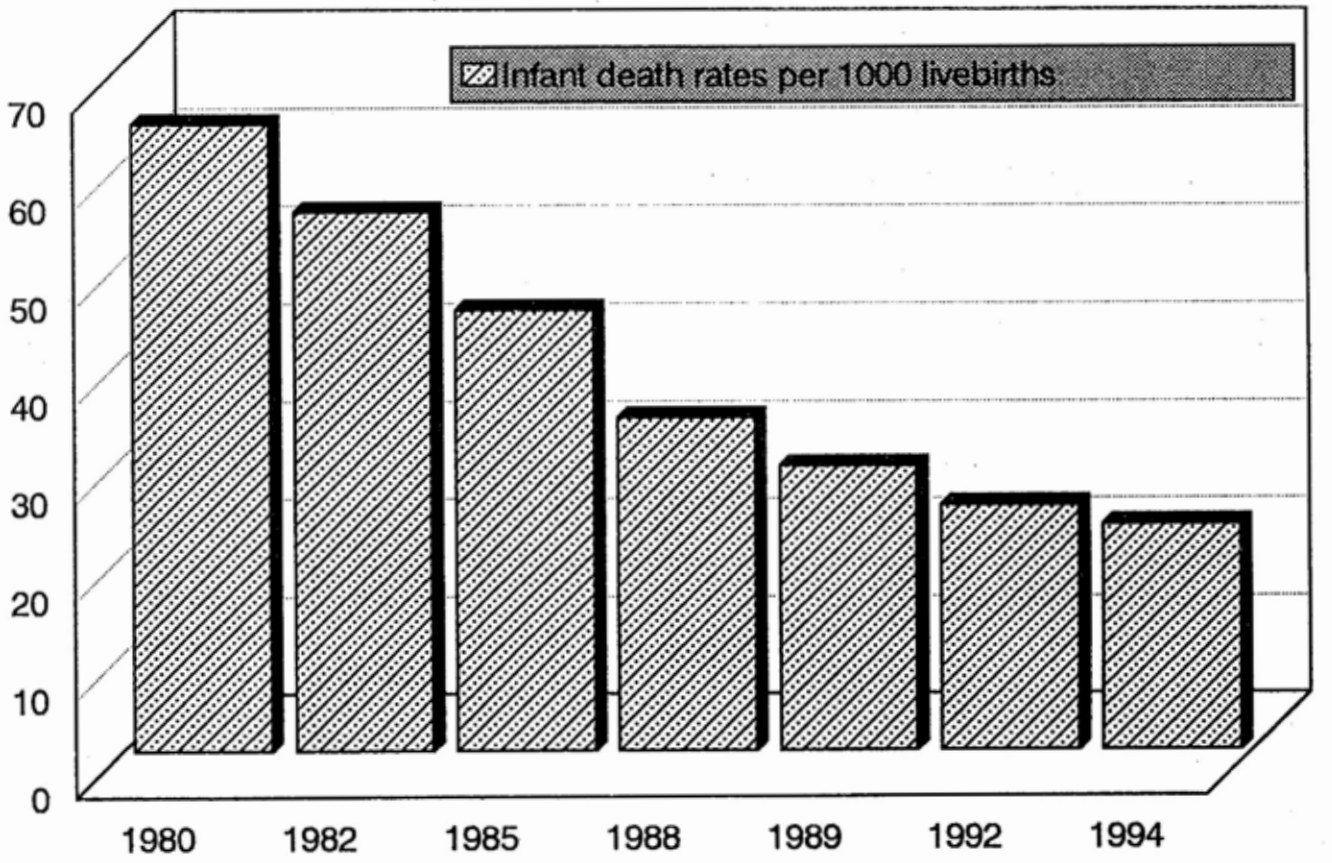
10.3. The rapid decline in infant and child mortality is due to a substantial expansion in the availability and accessibility of health services; rising education, literacy and health awareness levels of Omani mothers; successful EPI and ORT programmes; and other accelerated social interventions. According to the latest available national data from the 1989 CHS, Oman exhibits clear infant mortality differentials among sexes, place of residence, mothers' education level, mothers' age at birth, and, most dramatically, the interval between births. Infants who face the highest risk of death are males, rural residents, infants whose mothers are illiterate, under 20 or over 40, and infants who were first-born or who were born less than two years after their previous oldest sibling.

10.4. The new system to document the causes of all infant and child deaths through health system registers is still being introduced, so the best available data on the causes of infant mortality still comes from hospital deaths, which represent most but not all infant deaths. According to the hospital data, the major causes of deaths of infants under one year old are slow fetal growth, fetal malnutrition and immaturity (31%), other congenital anomalies (20%), septicaemia (8%), and certain other conditions originating in the peri-natal period (7.5%), which have collectively accounted for nearly two-thirds of all infant deaths during the last five years (table 12).

10.5. The leading causes of child mortality (1-14 years), according to hospital records, are septicaemia (11%), concussion (9%), pneumonia (6%) cardiac dysrhythmias (5%), and other intra-cranial and internal injuries, including spinal cord injuries (5%) (table 13).

Fig. A

Oman, IMR 1980-1994



(Source: Ministry of Health)

Table 11
Infant and child mortality rates, per 1000 live births, for the ten-year period preceding the Child Health Survey, by selected bio-demographic characteristics, for Omani nationals

	Infant mortality rate (1979-88)	Under five mortality rate (1979-88)
sex of child		
male	40.1	53.0
female	32.8	49.6
mother's age at birth		
<20	48.5	63.2
20-29	31.4	45.2
30-39	33.1	52.8
40-49	37.3	57.0
birth order		
1	54.0	68.7
2-3	28.3	41.8
4-6	33.4	47.8
7+	40.6	56.3
interval since previous birth		
first birth	54.6	69.1
less than 2 years	50.7	72.1
2-3 years	19.5	25.7
4 years or more	16.7	24.9
total	**36.5**	**51.3**

(source: Child Health Survey)

10.6. Peri-natal mortality. Hospital-based survey research in 1988/89 by Dr Saleh Khusaibi of the Royal Hospital showed that peri-natal mortality (stillbirths and deaths in the first week of life) averaged 21 per 1000 births, with significant regional disparities. By 1994, the peri-natal mortality rate had fallen to an estimated 18 per 1000 births.

10.7. Among the possible reasons for the regional variations in peri-natal mortality and stillbirth rates are community factors (access to transport or cultural attitudes to hospital care), maternal risk status, and provision and use of ante-natal and intrapartum care. Research on the causes of regional variations is a priority for Omani child health specialists. The major causes of peri-natal mortality were stillbirth (31 percent), asphyxiation (27 percent), prematurity (18 percent) and congenital malformations (13 percent).

10.8. The 1988/89 survey, subsequent research in 1990-1994, and the most recent MoH estimates indicate that:

* In 1994, 7.7 percent of all babies born were low birth-weight (LBW) babies, under 2.5 kilograms (a 23 percent drop from the 10 percent LBW rate in 1990-1991). Significant regional disparities range from highs of 11.3 in Dakhiliya and 8.7 in Muscat to lows of 3.7 in Woustah and 5.3 in North Batinah. Some underserved rural areas with very high rates (ie. Jabal Akhdar) indicate the need to address regional disparities more emphatically in the coming years.

* MoH data for 1993 indicates that 56 percent of all stillborn infants were LBW babies.

* About 50-70 percent of all LBW babies were small because of intra-uterine growth retardation, and only one-third were due to prematurity -- suggesting that with early detection, many causes of LBW babies could be avoided or treated through enhanced ante-natal care and education of mothers.

* Hospital stillbirth rates in 1994 averaged 12 per 1,000 total births for the entire country; this rate has declined steadily in recent years, from 15/1000 births in 1987. Regional disparities range from highs of 14 in North Batinah and 12.6 in Dhofar to lows of 7-9 in Musandam and South Sharqiya.

* Over 44 percent of stillbirth babies weight 2.5 kg or more, ie. they are normal birth-weight babies, and many of them could be saved by timely interventions. The same 50 percent normal birth-weight proportion applies to peri-natal death babies.

* According to MoH statistics, babies born before arrival at hospital (BBAs) account for about ten percent of all births in Oman, and this rate has remained constant in recent years. BBAs consistently have the highest mortality and morbidity rate. The main reasons for BBA babies are lack of transport, attitude to hospital delivery, lack of knowledge by parents, difficult access to hospitals in remote areas, and preference for delivery in a home environment. It is thought that about 90 percent of BBA cases could be avoided through better education of mothers and better availability of emergency transport services.

* Data for the period 1991-1994 indicates an increase in the overall rate of Caesarian sections, from 2.5 percent to 6.4 percent, and the rate for emergency C-sections increased from 1.6 to 5.5 percent -- suggesting lack of planning in handling some deliveries. This highlights the social, community, and educational dimensions of Oman's health care priorities, alongside clinical and technical needs.

Table 12
Leading causes of hospital mortality (0-1 years) (1994)

Disease	%
Slow fetal growth, fetal malnutrition & immaturity	30.9
Other congenital anomalies\	19.7
Septicaemia	7.7
Certain other conditions originating in the perinatal period	7.5
Congenital anomalies of heart and circulatory system	6.8
Disorders relating to long gestation & high birth weight	4.6
Maternal conditions affecting fetus or newborn	3.3
Pneumonia	3.3
Obstetric complications affecting fetus or newborn	3.3
Respiratory failure	2.0
All other causes	11.0
Total deaths due to all causes	**100.0**

(Source: Ministry of Health, 1994)

Table 13
Leading causes of hospital mortality (1-14 years) (1994)

Disease	%
Septicaemia	10.9
Concussion	8.6
Pneumonia	6.2
Cardiac dysrhythmias	4.7
Other intra-cranial & internal injuries including spinal cord	4.7
Internal injury of chest, abdomen & pelvis	3.9
Burn of face, head, neck, trunk & other parts of limbs	3.1
Leukaemia	3.1
Other malignant neoplasm of lymphatic & haemopotetic tissue	3.1
Congenital anomalies of heart and circulatory system	2.3
Gangrene	2.3
All other causes	47.3
Total deaths due to all causes	**100.0**

(Source: Ministry of Health, 1994)

10.9. Dr Khusaibi's research supports the prevalent belief that the peri-natal mortality rate is the next logical target for a significant reduction in infant mortality in Oman. Sectoral priorities identified by the 1989 EPI/MCH review included asphyxia among stillborn and live born infants with birth-weights of 2.5 kg or more, early neo-natal deaths among otherwise normal infants with birth-weights of 2 kg or more, and low birth-weight due to intra-uterine growth retardation.

10.10. Well over one-third of peri-natal deaths take place in the mother's womb, leading Omani physicians to believe that at least 50 percent of peri-natal infant deaths could be prevented or treated by timely intervention (a combination of better ante-natal and delivery services and staff training, more and better health education, and increased community involvement in educating and supporting mothers). Many infant deaths are caused by intrapartum asphyxia/hypoxia, which can be averted by proven obstetric and neo-natal care. Yet, progress on reducing peri-natal mortality will be slower than that achieved to date in post-neo-natal mortality, because of fewer available intervention technologies and the low efficacy of some of these technologies. Better use of available hospital mortality and morbidity data could help to document more accurately the causes of peri-natal and neo-natal mortality.

10.11. There is very little available data on mortality outside hospitals, though it is thought that the causes of home deaths are similar to those that occur in hospitals.

10.12. The neo-natal mortality rate, estimated at around 10 per 1000 live births in 1994, is declining in Oman at a slower rate than IMR, because most causes of neo-natal mortality relate to social factors that are more difficult to improve than hospital-based services. These social factors include a mother's attitude to ANC, transport to hospital, total fertility rate, men's attitudes to contraception, child-spacing practices, women's nutrition, attitudes to

Table 14
Notifications of infectious diseases, all ages (1985-1994)
(hospital in-patient cases except where indicated)

Disease	1985	87	91	93	94
Cholera	0	0	0	0	0
Typhoid fever	244	131	100	117	152
Shigellosis (bacillary dysent.)	4276	2457	1971	1641	2388
Food poisoning, incl. salmonella	319	221	259	531	512
Amoebiasis *	3787	3833	5105	3392	3450
Paratyphoid fever	21	36	21	23	43
Tuberculosis	1229*	616	442	275	294
Brucellosis	260	229	350	472	431
Leprosy *	32	6	17	43	35
Diphtheria	6	0	2	0	0
Whooping cough	756*	5	26	239	168
Meningococcal infection	9	125	27	15	2
Tetanus (other than neonatal)	64	10	8	7	7
Anthrax	0	2	0	0	0
Acute poliomyelitis	33	6	4	2	0
Measles	3675*	317	276	3108	181
Rubella *	10	77	8	1253	109
Viral hepatitis *+	2118	1826	1066	1322	1969
Rabies	0	0	1	1	0
Chickenpox *	5955	14616	17779	23,793	22261
Mumps *	18040	5192	15654	5390	5419
Malaria (clinical)	n.a	n.a	37360	17,839	7215
Malaria (confirmed)	16348	15437	18262	16,787	7215
Leishmaniasis	23	32	3	40	29
Syphilis	12	5	196	402	465
Gonococcal infection	8	6	547	440	354
Schistosomiasis *	5	17	9	14	7
Filarial infection and dracontiasis (guinea worm) *	20	19	1	0	0
Influenza *	91373	101358	51933	82,426	60056
Tetanus neonatorum	11	8	1	0	0

Statistics from 1985-1990 are hospital in-patient cases except where indicated.
* out-patient cases
+ The viral hepatitis figures include all four forms of hepatitis.

(Source: Ministry of Health, 1994 Annual Statistical Report)

breast-feeding, age at marriage, consanguinity, and other such factors. These factors suggest that at Oman's current stage of development, with a relatively well developed health system, the priority in further reducing IMR is to address community and regional factors as well as to further improve the quality of hospital-based services. The challenge of reaching the mother, father and baby before the time of delivery in hospital is being met through several means, including better ANC awareness and care, and redefining risk-factors associated with pregnancy so that truly "at-risk" women see specialised doctors as often as necessary during their pregnancy, while most other routine pregnancies could be handled by trained midwives. Better birth-spacing will make a major contribution to further reducing neo-natal and infant mortality.

11. Infant and child morbidity

11.1. Morbidity data for infants and children on a nationwide basis is not available, but the leading causes of child morbidity can be ascertained from data on total hospital in-patient and out-patient morbidity. The leading causes of in-patient morbidity, which have remained unchanged since 1990, are respiratory ailments, infectious and parasitic diseases, complications of pregnancy and birth, injuries and poisoning, digestive system diseases, circulatory system diseases, genitourinary system diseases, and miscellaneous diseases.

11.2. The leading infectious and parasitic diseases among in-patients in 1993 were gastro-enteritis and diarrhoea (9841 cases, against 7345 in 1991) and malaria (3416, compared to 4353 in 1991). The leading respiratory diseases were acute upper respiratory infections (8709, against 6741 in 1991), and bronchitis, emphysema and asthma (6476, against 4833 in 1991). Injuries and poisoning continue to increase, from 13,553 cases in 1989, to 15,061 in 1991, and to 19,009 in 1993, indicating the continued need to address the dangers associated with a shift to a more modern lifestyle.

11.2.1. The comparative national and regional rankings of the leading causes of hospital in-patient morbidity in 1994 show many disparities; whether such disparities are epidemiologically significant, in terms of variations in incidence rates, cannot be ascertained only on the basis of available data. Further research is required here. The numbers of cases of infectious diseases that were reported to the health system in 1994 are given in table 14. These represent only notified cases, and not all cases in the country. No cases were reported in 1994 of the following diseases under international surveillance: cholera, polio, diphtheria, rabies, louseborne typhus, plague, smallpox, and yellow fever. The relatively high incidence of malaria is a contributing factor to low birth-weight and stillborn babies, though the number of reported malaria cases has been declining in recent years.

12. Nutritional status of infants and children

12.1. The nutritional status of infants and children in Oman has improved markedly over that of a decade ago, but malnutrition, diabetes, obesity, and other nutritional problems continue to plague certain segments of the population, especially the very young, adolescent girls, and women. The MoH's routine assessment of protein energy malnutrition (PEM) among all infants and children who visit health centres and hospitals now allows better monitoring of the nutritional status of Oman's children. Several recent, reliable sources of data have clarified the extent of malnutrition among children in Oman.

12.1.1. The 1994/95 study on the prevalence of Vitamin A deficiency among children aged six months to seven years found that stunting and underweight were problems that

affected 12 percent of all children under six years old (see table 15). Stunting affected up to 16 percent of children at 18 months, but declined to up to 9 percent for children aged 6+. Underweight characterised up to 27 percent of children aged 18 months, and declined to up to 10 percent of children aged 6+ years. Regional disparities were significant in both categories and male children were found to have higher rates of malnutrition than female children.

Table 15
Prevalence (%) of undernutrition, stunted and underweight, by age and sex, measured by -SD of the median WHO/NCHC reference

National Sample	7 months		18 months		3 years		6+years		Total under 6 years	
	M	F	M	F	M	F	M	F	M	F
Ht/age stunted	18.3	13.0	15.8	8.7	21.6	19.2	9.4	1.6	15.6 (12.4)*	9.2
Wt/age underweight	5.0	3.6	27.1	11.8	24.3	17.3	10.2	5.4	16.1 (12.1)*	8.1

* Total prevalence in the under 6 population

(Source: Vitamin A study, 1995)

12.1.2. The MoH data for 1994 indicates that 13.7 percent of the under-five population suffers some degree of PEM, of whom 3.3 percent are severe PEM cases, 24.8 percent are moderate and 71.9 percent are mild. Regional disparities are very wide, ranging from highs of 19-30 percent in Al Woustah, North Batinah and Dakhiliya to lows of 2-5 percent in Dhofar and Musandam. A total of 13 deaths (<5) due to malnutrition were reported in Oman in 1994.

12.1.3. A 1989 hospital survey of children under the age of six years showed that 16 percent were malnourished, with regional variations ranging from 23 percent in the north to 7 percent in Muscat. The 1990 CHS follow-up survey of mothers and children documented stunting (height-for-age) among one-quarter of 12-15-month-old boys and 13-19 percent of girls of the same age. Malnutrition at such an age is probably a sign of poor complementary feeding practices.

12.1.4. Musaiger's 1989 rapid assessment survey of 383 mothers and children in five regions of the country found that, based on body mass index, the prevalence of underweight among 11-19-year-old girls in Oman was very high (63 percent), ranging from 82 percent in Samail to 52 percent in Muscat. About 11.5 percent of all surveyed girls were overweight, ranging from a high of 22.3 percent in Salalah to a low of 3.9 percent in Samail. Only one-quarter of the girls had an acceptable weight for their age. The causes of underweight girls need to be further investigated, though the 1989 Musaiger survey also showed that most girls are aware of good nutritional practices that should be adopted by pregnant and lactating women. In other words, girls seem to have a combination of good and poor knowledge of nutritional practices.

12.1.5. These statistics indicate a gradual decline in some categories of malnutrition in the past decade, though in general the rate of decline is not as brisk as Omani health officials would like to see. No systematic studies have determined the underlying causes of undernutrition in Oman, which are probably due to a combination of environmental and health factors. The cost, quality, variety, and availability of food are not serious problems in Oman on a national scale, but there is increasing recognition of the existence of pockets of need throughout the country. Some fixed-income families with many children may find it difficult to provide all their family members with nutritious diets throughout the year,or families in remote villages and hamlets in desert and mountain regions may not enjoy year-round access to a full range of fruits, vegetables, dairy products, cereals, fish, meat, and other essential foods.

12.2. The most important nutritional problems on a national scale may be poor food habits (utilisation and preparation of foods) and low intake of nutritious foods, perhaps followed by infectious diseases. Health officials throughout the country repeatedly point out the dangerous proliferation of the "Pepsi and chips culture", even in remote rural areas. Children are increasingly consuming such fast foods and snacks between meals; by eating consumer foods that are filling but not very nutritious, many children consequently eat less nutritious foods at meal time. Mothers are also picking up similar habits. Multi-ethnic-origin genetic factors may also explain some of the variations in the prevalence of undernutrition among children, Musaiger suggests. The main reasons for poor food and nutrition habits include lack of awareness, some unsound traditional beliefs and practices, poor hygienic and environmental sanitation conditions, insufficient programmes to assess and redress the causes of nutritional deficiencies, the impact of commercial marketing of packaged foods, and, in some pockets of need, stress on the incomes of large families.

12.3. Nutrition education, as part of the school health education system, is not well developed in Oman, and existing growth monitoring procedures at health centres do not adequately convey knowledge to mothers about their children's or their own nutritional deficiencies. Lack of sufficient knowledge by health workers may be a problem, alongside communication barriers due to language constraints and time pressures on health personnel. Properly conducted and explained growth monitoring of infants would help prevent most cases of PEM in Oman. Sometimes health personnel tell parents of undernourished children to feed their children better, without providing them with information on what better feeding entails or how to go about it.

12.4. The traditional Omani diet of fish, vegetables, bread, and dates provides a healthy mixture of foods, but is being threatened by the gradual shift towards more modern convenience and packaged foods. Nutrition education through the health system, schools, social workers, the mass media, and other community channels looms as one of Oman's most important priorities in the immediate future. The recent extension of the Baby Friendly Hospital Initiative into schools (teaching girls about the value of breast-feeding) is expected to contribute to better infant nutrition standards.

12.5. Breast-feeding. The 1989 CHS and Musaiger's 1991 survey suggested that breast-feeding was widely practised for satisfactory but not optimum periods of time, and more recent research has indicated a significant improvement in breast-feeding practices, largely as a result of the successful Baby Friendly Hospital Initiative -- an estimated 90 percent of mothers exclusively breast-feed their infants for four months, according to field reports in the first quarter of 1995. Malnutrition among infants tends to peak at around the complementary feeding period, which heightens the importance of proper breast-feeding and complementary feeding practices. Breast-feeding remains the dominant form of infant feeding in Oman. A potentially negative prospect that needs to be monitored is the impact of sophisticated commercial promotion and marketing of infant formulae and baby foods, which could set back breast-feeding and proper complementary feeding practices.

12.5.1. The 1989 CHS put the mean duration of breast-feeding at 15.9 months. About 37 percent of mothers initiated breast-feeding immediately after birth, 46 percent between 1-3 hours later, and 6 percent 4-6 hours later (Musaiger 1991 survey). More mothers appear to be learning about the benefits of giving colostrum to their infants immediately after birth. The 1991 survey showed that 93 percent of mothers did so, compared to around 75 percent three years earlier. The main reasons for not giving colostrum were dirty milk (42 percent), lack of milk secretion (15 percent), ill child (12 percent), caesarean (12 percent), problems with breast (6 percent), and illness of the mother (6 percent).

12.5.2. The CHS found that 77 percent of mothers exclusively breast-fed their babies for one month, 68 percent for two months, and 57 percent for three months, and exclusive breast-feeding then stabilized at around 53-55 percent for infants aged 4-12 months. Of the infants surveyed by Musaiger in 1991, 73 percent received food or liquid other than breast milk during the first three days of life. Water (79 percent) or a water/sugar mixture (12 percent) were the most common supplementary foods, followed by bottle feeding (4 percent) and other foods/liquids (5 percent). The percentage of infants that were predominantly breast-fed (breast plus water) was higher than infants who were exclusively breast-fed: 30 percent of mothers predominantly breast-fed for 1-3 weeks, 18 percent for 4-6 weeks, and 13 percent for 7-9 weeks. Regional variations appeared to be significant enough to warrant further studies on regional nutrition habits and beliefs.

12.5.3. The prevalent breast-feeding method was demand feeding (88 percent), with just 12 percent feeding according to a schedule. Demand feeding has increased in recent years.

12.5.4. The main reasons for stopping breast-feeding, according to Musaiger (1991), were new pregnancy (45 percent), child refusal (17 percent), lack of milk secretion (16 percent), mothers illness (4 percent), child reached complementary feeding age (3.5 percent), and other reasons (14 percent). These findings coincide with those of the CHS.

12.5.5. Among younger women, the CHS found that new pregnancies were the major reason for stopping breast-feeding (44 percent among under-20 women, 40 percent among 20-24-year-olds, and 36 percent among 25-29-year-olds). In almost all cases, the reasons why breast-feeding stopped could be avoided, or their consequences alleviated, by better knowledge on the part of the mother.

12.5.6. Musaiger (1989) showed that more than half the mothers surveyed (59 percent) stopped breast-feeding abruptly, ranging from 88 percent in Salalah to 33 percent in Samail. Preparation of infant formula was carried out correctly by 46 percent of mothers who used it, while the majority (54 percent) used their own judgements and estimates in preparing formula; this exposes infants to greater risks of over- or under-diluted formula.

12.5.7. About 37 percent of mothers used tapwater to prepare complementary feeding foods, 33 percent used bottled mineral water, 21 percent used well water, and 9 percent used falaj water.

12.6. A multi-sectoral Baby Friendly Hospital Initiative (BFHI) National Committee, established in 1992 with UNICEF cooperation, has successfully implemented the BFHI in Oman. All 51 hospitals in the country were declared baby-friendly in December 1994 -- making Oman the second country in the Middle East region where this has been achieved. All BFHI hospitals now implement the ten steps to successful breast-feeding, and strictly ban the promotion or free distribution of milk substitute samples. Baby formula is available in the market and is still promoted by some private sector health personnel and print media. An assessment procedure has been initiated to ensure continuous monitoring of the ten steps a hospital must take to get the BFHI designation.

12.6.1. Ongoing staff training covers hospital personnel as well as community support groups that include health orderlies, Omani Women's Association members, teachers, and other volunteers. Scores of hospital-linked community support groups have been established

and more are expected to follow. The support groups visit pregnant and lactating women in hospitals and health centres as well as in the community. Their main role is to inform women (and men) of the benefits to mother and infant of initiating breast-feeding within the first half hour after birth, maintaining exclusive breast-feeding for at least four months, allowing infants to feed on demand, and other related measures. The scope of these support groups is already being expanded so that they can play a broader role in the community as advocates and information sources on other health-related issues, such as birth-spacing, infant and child nutrition, smoking, environmental pollution and sanitation, protection of water sources, and control of diarrhoeal diseases and ARI.

12.6.2. Hospital-based data for 1993/94 shows that the rate of exclusive breast-feeding for four months has risen since 1988, and exclusive breast-feeding is practised by over 90 percent of mothers. This rate of exclusive breast-feeding has been verified by follow-up research in the community, though it remains susceptible to over-estimates due to almost total reliance on the mother's reporting of her infant feeding practices and her interpretation of what is and is not "exclusive" breast-feeding.

12.6.3. Data for 1994 also indicates a positive impact of BFHI on infant morbidity, especially a decline in the incidence of diarrhoeal diseases and ARI. It is significant that the reduction in ARI for infants under the age of one has been achieved despite an overall increase in the rate of ARI incidence for children under the age of five throughout the country, which is attributed to the improvement in infant breast-feeding practices. In some hospitals, the data also shows, the PEM admission rate for infants declined in 1994; because this decline is age-specific, among infants and children under the age of two, it is thought to reflect better breast-feeding and complementary feeding practices.

12.7. Complementary feeding practices. In general complementary feeding is introduced very early in Oman, though overall complementary feeding practices have improved since 1989. About 29 percent of mothers start complementary feeding (formula and glucose water) in the first three months of an infant's life (Musaiger 1991). Other foods are introduced at the appropriate age of 4-6 months, including cereals, fruits, vegetables, and legumes, though some mothers wait until after the sixth month of life to introduce supplementary food, which is also harmful to infants. About 85 percent of mothers said they discarded leftover complementary feeding foods, as health experts recommend, and only 15 percent kept leftovers for later use.

12.7.1. The 1989 CHS found evidence of a range of complementary feeding practices, with only 9 percent of mothers introducing solids into a baby's diet before the baby reaches four months of age, and 46 percent at 4-5 months of age. The CHS revealed sharp differentials in the mean age at which infants were introduced to solid foods, ranging from a low of 5.5 months in urban areas, to 8.1 months in rural areas, and 11.5 months in semi-urban areas. In the north and south the mean age was 11.6 months, dropping to 9.5 in the east and 8.2 in the central region, and to 4.8 months in the Muscat area. The mother's education impacted significantly in this respect (9.4 months for illiterate mothers, 6.2 for mothers with incomplete primary education, and 3.9 months for mothers with primary education or greater).

12.7.2. In 1989 Musaiger found that the main supplementary foods given to infants were Cerelac (44 percent), biscuits (10), rice (10), infant formula (9), other commercial complementary feeding foods, and other complementary feeding foods (fruits, fruit juice, potatoes, eggs and other foods). Both Musaiger surveys (1989 and 1991) indicated a need to improve existing complementary feeding habits, with the main problems being nutritionally inadequate food intake due to ignorance and traditional beliefs, and inappropriate complementary feeding foods largely due to the use of processed baby foods (with excessive

sugar, salt and preservatives, and inadequate nutrition). There was a tendency to rely more on processed foods and to use less and less of the more nutritious traditional foods. About one-third of infants were introduced to supplementary foods earlier or later than the recommended 4th-6th months of life. These and other poor health practices also relate back to the lack of good health/nutrition awareness by mothers (and by fathers, who purchased the family food in over 77 percent of cases).

12.7.3. Nearly half the CHS mothers surveyed (47 percent) did not receive any advice on infant feeding. The major sources of information or advice were government health facilities (27 percent) and radio/television (23).

12.7.4. As the 1989 CHS and Musaiger surveys both found, health staff were the single most important source of information on nutrition and complementary feeding practices for mothers. This is also an indication that no one else is providing such information, even though the effectiveness of the available health education is inconsistent, due to constraints of language, time with patients, interest of patients, and motivation of health personnel.

12.7.5. Given the high rate of illiteracy among Omani women, inter-personal communication at community level and the mass media can play a major role in informing mothers about correct infant feeding. Musaiger (1989) found that 36 percent of health workers recommended early complementary feeding (at 2-3 months), while 64 percent recommended the correct commencement of complementary feeding (at 4-6 months). Most health workers (89 percent) correctly recommended that breast-feeding should continue during diarrhoea bouts.

12.7.6. A large majority of 11-19-year-old girls surveyed by Musaiger in 1989 (83 percent) agreed that pregnant mothers should consume special foods, and correctly named the most beneficial foods as milk (52 percent), fruit (44), vegetables (40), meat (25), and eggs (26). About 74 percent mentioned that mothers during puerperium should consume special foods, including honey, milk, ghee or saman, assida, meat, and chicken. The survey showed that adolescent girls' awareness of nutritious foods during pregnancy and puerperium was high, suggesting that food beliefs and attitudes during and after pregnancy are generally well established and transmitted from generation to generation.

12.7.7. The surveyed girls mentioned television (40 percent) and school curricula (34 percent) as the main sources of information on appropriate foods to be consumed by pregnant women, followed by relatives and friends (19), printed materials (14), and health staff (2). This would seem to reinforce the strong inclination among Omani health professionals for greater community participation to promote better health practices through increased family knowledge.

12.7.8. More research is required to identify the causes of PEM and other nutritional problems in Oman, and to better track the incidence of PEM among particularly vulnerable groups, such as poorly educated and fixed-income, large families, and communities in remote areas. Analysis of 1992 PEM data on child health cards suggests that the causes of PEM are nutritional (50 percent), association with diseases (42-45 percent), and prematurity or organic causes (7-8 percent). Predisposing factors for malnutrition include: poor maternal nutrition causing low birth-weight, improper breast-feeding and complementary feeding, infectious diseases (especially diarrhoea, ARI and measles), poor child eating habits, children too closely spaced due to short birth intervals, availability of low nutrition snack foods in schools, and economic stress on some large, low-income families.

12.7.9. The strategy to reduce PEM includes: promotion of exclusive breast-feeding during the first four months of life through baby-friendly hospitals and their community-based support groups, educating mothers and secondary school girls about proper complementary feeding and nutrition, and better identification of pockets of malnutrition so that immediate remedial action could be taken where it is most needed. Pilot schemes were launched in 1993

to implement the AAA approach (assess, analyze, action) to improving nutrition standards. This will see mothers and others in the community become more directly involved in monitoring infant growth, identifying malnutrition problems, and formulating strategies to alleviate them.

12.7.10 Since its establishment in 1986, the Public Authority for Marketing Agricultural Produce (PAMAP) has established a nationwide storage, distribution and marketing network that has largely achieved its three original objectives: to link farmers to markets through an efficient distribution system, to encourage farmers to grow quality and new produce by offering them better access to domestic markets, and to improve consumers' access to quality produce at reasonable prices. This network has increased availability of reasonably priced fresh produce in most parts of the country except for remote communities, while introducing rural families to healthy foods that are not part of their traditional diets. Since 1988, PAMAP has operated an outreach programme to raise parents' awareness of the nutritional value of fresh produce they may not be familiar with. Working through the local community development system, teachers, women's associations, secondary school girls, and television, PAMAP has explained the benefits of certain foods while showing mothers how to cook the foods and get maximum nutritional value from them. It holds seminars, exhibitions, and demonstrations throughout the country. A regular "Green Oman" programme on television aims to improve farmers post-harvest techniques that will have positive impact on food quality (ie. handling, packing). Some PAMAP innovations that improve consumer access to healthy foods (better packaging and shipping, for longer shelf life) have been copied by private sector merchants. PAMAP outreach also helps improve family nutrition by extending the availability of some produce throughout the year, whether by better storage or by teaching families how to pickle fresh produce. Food imports are strictly inspected by PAMAP and government laboratories, but there are no existing recommended standards or guidelines on nutrition, diet, or food intake.

12.7.11. The government does not directly subsidize foodstuffs, except for meat during the holy month of Ramadan. It does seek to ensure price stability and year-round availability of basic foodstuffs by buying in bulk and maintaining buffer stocks. Because Oman imports around 75 percent of its food needs, it remains vulnerable to imported price increases, which can have a substantial impact on low-income families with 8-10 members.

12.7.12. The success of the BFHI programme was followed up with the launch of a complementary feeding initiative in April 1994 -- the Infant Friendly Hospital Initiative (IFHI). In a logical follow-up to the BFHI, ten steps to successful complementary feeding have been designated and all health personnel and community support groups are being trained to disseminate this information to mothers and fathers. The IFHI effort aims to improve the quality and quantity of complementary foods given to infants, and to make sure they are given at the right time. This is the first time that complementary feeding practices have been systematically addressed in Oman on a nationwide basis. Initial results from Sumail and Izki, where an intensive complementary feeding programme has been under implementation since early 1994, indicate that PEM has declined by around 50 percent, according to data from child health cards.

12.8. Iodine deficiency disorder. A 1993/94 survey of over 3,000 school children aged 8-11 years found that iodine deficiency disorders are a mild public health issue, with ten percent of children showing signs of goiter. The nationwide survey showed a national median iodine value of 9-10 mcg/dl, with 50 percent normal, 35 percent exhibiting mild iodine deficiency, 11 percent moderate deficiency, and 4 percent severe deficiency. In June 1995, a ministerial decree was issued by the Minister of Commerce and Industry on iodization of all salt for human consumption within a six months period.

12.9. Vitamin A deficiency, according to a 1994/95 nationwide study of children aged six

months to seven years, is a moderate public health problem among children below three years of age. The study showed that just over two percent of children tested were below the critical cutoff of 10 ug/dL and 18.7 percent were below the cutoff of 20 ug/dL that distinguishes between a moderate and a severe subclinical public health problem. The problem is nationwide and not related to sex or relative economic wellbeing. Regional disparities in mean serum concentrations varied from 21.6 in Muscat to 35.6 in North Sharqiya. The Modified Relative Dose Response test showed that about one-fourth of infants at seven months of age had evidence of inadequate liver stores of Vitamin A; this prevalence decreased somewhat among three-year-olds, and among six-year-olds there was no evidence of critically depleted liver stores. The study concluded that it is likely that subclinical Vitamin A deficiency contributes to increased severity of morbidity and mortality in Omani children under the age of three years. The likely cause of the problem is poor eating habits that result from lack of information about a nutritionally balanced diet, especially for women in reproductive age and young children during and immediately after the complementary feeding period. As a result of this study, the MoH has introduced Vitamin A supplementation to all children at ages 9 and 15 months, effective 1 August 1995.

13. Maternal mortality

13.1. The maternal mortality rate in Oman is estimated by the Ministry of Health at around 27 per 100,000 live births, based on an annual average of around ten notified maternal deaths in the period 1991-1993 (both hospital and community deaths). There were 13 reported maternal deaths in 1994. Maternal deaths are now systematically reported and reviewed, though three specific problems still impede the identification of maternal deaths: a) deaths among the small percentage of women who do not receive ANC and/or who do not deliver in hospital are difficult to identify, b) deaths among women of reproductive age may not be recognised as pregnancy-related, and consequently may not be recorded properly in hospital records, and, c) some women who die, especially outside hospitals, may not be recognised as being pregnant.

13.2. According to hospital records, the leading causes of maternal deaths are infections, pulmonary embolism, hypertension disorders, and eclampsia. Better birth-spacing, universal access to basic emergency services in health facilities, and better understanding of the precise causes of maternal deaths would all reduce maternal mortality even further.

14. Maternal morbidity, fertility, birth-spacing, lifestyle issues

14.1. The causes of maternal morbidity can be classified into two broad groups: the negative impact of high fertility rates and close intervals between births, and diseases associated with a modern lifestyle, such as heart diseases, hypertension, diabetes and obesity.

14.2. The total fertility rate is a high 6.9 children per woman. The 1989 CHS showed a total fertility rate of 7.8 live births per woman for the period 1987-1988, which subsequently declined to 6.9 by 1992-1993. The CHS revealed significant disparities in the total fertility rate between women in urban areas (5.3), semi-urban areas (7), and rural areas (9.1). The CHS also revealed an inverse association between level of education and fertility, with more educated women having a lower fertility rate. Among women aged 35-39 years, current parity was four children for literate women and eight children for illiterate women. Fertility also varied with place of residence; 35-39-year-old urban women had a current parity of 5.7 births compared to 7.4 births among rural women.

14.3. The CHS showed an inverse relationship between educational levels of women and age at first marriage, with more educated women marrying at an older age, especially in urban areas. The CHS data shows a clear trend towards later marriage among the younger generations, especially in urban areas. Even in the short, three-year interval between the 1989 CHS and the 1991 Musaiger surveys, demographic researchers in Oman documented a declining trend in the high rate of female teenage marriages. According to Musaiger (1991), 51 percent of mothers surveyed had already experienced 7 or more pregnancies, and 37 percent had experienced 3-6 pregnancies.

14.4. Traditional birth attendants (TBAs) are not an important health factor in Oman. The government discourages home deliveries, and encourages women to deliver in hospitals and health centres (over 90 percent do so, according to MoH statistics). The government had selectively trained a small number of TBAs to serve their communities in isolated and remote rural areas. About 40-50 TBAs trained in the past still work in rural communities. Women who deliver at home usually do so with the assistance of their mothers, aunts, or other older women in their neighbourhoods who have had experience with childbirth, without any formal TBA training. TBAs also do not play a role in providing ante-natal care. The CHS revealed that all currently pregnant women who received ANC consulted doctors or nurses, and none consulted TBAs.

14.4.1. The Ministry of Social Affairs and Labour employs a few female "health visitors" in rural areas who visit families and teach them some basic PHC habits, though this programme is very limited to date. Another concept being studied by the MoH is to train the wives of local sheikhs and village leaders in basic health information that they can pass on to the women in their community. TBAs could play an important role in remote areas distant from health services, where local women could be trained to offer basic health services and information. Trained Omani TBAs and midwives with the time, language skills, and cultural affinity required to communicate with their fellow Omani women could fill a big gap in communicating pertinent health education and information to mothers, especially in fields such as nutrition, early childhood development, environmental health, and prevention of home accidents. They would also reduce pressures on doctors and nurses, improve the overall efficiency of the PHC system, reduce the Omani tendency to want to see a doctor during every visit to a health facility, and generally promote better family health standards through good preventive habits.

14.5. Ante-natal care (ANC) coverage is high, with the 1989 CHS indicating that 88 percent of women received at least one ante-natal care check during their previous pregnancy, and 1993 MoH statistics showing that 98 percent of pregnant women made at least one visit for ante-natal care. In 1994, the average number of ANC visits per woman was 6.4 (compared to 6.1 in 1993 and 5.2 in 1991); regional variations ranged from 4.3 to 6.8 visits. Despite the high rate of ANC access and use, the quality of care the women receive and the total number of visits they make are not necessarily up to the desired standards. Based on the assumption that ANC risk factors should be revised to reflect changing conditions and priorities in Oman, a study is underway to better identify and focus more on those women who are at risk of birth-related problems. The study's initial findings suggest that two leading risk factors are a woman's previous history of stillbirths and low birth-weight in the family.

14.5.1. ANC coverage was higher among literate than illiterate women (95 vs. 85 percent), according to the CHS. Coverage tended to increase slightly with age among literate women (to an average of 100 percent among 35-49-year-olds), and decrease slightly with age among illiterate women (to an average of 82 percent). Urban women were more likely to receive ANC checks (97 percent) than rural women (83 percent), and rural women were more likely to have their first check-up at a later stage of their pregnancy and, consequently, to have a fewer number of total checks.

14.5.2. All women who seek ante-natal care are given a green maternal card which is checked by health staff throughout and after their pregnancy, for both maternal and routine medical care. ANC is high in part because of home visits by government health staff, but this retrieval system is not comprehensively applied due to constraints of staff time, transport facilities, and cost. Some pregnant women who receive ANC may only see a health worker once during their pregnancy, and high risk cases may not receive sufficient follow-up care.

14.5.3. A high 45 percent of women in the CHS believed they should seek ANC care after the third month of pregnancy, and not before. Only 15 percent sought care as soon as they knew they were pregnant. The CHS showed that about two-fifths of pregnant women received their first ANC check in the first trimester, one-fifth in the second trimester, and two-fifths in the last trimester. This indicates a gap in women's knowledge of good motherhood, or problems in access to health services, or both; pressure on women's time does not seem to be a factor in most cases. One in four women in their sixth or later months of pregnancy reported either that they had no pregnancy check or that they had been given one check only. Less than half of them reported the number of checks (four or more) that would be consistent with good maternal care.

14.5.4. A key goal of Oman's ANC policy is to assure that all pregnant women are examined at least six times during their pregnancy, and that they have their first ANC check immediately upon confirmation of their pregnancy.

14.5.5. The CHS data shows a clear relationship between the health of the baby (in terms of birth-weight) and the number of ANC visits by the mother. Mean birth-weight increases steadily with the number of ANC visits, from 2.82 kg for 1-2 visits to 2.95 kg for 8-9 visits. The incidence of low birth-weight was higher (9.4 percent) among women who had no ANC than among those who had hospital or health centre care (6.5-7.7 percent) or private care (5.3 percent).

14.5.6. Over 54 percent of women who had had at least one check had to travel half an hour or less to the place of checkup; 26 percent had to travel more than half an hour, and 19 percent had to travel an hour or more (the latter indicates the priority need to look into the status of communities that are not within easy walking or driving distance of health facilities). Of pregnant women who never had a checkup, 14 percent said the reason was no need for a checkup, 52 percent said it was too early during their pregnancy (including 57 percent of women 3-5 months pregnant), 6 percent said the distance to travel was too far, and 17 percent said they or their husbands were too busy. Hospitals are the nearest health facilities for 60 percent of women, followed by health centres/MCH centres (34 percent) and private clinics (6 percent). Some pregnancy- and delivery-related health threats could be alleviated by better emergency transport for both women and infants who need to reach highly specialised health facilities in a hurry.

14.5.7. In some areas ANC is only offered two or three days a week, due to small catchment areas and staff constraints. This leads to over-crowding, time pressures on health staff, long waits for mothers, and a drop in the quality of diagnosis and health education. Knowledge and attitude are problems among mothers who consult doctors only when there is a problem, in which case they expect medicines or an injection rather than a lecture on good preventive care.

14.5.8. The MoH has identified the following key ANC problems to be tackled in the current five-year plan: women's lack of knowledge of good nutrition during pregnancy; ignorance of symptoms of minor ailments during pregnancy; lack of awareness of the importance of ANC; and, inability to attend ANC clinic, or delays in reaching hospital in time to deliver, due to social/transport problems. These problems confirm that an important underlying cause of poor motherhood practices is lack of awareness.

14.5.9. The MoH has identified the leading labour and delivery needs as: lack of privacy

in labour wards to allow relatives to accompany and to give moral support to the pregnant mother during labour and delivery; more training of medical staff on antiseptic techniques during labour; training all nursing and medical staff on the use of partogram and active management of labour; and, early recognition of foetal distress and prevention of birth asphyxia.

14.6. Post-natal care (PNC) coverage levels are lower than ANC, but are rising steadily. According to 1989 CHS data, only 38 percent of women had post-natal checks (32 percent of women in rural areas, and 49 percent in urban areas). More recent 1993 MoH statistics indicate a substantial increase to 60 percent of mothers having one or more post-natal checks. Regional disparities are wide, ranging from lows of 37 and 42 percent of mothers in Muscat and North Sharqiya, to highs of 85 and 81 percent in Musandam and Dhahira.

14.6.1. PNC and peri-natal risks remain relatively high, due to several reasons: the majority of mothers do not make PNC visits to health centres and hospitals, most nurses are not trained in midwifery, few health staff conduct home PNC visits, and most mothers leave hospital within 24 hours of delivering because of pressures on hospital beds. The MoH has identified priority PNC needs as including: lack of proper PNC clinics; inability to take routine cervical smears for cytology from all post-natal cases; and knowledge of social constraints that result in babies being born before arrival at hospital.

14.7. Place of delivery. Data from the 1989/1990 CHS follow-up survey of pregnant women confirmed the continuing trend towards hospital-based deliveries. Just 11 percent of women delivered at home, and only 7 percent of women under the age of 25 delivered at home. Young mothers showed a big decrease in home deliveries over their last two pregnancies, from 13 percent to 6 percent of all deliveries; the rate of home deliveries among women over 25 years old declined at a slower rate, from 16 percent to 12 percent. The Ministry of Health's projections anticipate home deliveries declining to 2 percent in the year 2000. The 1989 CHS survey found that home births were almost twice as likely among rural women (15 percent of all deliveries) than among urban and semi-urban women (8 percent).

14.7.1. Almost all pregnant women surveyed (94 percent) said they preferred to deliver in a hospital or maternity clinic, 5 percent in their own home, and 1 percent in their parents' home. Asked about who they preferred to be delivered by, 48 percent of women said they preferred to be delivered by a female doctor, 40 percent by a trained nurse, 5 percent by a relative or friend, and 4 percent by a male doctor.

14.7.2. About half of births outside hospitals occur en route to the hospital, indicating almost universal acceptance of hospital births. Hospital deliveries increased with the education level of the mother (83 percent among illiterates, 87 percent among primary school graduates, and 97 percent among secondary school graduates). Home births decreased with education (15 percent among illiterates, 7 percent primary graduates, 4 percent preparatory graduates, and none among secondary school graduates or higher).

14.7.3. Among women who did not give birth in hospital (CHS 1989), the reasons given, in order of importance, were a preference for home delivery, the hospital was too far from home, lack of transport, premature delivery, the lack of a local hospital, or other reasons (including traditions and family reasons). One-third of rural women but only 6 percent of urban women who delivered at home said they did so because hospitals or health centres were inaccessible; this further confirms the need to devise new means to overcome access constraints in a small number of isolated rural communities.

14.8. Birth-spacing information and assistance are now actively promoted among married couples by government health centres or hospitals, following the 1994 launch of the national birth-spacing programme. The 1994 birth-spacing KAP study revealed that 12.7 percent of non-pregnant women were using a birth spacing method (compared to 9 percent in 1989), and 36 percent said they had used a method in the past (compared to 16 percent ever users in

1989). The most popular modern birth-spacing methods used were the pill (59 percent), IUCD (14%), injection (9%), condoms (9%) and sterilisation (9%). Of the 12.7 percent that used birth-spacing methods, 8 percent used modern methods and 4.7 percent used traditional (natural) methods. The CHS had already shown that birth-spacing rates were uniformly higher in urban than rural areas (11% v. 3.7% for all women, and 13.5% v. 4.5% for 25-34-year-old women), and they were dramatically higher among women with a secondary or higher education (37%) than among illiterate women (4%).

14.8.1. With increasing levels of education and modernisation, a growing number of Omani women clearly will use birth spacing for fertility regulation. The demand is there, the KAP survey showed: 66 percent of women who were pregnant during the interview either did not want the pregnancy or wanted it later (compared to 33 percent of men). Also, 51 percent of women interviewed said they definitely or probably would use birth-spacing methods in the future, compared to 36 percent of men. Over 6,600 women had registered in the birth-spacing programme in its first four months of operation (by January 1995), and an average of 1500 were registering every month in the first half of 1995.

14.8.2. Omani women are well aware of available birth-spacing methods, and seem to be better informed than men in this respect; 97 percent of women had heard of at least one modern method of birth-spacing, and 36 percent had heard of five or more methods. About 86 percent of men knew of at least one modern method, while 29 percent knew of five or more methods. The survey concluded, however, that couples needed more knowledge about the available kinds of birth-spacing methods. Given that 59 percent of women and 61 percent of men believe that there are harmful side effects to modern methods of birth-spacing, more information has to be targeted at couples -- to inform them of the safety that accompanies the proper use of modern methods, based on adequate counseling, medical examination and follow-up which constitute the integrated package provided by the Ministry of Health.

14.8.3. Birth intervals were first assessed systematically by the 1989 Child Health Survey and its follow-up survey of pregnant women. The data showed an average birth interval of 26.5 months for all mothers, rising from a low of 20.8 months among 15-19-year-olds to a high of 29.7 months among 45-49-year-olds.

14.8.4. The promotion of breast-feeding is also used to encourage better birth-spacing practices. The Ministry of Health believes that improved birth-spacing practices could prompt a major improvement in IMR rates, given the high rate of neo-natal deaths that could be reduced with better birth-spacing. This is likely to happen with better education and awareness of parents, and lower fertility rates, which could be prodded with more efficient health education of men and women alike. The 1994 KAP survey found that women are concerned about the side effects of modern birth-spacing methods, and it also showed that husbands and wives do communicate about the subject.

14.9. Abortions are illegal in Oman, and therapeutic abortions are only performed if a mother's life is in danger.

14.10. The maternal care and child birth practices documented by the Child Health Survey and its follow-up reveal a pattern of maternal care in Oman whereby consistently disadvantaged were rural women who themselves or their husbands were illiterate, or whose husbands were farmers, other agricultural workers, or unemployed. These women were least likely to have received ANC and PNC checks, their ANC checks were likely to have occured relatively later during their pregnancy, they took longer to reach health facilities, and they were more likely to deliver at home without trained medical personnel in attendance than literate, educated, and urban women whose husbands were university educated professionals.

14.11. "Lifestyle" health issues. Oman's country report to the 1992 International Conference on Nutrition, prepared by the Nutrition Section of the DFCHP, noted that "diseases of affluence" among Omani adults had become a cause for concern during the past

decade. The Ministry of Health indicates that in general priority health problems are shifting away from survival issues to problems related to modernisation and lifestyle, such as diabetes, heart disease, traffic accidents, hypertension, obesity, and oral health. The MoH sees lifestyle changes as the key to good preventive care and to maintaining the quality of life gains that Oman has achieved in recent decades. Such lifestyle changes can be promopted and prodded by the health care system, but if they are to take place successfully they must take place at home, where family education and awareness are the key means of change.

14.11.1. Among women surveyed by Musaiger in 1991, the most alarming problem was obesity, followed by diabetes, hypertension, and high cholestrol and triglyceride levels. His survey suggested the need for further studies to determine the prevalence rate and causes of non-communicable diseases among women, especially as disease prevalence among women may be higher than among the total population.

14.11.2. Diabetes. According to hospital observations in 1990 and 1991, 10 percent of admitted hospital patients were diabetic. Limited ad hoc investigation during a 1990 WHO consultancy suggested that approximately 9 percent of all adult hospital admissions and 12 percent of adult hospital bed occupancy were associated with diabetes. In district hospitals where diabetes is generally managed in out-patient departments, an alarmingly high 20-30 percent of all adults presenting themselves for treatment were found to have diabetes. These observations prompted a national survey in 1991 that showed 10 percent of the population to be diabetic, with another 11 percent suffering impaired glucose tolerance (with women being more susceptible to diabetes). The regional fluctuations in prevalence were relatively small, ranging from a low of 7 percent in Musandam and Dakhiliya to highs of 12-13 percent in South Batinah and Dhahira.

14.11.3. The same survey found that hypertension varied from lows of 6-9 percent in Muscat, Junubiya, Sharqiya, North and South Batinah, and Musandam, to highs of 15-17 percent in Dakhiliya and Dhahira. Hypertension increased markedly with age, especially among women.

14.11.4. The average cholestrol level in Oman was found to be 5.24 mmol/L, with the highest hypercholestrolaemia prevalence being 39-41 percent in Junubiya, Sharqiya, South Batinah and Muscat, and the lowest being 23 in Musandam and 29 in Dakhiliya. Except for the 20-29 age group, women had a consistently higher rate than men. Among 60-69-year-olds, the men's rate was just under 17 percent while the women's was over 30 percent.

14.11.5. The prevalence of hypertriglyceridaemia (> 2.5 mmol/L) varied from a high of 12 percent in Musandam to lows of 4-5 percent in Junubiya and Sharqiya. It increased with age, with men showing a higher rate than women in the 20-49 age group but women showing a higher rate than men in the 50-69 age group.

14.11.6. Omani health officials are sufficiently concerned about the rise in cardiovascular diseases (CVD) and risk factors that they have worked with WHO to launch a national CVD prevention programme. It includes monitoring and surveying students and adults, health education efforts in schools and through the media, and community-based hypertension detection and control. There are no reliable statistics on the incidence rate of rheumatic fever/heart disease in Oman, but physicians believe it is increasing due to the impact of modern lifestyles. Hospital statistics show that circulatory system diseases accounted for 12,829 in-patient discharges in 1993, compared to 10,593 in 1991 (making this number six on the list of all morbidity causes, and the second ranked non-communicable cause).

14.11.7. The MoH is focusing its information and social communication efforts on several related fields that can collectively impact positively and most directly on the health of women, including birth-spacing, nutrition and ANC/PNC services.

15. Nutritional status of women and girls

15.1. Musaiger's 1991 survey found that based on body mass index, 13 percent of mothers were underweight, 33 percent normal, 27 percent overweight, and 28 percent obese. In other words, 55 percent of mothers were overweight or obese, and only one in three mothers was of normal weight. The 13 percent underweight figure is an improvement over the 26 percent rate documented in 1980 (Amin). The prevalence of overweight and obesity increased with age, while underweight and normal weight declined.

15.1.1. The survey finding that 55 percent of Omani mothers were overweight or obese is more than double the rate documented by Amin in 1980. Regional disparities appeared significant but could not be accurately ascertained from the sample of women surveyed, thus pointing out the need for further research on women's nutritional habits.

15.1.2. Many mothers have serious misconceptions about obesity, such as that skipping breakfast helps reduce weight, pressing the abdomen by clothes after delivery reduces the fat in the belly, or drinking fat during pregnancy helps ensure an easy delivery. Community attitudes also promote obesity in some areas, especially in the southern regions where it is common belief that men prefer plump women.

15.1.3. The survey also suggested that the prevalence of non-communicable diseases increased remarkably with the increase in body mass index. Obese mothers generally showed a higher prevalence of hypertension, diabetes, arthritis, asthma and backpain than other mothers. Heart diseases were higher among overweight and obese mothers than underweight and normal mothers.

15.2. Iron-deficiency anaemia is being recognised as a health problem for Omani women, and its extent is being increasingly documented. Musaiger's 1991 survey showed that around 60 percent of adult women suffer from low hemoglobin levels. A 1993 assessment of Oman's anaemia control programme showed that 48.5 percent of pregnant women surveyed were anaemic (43.3 percent mild anaemia and 5.2 percent moderate anaemia), with regional variations ranging from 36-61 percent.

15.2.1. The major factors that contribute to low hemoglobin and iron-deficiency anaemia are menorrhagia (excessive loss of blood during menstruation) and pregnancy, poor nutrition (due to ignorance, low family income or poor access to a full range of foods), and late contact with the health system. Many anaemic women are registered as such at health centres and this is recorded on their health cards, but in most cases they are unable to read the cards themselves or are not properly instructed by health staff on how to improve their nutritional status. The incidence of anaemia among mothers and low birth-weight babies could be reduced if pregnant women visited health centres for ANC consultations as of their first month of pregnancy, and if health education efforts were improved. Most pregnant women who feel tired assume the reason is their pregnancy, when in many cases the actual reason is their anaemic condition. About half of all women in the 1993 WHO assessment survey had sketchy and incomplete knowledge of anaemia and its causes and symptoms, but regional variations were very high (from 81-34 percent). The MoH distributes iron supplements to all pregnant women who are registered with the health system, and around three-quarters of the women comply with the schedule of supplements. The assessment also revealed some inconsistencies in the criteria used by health personnel to diagnose anaemia and its different grades.

15.3. Dietary habits of mothers, and women in general, have improved in the last two decades, but several deficiencies still need to be remedied. Meals have become more varied, including higher consumption of animal foods (especially meat, chicken, and dairy products). Overweight and obesity, with their allied dangers of diabetes, hypertension, and heart disease, are a growing health threat to women. Therefore, more attention needs to be given to the high

intake of foods rich in fat, salt, and cholesterol, while encouraging greater consumption of vegetables and fruits. The basic, traditional Omani stew of vegetables, fish and meat is a healthy base for family nutrition, if properly supplemented by other essential foods.

15.3.1. Musaiger's 1991 survey showed that 50 percent of mothers consumed green leafy vegetables daily, and 31 percent 1-3 times per week. Ten percent of mothers consumed legumes daily, and 61 percent 1-3 times a month. Citrus fruits were consumed daily by 77 percent of mothers; black tea was consumed daily by 56 percent of mothers, and tea with milk was consumed daily by 87 percent of mothers (this high rate of tea drinking could be a contributing factor to iron deficiency anaemia, since tea inhibits the absorption of iron). Fish is more widely consumed than chicken or red meat, especially in or near coastal regions; 19 percent of mothers ate fish daily and 63 percent ate it 1-3 times a week; 80 percent of mothers ate chicken 1-3 times a week and 74 percent ate red meat 1-3 times a month. Intake of dairy products was relatively good, with about two-thirds of women consuming them on a daily basis; 42 percent of mothers reported daily consumption of milk, 35 percent of cheddar cheese, 14 percent of salted cheese, and 31 percent of yoghurt, while the rest of the women consumed these products 1-3 or 4-6 times a week. Consumption of carbonated beverages and other fizzy drinks by mothers was relatively high (38 percent daily and 31 percent 1-3 per week), which may encourage children and adolescents to follow suit. Fifty-eight percent of mothers consumed dates daily.

15.3.2. Traditional beliefs and habits of Omani women include both good and bad elements vis-a-vis the health and nutrition of women and children. An important priority of health education efforts in Oman is to reinforce the good traditional habits and to change the negative ones, and recent experience indicates that education can induce changes in behaviour by men and women. For example, many Omani women (around one-quarter to one-third) reduce their food intake during pregnancy because they believe this will result in a smaller baby and an easier delivery; in fact, this habit is dangerous for both mother and child because it results in nutrient deficiency and insufficient weight gain, which are associated with small and low birth-weight babies who are at greater risk of neo-natal death, disabilities, and birth defects. Many mothers believe it is good for the foetus if they avoid spicy foods and tea (a good habit) and citrus fruits (a bad habit). During puerperium many women's diets consist of assida (wheat flour, ghee and honey), meat cooked with ghee, and ghee mixed with milk and honey, which are thought to be good for mother and infant. Assida and ghee with honey are rich in calories but low in proteins and some essential minerals (such as iron). Other common puerperium foods include tea with brown sugar (to clean the uterus), dates mixed with wheat flour and black pepper, ginger tea (to warm the abdomen), and coffee with brown sugar (to reduce back pain). Some of these foods (particularly dates) are very nutritious and should be encouraged, while others (tea, coffee) could easily be reduced. Some mothers avoid eating fish during the first 40 days after delivery, but they should be encouraged to do exactly the opposite because of the nutritional value of fish.

15.3.3. Some unsound beliefs also impact on infant feeding, such as giving infants ghee from their first day of life or feeding babies ghee in order to fatten them up (especially girls in the southern region, where being overweight is considered a sign of beauty). Some mothers put bitter substances (myrrh) on their breasts to stop breast-feeding, and others mix myrrh with hairs to frighten the child from the mother's breasts. This kind of abrupt stoppage of breast-feeding is bad for both infant and mother, and should be replaced with more gradual weaning.

15.3.4. Rising prices, the pervasive invasion of often nutritionally inappropriate imported commercial foods, and lack of family awareness of good nutritional habits are three immediate issues that need to be addressed in the food sector.

Society in focus:

Family eating habits: danger signs from the Bawsher survey

In 1991/1992, the fourth year medical students at Sultan Qaboos University conducted a rapid assessment survey of community nutritional status of the villages in Bawsher district, near the Royal Hospital and Sultan Qaboos Sports Stadium area. The survey assessed the nutritional status and habits of families that fall into three distinct settlement categories: the old traditional villages, the bedou/pastoral settlements, and the modern social housing units. Among the survey's most important findings were:

- Nearly half the families spend less than 40 percent of their income on food, nearly half spend over 25 percent on food, and 15 percent spend 40-70 percent of their income on food.

- About 60 percent of families eat together from the same dish at each meal; as children from the age of three were included in the adult food distribution, it is thought that they often did not eat as much as they should during meals.

- Children supplement their meals with snacks purchased at school or near home, but both the timing and nutritional value of the snacks are poor. Children snack on foods that are high in sweets and fats, and snacking before meals tends to reduce their intake of nutritious foods during family or school meals.

- Families are generally ignorant of good nutrition habits. The traditional Omani diet has been vastly expanded with the introduction of imported commercial foods without the families acquiring appropriate nutrition education that would allow them to maintain healthy diets. Families do not appear to be aware that good nutrition is necessary for their childrens' normal health, growth and development, and make little effort to make sure that their children eat nutritionally sound food.

- The families' consumption of eggs, meat and meat substitutes is good, but consumption of milk, milk products, fruits, and vegetables is lower than recommended, and consumption of fats (particularly saturated fats and oils) is much higher than recommended.

- Of all children under five years of age who were surveyed, 22 percent were mild to moderately malnourished, and 16 percent of children aged 5-12 were mild to moderately malnourished.

- About 42 percent of pregnant and lactating women avoided certain foods, especially fish, meat, chicken and milk -- all of which are protein- and mineral-rich foods which are important for pregnant and lactating women.

- While income can be an indicator of nutritional vulnerability, education levels were found to be critical for the promotion of good nutrition.

16. Disease threats to infants, children and women

16.1. Vaccine-preventable diseases

16.1.1. Immunization coverage rates have risen sharply in Oman during the past two decades, thanks to a crash programme to provide basic health services to a population that suffered an U5MR of 375 in 1970 -- then the highest rate among the UNICEF classification of middle and high U5MR countries. The EPI programme in Oman was launched in 1981. Since 1985, the Ministry of Health policy has been to screen and vaccinate all under-2 children at any point of contact with MoH institutions; to screen and give TT vaccinations to all women in the 12-50 age group; to register all children in the EPI master register in MoH institutions nearest their home; and, to trace defaulters and immunize them at home. The current immunization schedule of Oman is as follows:

Birth	BCG/OPV/HBV-1
6 weeks	OPV/HBV-2
3 months	DPT/OPV (1st dose)
5 months	DPT/OPV (2nd dose)
7 months	DPT/OPV (3rd dose)/HBV-3
9 months	Measles
15 months.	Measles/Rubella
19 months	DPT/OPV (booster)

16.1.2. According to Ministry of Health statistics, EPI coverage of children under the age of one in Oman rose dramatically during the 1980s, and in 1994 reached an average of over 97 percent for all six vaccine-preventable child killer diseases. Over 95 percent of pregnant women were vaccinated against tetanus in 1994, compared to 87 percent in 1985.

16.1.3. According to several EPI reviews and reports by respected international consultants, the EPI programme in Oman is well designed and effectively implemented. It comprises an efficient cold chain system applying computer-monitored vaccine procurement, storage and distribution; integrated daily monitoring on the central, regional, and peripheral levels; standard operating procedures and instructions; screening/immunizing all children who visit health centres; an efficient system of identifying and tracing defaulters who do not come in for their second and/or third dose; the availability of vaccinations on a daily basis; an effective nationwide registration and management information system based on child health cards, local and national registers, and monthly vaccination reports; a standardised supervision system based on field visits to each centre every two months; and, a disease surveillance system based on reporting of EPI diseases in children under 6 years of age. The EPI programme recently increased its stress on disease surveillance (particularly polio and neo-natal tetanus), in order to prevent another outbreak like the polio outbreak in 1988/89. A 1994 WHO evaluation of the communicable diseases surveillance system gave it very high marks, and made two observations: data collected at the peripheral level could be better analysed and used at that level, and surveillance of non-notifiable diseases did not always lead to investigations.

16.1.4. Vaccination coverage is high in Oman partly due to effective defaulter tracing system and the availability of vaccinations every day throughout the year. These are both expensive features of the system. The MoH is assessing how to maintain high coverage while instituting more cost effectiveness, which will focus heavily on improving and maintaining mothers' knowledge, awareness, and motivation.

16.1.5. The incidence rates of EPI target diseases have declined steadily in the period 1984-1994, as indicated in table 16.

Table 16. Reported cases of immunizable diseases (1984 to 1994)

Disease	1984	1985	1986	1987	1988	1989	1990	1991	1993	1994
Diphtheria	9	6	1	0	0	0	0	2	0	0
Pertussis	830	765	207	5	16	25	49	26	239	168
Neo-natal tetanus	5	11	11	8	1	0	0	1	0	0
Poliomyelitis	34	33	9	6	118	5	0	4	2	0
Measles*	9652	3675	2001	3804	6052	4255	1262	276	3108	181

* Outpatient cases

(Source: Ministry of Health, 1994 and earlier Annual Statistical Report)

16.1.6. The MoH's strategic priorities today are to maintain high coverage levels by strengthening region- and wilayat-level surveillance and EPI management, to eradicate polio and eliminate neo-natal tetanus, to reduce and then eliminate the incidence of measles, and to maintain zero incidence of diphtheria.

16.2. Diarrhoeal diseases

16.2.1. The most comprehensive nationwide data on the incidence rate of diarrhoea among infants and children comes from the 1989 CHS and Musaiger's 1989 rapid assessment nutritional survey. Musaiger's study shows that 35 percent of infants suffered from diarrhoea during the two weeks preceding the survey. Male children were less likely to have diarrhoea than females (29 percent vs 41 percent), probably because of more care and attention given to males and the slightly longer breast-feeding period they enjoy. The 1989 CHS data showed a 22 percent diarrhoea prevalence rate among infants, with a low of 18 percent in urban areas and a high of 30 percent in semi-urban areas. The CHS data shows a 25 percent prevalence rate among one-year-olds, which then drops steadily to 4 percent among five-year-olds. In all age groups, semi-urban children have the highest prevalence rate, followed in turn by rural and urban children. The 1989/90 CHS follow-up survey showed that 28 percent of 9-11-month-olds and 27 percent of 6-8-month-olds had diarrhoea in the previous two weeks, and 18 percent of infants of both age groups had diarrhoea in the previous 24 hours; in all cases, these are relatively high incidence rates that suggest chronic problems in community awareness of environmental sanitation, nutrition, weaning patterns, or other related issues.

16.2.2. The MoH reported that its facilities treated 164,085 diarrhoea cases in 1993 (compared to 190,376 in 1991), for a national rate of 582 cases per 1,000 population under the age of five (ranging from a high of 1118 in Woustah and 898 in North Sharqiya, to lows of 473 in Dhofar and 334 in Muscat.)

16.2.3. According to the CHS, nearly three in four children (72 percent) suffering from diarrhoea were treated with oral rehydration therapy (ORT), though a very high 55 percent also were treated with anti-biotics or anti-diarrhoeal drugs.

16.2.4. These statistics raise the issue of overuse of drugs in Oman, which appears to be due to three main reasons: patient expectation that health facilities will prescribe drugs to remedy their ailments, the habit of dispensing drugs by the public health system, and the powerful commercial instincts of private sector pharmacists and other medical personnel. The larger issue of Oman's essential drugs policy is being addressed by the MoH through a drug policy review by the Central Drug Committee.

16.2.5. The CHS confirmed that the health system is by far the most important source of information on ORT for mothers, with 87 percent learning about ORT from trained nurses, followed by 3 percent from relatives/friends, 2 percent from pharmacists, 1.5 percent from the media, and 1.2 percent from untrained nurses (TBAs). The good nationwide access to the health system is revealed by the small disparity in the percentage of mothers that learned about ORT from trained nurses (92 percent in urban areas, 88 percent in rural areas, and 83 percent in semi-urban areas).

16.2.6. Despite increased knowledge (95 percent of mothers are aware of ORT) and use of oral rehydration therapy (72 percent of children had ORT treatment for diarrhoea), ORT is still often heavily dependent on clinic-based services, despite the fact that a life-saving, home-based treatment is proven and available. Some mothers are not comfortable to mix and use ORS at home, which could lead to under- and over-dilution of ORS. Quality levels of home use of ORS are not fully documented. In 1987, about 50 percent of mothers could mix ORS properly, and this rate has certainly increased since then. It could also prove that poor quality of home management of diarrhoeal dehydration is the reason why so many children

are treated with ORT at health facilities.

16.2.7. ORT's potential was evidenced in a recent hospital study at Sohar, which showed that after an intensive period of staff and patient education 80 percent of mothers realised the dangers of diarrhoea, 85 percent recognised ORS, and 75 percent could properly prepare an ORS solution. Training Arabic-speaking Omani orderlies and community support groups to help demonstrate ORT treatments to mothers and to reinforce ORT messages delivered through other communications channels has been shown to be an effective strategy to improve CDD through improved home treatment.

16.2.8. Diarrhoea-related mortality among children under five years of age in Omani hospitals has been virtually eliminated. Only seven diarrhoea-related deaths of <5 children were reported to the MoH in 1993.

16.2.9. Despite the decline in mortality, diarrhoea-related morbidity remains very high because some underlying causes are still untreated (such as contaminated water and poor environmental health conditions). Diarrhoea prevalence can be reduced through a combination of improved environmental health standards, protection of water sources, better hygiene and sanitation habits, better assessment of the quality of health care and information rendered to the population, and greater family awareness of the linkages between water/sanitation quality, personal hygiene, and good health. All of these efforts fit more neatly into community-based efforts than into hospital-based initiatives. The success of the BFHI has already contributed to a decline in the incidence rate of diarrhoeal diseases among infants in many parts of the country.

16.2.10. All oral rehydration salts provided to patients for free through the Ministry of Health system are secured by UNICEF on a reimbursable procurement basis. Private pharmacies sell commercial ORS packets. The government does not use anti-diarrhoeal drugs, but these are available for sale in private pharmacies.

16.3. Acute respiratory infections (ARI)

16.3.1. ARI diseases have been the most common cause of out-patient attendance in Oman in recent years, accounting for 33 percent of all out-patient attendance, 25-40 percent of all hospital admissions of children, and 10 percent of all in-patient infant deaths. In 1993, respiratory problems were the leading cause of in-patient morbidity in hospitals. Of all respiratory ailments, the single most common problem among in-patients was acute upper respiratory infections.

16.3.2. The MoH treated 736,355 ARI cases in 1993 (compared to 781,962 in 1991), and registered 33 ARI-related deaths (compared to 45 deaths in 1991). The death rate among total ARI attendances has declined steadily in recent years, dropping from 22 percent in 1988 to 9 percent in 1993. The national incidence rate per 1,000 population under the age of five was 2.6 infections in 1993, with regional rates varying from a high of 5 in Al Woustah and 4.5 in North Sharqiya, to lows of 1.3 in Muscat and 2.3 in Dakhiliya.

16.3.3. A nationally standardised ARI programme now in effect aims to improve the public's awareness of preventive measures, and to enhance the quality and availability of treatment in health centres. The programme, which emphasizes prevention of mortality by early diagnosis and treatment, includes systematic and standardised training of health staff, the provision of diagnosis and treatment information materials for health personnel and the public, and a series of TV spots and half-hour television programmes. Improved early detection and treatment at home are the key to reducing ARI-related health hazards to children. Omani strategy seeks to attain this through better female knowledge and education, achieved in part by multi-purpose, community-based support groups that also promote breast-feeding, maternal health, and water and sanitation issues.

16.3.4. The 1989 CHS found that 38 percent of children suffered from ARI during the previous month, with the urban rate (33.8) notably lower than the semi-urban (40.5) and rural (38.4) rates, and regional variations ranging from a high of 40.2 in the central region to a low of 24.9 in the north. The CHS also noted that 51 percent of women believed that a cough was "normal", 40 percent thought it "serious", and 2 percent "insignificant". According to CHS data, 73.7 percent of children who had had a cough in the previous month were taken to a health facility (57.6 percent to a hospital, 33.5 percent to a health centre/unit, and 8.9 percent to a private clinic).

16.4. Malaria

16.4.1. Malaria is gradually being contained in Oman, though it continues to be a health problem in many parts of the country, due to poor environmental health conditions and low public awareness of relevant causal factors. A recent survey indicated that many people believe that malaria is transmitted through water, perhaps because they see malaria control teams spraying stagnant water sources. Malaria incidence, as measured by passive case detection, decreased from 18,262 positive cases in 1991 to 16,787 cases in 1993. Malaria is thought to be an important contributing factor to the relatively high rate of low birth-weight and stillborn babies in Oman.

16.4.2. The prevalence of malaria in the general population in 1993, based on a sample of normal households, showed a slide positivity rate of 6.7 percent, but with considerable regional disparities ranging from highs of 13 percent in Dhahira and 9.5 percent in North Batinah, to lows of 0.5 percent in Musandam and 0.4 percent in Dhofar. The 1993 school health survey of 6-9-year-olds showed a slide positivity rate of 0.9 percent, less than half the 1991 and 1990 rates of 2.1 percent.

16.4.3. Regional disparities in malaria prevalence are reflected in statistics of in-patient morbidity for 1993. The data showed a national average of 17 discharges per 10,000 population, ranging from highs of 51 in Dhahira and 41 in North Batinah to lows of 1 in Dhofar and 2 in Muscat. Total malaria cases treated by the health system are declining. Only 7215 cases were treated in 1994, compared to an average of 16,000 in the three previous years.

16.4.4. Anti-malaria efforts focus on larviciding operations, undertaken by a nationwide network of malaria control units and control teams attached to public health centres. The pilot programme to eradicate malaria in Sharqiya region that was launched in 1991 has proven to be a huge success, and is being expanded nationally. No malaria cases were reported in Sharqiya in 1994, and, perhaps as a result of this, there are signs that low birth-weight and anaemia incidence rates are declining in that region. Permethrin-impregnated bed nets and better case management are two important means of prevention and treatment that need to be more fully explored in Oman.

16.5. Tuberculosis

16.5.1. Tuberculosis control efforts to detect and treat all new cases consist of BCG vaccinations as a component of EPI, diagnosis and treatment of cases, contact tracing, defaulter retrieval, health staff training, and monitoring and supervision by the DFCHP. These efforts have seen the number of new TB cases decline steadily, from 861 in 1984 to 275 in 1993. The number of defaulters continues to drop, from 424 in 1986 to just 10 in 1993. A recent slight decline in the scar rate in several hospitals has prompted MoH action to improve staff training and BCG vaccination management.

16.6. Trachoma and other eye diseases

16.6.1. Trachoma, an eye disease that can cause blindness, is endemic among the rural populations of north Oman, where an estimated 1-4 percent of adults suffer from moderate-to-severe trachoma, 9-17 percent suffer from mild trachoma, and 2-4 percent are blind in one or both eyes. Trachoma is a problem that mostly plagues middle-aged and older Omanis, and has been controlled among young people and children, due to better screening and curative care. Muscat and Dhofar region are least affected by the disease. Trachoma remains a problem in some areas becaus trachoma is highly infectious and is spread by close personal contact, it is relatively not painful, and its mild irritation is widely accepted as unavoidable. People often are not motivated to apply ointments for a period of 4 to 8 weeks for a disease whose symptoms they consider "normal". Consequently, the Eye Health Care (EHC) Programme is an outreach effort comprising school and community screening to detect cases, and either treat them with drugs or, if serious, refer them to local ophthalmologists.

16.6.2. In 1992/93 EHC teams examined 35,342 students at 463 schools, and 11,274 members of the community, finding 92 percent of students normal (compared to 79 percent in 1990/91) and 62 percent of adults normal (56 percent in 1990/91). After trachoma, the other leading eye problems in Oman are: corneal diseases from ulcers, infection, injuries and ultraviolet sunlight; glaucoma; cataract; and metabolic disorders, eg. diabetes mellitus. School screening now detects eye problems at an early stage, but Oman still suffers from cultural constraints such as a common aversion to wearing spectacles. About half of all prescribed spectacles are purchased, and not all purchased spectacles are actually used as recommended. Eye health care efforts need to focus on education and promotion of good health habits as well as on detection and treatment of eye problems.

16.7. AIDS

16.7.1. AIDS is receiving serious attention from the government because of the country's proximity to, and population exchange with, several high-incidence regions such as East Africa and South Asia. About 50 percent of infections are due to contaminated blood, and the rest to sexual transmission. About a quarter of identified AIDS cases are among children under 12 years old, and one-third among females.

16.7.2. The government AIDS programme, established at the Ministry of Health in 1990, works on the basis of 3-year plans that are continuously updated in coordination with WHO. Its current strategic priorities focus on: information, education and communication; epidemiological assessment and surveillance; case management, including clinical support and counselling; and, programme management.

16.7.3. Health education is a major component of the AIDS programme, and is supervised by a multi-sectoral committee. AIDS awareness information is shared routinely with education and religious officials, and has been incorporated into secondary school curricula. Television spots, posters, and leaflets have been produced and disseminated. Blood screening is conducted on a regular basis, no blood is imported from abroad, and target groups have been identified for screening. All private sector expatriate employees are screened, and infected individuals are repatriated to their home countries.

16.7.4. A case management system for AIDS patients has been developed, and some MoH staff have been trained to care for and counsel patients. Carriers of the HIV virus are followed-up once every three months, and active AIDS patients are seen every month by their regular doctor.

17. Disability

17.1. Disability among children in Oman has been better documented in recent years, though no definite national data is available partly because no single national organisation has the mandate or capability to assume overall responsibility for the assessment, care or treatment of the disabled. The Oman National Committee for the Care of the Handicapped has existed since 1981, but this consultative body focuses primarily on organising a few annual public events, such as sports festivals and lectures. These have achieved some successes in promoting greater awareness of the needs of the disabled for a range of normal life activities, including education, work, and leisure. To prompt more effective action at the grassroots level, in 1992 the committee established a multi-sectoral National Task Force for the Care of the Disabled, which set up working groups to look into specific needs, especially training health workers and meeting the needs of disabled children. The task force was dissolved after completing its tasks.

17.2. Available data on disability is largely hospital- or agency-based. The most comprehensive assessment of disability in Oman to date was the January 1993 situation analysis by Laura Krefting, commissioned by the Ministries of Social Affairs and Labour, and Health, and UNICEF. She noted that based on the estimate of 60,000 live births in Oman annually and the internationally accepted average of 3 percent incidence of mental disability, some 1,800 Omani children are born mentally handicapped every year. On the basis of the expected 3-8 percent disability rate derived from surveys in other countries, Oman may have a total of between 24,000 and 64,000 children under the age of 16 suffering from mental and physical disabilities.

17.3. Available data provides useful clues to the extent and nature of disability among children and adults in Oman:

* The 1993 census documented a total of 28,350 disabled persons of all ages (15,397 male and 12,953 female), which corresponds to just 1.9 percent of the Omani population and 1.4 percent of the total population. The census reported that 60 percent of disabilities were due to illness, 25 percent to birth-related causes, and just 2.4 percent to accidents. The total number of disabled people documented by the census is less than the actual number, because the census only recorded visible, severe handicaps, and did not attempt to record disabilities that were mild or not easily visible to the census personnel.

* A 1981 survey of schoolchildren estimated the prevalence of disability at 5-10 percent of students, of whom just over 3 percent required special education while the rest had disabilities which did not hinder them from attending regular schools.

* A 1983 NCDP survey of village populations revealed that 4 percent of the disabled were aged 1-4, and 28 percent were aged 5-16.

* MoH data indicates that at least 6 percent of all adult Omanis are blind in one or both eyes, mainly due to trachoma.

* The 1989 Fanja community survey of children and adults revealed that 2.6 percent of the population were disabled, comprising 27 percent physical impairment, 23 percent mental retardation and illness, 23 percent sensory impairment (visual, hearing and speech), 14 percent multiple handicaps, 4 percent epilepsy, and 9 percent miscellaneous disabilities.

* The 1993 Statistical Yearbook gives the following breakdown of leading types of disabilities, based on regional surveys and registrations of disabled persons with the Ministry of Social Affairs and Labour (the data may or may not be representative of the true causes of all disabilities throughout the country):

blind	30%
paralytic	17%
mentally weak	16%
deaf/mute	14%

17.4. The data indicates that 58 percent of disabilities were due to car accidents, and 25 percent to birth-related causes.

17.5. The Ministry of Social Affairs and Labour (MOSAL) maintains a register of needy disabled persons to whom it gives equipment such as beds, wheelchairs glasses, while the Ministry of Health provides crutches and other equipment. The MOSAL register had 3,812 persons in mid-1992. The government provides cash payments to families of the disabled, and the MoH sends some disabled people for treatment abroad. In 1993, a total of 5022 disabled individuals received government cash assistance worth OR 2.786 million, compared to 4,230 people in 1989.

17.6. Paediatricians in Oman believe that many birth-related (congenital or acquired) disabilities could be avoided or attenuated with better ANC, monitoring during labour and birth, and care for low birth-weight babies. Such an effort would require improved obstetric resources, better training, and a higher level of awareness by mothers. Other possible causes of birth-related disability may be the very high consanguinity rate (marriages among cousins) and the high fertility rate of Omani women. The 1989 CHS documented a national consanguinity rate of 54 percent (59 percent rural/43 percent urban), while the 1991 Musaiger study put the rate at 58 percent.

17.7. While the short-term trend in Oman has seen a decline in the relative number of child disabilities due to better access to health care, immunization, education, and sanitation services, the total number of disabled children is likely to resume its upward trend, Krefting and others point out. This is because many low birth-weight infants and child accident victims saved by modern medical technology can be expected to suffer life-long disabilities. Several key causes of disability that can be minimized are low birth-weight babies, prematurity, accidents, and inadequate pre-natal maternal health care.

17.8. Only a handful of centres in the country treat the disabled, catering mainly to the needs of the physically disabled. Services include one school each for the deaf and mute, the physically disabled over 16 years of age, the mentally retarded, the blind, and the paralysed, accommodating a total of some 400 people. The Omani Women's Association and MOSAL operate eleven all-volunteer community-based rehabilitation centres for disabled children, in Muscat, Salalah, Nizwa, Rustaq, Ibri, Sur, Ibra, Buraimi, Sohar, Fanja and Bidbid, which also teach mothers how to care for their children at home.

17.9. Existing education, rehabilitation and care facilities for the handicapped are far below the country's needs. While two schools (the Hope Institute for the Deaf and Mute and the School for the Mentally Retarded) serve nearly 400 students, MOSAL estimates that at least 700 other students need such facilities. Existing expertise and programmes to meet the needs of disabled children (rehabilitation experts, community play groups/nurseries, special education schools and MOSAL services) cover a total of around 1,000 children, or less than 2 percent of disabled children who need such services.

17.10. The provision of sufficient quality facilities would be greatly enhanced by several factors: more knowledge on the nature and extent of disability in the country; a social attitude that helps disabled individuals to participate as fully as possible in family and community life; more trained technical workers in the field of care for the disabled; fewer constraints in service delivery and family/community education due to the scattered nature of the rural population; less service disparities between the capital and the regions; more expertise in planning and management of disability services on a national and regional level; instituting a standard assessment and referral system by which families can obtain help for the disabled; a more rigorous and comprehensive national registration system for disabled persons; more adequate assessment and rehabilitation tools; and greater budgetary allocations.

17.11. On the other hand, Oman enjoys several pluses, including: the incorporation of measures to prevent disability into the national health care infrastructure (eg. immunization,

malaria control, trachoma screening, school health); the adoption of new strategies that will further reduce child disability (nutrition education, improved maternal care); good cooperation and coordination between NGOs and the relevant government agencies; impressive commitment and dedication by individuals and groups working to serve disabled children; a more emphatic government focus recently on the needs of the disabled; and several heartening attempts to date to respond to the needs of disabled children through community-based integration rather than institution-based dependency and isolation. Several attempts to elicit community support for facilities to serve the disabled have been very successful, especially in rural areas, where schools have enthusiastically integrated disabled children into their classrooms and provided them with any special care that may be required. Integration into regular community activities tends to be the norm in rural areas, while in the Muscat area facilities for the disabled tend to focus more on special centres.

17.12. The first NGO to address the needs of the disabled, the Association for the Care of Disabled Children, was established in Muscat in early 1992 and now operates three centres for disabled children in Muscat, Quriyat and Ghubra. It has trained some volunteers who have started to make regular visits to areas outside the capital city in the Muscat region. It aims at opening a boarding centre in Muscat that could impact positively the disability care facilities in other parts of the country. It has already secured significant contributions from the private sector, including free medical examinations by doctors and scholarships from private schools, and continues to advocate for the needs of the disabled (eg. parking places and playground facilities for the disabled). The society's main focus now is on two areas: a) increasing family awareness of the importance of providing rehabilitation and education services to allow disabled children to become productive members of society, and, b) increasing parents' awareness of measures to prevent or reduce disabilities. It seeks to achieve these aims through advocacy with the government, a public lectures series, and using the private sector and social mobilisation techniques.

17.13. Many cases of disability could be minimized or avoided if detected and treated at an early stage. This requires more facilities as well as a change in attitude that could be brought about through nationwide, community-based information and education efforts. Some pioneering efforts have already confirmed the immense goodwill that exists in the community to assist the disabled and to provide them with opportunities to participate fully in society. Some of the most recent innovative efforts include training university students to screen primary school students, eliciting greater private sector support, incorporating disability screening into the school health programme, advocating to accept the disabled in vocational training schemes, encouraging volunteers to help disabled students and school teachers, and using the health education system and existing disability care centres to train mothers in preventing, detecting and treating disabilities at an early stage. The Ministries of Health and Social Affairs and Labour, with the technical assistance of UNICEF, have jointly developed a comprehensive programme of action for disabled children in Oman, which is an integral part of the government's 1993-2000 National Programme of Action (NPA) for continued improvement of the health and quality of life of children and women in Oman. The rights of the disabled could also be better assured simply by implementing existing laws, especially the 1973 Royal Decree requiring equal opportunity employment for the disabled.

18. Accidents

18.1. Accident are an increasingly important cause of morbidity and disability in Oman. According to MoH statistics, the total number of reported accidents in Oman that required out-patient treatment increased three-fold in the period 1988-1990, from 139,498 to 467,214.

Hospital records show that the number of in-patient admissions for injuries and poisoning increased by an annual average of nearly 13 percent in the period 1991-93, to a total of 19,009 admissions in 1993 (compared to 15,061 in 1991). The total of poisonings and accidents increased to 8.4 percent of all hospital in-patient cases in 1993, compared to 7.9 percent in 1991. Injuries and poisoning were the third leading cause of non-pregnancy-related hospital in-patient admissions in 1993.

18.2. A 1989 survey of causes of accidents among children revealed that major indoor accidents to children aged 5 and under are falls, burns, cuts, kerosene/medicine poisoning, lead/food poisoning, dogbites, swallowing foreign objects and electric shock; outdoor accidents include falls, snake/insect bites, car/road accidents, and insect stings. Children in the 6-12- and 13-18-year-old age groups suffered the same kinds of indoor and outdoor accidents, along with outdoor drowning. The continuing increases in childhood and adolescent injuries are a sign of the changing nature of society and lifestyles in Oman, which may require adjustments in child survival and development strategies. Also, as more and more women attend and complete school, go to university, marry at a later age, have fewer children than their mothers did, seek formal employment outside the home, or participate more in community activities, infants and children at home will find that they have to adapt to new lifestyles that may be rather different from recent Omani traditions. This phenomenon once again highlights the speed at which Omani society is changing, and the many implications of changes in factors such as female educational status or employment trends.

18.3. The number of vehicles on the roads of Oman and total accidents and fatalities have both increased steadily in the last decade, indicating how the brisk pace of economic development brings with it a new set of child health and survival challenges. Between 1989 and 1993, the total number of vehicles on the roads in Oman increased from 194,830 to 272,843. Road accidents in that period increased from 11,355 to 11,754, and fatalities from 375 to 461. The past two years have seen a troubling trend, with the annual number of accidents declining but the number of deaths rising. In 1994, accidents declined to 11,056 while fatalities increased to 497.

18.4. A newly formed National Committee for Preventing Traffic Accidents is using a variety of media and public information systems to educate the public about road safety, though it is hampered by inadequate funding and personnel, and lack of information required to assess and tackle the problem.

19. The work of UNICEF and other international partners in Oman

19.1. Upon the invitation of the government of Oman, The United Nations Children's Fund (UNICEF) has been proud to be associated with the people of Oman for more than two decades in an exemplary commitment to human development and national progress. From a modest beginning in 1971, when it signed the basic agreement that defines its efforts in Oman, UNICEF has steadily expanded the fields in which it responds to government requests for technical and material cooperation. Until the late-1980s, UNICEF activities comprised providing vaccines, cold chain equipment, and oral rehydration salts; providing equipment, vehicles, and some salaries and stipends for community development projects; and providing assistance for training, research, and production of information materials. Ever since the government took full charge of supply activities for immunization, control of diarhoeal diseases, and other programmes in the early 1990s, UNICEF cooperation has shifted away from the provision of supplies in the health, social affairs and education sectors, towards actions that have wider, cross-sectoral impact. UNICEF's main activities in Oman today include cooperation in: conducting studies, collecting and analyzing data, monitoring health

and environmental conditions, planning goals and strategies on a sectoral or national basis, expanding partnerships with non-health sectors, training health and education personnel, and building capacity in key sectors. As the infant mortality rate has decreased over the years, UNICEF cooperation has also tended to target more narrowly defined groups of women and children in need of assistance or knowledge, especially the disabled, pre-school children, illiterate women, and adolescent girls.

19.2. In the context of Oman's 1995 mid-decade goals, the NPA goals for the year 2000, and the national five-year development plan, UNICEF activities and objectives in Oman fall into the following categories: maternal and child health, expanded programme on immunization (EPI), control of diarrhoeal diseases, acute respiratory infections, nutrition, disability, school health, water and sanitation, community development, early childhood development, education, social mobilisation and advocacy, the National Woman and Child Care Plan, and monitoring and evaluation.

19.3. UNICEF's work in Oman is part of a broader technical development assistance programme which comprises a range of project activities by other U.N. specialised agencies and bilateral partners.

* The World Health Organisation is actively involved in several health fields, most particularly malaria control, regionalisation, PHC promotion, and planning, data collection, and training for the wilayat-level health system.

* The United States Agency for International Development works with Oman through the Omani-American Joint Commission, in fields such as water/sanitation, birth-spacing, and environmental protection.

* Technical specialists from Japan work in several sectors under the aegis of the Japanese government's international volunteers programme.

* Several U.N agencies have provided studies and other technical assistance in specific fields during the past few years, including the United Nations Division for Technical Cooperation and Development, the Food and Agriculture Organisation, the United Nations Industrial Development Organisation, the International Civil Aviation Organisation, the World Meteorological Organisation, and the World Tourism Organisation.

PART C: UNDERLYING CAUSES AND FACTORS THAT INFLUENCE THE WELLBEING OF CHILDREN AND WOMEN

- The health services system.
- Society in focus: Oman pioneers women's participation in community health.
- Education, literacy, early childhood development.
- Water, sanitation, environmental health, personal hygiene practices.
- Environmental protection.
- The status and roles of women.
- Society in focus: Omani women's lives in the pastoral nomadic sector.

20. The health services system

20.1. The **Ministry of Health** is the main provider of curative and preventive health care in Oman, complemented by health services provided by the Ministry of Defence, the Royal Oman Police, Petroleum Development Oman (PDO) and Sultan Qaboos University Hospital. The private sector plays a relatively small role in the provision of health services, mostly comprising private clinics almost totally manned by Asian expatriates. There are no private hospitals in the country. All private health services are supervised by the Ministry of Health. All primary health care, including mother/child services, is provided free of charge by the government to Omanis and to government-sponsored expatriates. Health services are also available for a fee at private clinics.

20.2. The Ministry of Health is headed by a minister, assisted by three under-secretaries who oversee 21 directorates-general, including one each for the ten national health regions (Muscat, South Batinah, North Batinah, Dhofar, South Sharqiya, North Sharqiya, Dhakhiliya, Dhahira, Al Woustah, and Musandam). The organisation of the Ministry of Health aims to regionalise and decentralise service delivery, improve management, upgrade quality of services, and establish a three-tiered system with PHC services at the community level, supported by secondary and tertiary level referral care at regional and national hospitals.

20.3. The national public health system is hierarchically organised on a national basis. Local health staff feed information to regional health directors in the form of monthly reports on disease incidence, immunization, use of health facilities, and other relevant subjects. The health information officers in all regions are already self-sufficient in data processing, which allows local health systems to respond much more quickly to emerging needs and immediate problems. The monthly data is transferred by diskette from the regional computers to the ministry's national computer system in Muscat. Central health staff in Muscat focus more on overall national planning on the basis of regional comparisons of health conditions and needs. The existing health information system is able to monitor public health trends, and to identify and respond to disease outbreaks. Regionalisation effort to date have resulted in greater staff efficiency, better monitoring of health problems, and more effective management due to greater local participation. Routine administrative and financial decisions are made at regional level, rather than having to be referred to Muscat. Local hospitals and health centres form the nucleus of an integrated regional health services system, under a director-general of health services, which plans, implements, supervises and evaluates integrated health activities at the

regional and local levels. Each regional government hospital has an inter-sectoral MCH committee bringing together different specialists in the field from within the government health system and other relevant organisations in the region. The MCH committees help identify needs and develop strategies for maternal and child health issues.

20.4. The present system of decentralisation of the ten health regions is now being taken to the next level -- a multi-sectoral, team problem-solving approach at the level of each of the 59 wilayats. The Ministry of Health, in close cooperation with WHO, holds regular training workshops to promote the wilayat-level team problem-solving approach. Health needs identified at the local level are addressed through workshops to train trainers and local health personnel. The major constraint to regionalisation is manpower proficiency at the wilayat and local levels, where officials long accustomed to centralised decision-making in Muscat will require time and training to grasp the responsibilities now being transferred to them.

20.5. Wilayat-level health systems will have a strong emphasis on PHC delivery and a three-tiered referral system (health centres, regional hospitals, and national referral hospitals), in conformity with a royal decree issued in 1991. Health services directors are being designated and trained in each wilayat. Local, wilayat-level health management teams will be responsible for five main areas of health services:

a. health planning, community participation, and inter-sectoral coordination
b. health administration and management of community health programmes
c. supervision and in-service training of all health staff
d. out-patient services
e. in-patient services in hospitals

20.6. According to the national health policy statement issued in November 1992, each region in Oman will formulate a plan of action to launch and sustain PHC through the wilayat health system, on the basis of community participation, inter-sectoral collaboration, health education, personnel training, and coordination between local needs and national goals and strategies.

20.7. The Ministry of Health, having established an effective national health system within easy access of the majority of the population, has shifted its priority to improving the quality of care, increasing cost and quality efficiency, and promoting community-based PHC as the basis for long-term health goals.

20.8. The **Directorate-General of Health Affairs** provides primary, secondary and tertiary care through a network of hospitals, health centres, and mobile medical units. Three major hospitals in Muscat (Royal, Khoula and Nahda) provide tertiary care and have started to act as national referral hospitals, along with Ibn Sina Hospital for psychiatry. District and regional hospitals of 50-200 beds each have extensive in-patient and out-patient services, including specialised services in medicine, surgery, paediatrics and maternity. At the local level, health centres headed by physicians provide basic health care, while two types of small local hospitals (4-20 and 24-49 beds each) provide a range of general medicine, maternity, out-patient, in-patient, casualty and emergency services. All hospitals also provide preventive and primary health services, including maternal and child health (MCH), environmental sanitation, health education, and health personnel to assist in school health services.

20.9. Five new extended health centres offer more specialised primary health care and form key links in the referral system. Each centre of 12-14 doctors can handle the vast majority of routine health problems on the spot, while referring more complex cases to regional and national hospitals. Extended health centres are expected to be able to absorb some of the pressure on regional hospitals by offering the same range of basic out-patient services that people now feel they must seek in hospitals, especially x-rays and lab tests. Health staff have been testing a system of providing each family with its own family health

card and registering the family members at one clinic, where they must pass before being referred to regional or national hospitals. Such a system could build on the virtually comprehensive registration of pregnant women and infants at local health facilities, where each woman and child in a clinic's catchment area has a permanent health card.

20.10. Regional referral hospitals will become the focal point of secondary health care. Three regional hospitals are being expanded and upgraded and several new ones are being built under the current five-year plan. Tertiary health care will continue to focus on the existing national hospitals in the Muscat area. The concept of referral services is gradually being accepted and implemented, particularly at Royal Hospital (Muscat) where out-patient consultations and in-patient admissions are restricted to cases referred from district/region and other hospitals in the capital area. This initial step towards a formal national referral system should alleviate some existing pressures at all levels of the health system.

20.11. The Directorate-General of Health Affairs sets policies and monitors preventive health programmes, including MCH, environmental health, control of communicable diseases, and health promotion. The only vertical programmes are malaria and school health services, while other programmes integrated into the MoH health system include trachoma and other eye diseases, TB, control of diarrhoeal diseases (CDD), acute respiratory infections (ARI), and the expanded programme of immunization (EPI).

20.12. The classical elements of primary health care are incorporated into services provided by all branches of the government health system. Structurally and functionally, curative and preventive aspects of PHC are integrated at national level and fall under the jurisdiction of the Directorate-General of Health Affairs. The reorganisation of the health system will see the following PHC components provided by local health centres and polyclinics: curative services, health education and information, nutrition, environmental health, MCH, immunization, school health services, prevention and control of diseases, eye health, oral health, mental health, community participation, laboratory services for routine diagnostic tests, and basic radiological services.

20.13. Directorate-General of Health Affairs priorities today include increasing and sustaining immunization coverage against the six EPI diseases at 97 percent or more, achieving zero incidence of polio and neo-natal tetanus, sustaining high levels of Hepatitis-B vaccination, and administering programmes to alleviate malnutrition, reduce peri-natal and maternal mortality, improve and expand ante-, peri- and post-natal care, and reduce the incidence rates of diarrhoeal diseases and ARI.

20.14. A health services system, combining static and mobile units and including helicopter evacuation when necessary, operates in mountainous areas with widely dispersed population clusters, such as the southern region and Jabal Akhdar. It provides both curative and preventive services.

20.15. Health Education. Health centre doctors and nurses often have to cope with 200-300 patients a day, partly because some Omanis visit health facilities for reasons other than pressing health care needs -- including social reasons, to be with friends and relatives, or just to get away from home for a brief period. Physicians and other health personnel recount that when they ask why attendance at a health centre suddenly drops from over 200 one day to under 50 the next, they often discover that the reason is a local wedding, funeral or other communal event. In other words, visits to health centres are not always so urgent or timely that they cannot be pre-empted by social obligations. The fact that women sometimes come to health centres for non-pressing medical reasons suggests, however, that there is ample scope to take advantage of the women's presence there for health education and family/community development goals.

20.16. Despite the relatively modest level of education of most Omani women over the

age of 20, they are willing and able to absorb health knowledge, as evidenced by their strong and sustained response to health education campaigns for immunization and CDD. An effective transfer of health knowledge at medical facilities can only occur, however, if the doctor, nurse, or health worker has the time to provide such information, and can do so in understandable Arabic in a context of cultural affinity. These conditions rarely pertain in Oman today. Health centres are over-crowded, and doctors and nurses, on average, have 3-6 minutes per patient, which leaves very little time for health education. Language is another problem, as most health staff are expatriates who cannot communicate well in Arabic with their patients. Mothers' willingness to listen to health education advice is also a relevant factor. Health education related to the particular illness for which a mother seeks treatment at the health centre may be understood and accepted. Other, unrelated subjects -- however important they may be -- may not be appreciated because the mother is more concerned about the immediate condition of the child. Also, many mothers view health education as something to keep them busy or entertained while they are waiting to see a doctor or nurse. Consequently, the role of non-health community workers becomes extremely important in providing the right type of knowledge, and also in supporting the efforts of health workers.

20.17. A successful experiment in Nizwa delivered health education services in Arabic to women at a social centre set up next door to the local hospital where most women and children came for health services. A possible remedy to language/communication constraints is to tap the thousands of orderlies and para-medics, of whom some 90 percent are Omanis, and to train them as health communicators. They lend themselves to such a role because they are part of their local communities, they are present throughout the country, they speak Arabic, and they enjoy the additional personal motivation of being able to help their own families, neighbours, and communities. Omani orderlies may become a more important part of quality health service delivery as the Ministry of Health increases its PHC orientation and implements a stricter referral system. As a first step towards this goal, all hospitals have agreed to dedicate two or more orderlies each exclusively to promoting breast-feeding; some health officials believe such orderlies could impact on their communities both inside and outside the health facilities where they work. They could even become links between health facilities and community-based support groups (for breast-feeding and ANC/PNC, for example), thereby becoming dynamic elements of a more community-based preventive health care concept that promotes healthy individuals in their own communities, rather than focusing on curing ill patients in health institutions. Such a concept is partly based on the successful small-scale, experimental training of orderlies in the mid-1980s, especially in rural areas where village girls were trained at their local health centre and worked there. Older, uneducated orderlies who retire are being replaced by a new category of orderlies who meet minimun literacy and educational standards, and who would be hired with a view to their being trained to play an active role in PHC delivery alongside their other, largely menial and non-technical, duties.

20.18. Health education is the responsibility of the MoH's Health Education Department, which produces a classical range of television and radio programmes and spots, posters, leaflets and booklets, and other materials. The department has traditionally suffered from technical and budget constraints that have limited its effectiveness, because MoH priorities have focused to date on building up a basic public health system that delivers services, rather than knowledge, to the population. The department has recently coordinated its training and production efforts more closely with school health services and other interested agencies, but does not yet have sufficient technical capabilities to achieve the vast potential that exists for health education in Oman. A serious weakpoint is the lack of capacity to evaluate existing health education materials.

20.19. The government and its publicly-owned media enjoy very high credibility throughout Oman, and by using the health, education and media systems it is possible to reach virtually every household in the country. An example of how effectively the government can use its credibility through the mass media to influence people's behaviour was the successful introduction of mandatory seat belt use. Relying mainly on mass media spots and explanations, the government was able to bring about almost universal seat belt use well before the formal coming into effect of the seat belt law, and has not had to resort since then to widescale fines of non-compliant drivers.

20.20. Health facilities: By end 1994, the Ministry of Health's national network of services included 46 hospitals and 116 health centres (including 5 mobile health centres). The total health units were distributed as indicated in table 17. There were a total of 3860 hospital beds in MoH hospitals at end 1994 (compared to 3210 beds in 1985), including 911 beds for children in paediatric wards, and 723 for women in obstetrics/gynacology wards. The ratio of hospital beds/10,000 population increased from 19.6 in 1984 to 22.7 in 1994, while the population/hospital bed ratio improved from 510 in 1984 to 440 in 1983.

20.21. Total hospital patient discharges reached 220,368 in 1994, compared to 143,000 in 1983. The national average bed occupancy ratio in 1994 was 71 percent, with wide regional disparities. The national mean length of hospital stay was 4.4 days (1994).

Table 17
Regional distribution of hospitals and health centres as of 31-12-1994

Regions	Totals	Health centres without beds	Health centres with beds	Extended health centres	Hospitals
Muscat	19	11	1	1	6
Dhofar	41	18	18	0	5
Dakhiliya	61	10	0	0	6
North Sharqiya	11	6	0	0	5
South Sharqiya	17	12	0	0	5
North Batinah	16	7	2	2	5
South Batinah	12	4	1	2	5
Dhahira	15	9	2	0	4
Musandam	7	1	3	0	3
Al Woustah	8	4	2	0	2
Total	**162**	**82**	**29**	**5**	**46**

(Source: Annual Statistical Report, 1994, p.56. Ministry of Health)

20.22. The efficiency of the health care system is inconsistent, with over-crowding in most major urban hospitals and under-utilisation in a few regional hospitals and some health centres. Due to better health services and the longer life spans of Omanis, the health care system is witnessing new pressures from the health care needs of the elderly. Oman already

experiences the phenomenon of old people who need nursing care but not specialised hospital services, but who are occupying hospital beds that could be more efficiently used by other people requiring more sophisticated or urgent care.

20.23. The government health system (hospitals and health centres) received a total of 11.998 million out-patient attendances in 1994, compared to 5.837 million in 1990 and 4.821 million in 1986. This means that on average each person in Oman made around 5.7 visits to a government medical facility in 1994, which is an extremely high per capita figure. The reasons for this are not well understood, but probably include a combination of the following: the free care provided; the generally good quality of care; the high credibility of the system with the people; inconsistent clinic and out-patient management (characterised by crowding during morning hours, and little time for patient-doctor or patient-nurse communication for health education); often low levels of family awareness and education; the need for frequent treatment due to the persistence of underlying causes (high fertility rate, contaminated water, poor environmental sanitation and personal hygiene habits); and social reasons (a good place for the women to gather with their children).

20.24. The most intense pressure is on hospital staff. Of the 11.55 million out-patient visits in 1993, 7.237 million were to hospitals, and 4.312 million were to health centres. It is not known on what basis people decide whether to visit a health centre or a hospital. Some families go directly to a nearby hospital because they anticipate that the health centre will send them to the hospital in any case for specialised tests or examinations. A 1992 MoH survey of household behaviour in relation to perception of illness in North Batinah revealed that most people who feel ill promptly seek treatment, but that the better educated are more likely to try self-treatment at home. In most cases, repeated visits to health facilities are justified by the result of the previous visit. It is not known whether people who first visit a health centre and then go to a hospital do so due to their own personal choice or due to referral. Too many people discontinue a course of treatment when they feel an improvement in their ailment. Only one percent of people consult traditional healers in the first instance. More research needs to be done on attitudes to the different levels of the health system, in order to achieve greater efficiency.

20.25. The current shift towards greater stress on referral, regionalisation, home case-management of certain ailments, community participation, and preventive and PHC care is a change from the policy of the last two decades, when the government encouraged people to come to the health centres and hospitals for curative care. Some research may be required to determine how families react to this shift in strategy, and to develop health information messages that relate directly to family perceptions of how they should make use of the health system.

20.26. The total number of health personnel in Oman continues to rise, and to keep pace with demand for health services. The total number of doctors reached 2629 in 1994 (against 1243 in 1987), of whom 65 percent were Ministry of Health employees. Dentists increased from 83 to 156 (48 percent MoH), pharmacists from 227 to 366 (14 percent MoH), nurses from 3467 to 6224 (79 percent MoH), and other para-medical staff, mostly orderlies, from 4046 to 5128 in 1993 (73 percent MoH).

20.27. The ratio of doctors/10,000 population increased from 6.3 in 1984 to 13 in 1994, while the population/doctor ratio improved from 1591 in 1984 to 840 in 1993. The nurses/10,000 population ratio rose sharply from 13.9 in 1984 to 30 in 1994. The ratio of dentists/10,000 population increased from 0.4 in 1984 to 1 in 1994, and the ratio of pharmacists per 10,000 population improved from 1.0 in 1984 to 2 in 1994.

20.28. Oman continues to rely heavily on expatriate medical staff to operate its health system. Expatriates in 1993 accounted for an aggregate average of nearly 90 percent of all doctors, dentists, nurses and pharmacists employed by the Ministry of Health. Omanis are

a majority only in the field of para-medics (orderlies). Problems and constraints resulting from such a high percentage of expatriate health staff include: a high turnover rate; communications problems and erratic health education efficiency due to the inability of foreign staff to speak and understand Arabic; and, inconsistent motivation standards. On the other hand, expatriate health staff have proven to be efficient at accepting and implementing administrative directives from their seniors, and have helped contribute to the relative success of Oman's health infrastructure.

20.29. Extensive efforts to turn out trained national health staff are seen as a priority of the health strategy, though a major constraint may be finding suitably qualified national candidates who could be trained rapidly to take over from expatriate staff, especially in rural areas. Other constraints are lack of trainers and training institutions, and the financial impracticality of large-scale training abroad.

20.30. The ministry's Directorate of Education and Training is the focal point of manpower development, both in-country and abroad. The leading health manpower training institute in Oman (excluding training of physicians) is the ministry's Institute of Health Sciences, with a total of 446 students enrolled in 1993, compared to 179 in 1987 (general nurses, lab technicians, dental surgery assistants, physiotherapists and radiographers). In 1993, the institute graduated 169 graduates.

20.31. Seven new health manpower training centres opened in Oman in 1991-1992: the Oman Institute of Public Health (for sanitary inspectors), the Institute of Assistant Pharmacists, and six regional nurses training institutes in Nizwa, Sur, Sohar, Tanam, Ibra, and Salalah. They enrolled a total of over 600 students in 1993.

20.32. The Sultan Qaboos University College of Medicine admits an average of 80 students a year, and a total of over 350 students are now enrolled. The first batch of graduates received their degrees in 1993. They are expected to have a strong PHC and public health orientation because of the emphasis in the curriculum on community and preventive health. First-year medical students are assigned to a local community, and during their four years of studies they maintain continuous contact with the people of that community, both to conduct primary research and to provide medical services and information. The aim of the community- and public health-oriented teaching system is to turn out Omani doctors and medical personnel firmly rooted in the realities and the potential of community-based health delivery systems. Fieldwork includes data collection and analysis, which are used in the preparation of study and training materials for students. This work is closely linked with government programmes through the inter-sectoral National Woman and Child Care Plan (NWCCP).

20.33. Despite the increased output of trained Omanis, the high population growth rate portends a growing gap between demand and supply of Omani health personnel. According to one estimate (Sencer, 1991), the annual gap between available and needed physicians will increase from 78 in 1991 to 186 in 2005, based on an annual population growth rate of 3.8 percent and including graduates from Sultan Qaboos University. The deficit in available nurses will similarly increase, from 2,395 in 1985 to 6,153 in 2000 (assuming total hospital beds increase to 6,773). These trends emphasize the urgent need to train Omani para-medical staff, orderlies, TBAs, community health workers, midwives, and other health personnel whose services could relieve pressures on doctors and nurses and re-orient the health delivery system away from excessive curative services to more cost-efficient preventive services.

20.34. The Ministry of Defence, the Royal Oman Police, Sultan Qaboos University and Petroleum Development Oman between them operate a total of 5 hospitals and 42 clinics, with a total of 842 beds, 318 physicians, 25 dentists, 38 pharmacists, 890 nurses, and 814 orderlies and other para-medics. In 1993 these facilities admitted 20,420 patients and treated 887,318 out-patients, compared to the corresponding 1987 figures of 10,700 in-patients and

478,000 out-patients.

20.35. Private health care. In 1993 private companies and individuals operated 349 general clinics (228 in 1987), 35 specialised clinics (16) and 37 dental clinics (31). The total number of private pharmacies increased from 133 in 1987 to 265 in 1994, but they play no significant role other than selling commercial drugs. Pharmacies were used once in a CDD campaign, but their impact on family knowledge has not been assessed or promoted.

20.36. Private sector health personnel comprised 435 MDs, 38 specialist physicians, 278 pharmacists, and 233 nurses. Total private sector health personnel increased from 934 in 1987 to 1038 in 1993.

20.37. Private sector clinics mostly provide curative services, and play a very small role in preventive and ante-natal care programmes. They cater mainly to expatriates who are not covered by the free public health system but rather by their employers, and who find private clinics more convenient and requiring less waiting time. But private health services, particularly pharmacies and clinics, can be mobilised to play a greater role in primary health care and related information dissemination. Some private sector pharmacists, doctors and nurses have already been brought into information and training workshops administered by the Health Ministry and other national and international institutions.

20.38. The training and information manuals developed by the Woman and Child Care Task Force are also intended for distribution to the private sector -- a particularly important step because some private doctors give women professional advice that can differ from government policies and guidelines, such as to stop feeding a child suffering from diarrhoea. Some private clinics also still prescribe anti-diarrhoeal drugs or infant formula, which the government is trying to stop altogether.

20.39. Private practitioners are under pressure from patients, international drug manufacturers, and local drug distributors alike to dispense commercial drugs, which may detract from proper preventive health care. The government encouraged private health services in the past when the public health system could not cover all the needs of the people, and it still encourages the opening of good quality private health clinics and hospitals.

20.40. Total health expenditures by the government have increased in recent years, in absolute, relative and per capita values. The MoH's total expenditures increased from OR 108 million in 1992 to OR 117 million in 1993, and declined slightly to OR 112 million in 1994. Total health spending as a percentage of government expenditures has increased steadily in the past ten years, from 4.5 percent in 1985 to 5.5 percent in 1994, during a period when government spending was intermittently curtailed in order to keep down the overall deficit. Per capita health expenditures have increased from OR 52 in 1990 to OR 53 in 1994.

20.41. Available statistics on expenditures on preventive and curative services are not very relevant in Oman as a measure of the government's health strategy. They under-report true spending on preventive services because some key preventive services (immunization, CDD) are delivered through health centres and hospitals.

20.42. Access to health services, defined as health facilities with trained personnel within a one hour drive, was estimated by the MoH to be 100 percent in urban areas in 1993 and around 94 percent in rural areas. A generally good situation on a national basis is also characterised by pockets of need among small villages, hamlets and semi-nomadic communities living in remote mountain and desert regions.

20.43. According to the nationally standardised Child Health Programme launched by the Ministry of Health in 1988, all newborn children are given a comprehensive child health card, and a duplicate copy of the card is kept at the family's local hospital/health centre. The card includes growth chart, immunization record, routine growth and development checks, record of illnesses and treatments given, a list of key health topics to be discussed with health staff, and an accompanying picture fold-out for easier comprehension by mothers. The card was

initially used during the first five years of a child's life, and in 1993 a new card was introduced covering the first six years of life. From the ages of 7-18, a student's health is tracked through the school health card.

20.44. Infants under the age of one year are supposed to visit a health centre every month for weight/growth monitoring, and at regular intervals for immunization. Not all mothers fully appreciate the importance of regular growth monitoring and developmental checks of infants and children. Over 95 percent of mothers carry the child health card whenever they visit a health centre or hospital.

20.45. Access to child health services is very good, as indicated by the high immunization coverage and child health card use. The 1989 CHS revealed that 91 percent of children had a child health card, and 76 percent of children who did not have a health card had had at least one vaccination. Only two percent of urban children did not have a health card, compared to 9 percent of children in semi-urban areas and 10 percent in rural areas. Over 90 percent of children have easy access to health services and visit a health centre at least once every other month. Special efforts are made to identify and reach children who are "at risk" or who live in remote areas, in order to complete their vaccinations and provide them with basic primary health services.

20.46. The School Health Department (SHD) aims at a ratio of 5000 pupils/doctor and 2500 pupils/nurse. The current ratio is 4600 pupils/doctor and and 2800 pupils/nurse. The central SHD plans the school health programme, trains school health workers, supervises implementation by the regional staff, and evaluates overall effectiveness of the programme. The school health programme at local level aims to train school health workers (teachers, nurses, administrators, social workers, volunteers) in a standardised procedure to achieve three objectives:

a.) to screen all primary and secondary school students at three points during their school years and to provide a comprehensive service that deals with the physical, mental and social health needs of students;

b.) to change students' bad health beliefs and habits and teach them good habits at an early age, and thereby allow children and adolescents to become community vectors of knowledge who would promote healthful lifestyles; and,

c.) to improve the physical environment in schools as it relates to people's health, including water and sanitation needs, ventilation, and other issues.

20.47. The SHD holds workshops to train school health workers, and has standardised its screening procedures on the basis of four statistical forms and a permanent student health record.

20.48. Some parents are contacted directly about their children's health needs, and others are reached through the parent-teacher association, local clubs, mosques, or annual public events such as the municipalities week. In a good example of effective multi-sectoral cooperation, SHD and the Education Ministry are examining alternatives to the food and drink that children can buy at schools, in order to improve nutrition intake and reduce caries.

20.49. The SHD introduced a new school student health record system in the 1992/1993 academic year. Each first year student at the primary, intermediate and secondary levels is issued a school health card that remains with the child's school throughout his/her education years. The card documents the full range of SHD health surveillance activities, including immunization, pre-school health records, and the primary school entrance health examination (comprising a general physical examination, behavioural and social skills, hearing, Rinnes test, teeth and gums, eyes and vision, motor development).

20.50. Health education is not taught as a separate subject in classes, but some health education information is included in the regular curricula (especially the science class textbooks). Some of the material could be made more effective by being more up-to-date,

consistent, relevant to local traditions, and of a higher technical quality. School health education has tremendous potential in Oman because nearly one-third of the entire population are students, teachers and education administrators, and between them they penetrate into virtually every household in the country. The education system is also well suited for conveying good health habits to families because teachers are respected and deemed credible by students and parents alike, and teachers and students spend six hours a day together, five days a week. Some people argue that this provides plenty of time for good health education to take place, and is also an opportunity to train teachers to act as detectors of early signs of childhood disabilities and other health problems.

20.51. The school health education system in general could be enhanced by greater resource allocation and use of Education Ministry resources, better communication by using Arabic-speaking Omani doctors and nurses, and integration of health messages into the full curriculum (Arabic, social sciences, etc.). Better health education could also compensate for some of the family-management deficiencies associated with young girls who drop out of secondary school in order to marry at around the age of 15-17. If such girls were reached with good, credible information on health habits during their first nine years of school, they would be more likely to pass on good health practices to their own family and children -- on the assumption that it is easier to teach a young child good habits than to change the bad habits of an adult.

Society in focus:

Oman pioneers women's participation in community health

In the same manner that Oman has already demonstrated sound planning and effective health service delivery to all its citizens, it is now pioneering a new field of action that will prove vital for sustaining the wellbeing of its people in the years and decades ahead -- the active participation of women in community-based public health action.

The focal point for such efforts are the scores of community support groups that have been successfully launched as part of the Baby Friendly Hospital Initiative. The support groups were initially established to help promote exclusive breast-feeding by new mothers, but their scope of work is now being expanded to cover other fields, such as complementary feeding, oral rehydration therapy, and birth-spacing.

Typically, a support group comprises anywhere from ten to 120 local women who have the time and willingness to volunteer their services, and whose respected status in the community gives them the credibility that is vital for success. The groups are formed by the MoH maternity centre, usually working closely with the local chapter of the Omani Women's Association, the office of the Local Community Development Programme, or the Ministry of Social Affairs and Labour.

The volunteer women are trained by health personnel in the basic elements of breast-feeding. They undergo an eight-hour initial training session in the local hospital and then receive follow-up practical training. They start making contact

with pregnant women well before delivery time, in order to teach women about the benefits of immediate and exclusive breast-feeding for the first four months of an infant's life, and continued breast-feeding with complementary feeding up to two years of age. Support group members are in contact with mothers in both formal and informal settings, including at health facilities and in the course of their normal daily interaction with their peers in the community.

The support group concept is based on the principle that a new mother requires a combination of technical medical advice that she receives from health personnel, but also general attention, support and guidance that health staff often do not have the time to provide. New mothers at a critical stage of their lives can now share experiences and receive encouragement and practical advice from their friends and neighbours in the local support group. The concept is especially relevant in Oman because most mothers spend less than 24 hours in hospital after delivering, due to pressures on hospital beds.

After spending time with mothers in hospitals, the support group members remain in contact with them in the community, continuously enquiring about women's breast-feeding experiences and always offering suggestions and support as needed. The advice is always well received, because the support group volunteers are well trained (and repeatedly tested and retrained through refresher courses) and are respected members of the community. Their credibility comes largely through their status as educated members of society, or as elderly women with a respected social standing.

In some parts of Oman where the system has been operational for more than a year, it was noticed that some volunteers dropped out of their support groups. Further investigation by health staff revealed that this was mainly due to boredom from disseminating the same information month after month. Consequently, the system is being revised to include new information that the support groups give to new parents, on subjects such as birth-spacing, nutrition and complementary feeding, and oral rehydration therapy to treat diarrhoea. Some regions of Oman have started to train support groups on prevention and treatment of respiratory infections and how to use and interpret the growth charts that are on every child health card. There is also talk of expanding their activities into community-based prevention in sectors that are important underlying causes of diseases, such as environmental pollution, personal hygiene practices, and water and sanitation.

The community support group experience in Oman has provided an important boost to breast-feeding and other healthful practices, and it has also confirmed the validity of community-based participation as an effective strategy to sustain Oman's impressive progress in improving the health and wellbeing of its people.

21. Education, literacy, early childhood development

21.1. Education in Oman is the universal right of all members of society, whether children, adolescents, or adults. The Government of Oman provides free primary, preparatory and secondary education to all Omani children, and the growth of the education system during the past two decades has been one of the outstanding features of the country's development drive.

Primary education (six years) begins at the age of six, followed by three years of preparatory schooling; those who pass the intermediate examinations can go on to three years of secondary education, in either the literary (humanities) or scientific stream. Free basic education comprises the primary and preparatory cycles (grades 1-9), for children aged 6-15 years. When the national education programme was launched in 1970, Oman had only three boys' schools (in Muscat, Muttrah and Salalah) with 909 students. In the 1994/95 school year, Oman had 932 schools (KG through secondary), with 478,984 students, compared to 703 schools and 294,934 students in 1988/89. The ratio of males/females improved in that period from 55/45 percent to 52/48 percent.

21.2. In 1994/95, the general education system comprised:

- 362 primary schools with a total of 301,682 students (52 percent boys and 48 percent girls)
- 436 preparatory schools with a total of 113,228 students (54 percent boys and 46 percent girls)
- 134 secondary schools with a total of 62,118 students (49 percent boys and 51 percent girls) (this was more than four times the 15,190 secondary students in 1988/89).

21.3. The rest of the education system comprises 36 institutions with over 11,100 students, including: 7 preparatory and 1 secondary Islamic schools, 3 secondary technical schools for industry and commerce, 2 special education schools, 8 intermediate teacher training colleges, 5 vocational training secondary schools, 1 post-secondary (diploma) institute, the Health Science Institute, the Institute of Bankers, the Oman Technical Industrial College, and Sultan Qaboos University. A total of 30 private schools (kindergarten through secondary) accommodated 30,226 students in 1993/94.

21.4. Early childhood development and pre-school education

21.4.1. Early childhood development is a relatively new field in Oman that has not been systematically or comprehensively developed in recent years due to more urgent priorities in child survival and basic education. It is being addressed now as an increasingly urgent issue, due to the realisation that little is being done to provide Omani infants and pre-schoolers with the sort of stimulation and intellectual development they need to perform well in school and to reach their full potential as adolescents and adults. Over 230,000 pre-school-age children in Oman (ages 1-6) are not routinely tracked or examined by the health or education systems, except if they happen to be enrolled in a pre-school or visit a health facility for immunization or for curative care. The focus of action for pre-school children falls heavily on the home and the community. Much research is required to determine how children spend their time at home or in the community during their pre-school years. Because these are the formative years for intellectual, physical and emotional growth, it is important to ascertain the amount and nature of attention and stimulation that children receive, whom they receive it from, and with whom they spend most of their time.

21.4.2. Pre-school education, which caters to less than five percent of the eligible under-6 population, is predominantly in the hands of the private sector and NGOs, with the government providing supervision, some training to assure minimum quality standards, and a few government-run facilities. Pre-schools are the fastest growing sector of the education system (nurseries take children aged 6 months to 3.5 years and KGs take children aged 3.5 to 6 years). In the 1993/94 school year, Oman had 142 kindergartens (including 19 operated by the Royal Oman Police) for over 4,700 students (of whom about 10 percent were non-Omanis). There were 20 private nurseries, 15 nurseries operated by branches of the Omani Women's Association, and over 40 rural nurseries associated with programmes operated by the Local Community Development programme, accommodating a total of over 1250

children. The government, with UNICEF assistance, is focusing its efforts on setting and monitoring standards, and training teachers. Some pre-schools operated by the Omani Women's Association take small payments from participating families in order to pay part-time staff and encourage local volunteers (this suggests that such local services could generate new work opportunities for women, while starting to impress upon families the need to pay for some services).

21.4.3. The government is strengthening controls to improve the quality of nurseries and kindergartens, and has already closed a few for poor standards. The government sees its role as supervising the pre-schools to assure minimum standards, providing training for teachers and administrators, and offering some books and supplies, with most of these efforts limited now to the capital region. The Directorate-General of Women's and Children's Affairs and the Ministry of Education operate a three-week training course for pre-school teachers.

21.4.4. Home-based early childhood stimulation practices are not well documented in Oman. Mothers and fathers traditionally spend time playing with their infants and children, but systematically designed early childhood stimulation techniques are not well appreciated by most Omani families. Infants spend a good deal of time in the company of domestic helpers and siblings, but the quality of stimulation they receive in these circumstances is not documented at all. Television and radio have been used in a few cases to inform parents about appropriate early childhood stimulation techniques, but this is not a systematic programme. Health and education staff are not trained to provide families with appropriate information in this field. Oman has regular television programmes for children, including imported material and a weekly local children's show largely comprising children's songs. Arabic-language books and magazines for children are all imported and relatively expensive. Omani newspapers have children's pages, though these could be made more creative and relevant to the children's needs. In most cases, the main means of early childhood stimulation in Oman are mothers, television, and the neighbourhood community.

21.4.5. Pre-schools provide many opportunities for linkages with health-related community activities involving mothers, which could bring about a convergence of mental and physical development in a natural and relevant manner. Given that an estimated 230,000 children in the 1-5-year-old age group are eligible for pre-school education, this is expected to remain the fastest growing sector of the education system in the next decade.

21.5. Basic education

21.5.1. Basic education (grades 1-9) enrollment rates have increased steadily during the last two decades. In 1993/94, gross enrollment rates in primary and preparatory cycles reached 94 percent and 84 percent respectively, though net enrollment ratios were lower, at 81 percent for primary grades and 53 percent for preparatory grades. This means that 19 percent of primary-age children and 47 percent of preparatory-age children are not accounted for by age-specific grade enrollments; some of them are not in school, and others are in a higher or lower grade than they should be based on their age (see tables 18 to 21). Gender disparities in net enrollment terms have been reduced to one percentage point for both primary and secondary levels.

21.5.2. Educational wastage (drop-out and repetition rates): Many reasons -- personal, logistical, financial or attitudinal -- may explain why some pupils drop out of school or repeat one or more grades during the primary and preparatory cycles. A comprehensive study of this matter has never been made, and would be most useful for devising strategies to lower wastage rates. Most of the dropouts enrol in vocational training centres, police and army schools, the Sultan's Guard Technical school or adult education centres, which reduces the amount of educational wastage.

Table 18 - A

Grade - Wise Enrollment Irrespective of Age, Population by Age, and Gross Enrollment Ratios for the Years 1993 -2000

Grade	1993			1994			1995			1996			Age
	Stu.	POP.	GR.ENR.	Stu.	POP.	GR.ENR.	Stu.	POP.	GR.ENR.	Stu.	POP.	GR.ENR.	
Grade1	51358	51818	99.11	49601	52763	94.01	49605	50588	98.06	50680	51826	97.79	6
Grade2	52845	54780	96.47	52411	52710	99.43	51139	52634	97.16	51140	51343	99.60	7
Grade3	51155	52544	97.36	51460	52312	98.37	51829	52676	98.39	50489	52522	96.13	8
Grade4	49849	52544	94.87	50600	51505	98.24	53077	52349	101.39	53890	52643	102.37	9
Grade5	44069	48132	91.56	44791	50350	88.96	48973	51527	95.04	51546	52375	98.42	10
Grade6	40923	49612	82.49	39647	48941	81.01	43935	50307	87.33	48068	51540	93.26	11
Tot Prim.	290199	309430	93.79	288510	308581	93.50	298558	310081	96.28	305813	312249	97.94	
Grade7	47993	47377	101.30	38489	47539	80.96	41392	48912	84.63	45615	50265	90.75	12
Grade8	32833	42180	77.84	32097	45734	70.18	32700	47509	68.83	35144	48882	71.90	13
Grade9	27348	39219	69.73	26245	43413	60.45	31234	45701	68.34	32348	47477	68.13	14
Tot.Prep.	108174	128776	84.00	96831	136686	70.84	105326	142122	74.11	113107	146624	77.14	

Grade	1997			1998			1999			2000			Age
	Stu.	POP.	GR.ENR.	Stu.	POP.	GR.ENR.	Stu.	POP.	GR.ENR.	Stu.	POP.	GR.ENR.	
Grade1	52407	52350	100.11	54529	52422	104.02	56917	52480	108.45	59509	52605	113.12	6
Grade2	52220	52124	100.18	53981	52328	103.16	56158	52309	107.36	58613	52411	111.83	7
Grade3	50198	51945	96.64	50954	52340	97.35	52389	52311	100.15	54238	52263	103.78	8
Grade4	52997	52428	101.09	52957	52388	101.09	53975	52407	102.99	55723	52294	106.56	9
Grade5	52485	52611	99.76	51752	52352	98.85	51675	52532	98.37	52605	52408	100.38	10
Grade6	50742	52391	96.85	51799	52580	98.51	51190	52308	97.86	51055	52545	97.16	11
Tot Prim.	311049	313849	99.11	315972	314410	100.50	322304	314347	102.53	331743	314526	105.47	
Grade7	49817	51544	96.65	52714	52394	100.61	53987	52554	102.73	53550	52278	102.43	12
Grade8	38839	50224	77.33	42590	51538	82.64	45294	52380	86.47	46555	52528	88.63	13
Grade9	34705	48851	71.04	38275	50185	76.27	41985	51518	81.50	44773	52356	85.52	14
Tot.Prep.	123361	150619	81.90	133579	154117	86.67	141266	156452	90.29	144878	157162	92.18	

Note: Population =Population + Birth - Death

ENR (g1,t)=(ENR(g1,t-1)*k)) +ENR(g1,t-1)* r(g1,t); where ENR stands for Enrollment Rate, g stands for grade , t stands for Year ,r stands for repetition, k =.05 for ages 5 and 8 ,and k 1.0525 for ages 6 and 7.

ENR (g,t,=(ENR (g-1,t-1) *pg) + (ENR (g-1,t-1)); where p is promotion rate and g stands for grades 2 to 9.

$r(t+1)=1-p(t+1)-c(1-p(t+1))^{-}$,where c=2. $p(t+1)=p(t)+ k(1-p(t))^{-}$

Table 18 - B

Grade - Wise Enrollment Irrespective of Age, Female Population by Age, and Gross Enrollment Ratios for the Years 1993 -2000

Grade	1993			1994			1995			1996			Age
	Stu.	POP.	GR.ENR.	Stu.	POP.	GR.ENR.	Stu.	POP.	GR.ENR.	Stu.	POP.	GR.ENR.	
Grade1	25303	25391	99.65	24339	26070	93.36	24274	24885	97.54	24766	25444	97.34	6
Grade2	25863	26842	96.35	24883	26073	95.44	24107	25991	92.75	23998	25260	95.00	7
Grade3	24801	26117	94.96	24999	25881	96.59	24618	26054	94.49	23876	25924	92.10	8
Grade4	23589	26117	90.32	23747	25459	93.28	24785	25906	95.67	24506	26036	94.12	9
Grade5	20762	23215	89.43	21696	24846	87.32	23285	25477	91.40	24350	25924	93.93	10
Grade6	18935	23940	79.09	18910	24099	78.47	21101	24826	85.00	22703	25489	89.07	11
Tot Prim.	139253	151622	91.84	138574	152428	90.91	142170	153139	92.84	144199	154077	93.59	
Grade7	20753	23215	89.39	17982	23348	77.02	19353	24085	80.35	21519	24807	86.75	12
Grade8	15660	21038	74.44	15999	22402	71.42	16410	23333	70.33	17627	24071	73.23	13
Grade9	13315	19587	67.98	13708	21211	64.63	16103	22386	71.93	16748	23318	71.82	14
Tot.Prep.	49728	63840	77.89	47689	66961	71.22	51866	69804	74.30	55894	72196	77.42	

Grade	1997			1998			1999			2000			Age
	Stu.	POP.	GR.ENR.	Stu.	POP.	GR.ENR.	Stu.	POP.	GR.ENR.	Stu.	POP.	GR.ENR.	
Grade1	25601	25642	99.84	26640	25615	104.00	27814	25595	108.67	29087	25643	113.43	6
Grade2	24446	25590	95.53	25248	25629	98.51	26262	25559	102.75	27412	25567	107.22	7
Grade3	23726	25559	92.83	24133	25696	93.92	24902	25617	97.21	25889	25538	101.37	8
Grade4	23793	25868	91.98	23604	25779	91.56	23969	25726	93.17	24707	25605	96.49	9
Grade5	24172	26018	92.90	23496	25823	90.99	23274	25851	90.03	23594	25724	91.72	10
Grade6	23786	25936	91.71	23696	26003	91.13	23059	25799	89.38	22810	25857	88.22	11
Tot Prim.	145524	154613	94.12	146817	154545	95.00	149280	154147	96.84	153499	153934	99.72	
Grade7	23221	25496	91.08	24390	25942	94.02	24422	25989	93.97	23814	25784	92.36	12
Grade8	19581	24788	78.99	21187	25497	83.10	22310	25937	86.02	22430	25977	86.35	13
Grade9	17964	24056	74.68	19897	24771	80.32	21575	25490	84.64	22778	25927	87.85	14
Tot.Prep.	60766	74340	81.74	65474	76210	85.91	68307	77416	88.23	69022	77688	88.85	

Note: Population =Population + Birth - Death

ENR (g1,t)=(ENR(g1,t-1)*k)) +ENR(g1,t-1)* r(g1,t); where ENR stands for Enrollment Rate, g stands for grade , t stands for Year ,r stands for repetition, k =.05 for ages 5 and 8 ,and k 1.0525 for ages 6 and 7.

ENR (g,t,=(ENR (g-1,t-1) *pg) + (ENR (g-1,t-1)); where p is promotion rate and g stands for grades 2 to 9.

$r(t+1)=1-p(t+1)-c(1-p(t+1))^{-}$,where c=2. $p(t+1)=p(t)+ k(1-p(t))^{-}$

Table 18 - C

Grade - Wise Enrollment Irrespective of Age, Male Population by Age, and Gross Enrollment Ratios for the Years 1993 -2000

Grade	1993			1994			1995			1996			Age
	Stu.	POP.	GR.ENR.	Stu.	POP.	GR.ENR.	Stu.	POP.	GR.ENR.	Stu.	POP.	GR.ENR.	
Grade1	26055	26427	98.59	25262	26693	94.64	25331	25703	98.55	25914	26382	98.23	6
Grade2	26982	27938	96.58	27528	26637	103.34	27032	26643	101.46	27142	26083	104.06	7
Grade3	26354	26427	99.72	26461	26431	100.11	27211	26622	102.21	26613	26598	100.06	8
Grade4	26260	26247	100.05	26853	26046	103.10	28292	26443	106.99	29384	26607	110.44	9
Grade5	23307	24917	93.54	23095	25504	90.55	25688	26050	98.61	27196	26451	102.82	10
Grade6	21988	25672	85.65	20737	24842	83.48	22834	25481	89.61	25365	26051	97.37	11
Tot Prim.	150946	157808	95.65	149936	156153	96.02	156388	156942	99.65	161614	158172	102.18	
Grade7	27240	24162	112.74	20507	24191	84.77	22039	24827	88.77	24096	25458	94.65	12
Grade8	17173	21142	81.23	16098	23332	69.00	16290	24176	67.38	17517	24811	70.60	13
Grade9	14033	19632	71.48	12537	22202	56.47	15131	23315	64.90	15600	24159	64.57	14
Tot.Prep.	58446	64936	90.01	49142	69725	70.48	53460	72318	73.92	57213	74428	76.87	

Grade	1997			1998			1999			2000			Age
	Stu.	POP.	GR.ENR.	Stu.	POP.	GR.ENR.	Stu.	POP.	GR.ENR.	Stu.	POP.	GR.ENR.	
Grade1	26806	26708	100.37	27889	26807	104.04	29103	26885	108.25	30422	26962	112.83	6
Grade2	27774	26534	104.67	28733	26699	107.62	29896	26750	111.76	31201	26844	116.23	7
Grade3	26472	26386	100.33	26821	26644	100.66	27487	26694	102.97	28349	26725	106.08	8
Grade4	29204	26560	109.95	29353	26609	110.31	30006	26681	112.46	31016	26689	116.21	9
Grade5	28313	26593	106.47	28256	26529	106.51	28401	26681	106.45	29011	26684	108.72	10
Grade6	26956	26455	101.89	28103	26577	105.74	28131	26509	106.12	28245	26688	105.83	11
Tot Prim.	165525	159236	103.95	169155	159865	105.81	173024	160200	108.00	178244	160592	110.99	
Grade7	26596	26048	102.10	28324	26452	107.08	29565	26565	111.29	29736	26494	112.24	12
Grade8	19258	25436	75.71	21403	26041	82.19	22984	26443	86.92	24125	26551	90.86	13
Grade9	16741	24795	67.52	18378	25414	72.31	20410	26028	78.42	21995	26429	83.22	14
Tot.Prep.	62595	76279	82.06	68105	77907	87.42	72959	79036	92.31	75856	79474	95.45	

Note: Population =Population + Birth - Death

ENR (g1,t)=(ENR(g1,t-1)*k)) +ENR(g1,t-1)* r(g1,t); where ENR stands for Enrollment Rate, g stands for grade , t stands for Year ,r stands for repetition, k =.05 for ages 5 and 8 ,and k 1.0525 for ages 6 and 7.

ENR (g,t,=(ENR (g-1,t-1) *pg) + (ENR (g-1,t-1)); where p is promotion rate and g stands for grades 2 to 9.

$r(t+1)=1-p(t+1)-c(1-p(t+1))^{-}$,where c=2. $p(t+1)=p(t)+ k(1-p(t))^{-}$

Table 19

Grade - Wise Enrollment Irrespective of Age, Population by Age, and Net Enrollment Ratios for the Years 1993 -2000

Grade	1993			1994			1995			1996			Age
	Stu.	POP.	Net.ENR.	Stu.	POP.	Net.ENR.	Stu.	POP.	Net.ENR.	Stu.	POP.	Net.ENR.	
Grade1	35950	51818	69.38	37658	52763	71.37	39447	50588	77.98	41320	51826	79.73	6
Grade2	32843	54780	59.95	35394	52710	67.15	37145	52634	70.57	38915	51343	75.79	7
Grade3	28476	52544	54.19	31929	52312	61.04	34485	52676	65.47	36252	52522	69.02	8
Grade4	23976	52544	45.63	28305	51505	54.96	31862	52349	60.86	34512	52643	65.56	9
Grade5	19860	48132	41.26	22994	50350	45.67	27092	51527	52.58	30599	52375	58.42	10
Grade6	17190	49612	34.65	19427	48941	39.69	22466	50307	44.66	26423	51540	51.27	11
Tot Prim.*			81.00			76.10			79.81			83.33	
Grade7	14225	47377	30.03	17056	47539	35.88	19371	48912	39.60	22379	50265	44.52	12
Grade8	9600	42180	22.76	12336	45734	26.97	14886	47509	31.33	16959	48882	34.69	13
Grade9	7550	39219	19.25	9260	43413	21.33	11837	45701	25.90	14354	47477	30.23	14
Tot.Prep.**			53.00			48.44			51.78			56.10	

Grade	1997			1998			1999			2000			Age
	Stu.	POP.	Net.ENR.	Stu.	POP.	Net.ENR.	Stu.	POP.	Net.ENR.	Stu.	POP.	Net.ENR.	
Grade1	43283	52350	82.68	45339	52422	86.49	47493	52480	90.50	49749	52605	94.57	6
Grade2	40764	52124	78.21	42700	52328	81.60	44729	52309	85.51	46853	52411	89.40	7
Grade3	37987	51945	73.13	39793	52340	76.03	41683	52311	79.68	43663	52263	83.54	8
Grade4	36365	52428	69.36	38123	52388	72.77	39937	52407	76.21	41835	52294	80.00	9
Grade5	33230	52611	63.16	35088	52352	67.02	36802	52532	70.06	38558	52408	73.57	10
Grade6	29939	52391	57.15	32607	52580	62.01	34512	52308	65.98	36225	52545	68.94	11
Tot Prim.*			87.00			91.05			95.33			99.71	
Grade7	26253	51544	50.93	29860	52394	56.99	32659	52554	62.14	34685	52278	66.35	12
Grade8	19596	50224	39.02	22934	51538	44.50	26154	52380	49.93	28686	52528	54.61	13
Grade9	16423	48851	33.62	18973	50185	37.81	22167	51518	43.03	25331	52356	48.38	14
Tot.Prep.**			59.53			64.31			67.89			71.68	

***Note:** This figure represents also the NER for all students age 6-11 who are enrolled in grade 1-6.

**** Note:** This figure represents also the NER for all students age 12-14 who are enrolled in grade 7-9.

Note: Population =Poulation + Birth - Death

ENR (g1,t)=(ENR(g1,t-1)*k)) +ENR(g1,t-1)* r(g1,t); where ENR stands for Enrollment Rate , g stands for grade , t stands for Year ,r stands for repetition, k =.05 for ages 5 and 8 ,and k 1.0525 for ages 6 and 7.

ENR (g,t,=(ENR (g-1,t-1) *pg) + (ENR (g-1,t-1)); where p is promotion rate and g stands for grades 2 to 9.

$r(t+1)=1-p(t+1)-c(1-p(t+1))^{-}$,where c=2. $p(t+1)=p(t)+ k(1-p(t))^{-}$

Table 20

Age by Grade Distribution of Students for the Year 1993/1994

Age	G 1	G 2	G 3	G 4	G 5	G 6	G 7	G 8	G 9	Total
5	7089	35								7124
6	35950	6581	32							42563
7	6960	32843	6179	47	1					46030
8	1121	9692	28476	5137	49	17				44492
9	162	2830	10857	23976	4171	69				42065
10	55	642	3938	12045	19860	3870	106	7	1	40524
11	16	156	1249	5169	11441	17190	3089	123	4	38437
12	4	36	330	2214	4885	10558	14225	2011	144	34407
13	1	8	56	910	2111	4844	12738	9600	1588	31856
14		22	16	284	1073	2341	8329	9345	7550	28960
15			4	56	389	1358	5318	5986	8897	22008
16			18	11	89	676	2538	3147	4871	11350
17							1159	1691	2476	5326
18							382	679	1150	2211
19							80	186	395	661
20							19	44	108	171
21							10	14	64	88
Total	51358	52845	51155	49849	44069	40923	47993	32833	27248	398273
Aver Age.	6.06	7.22	8.35	9.59	10.68	11.78	13.27	14.22	15.17	

Source : MOE Statistical Yearbook 1993/1994

Table 21

Distribution of Student Age - Specific Percentages by Grade for the Years 1993 and 2000

	1993			2000		
Grade	Right Age	Over Age	Under Age	Right Age	Over Age	Under Age
Grade1	70.00	16.20	13.80	83.60	16.19	0.21
Grade2	62.15	25.33	12.52	79.93	19.66	0.41
Grade3	55.67	32.19	12.14	80.50	18.69	0.81
Grade4	48.10	41.50	10.40	75.07	23.43	1.50
Grade5	45.06	45.36	9.58	73.29	23.79	2.92
Grade6	42.00	48.33	9.67	70.96	23.55	5.49
Tot Prim.	86.42	11.13	2.45	96.30	3.66	0.04
Grade7	29.64	63.70	6.66	64.77	26.12	9.11
Grade8	29.24	64.24	6.52	61.61	25.11	13.28
Grade9	27.61	66.04	6.35	56.58	30.34	13.08
Tot Prep.	60.58	36.34	3.08	86.06	10.57	3.37
Tot Basic	87.69	10.52	1.79	96.76	3.21	0.03

21.5.3. The dropout rate for both sexes in grade six in 1992 was 1.33 percent (1.71 males/.87 females) (source: Oman's Education National Programme of Action, 1993); in grade eight it was 4.52 percent (5.24/3.71) and in grade four it was 1.58 percent (1.67/1.47). Most pupils drop out of school because they have failed for two consecutive years, they find work, they marry, or they choose to enrol in non-formal education programmes. The absolute numbers of drop-outs are not very large. In 1990/91, for example, a total of 2,700 students dropped out of all primary grades (compared to 3,900 in 1986/87); 587 dropped out of the sixth grade (247 boys and 340 girls), which was less than half the annual average of sixth grade drop-outs in the late 1980s.

21.5.4. The repetition ratio in Oman is rather high. In the primary grades in 1992 it ranged from 7.6 to 10.7 percent for all students (8.6-12.9 percent for boys and 4.5-8.6 percent for girls); in the eighth grade it was 10.25 percent (14.6/5.39 percent) and in the ninth grade it was 6.92 percent (10.12/3.4 percent).

21.5.5. One of the striking features of education in Oman, which has positive implications for community-oriented health care empowerment strategies, has been the continuous rise in girls' education. In 1974, girls accounted for 25 percent of primary school students; by 1984, that figure had increased to 42 percent, and by 1995 to 48 percent.

21.5.6. Education levels in Oman have risen dramatically in recent years among people under the age of 35, in the wake of the brisk expansion of educational opportunities since 1970. The 1993 census found that nearly 59 percent of all Omanis over 15 years old were literate or held educational degrees, and that the younger generations were better educated than older Omanis (see tables 22 and 23 and figure B). The census also found that 21.5 percent of Omanis aged 10+ had completed primary school (18 percent of women and 25 percent of men), and 17.5 percent of Omanis aged 10+ had attained a post-primary education, such as preparatory or secondary schooling or intermediate/technical training (14 percent of women and 20.5 percent of men). Of all Omanis aged 10+, only 1.1 percent had a first level university degree (1.6 percent of men and 0.5 percent of women). In all education levels, attainment rates were higher in urban centres than in rural areas, with the vast majority of post-secondary degree holders living in the capital region.

Table 22
Percentage distribution of Omani population (15+) by educational status

Educational Status	Males %	Females %	Total %
Illiterate	29.0	54.1	41.3
Reads and writes	17.7	12.1	15.0
Holders of qualification	53.3	33.8	43.7
Total	**100.0**	**100.0**	**100.0**

(Source: 1993 census)

21.5.7. Education personnel are predominantly expatriates from other Arab countries. The percentage of Omani teachers in grades 1-12 has increased steadily since the mid-1980s, but remains relatively low. In the academic year 1993/1994, Omani teachers comprised 68

percentage of Omani teachers in grades 1-12 has increased steadily since the mid-1980s, but remains relatively low. In the academic year 1993/1994, Omani teachers comprised 68 percent of all primary school teachers, 15 percent of preparatory teachers, and 10 percent of secondary teachers. The government aims to have all primary level classes taught by Omanis by the 1998. A ministry study of non-Omani Arab teachers showed that Jordanian, Egyptian and Sudanese teachers are most easily understood by students, while the accents of teachers from North Africa are more difficult for students to understand.

21.5.8. The quality of Omani teachers is generally satisfactory, especially the younger graduates from teacher training colleges. The teacher training system will remain under pressure to produce enough graduates to meet the continued high need for qualified Omani teachers in the next decade. Total teacher requirements are anticipated to increase from 8308 in 1989 to 12,704 in the year 2000 at primary level, and from 3402 to 7378 at preparatory level, due to the anticipated high growth rate of the entire basic education system. Between 1994 and the year 2000, total primary school students are expected to increase from 290,199 to 331,743, and preparatory students from 108,174 to 144,878 (tables 24 and 25). To keep up only with the natural increase of the student population, Oman will require 60 new primary schools and 187 preparatory schools by the year 2000 (not accounting for new schools needed to replace old ones or to reduce double-shift education).

Table 23
Illiteracy rate by age group and sex

Age group	Male	Female
15-29	4.5	21.0
30-49	38.6	81.9
50+	79.0	96.7
Total	**28.9**	**53.9**

(Source: 1993 census)

21.5.9. Average student/teacher ratios have remained good throughout the country, despite the steadily rising number of students. Between 1983 and 1994, the average student/teacher ratio in all primary schools remained at around 27; in preparatory schools it fell from 11 to 16, and in secondary schools it improved from 15 to 13. Between 1983 and 1994, the average size of primary school classes remained at around 34; preparatory classes increased from 24 to 30, and secondary classes increased from 26 to 29, reflecting the increased pressure of numbers in the upper grades.

21.5.10. About 77 percent of primary and intermediate schools operate double shifts in order to accommodate the large number of students. Two of the Ministry of Education's top priorities are to standardise the design and facilities of school buildings, and to stop double shifts because the students who study in the afternoon are often more tired and less attentive than they would be in the morning.

21.5.11. The physical and sanitation conditions of school buildings are generally satisfactory, but conditions in some schools are poor, due to a combination of old, inappropriate and rented buildings and lack of sufficient maintenance in purpose-built schools. There are virtually no libraries in primary schools, and none in 17 percent of intermediate and secondary schools. Between 13 and 24 percent of all schools lack laboratories, workshops or home economics facilities. The MoE estimates that about 18 percent of all primary schools

Table 24

Projections of Primary Students, Schools, Classrooms and Annual Increments from 1994 - 2000

YEAR	ST.	INCREASE	SCH.	INCREASE	CLASSES	INCREASE	COST PER ST.
1993	290199				8467		438
1994	288510		402		8486		438
1995	298558	10048	416	14	8781	296	438
1996	305813	7255	427	10	8995	213	438
1997	311049	5236	434	7	9149	154	438
1998	315972	4923	441	7	9293	145	438
1999	322304	6332	450	9	9480	186	438
2000	331743	9439	463	13	9757	278	438

Note: School and classroom requirements are determined on the assumption of 717 students per school (Average of 1991 & 1993) and 34 students per classroom.

Table 25

Projections of Preparatory Students, Schools, Classrooms and Annual Increments from 1994 - 2000

YEAR	ST.	INCREASE	SCH.	INCREASE	CLASSES	INCREASE	COST PER ST.
1993	108174				3453		
1994	96831		378		3124		
1995	105326	8495	411	33	3398	274	835
1996	113107	7781	442	31	3649	251	835
1997	123361	10254	482	40	3979	331	835
1998	133579	10218	522	40	4309	330	835
1999	141266	7687	552	30	4557	248	835
2000	144878	3612	566	14	4673	117	835

Note: School and classroom requirements are determined on the assumption of 256 students per school and 30 students per classroom.

and 15 percent of intermediate schools are not stable, and need replacing.

21.5.12. Regional disparities in education facilities and coverage are not well documented. The available data shows that student/teacher ratios and classroom sizes in the provincial regions tend to be nominally better than those in the more populated regions of Muscat and Batinah. Further studies are required to determine whether quality factors are also equal throughout different parts of the country.

21.5.13. Higher education in Oman is restricted to Sultan Qaboos University, which opened in 1986 and had 3858 students in the 1993/94 academic year (1722 men and 2136 women). About 550 Omanis were studying abroad on government scholarships, and another 920 were studying at universities abroad at their own expense. The number of Omanis studying abroad has declined steadily since the opening of Sultan Qaboos University (the high point was 2,681 students in 1985/86).

21.5.14. Literacy rates in Oman have improved substantially during the past decade, but remain relatively low for women over the age of 25. The census showed that adult literacy (over 15 years) was 59 percent in December 1993 (71 percent males, 46 percent females). The census as well as the 1989 Child Health Survey both confirmed that literacy rates among younger people were significantly higher than among older people, and they are also higher among males than females, as indicated in figure B. While illiteracy is nearly 100 percent among Omanis over the age of 65 years, it declines steadily to a low level of under 5 percent for Omanis who are aged between 10 and 14, most of whom have completed primary school.

21.5.15. The low literacy level among middle aged and older females is a major short-term constraint on promotion of better maternal and child health practices, which must be overcome by the use of non-written communications means. Such means can include inter-personal communication through credible individuals such as health workers, educators and respected members of the community, and the mass media. This is one of the major objectives of the NWCCP.

21.5.16. The adult literacy and education programme in Oman comprises two stages. The first stage (Adult Literacy Programme) consists of 1st year and 2nd year adult literacy classes conducted formally at schools and social community centres, leading to the fourth primary grade level. The second stage (Adult Education Programme) starts at fifth primary grade level, and corresponds to two classes in primary, and three each in preparatory and secondary levels. This programme is carried out formally (in education centres) as well as informally (at home), but all students have to sit for national exams.

21.5.17. Demand for literacy training is strong throughout the country, and the literacy education system provides yet another mechanism by which health education and quality of life messages could be efficiently disseminated to precisely that sector of the population that could most benefit from them -- under-educated and illiterate parents, especially mothers.

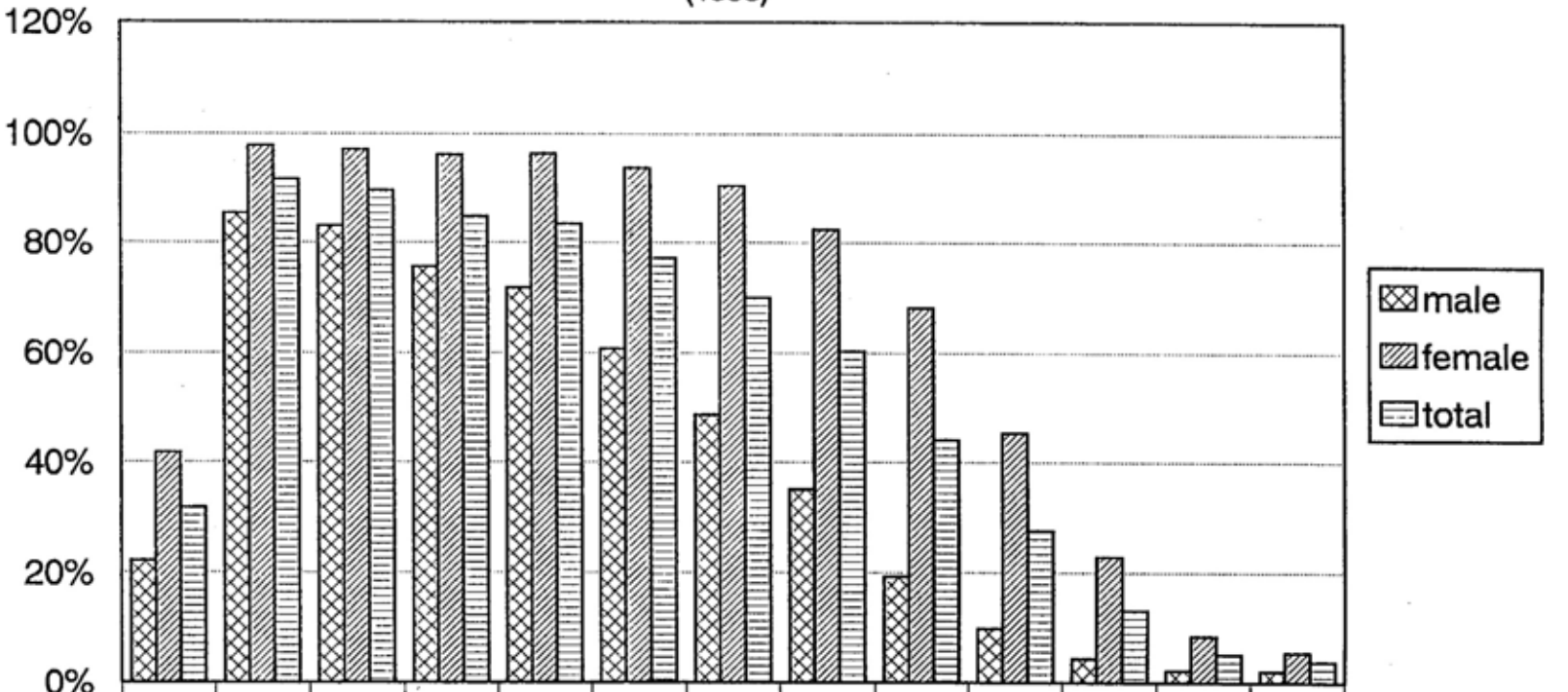
21.5.18. Oman's adult education programme has been very active during the past decade, in view of the relatively large number of adults who did not have an opportunity to be educated in the pre-1970 period. A total of 252 adult literacy centres accommodated 8417 students in 1993/94, a slight drop from the 10,916 students enrolled in 1987/88. Adult education in 1993/94 comprised 509 classes with a total of 9708 students (7485 females and 2223 males); another 9012 people pursued home-based adult courses (2267 females and 6745 males).

21.5.19. Adult education curricula and books are being revised to respond to the interests of the adult students, which tend to focus on family health and home economics issues. Adult education courses are a good example of inter-sectoral cooperation among the local community, the National Community Development Programme, and the Ministry of Education, all of whom share the responsibility for providing teaching space, teachers, and instructional materials, though most classes are held in MoE schools outside of regular school

Fig. B

Illiteracy by age and sex

(1993)



	total	65+	64-60	59-55	54-50	49-45	44-40	39-35	34-30	29-25	24-20	19-15	14-10
male	22.1%	85.3%	83%	75.5%	71.7%	60.6%	48.6%	35%	19.2%	9.8%	4.3%	2.1%	2%
female	41.7%	97.7%	97%	96%	96.3%	93.6%	90.3%	82.3%	68.2%	45.3%	22.8%	8.4%	5.4%
total	31.7%	91.5%	89.4%	84.7%	83.3%	77%	70%	60.2%	44%	27.5%	13.1%	5.1%	3.7%

(Source: 1993 Census.)

hours. The Education Ministry gives each literacy course graduate a home library of 25 post-literacy readers, but the quality and relevance of these books remains largely untested. There is a shortage of reading and information materials for new literates, which must be redressed if literacy and adult education programmes are to meet their full potential. Key issues in literacy and adult education are: increasing enrollment, developing curricular materials and post-literacy readersthat are interesting, relevant and informative, and adding more information to the curriculum that can have impact on family health and quality of life. Efforts are underway to revise books used in the first two years of the adult female literacy programme, to include child survival and development information and other material relevant to women and their families. This will also become the predominant focus of the post-literacy readers used in the country.

21.5.20. Education of the disabled. Despite the particular attention given by the Government of Oman to education of the disabled, educational services offered to this group of disadvantaged children have remained limited. In order to meet the growing demand for education of disabled children there is a need to widen the scope of the programme and expand its capacity. Only two schools provide education for the disabled in the Sultanate of Oman, one for the deaf and one for the mentally retarded. Both schools are run by the Ministry of Education, with a total capacity of 400 persons; 700 others are on the waiting list. The role of voluntary organisations and NGOs in this respect is limited at present, but appears ready for a major national expansion in the years to come.

21.5.21. Vocational education and technical training are being upgraded in order to develop more skilled Omani workers who can replace the hundreds of thousands of imported labourers. Omani enrollment in six vocational training centres and one vocational school increased from 356 in 1985 to nearly 2000 students in 1994, but this still accounts for less than one percent of the Omani education and human resources development system. The vocational training system graduates around 650 people a year.

21.5.22. Total government expenditures on education (recurrent and developmental) declined relative to the total government budget in the late 1980s (largely reflecting the end of the current phase of investments in new school buildings and the shift in emphasis in expenditures from infrastructure to recurrent costs) but they have increased in the last several years. They are expected to increase again in the near future as the government embarks on new school building programmes to eliminate its current reliance on double shifts in most schools. In the three consecutive academic years starting in 1991, total education expenditures accounted for 7.5, 6.7 and 7.7 percent of total government spending respectively, compared to an annual average of around 5 percent in the first three years of the 1980s.

21.5.23. Education sector challenges and priorities. Key needs facing the education sector are:

* to follow up on the impressive expansion of school facilities and the number of students in school during the past two decades by making the curriculum more relevant to the real lives of young Omanis;

* to generate a sufficient number of suitably trained Omanis to fill teaching positions now manned by expatriates;

* to improve quality and efficiency of education by improving teacher qualifications and training, instructional methods, curricula, facilities and buildings, textbooks, and educational materials;

* to provide the combination of quantity and quality of services required to keep up with the anticipated high increase in enrollments at all stages of schooling. The total number of students in the late-1990s is expected to increase at an annual rate of some six percent, or nearly double the natural annual growth rate of the Omani population, to reach over 600,000 by the year 2000 (almost double the total of 331,000 in 1989).

21.5.24. The government's tremendous effort and large resource commitments have expanded the education system to reach all Omanis, and the challenge to assure quality education for all today is to address issues related to access, equality of opportunity, and quality. A number of problems have directly ensued from the measures that were taken to expand the education system in recent decades. Converted rented facilities do not meet acceptable standards for school buildings, facilities are lacking in most schools, enrollment ratios in different cycles are uneven, students and teachers in the evening shift schools are less motivated and more lethargic, parents, especially in rural areas, seem unwilling to send their daughters to coed schools which increases female/male enrollment disparity in rural areas, mass transportation of students to central schools raises costs and hampers chances of cultivating school-community relations and parental involvement and interest in school activities, and it also deprives villages of using school building facilities for community and social activities.

21.5.25. The efficiency of the system of basic education, measured particularly in terms of student achievement levels, that is, the proficiency of knowledge and skills acquired in primary and preparatory school years, is critical to achieving the goal of basic education for all. For even when 100 percent net enrollment is attained at the primary level, the students who drop out or graduate from the cycle without acquiring sufficient proficiency in basic literacy skills are most likely to relapse into illiteracy and swell the ranks of illiterates in the country.

21.5.26. The Fourth Development Plan, while still holding to the targets of quantitative expansion of the system to provide universal access to schools for all children, concentrates upon improving the quality of basic education. Quantitative improvements are concrete and directly observable, but qualitative improvements are intangible and generally invisible, except indirectly via tangible indicators, and therefore they are much harder to implement and achieve. What makes quality improvement difficult is the fact that educational quality does not depend upon increments in individual inputs of the system in isolation. It requires a more integrated approach affecting all the elements of the system in a well-coordinated way, such that energizing one part has a synergistic effect on all other parts of the system and in harmony with other parts of the organic whole generates orchestrated effect on the output of the system.

21.5.27. The test of the quality of education is the quality of its product, the achievement levels of the primary, preparatory, and secondary cycle graduates. The quality of classroom instruction has the most powerful impact on student achievement in both cognitive and affective domains. There are multiple factors, however, that can put limitations on instructional quality. These limiting factors span the entire spectrum of inputs of the education system, including inadequate physical plant and educational facilities, inadequacy of instructional materials, lack of sufficient numbers of qualified teachers, teaching methodology and instructional technology, and a variety of student and home background embedded factors.

21.5.28. Improving the quality and efficiency of education system thus entails revitalizing each component of the system and regulating their functioning so that they work in harmony, supporting each other and generating synergistic impact on the whole system.

21.5.29. With some 500,000 students, teachers, and administrators -- about one-fourth of the entire Omani population -- the education system is well placed to play a leading role in promoting better health knowledge and habits at family and community level. The Ministry of Education is aware of its potential in this regard, and works closely with the Ministry of Health and the NWCCP task force to teach students proper preventive health habits; but, the quality and effectiveness of class-based health education efforts are far below the potential of the existing education system. The ministry's strategy is to integrate health messages into the

regular curriculum, instead of offering a separate course, and to inject good preventive health information into non-academic activities that revolve around the schools, such as sports and cultural events, boy scouts and girl guides, parent-teacher association (PTA) meetings, and media programmes on education. Arbor Day, for example, is commemorated every year in cooperation with the Ministry of Agriculture, while the annual Municipalities Day activities are organised jointly with the Ministry of Regional Municipalities and Environment. New PTA rules will see greater participation by parents, and greater emphasis on non-academic issues such as health, environmental protection, sports and culture.

22. Water, sanitation, environmental health, personal hygiene practices

22.1. Water

22.1.1. Access to drinking water and sanitation facilities has improved considerably throughout the country in the past decade, yet disparities continue to affect negatively the people's health. It is clearly documented, for instance, that the peak of diarrhoea attacks against children occurs in the rainy season, when runoff water increases the contamination of drinking and household water sources. Interventions in this sector have focussed on two parallel and related strategies: improving the quantity and quality of water/sanitation services, while simultaneously enhancing the people's awareness of the linkages between water/sanitaion facilities, personal hygiene habits and incidence of diseases.

22.1.2. Clean water availability, quality, reliability and access are problems in many villages. Most private wells and aflaj in rural areas are open, and are susceptible to pollution and over-exploitation. The major problem is pollution of wells and aflaj by human and animal faeces that are washed into the water sources. Groundwater reservoirs are also susceptible to contamination through infiltration from inadequately constructed septic tanks. Oman was estimated to have around 6,000 aflaj and tens of thousands of private wells in the late 1980s, posing a tremendous challenge to monitoring all water sources for quality.

22.1.3. In 1989, the Child Health Survey showed that drinking water storage in households was predominantly in tanks (48 percent), followed by plastic containers (13 percent), bottles (4 percent) and tins (2 percent), with 28 percent of households having no water storage facilities. About 86 percent of all households did not treat their drinking water, while 7.8 percent filtered it, and 5.7 percent boiled it.

22.1.4. A 1987 rural water supply survey of 1453 villages in four northern regions revealed E. coli bacteria in over 60 percent of aflaj, over 40 percent of wells, and over 34 percent of water tankers, indicating that excreta was reaching and polluting the water sources used by human beings. The survey said that over 881 of the 1453 villages surveyed "do not have sufficient quantities of safe water to sustain their basic needs for drinking, cooking, bathing, and washing." (1987 Behlani survey, page 114).

22.1.5. The 1993 census showed that 82 percent of the entire population has access to safe drinking water.

22.1.6. The main water supply delivery systems in Oman are piped water supplies and distribution systems, boreholes and tanker filling station systems, shallow wells equipped with small pumps, aflaj, and rainwater harvesting (from rooftops, small dams). Domestic water supply sources include ground water (boreholes, shallow wells, and springs) and desalination plants.

22.1.7. Oman is almost exclusively dependent on rainfall for its supply of fresh water.

Sub-surface water and ground water together provide over 90 percent of the total supply of fresh water. Ground water availability has fluctuated seasonally and cyclically over the last two decades, with a long-term declining trend that can only be restored through higher rainfall and/or improved conservation methods. National and regional studies conducted since 1989 indicate that Oman has little scope to tap additional water resources, and that effective conservation, rationalisation, and management measures must be taken soon to minimize or reverse salinity and other problems resulting from over-abstraction of water in several areas, especially in the coastal plain. Excessive sinking of wells in the coastal plain is resulting in a lowering of the water table and consequent salination of underground water aquifers, especially in Salalah and Batinah. Pumping limits have been introduced for some aquifers to prevent further salination.

22.1.8. The problem is especially serious in Salalah, which suffers an annual water deficit of 8 million cubic metres, or some 30 percent of the annual natural recharge of underground water sources (32.4 m. metres input and 40.1 m. metres output). This situation has come about through the convergence of several factors, including high population growth and an increase in cultivated agricultural land from 1830 hectares in 1982 to 2448 hectares in 1991, which has seen water output increase from 3.48 million cubic metres in 1982 to 8.44 million cubic metres in 1990. The trend in the Muscat area is similar, with total average daily demand for water (domestic, industrial, and government) expected to increase from 123,060 cubic metres in 1990 to 288,820 cubic metres in 2010, and total average consumption in the same period will increase from 90,449 cubic metres to 245,496 cubic metres. The available supply in the Muscat area in 1991 was 124,000 cubic metres per day (75 percent from desalination plants and 25 percent from wells) -- ie., supply and demand are already in tight balance. This problem is aggravated by a high rate of water loss (about 30 percent of production is unaccounted for), and by the fact that most domestic users pay relatively little for their water (220 baizas per cubic metre at the gantry and 440 baizas per cubic metre delivered to homes connected to pipe networks).

22.1.9. In most rural areas, water consumption from wells and aflaj is free and effectively unregulated, which encourages waste and over-consumption. Only the Muscat area has a graduated water tarrif structure designed to discourage over-use, but it is not very effective because the relatively higher incomes of the capital residents allow them to use more water per capita and pay for it without affecting other aspects of their family budget.

22.1.10. Experimental artificial recharge dams have been constructed to allow rain water to recharge the underground water reservoirs, instead of flowing into the sea. But this approach has limited potential because of Oman's erratic and generally low rainfall.

22.1.11. An important activity in the water/sanitation sector is the entry into service of a national database for water sources and water/sanitation facilities. This forms the heart of a national water quality monitoring system that can detect water-related diseases and other health problems, as well as seasonal, annual, and geographical variations. Since 1994, all public drinking wells have had to be inspected and licensed according to new specifications, and all were expected to have been tested by mid-1995. Water tankers and wells have been color coded according to quality and use.

22.1.12. MoH water quality data for 1994 shows that 6.2 percent of 2,537 samples were chemically unfit; 8.1 percent of 1,303 samples taken from government and private wells were chemically unfit. The same data shows that on a national basis, 16 percent of 946 tested samples were bacteriologically contaminated; 35.8 percent of 106 samples taken from government and private wells were bacteriologically unfit.

22.1.13. The main causes of contamination are solid wastes, animal wastes, and surface run-off into unprotected shallow wells, the construction of cesspools near wells, and the bucket-and-rope and small motorised gasoline pumps used to draw well water. In some areas,

not only the wells but also their surrounding ground basins have been found to be contaminated.

22.2. Sanitation

22.2.1. The 1993 census showed that 78.3 percent of the population lives in houses equipped with toilets. These coverage figures disguise the fact that many septic tanks are health hazards, because they are not properly built or maintained. A 1991 study to prepare wastewater masterplans for nine towns in Oman found that almost all domestic and institutional sewage was discharged into septic tanks and holding tanks, where it was either tankered away or, after treatment, soaked into the ground in an environmentally safe manner. In practice, the study found, many septic/holding tanks in use were constructed before the 1986 regulations, did not conform to accepted design standards, and were not always properly maintained. Some overspilled or leaked, and some others were a source of strong odors. While the majority of recently constructed tanks adhered to existing design standards and were properly maintained, some others were neither properly constructed nor well maintained, and these were health hazards to their communities, instead of being instruments of improved health. Government regulations issued in 1986 require that septic tanks be sited at least 15 metres away from a private water source and 50 metres from a public source, and designate sealing and ventilation requirements, but these standards are not always adhered to. Also, many families find it prohibitively expensive to pay the several thousand riyals that an average septic tank costs, so they do without and instead install cheaper cesspools that are environmentally hazardous.

22.2.2. Sewage treatment plants adequately meet the needs of parts of the Muscat area. General policy has been to re-use adequately treated water to irrigate horticultural areas. Other regions of the country have some small-scale sewage treatment plants serving isolated communities, camps, and compounds. Sewage collection and treatment systems for Muscat and Salalah have been designed with components for financing, building and management by the private sector.

22.2.3. Solid waste collection standards are good throughout the country, with daily pick-ups in the Muscat area, 2-3 times a week in other cities and towns, and less frequently in rural areas. The government estimates that about 80 percent of households in towns and cities enjoy regular garbage disposal services. Yet, the disposal of solid wastes is an increasingly serious challenge. Solid waste is burned or disposed of in land fills in most parts of the country (except for one compost plant in Muscat), which generates environmental problems of smoke and pollution of underground water sources. Though monitoring is underway to assure that land fills do not pollute underground water resources, most fills are not sited on the basis of geological/water studies, and not all of them are the required five kilometres distance from towns and cities.

22.2.4. Water-borne diseases are a major and chronic problem in Oman, and improvements in mortality rates from water-borne diseases have only recently been matched by declining morbidity rates. MoH data indicates that the incidence rate of enteritis and other diarrhoeal diseases is dropping steadily and substantially, having declined from 273,920 cases in 1990 to 193,709 in 1992 and to 164,085 in 1993. Bacillary dystentery and amoebiasis cases dropped from 8445 in 1989 to 4446 in 1992 (a 74 percent drop since 1983). This trend indicates that community-based preventive and education interventions to deal with some major underlying causes of health problems -- polluted and infected water -- have proven effective in achieving their desired results. The education component is important because disease transmission occurs through drinking of polluted water, and use of the same water for

washing, food preparation, laundry, and other domestic purposes.

22.2.5. Child Health Survey data shows a correlation between the incidence of diarrhoea diseases among children 0-6 years of age and their water sources and types of toilets. By toilet type, highest diarrhoea rates were among flushpits (16 percent), no flush (14 percent), flushmains (12 percent), and sea/falaj (12 percent), followed by open ground (9 percent) and other (11 percent). By water sources, the highest rates were among children who used well and tanker water (13 percent), followed by bottled water (12 percent), spring/falaj (12 percent), piped (10 percent) and other (14 percent).

22.2.6. Living conditions in many rural regions, characterised by relatively lower access to some basic services such as clean water, sanitation, and electricity, may contribute to the spread of infection and disease.

22.2.7. The 1993 census showed that:

* 75 percent of households have flush toilets, and the rest have non-flush toilets or no toilets at all.
* 89 percent of homes have separate bathrooms and 94 percent have separate kitchens.
* 92 percent of households have electricity from public power systems or private generators; 8 percent use other power sources.
* 95 percent of households use gas for cooking fuel, 2.5 percent use wood, 1.4 percent electricity, and 1.3 percent kerosene.
* 59 percent of households have a telephone.
* 93 percent of households own a car.
* 81 percent of households have air conditioning.
* the average density was 1.96 persons per bedroom or living/dining room.

22.2.8. These are national figures. In almost all cases, rural areas are not as well served by social services and utilities as major urban centres.

22.3. Personal hygiene practices

22.3.1. A KAP survey of people's water/hygiene habits in early 1989 indicated generally high awareness of the connections between water, excreta, garbage, and health; but knowledge was not always matched by correct behaviour, and specific gaps in people's knowledge still need to be addressed. The survey found that:

* Most people identify unclean water by its smell and colour, but are not aware of bacterial pollution, which is a leading cause of water pollution.
* Most adults and children say they wash their hands before eating, but it appears that soap and water are not used frequently enough during the day to prevent the spread of diseases during food preparation or through other forms of social contact.
* The vast majority of people who use falaj water are not aware that it should be filtered, which is a major obstacle to improving the quality of domestic water sources in rural areas. Filtering falaj water through slow sand filters may be the fastest and most cost-efficient way to reduce the problem of water-borne diseases in the short term.
* Most people are aware of the dangers associated with common use of clothes or towels, and of the fact that dirty dishes can spread disease.
* About 75 percent of the people know that stools can spread disease, but some people believe that children's faeces and urine are not dangerous -- indicating gaps in health knowledge that need to be redressed.
* The majority of people are aware of the need to store garbage away from food and water, probably due to the success of local municipality awareness campaigns during the annual

22.3.2. Public health aspects of water and sanitation, especially greater family awareness of links among water, sanitation, personal hygiene, environmental sanitation and primary health care, are being promoted vigorously in order to reduce the incidence of water-related diseases.

22.4. Environmental health

22.4.1. The Ministry of Health's National Environmental Health Programme cooperates with municipalities in assessing and rectifying environmental health problems, particularly those related to bad food and contaminated drinking water. The programme, operated by the Environmental Health Directorate, is systematically introducing a nationwide data gathering and monitoring system, along with common approaches, technical standards, and training schemes, to ensure the application of consistent criteria of environmental health services at village and neighbourhood level throughout the country. It is concentrating its work on five areas: water supply and sanitation, food hygiene, occupational hazards, vector research, and toxic and hazardous substances. It aims to establish safety criteria in these sectors that will be enforced by other government agencies. It monitors health-related problems through nationwide data reporting systems that help to identify sources of contamination and the spread of infections and diseases.

22.4.2. The Directorate of Environmental Health is implementing a pilot community mobilisation effort in one wilayat where local leaders and community members develop their own plans and actions to protect their local water supplies from contamination, while simultaneously installing sanitation systems and educating families on good hygiene pactices. The project is based on the principle of establishing a locally owned company that will operate the water system while drawing on technical expertise and interest-free loans from the central government. Given the tens of thousands of local water sources in scattered rural communities throughout the country, such community-based measures to promote good health conditions and reduce environmental pollution could become the norm in Oman in years and decades to come.

22.4.3. Food hygiene problems are being addressed by sector-by-sector surveys of conditions and practices, starting with butchers, bakeries, fish markets, and vegetable shops. The aim is to identify existing hazards, establish new health-related criteria, update the public health law, and train municipal employees in skills needed to implement the law. The exact nature and extent of food hygiene problems are not known, though salmonella, among others, is thought to be a problem in Oman.

22.4.4. Vector research aims to identify the threats of rodents, cockroaches, flies, mosquitos, lice and other vectors that are thought to be a widespread problem in most parts of Oman. The environmental health service is conducting systematic surveys to determine the nature and extent of vector infestation. It then plans to implement appropriate control measures based on a proposed new public health law that would be updated regularly on the basis of ongoing surveys. A recent survey of rodents in the Muscat area showed an infestation rate ranging from 25-76 percent in most areas, 60 percent in Muscat city, and reaching as high as 88 percent in the port area. The school health programme's routine screening of primary school children has shown lice to be a common problem. A 1991 study of 9-14-year-old children's parasites in the Nizwa area, conducted jointly by the MoH and Sultan Qaboos University, showed that 32 percent of children were infected with at least one type of parasite.

22.4.5. The problem of the importation, production, transport, usage, storage, and disposal of hazardous substances and toxic wastes is particularly complex because it involves so many government and private agencies, and has to be dealt with on an international basis

as well. The environmental health staff of the MoH are particularly concerned about poisons and carcinogenic substances, due to the absence of a chemicals control law and inadequate labelling regulations in Oman. The MoH is focusing initially on documenting the nature and extent of the problem and working with other government and private agencies to increase public awareness and improve preventive measures. It will leave the issue of controls and their enforcement to other government agencies.

22.4.6. Occupational health hazards are becoming increasingly common in Oman due to the changing nature of the industrial sector and the establishment of new plants and processing industries. Two of the main problems are toxic dusts and industrial gases and vapors. The MoH has completed a study of potential problems that are normally associated with the prevalent industries in Oman, and is documenting actual health hazards through industry-by-industry surveys. The Environmental Health Directorate, working closely with MoH specialists and consultants, has noted specific concerns that require immediate research to identify and eliminate their sources or causes. Many sources/causes are suspected to be environmentally related because the cases often seem to cluster in specific regions (eg. bladder cancer in Dhofar, kidney stones in Sharqiya Jaalan, stomach cancer in Batinah, hydatid disease of the liver in Dhofar). Ailments that strike a wider segment of the population (respiratory, diarrhoeal, and parasitic infection problems) are known to be directly linked to poor environmental, water, and sanitation conditions.

22.4.7. The Ministry of Regional Municipalities and Environment's health control department is decentralised into six regional directorates that supervise the work of teams based in cities and towns throughout the country. A health control department team based in the main town of each wilayat works in conjunction with branch units in each village of 500 or more people. Municipal health workers make regular inspection visits to smaller settlements. The health control department undertakes a combination of activities: inspecting and monitoring the quality of water, food, and other public services; eliminating vectors through spraying and other means; and working directly with the public to promote greater awareness of good preventive health habits. Outreach efforts include family visits, local meetings with community leaders and women's groups, mass media messages, and a school health programme comprising posters, school schedule cards, campaigns to distribute garbage bags for vehicles, and environmental competitions for students and adults alike.

23. Environmental protection

23.1. Pollution and degradation of the environment are becoming increasingly important issues that need to be addressed on a national scale, in view of the long-term impact of trends in population growth, industrialisation and economic diversification, urbanisation, agriculture, and livestocking. Many of Oman's emerging environmental problems can be resolved relatively painlessly if they are dealt with emphatically at an early stage, rather than being allowed to fester and to grow into much bigger and more complex problems. The key environmental protection issues relate to water availability and quality, sanitation services and wastes disposal, overgrazing of rangelands, marine pollution and coastal zone erosion, the impact on the environment of manmade industrial and other projects, management of resources, inappropriate and environment-polluting technology, subsidies policies that may create undue stress on agricultural and fisheries resources, air pollution, and inadequate inter-sectoral cooperation that can create conflicts between conserving natural resources and promoting social and economic development.

23.2. Recent technical studies suggest that Oman should consider a range of policy options in the immediate or near future in order to avoid serious problems of water shortages or

quality deterioration, especially as domestic water consumption will triple by the year 2000 while agricultural and industrial water demand will increase well beyond available supplies.

23.3. Water conservation is the top environmental priority issue, which prompted a Royal Decree in 1988 placing all surface and groundwater resources in government ownership. As a first step, several wellfield protection areas have been designated, a ban has been imposed on the distribution of new agricultural lands, and drilling restrictions have been imposed in areas where underground water sources are in danger of becoming brackish or being depleted. The government's ten-fold increase in the water sector budget in the current five-year plan indicates high level awareness of the importance of this sector for the future wellbeing of Oman and its people.

23.4. The carrying capacity of Oman's rangelands is threatened with overgrazing. It is thought that the current maximum sustainable carrying capacity of the majority of Oman's rangelands has been exceeded already, and in some regions livestock herds exceed the carrying capacity of rangelands by a factor of up to 20. This means that rangeland productivity is likely to decline in the short and medium term, while requiring fodder production on a large scale. The long-term productivity decline could be significant if current overgrazing and environmental deterioration patterns continue unchecked, leading to a drop in livestocking. This could also result from soil salinity and competition for limited water resources.

23.5. Coastal zone erosion is becoming more obvious in several parts of Oman. According to a 1992 report commissioned to help draw up regulations to control the problem, coastal zone erosion is "dramatic" in several regions, and has reached a "critical level" in others. It is due to a combination of natural causes and man-made obstructions such as construction of dams, roads and harbours. In the Batinah area, one of the worst hit areas, the shoreline has been retreating recently at a rate of up to 0.6 metres per year. Such trends will affect fishing, human and animal habitats, and economic and recreational coastal activities, and could increase flooding and salt water intrusion into coastal aquifers.

23.6. Oman's conservation strategy focuses on assuring the prolonged availability of the natural resources of the country, and the perpetual availability of renewable resources such as water, fisheries, rangelands, soils, scenery, wildlife, and genetic resources.

24. The status and roles of women

24.1. The most recent information on the socio-economic status of Omani women comes from the 1993 census, which reveals trends in the condition of women since the data derived from the 1989 Child Health Survey (CHS) and Musaiger's 1991 health and nutrition survey. The CHS had shown a relatively young age at first marriage for Omani women, with 48 percent of 15-49-year-old women marrying before the age of 15 and another 32 percent marrying at 15-17 years of age. The CHS survey had revealed a clear trend towards later marriages by women aged 25 or less. This was further confirmed by the 1993 census figures showing that less than one percent of females aged 10-14 were or had been married, compared to 21 percent of 15-19-year-old women, and 72 percent of 20-24-year-old women.

24.2. According to the census, 29 percent of ever-married Omani females married for the first time before the age of 15, and 52 percent of ever-married women married for the first time between the ages 15-19 (ie. 81 percent of ever-married women married for the first time before the age of 20).

24.3. Age at first marriage is heavily influenced by education levels. The census found that nearly a third (30.7 percent) of ever married illiterate women aged 15+ had married before the age of 15, but only a quarter (24.6 percent) of women with a primary education

did so before that age.

24.4. In line with marriage age, the age at first pregnancy is also relatively low. Musaiger (1991) showed that 17 percent of mothers became pregnant for the first time when they were less than 15 years old, 68 percent at 15-19 years, and 15 percent at 20 years or older. His survey also revealed that 16 percent of mothers reached menarche at age less than 13 years, while the rest reached menarche at age 13 or older. The total mean age at menarche was 13.3 years.

24.5. The social and legal status of women. Strong traditional attitudes, combined with some gaps in civil legislation, are short-term constraints on the aspirations of many Omani women to participate more actively in the economic, social and cultural life of their country. In the 1980s, most Omani women, particularly in rural areas, could have expected to marry at an early age (15-16), have 7-8 children in rapid succession, and spend most of their life caring for husband, home and children. More education and better health and social services are slowly changing long-established patterns that govern the lives of Omani women. Most girls now attend primary school, more are completing secondary school, the age at marriage is increasing slowly, and the average number of children per woman may be moving down towards 4-5 children per woman in some urban areas, where an increasing number of women are taking up full-time or part-time jobs outside the house.

24.6. The 1993 census showed that women comprised 8.6 percent of the active Omani labour force, and that 6.7 percent of Omani women over the age of 5 were considered economically active (compared to 68 percent of men). The data also showed a strong desire for younger women to work, as 92 percent of "unemployed" women were women who had never worked before and who were seeking to enter the labour force for the first time. Women comprised 15.3 percent of Omanis classified as unemployed and seeking work for the first time.

24.7. An indicator of the rising trend of working women is the number of Omani women employed in the civil service, which increased from 2992 in 1985 to 9269 in 1993 -- a much faster rate of increase than male employment. However, traditional practices suggest that should there be competition for available jobs, men are most likely to get preference over women, which could restrict work opportunities for many young female graduates.

24.8. Musaiger (1991) found that 94 percent of mothers did not work outside the home, and 6 percent did, with working women rising to 10.5 percent of all women interviewed in Muscat. There is a rising tendency for younger women to work, due to their high education enrollment rates and a trend towards slightly later marriage.

24.9. Most Omani women have a substantial load of agricultural work, child-bearing, and household management burdens, yet they also have the time and interest to engage in literacy, adult education, and local community development courses. This has important positive implications for their ability to increase their awareness of basic family health and quality of life issues. Women clearly have the time and the inclination to visit health centres and attend school, and they are well motivated to improve their family health standards. Today, however, the average woman's knowledge of relevant information is very limited, as are her opportunities to participate in community-based efforts to improve the underlying causes of health problems (water, nutrition, environmental sanitation). Redressing this situation is a major goal of the NWCCP and Oman's health and community development strategy during the 1990s. The active and effective role of women in operating the few community-based social service centres for the care of disabled children indicates the enormous potential in Oman for more public participation by women in meeting human development needs; it also suggests that substantial income-generating employment opportunities exist in this direction.

24.10. The overall education level of Omani women suffers from the very limited education opportunities that were available to women before the early 1970s. Adult female

literacy (15+ years) in late 1993 was 46 percent; it is lower among older women, and higher among younger women who have been educated in the last two decades. The census showed that younger women are much better educated than their mothers, and that the gap between male and female education levels is closing. The census showed that while illiteracy among women aged 65+ reached 98 percent, it was only 5.5 percent among women aged 10-14 (compared to 2 percent of males of this age group). Similarly, while only 1.2 percent of women aged 65+ could read and write, 64 percent of 10-14-year-old Omani females could read and write (compared to 69 percent of males of that age). Primary school education had been achieved by 0.1 percent of women aged 65+ years, but by 30 percent of 10-14-year-olds (fractionally higher than the comparable figure for boys of this age) and 36 percent of girls aged 15-19. Secondary school diplomas had been acquired by 18.5 percent of women aged 20-24 (26 percent for males), and 2.2 percent of Omani women aged 25-29 had completed university (compared to 7.5 percent of men of this age). Among women aged 20-34, university attainment was 5 percent in late 1993, compared to 8.9 percent for men of that age.

24.11. Women's legal rights include 60 days paid maternity leave, an hour to breast-feed an infant before or after work, 1-2-year unpaid leave to care for a child at home, and up to 4 years unpaid leave to go abroad with the husband. Some of these rights are not always easy to implement in practice (such as breast-feeding by working teachers), suggesting that a fresh look should be taken at how to overcome some functional obstacles to women's rights and the best interests of their infants and children. A civil code for personal rights of men and women is now being written.

24.12. The young marriage age of Omani women, the high number of babies they bear, and the close intervals between babies collectively comprise the single greatest source of pressure on the health of Omani women. These factors also lead to increased risk of babies born with disabilities, and to malnutrition and poor complementary feeding of very young children. The fertility rate decline since the mid-1980s has been due to the very rapid pace and nature of change in the lives of girls and women. Within one generation, Oman has been transformed from a country whose women were almost totally illiterate into one where over 94 percent of eligible girls are enrolled in primary school. Because of their years in school and the tendency for more young women to work after graduating, educated Omani women today marry at a later age, and have fewer children -- though the decline in fertility is only now starting to be documented statistically.

24.13. Education, health services, and media information all help to improve the knowledge and health status of women, but at the same time women are feeling the burdens associated with having to care for their families while assuming duties outside the home (education, work, community self-help efforts). Changes in male attitudes could help to reduce the social pressures on women. The changing home, economic and community roles of Omani women should be monitored to identify any possible adverse impacts on the health status of women and their families, as women participate more in the work force and become more involved in community-based activities outside the home. One phenomenon that needs to be better documented is the status of single women or the possible emergence of women-headed households. The 1993 census showed that seven percent of women aged over 40 were divorced and 29 percent were widowed.

Society in focus:

Omani women's lives in the pastoral nomadic sector

The pastoral nomadic sector in Oman represents less than five per cent of the total population. In every case it represents a people whose way of life is based upon the raising of livestock (goat, sheep, and/or camel) by using natural graze and browse. Livestock is the cultural focus of life and gives meaning to existence far beyond its economic value.

The female infant is regarded in much the same fashion as the male infant. Within the framework of a family both are regarded as a blessing. After delivery, mother and child remain at home, isolated from the rest of the community, for forty days, during which time both are expected to rest, eat specially rich foods and get used to one another.

The female child, as with the male child, is expected to learn the behaviour appropriate to her sex by observation and imitation. Male and female children spend a great deal of time helping women in domestic chores and attending to the herds of smaller livestock (goat and sheep). Throughout this period there is no segregation of female children from the general group. Where schooling is available children of both sexes are enrolled in nearly equal numbers.

In young adolescence, female children remain at the household camps with their mothers, helping look after the smaller livestock and taking care of younger sibling. At their first menses, female adolescents are expected to wear the full face mask, called burqa'. Society makes every effort to control female sexuality and channel it into a productive force -- the creation of children and the regeneration of the community. Girls are accordingly generally betrothed and married shortly after or at the same time as donning the face mask. The marriages are arranged and neither the bride nor groom has much say in the matter.

During this transitional period in the move between childhood and full adulthood, some pastoral nomadic tribes expect the newly married bride to remain with her family for the first few years of marriage; only later, after the birth of a number of children, is she expected to separate and set up her own household with her husband. This gradual transformation from matrilocal to neolocal household provides much needed support, sympathy and economic assistance to the young woman and her growing family.

The young woman upon marriage is often given a number of head of small livestock as a wedding present from the groom's family, which supplements her already growing herd. From birth until her wedding day, she would have been given an animal by her mother from time to time so that by her wedding day she might own from 30 to 40 head of goats. Over the next few years it is very important that the number of herd required to maintain the subsistence needs of a small family is available. Hence the early years of marriage, especially if the woman is in her paternal household, is fully occupied in increasing the size of this herd, and in giving birth to and successfully raising children.

The birth space between children tends to be two-to-three years. Young women are kept extremely busy managing, feeding, watering and milking their own herd of goats, giving birth and raising their own children, cleaning their homes and preparing food for their husbands. Other chores such as collecting firewood and drawing water for the household are shared with the other women (often mothers, or other kinswomen) living in the same extended household.

Once a woman has separated from her natal family and set up her own household she becomes mistress of her own home and manager of the family business, that is the successful husbandry of her herd of goat and sheep. At this point in her life cycle she will have a number of strong hands available to help her, either adolescent children and/or unmarried or widowed sibling or parents. Her work, as before, is unending, but now she is responsible to make sure it all runs smoothly. She will make the decision about when to cull her herd, what numbers of young male animals to sell, what supplies of foods and other household goods she requires, and how much feed supplement she will need. As she will not go to the market in the towns of northern Oman herself, she must wait until her husband or another male kinsman is available to undertake this task.

In their early years, the cultural education of her children rests mainly on her shoulders. When her own children marry, particularly her daughters, she then teaches them how to raise their own young. Pastoral nomadic women turn entirely to their own mothers for support, succour and companionship. Thus as a woman ages, her status and position in the unit grows and by her late middle age or toward the end of her child-bearing years she is a powerful force in the society. The mature woman with a grown family is respected and sought after for advice by younger females and males alike -- whether on household decisions regarding where to move, what pastures to exploit next and when to go to market, or community-wide decisions requested by the office of the Ministry of Interior.

The growth in influence of the older woman is often accompanied by a change in her dress which symbolizes her reduced sexuality. Women by their late middle age, become more conservative in their colour choices, and jewelry also becomes a less obvious part of their dress.

Women in this sector are the most isolated of all Oman people. They only drive within the vicinity of their desert camps to search for animals or retrieve supplies. They have little or no access to information which reaches women in the rest of the country through radio or television. Television generally does not reach these areas nor is there any electricity with which to run it. Few families own or operate battery-run radios. Car radios are hardly ever listened to though occasionally a music tape brought into camp by a young male member of the family is heard on a car cassette player. Most new ideas come from the women's school children and occasionally from verbal messages presented in regional health centres. In spite of their isolation, pastoral nomadic women in Oman are very receptive to new ideas. For example, where adult literacy education is available (e.g. Haima, Abu Mudhabi, Ma'bar) pastoral nomadic women far outnumber men as students.

PART D: TOWARDS THE YEAR 2000 AND BEYOND: OPPORTUNITIES FOR THE FUTURE

- A legacy of remarkable progress.
- Issues, themes, and cross-cutting strategies.
- Society in focus. Regionalisation: Oman's strategy for sustainable quality health care
- Breaking through: Oman's progress on its mid-decade goals

25. A legacy of remarkable progress

25.1. The Sultanate of Oman has been a world leader in improving the health and quality of life conditions of its people. The statistics speak for themselves: in the 1980s, Oman's 65 percent decline in its child mortality rate was the second highest in the world; in 1993, Oman's 97 percent measles immunization rate was the highest in the Middle East and North Africa. Before 1970, an estimated 214 out of every 1,000 babies born alive died before the age of one; in 1994, only 23 of every 1,000 live births died before their first birthday. Today, over 94 percent of Omani children attend primary school, over 90 percent of women give birth in hospitals and health centres, and over 96 percent of infants under the age of one are fully immunized against the seven leading childhood diseases.

25.2. These and other impressive achievements are the result of several related factors that have defined Oman in recent decades: the wise leadership of His Majesty Sultan Qaboos bin Said Al Said; disciplined, effective, and coordinated government planning; efficient implementation by a network of dedicated individuals and institutions; the comparative advantage of a relatively small population; available financial resources that focused heavily on human resources development, even during periods of relative fiscal constraint; and, the ability to avoid common mistakes and pitfalls by drawing on regional and international experiences in other countries, including the effective technical cooperation of international organisations and other partners. This is Oman's modern legacy of achievement.

25.3. A moment of transition. This legacy is a strong base from which Oman and its people can work towards achieving their future goals and aspirations. Movement forward towards the year 2000 and beyond, however, is characterised by a complex and dominant factor: in almost every single category of maternal and child care, the challenges of today and the needs of tomorrow are very different from those that Omanis have known and conquered during the last quarter of a century. To keep up with the fast pace of change in Omani society, the successful strategies of the recent past need to be modified, adapted and expanded to respond to the country's new priorities. This is the nature and the challenge of Oman's current moment of transition. It is heightened by the fact that Oman's proven oil reserves could be depleted within two decades or less, at current rates of production.

25.4. Oman's current social transition is perhaps unlike any other country's in the world, due to its particular modern history: it experienced very little development until 1970, but then underwent rapid progress after 1970. Its relatively small population is scattered across a large area of often harsh terrain, but it has enjoyed sufficient income from oil to finance brisk expansion in health, education, and other basic human services. Having made steady improvements in their wellbeing, Omanis consequently now face a new set of challenges and dangers that are borne of the developmental process and the experience of modernisation.

25.5. Oman exhibits characteristics of the first and third worlds simultaneously, such as overweight and obese adults and malnourished and stunted children within the same village or even the same family. Its relatively small population is nevertheless a potential threat to its own wellbeing, because population growth exerts undue pressures on natural resources and the economic carrying capacity of the land. The economy must absorb tens of thousands of Omani school graduates every year, but many young Omanis lack the skills or attitudes required to take up available jobs now manned by expatriate workers. Health facilities and better home care have virtually eliminated mortality from diarrhoea, but the incidence rate remains high, due to water pollution, ignorance and unsound hygiene practices. Fewer children die from preventable diseases, but more children and adults die or suffer permanent injury from home, vehicle and occupational accidents. More and more families have working mothers and fathers and the traditional extended family in urban areas is slowly fragmenting into nuclear families, while some pre-school-age children spend most of their daytime hours with expatriate househelp. All families have excellent access to formal education in the public school system, but most of them are also ignorant of crucial early childhood stimulation techniques that should be applied at home. While the national per capita income remains close to $5600 a year, Omani society already notices some disparities in income levels, job opportunities, and access to basic social services in different parts of the country.

25.6. In the face of such complex issues, Omanis must determine how they will maintain and expand the gains already achieved, and sustain them in perpetuity, without continuing to rely primarily on the provision of comprehensive, facility-based, free and on-demand health services by the central government. Further reductions of maternal and child mortality will require addressing a range of clinical issues within the health system but also social issues within the home, school and community at large -- issues such as nutrition, ante-natal and post-natal care, the education of adolescent girls and young women, early childhood development and stimulation, disability prevention and care, environmental protection and sanitation, and improving fertility and birth spacing rates. To tackle this enormous challenge, Oman will continue to need technical assistance from its international partners and friends, especially in the fields of studies, collecting and analyzing data, planning, and monitoring and evaluation.

26. Issues, themes, and cross-cutting strategies

26.1. Oman has identified seven broad, cross-cutting strategies that it has started to apply in its quest to meet the challenges of its current transition. These strategies have already been applied successfully in different sectors and projects, and they will define all future human development programmes and interventions in Oman.

26.2. Sustainability: Oman sees sustainability in two ways. In the narrow sense, it means maintaining and improving health and social development indicators that are already satisfactory, by enhancing the quality of basic human services and families' knowledge and application of good preventive measures. In the broader sense, sustainability means increasing the cost efficiency of health and other social services, exploring means of privatisation that could sustain the quality of services even in the post-oil era, and maintaining balance in the population/natural resources equation, especially for water and land resources. In future, social services that improve the quality of life of the community will have to be sustained more directly by the beneficiary community itself, in terms of manpower, planning, operation and maintenance.

26.3. Intersectoral cooperation: The successful inter-ministerial, multi-sectoral approach of the National Woman and Child Care Plan will be expanded to other sectors and devolved to the regional and wilayat levels. The Ministry of Health can only assure the goals of Health for All by the Year 2000 if it works closely with other ministries and government agencies, the private sector, local communities, national NGOs and other potential partners, while simultaneously targetting the many underlying factors that impact on health and wellbeing (such as nutrition, water, environmental health, and education).

26.4. Regionalisation/decentralisation: As the drive to improve health and quality of life conditions zeroes in on increasingly smaller target populations, regional and local efforts will be the most effective in identifying and meeting human development needs. Local officials and community groups are most knowledgeable about their area's conditions and requirements, and therefore they can respond to them with greater speed and efficiency, and at less cost, than officials in the capital region. As the quality of life of Omanis continues to improve, individuals, families or demographic sub-groups requiring special attention are likely to be found more in the provincial and remote areas than in the main towns and cities. Shifting the focal point of planning, decision-making and implementation closer to the regional towns, villages, and local communities where most Omanis live will help to meet two basic national development objectives:

i) to improve the quality of social services and the living standards of people in their local communities, and,

ii) to counter an otherwise undesirable drift towards an Omani city-state, with most national human and economic resources concentrated in the capital region, to the detriment of the rest of the country.

26.5. Community participation: The low levels of infrastructural development and education in the 1970s required widescale provision of basic services by the central government in order to bring down Oman's infant, child and maternal mortality rates and to reduce morbidity rates. Today, additional services provided by government agencies can only result in incremental improvements in mortality and morbidity rates. The big new gains will be achieved through active participation by all sectors of the community in preventive measures -- the breakthrough of the 1980s that we now call social mobilisation. Community-based participation and support groups, NGOs, the private sector and others in the community can all play a direct role in providing families with the knowledge and assistance they need to achieve further health gains, especially by expanding beyond the MCH sector to other fields such as water, environmental protection, nutrition, education, and early childhood development. Community participation and self-help are ancient and established components of Omani society, in fields such as agriculture, water, and housing, and thus there is a rich legacy to build upon in this field.

26.6. Empowering families with knowledge for healthy lifestyles: This is the single most important principle that cuts across all the other strategies and interventions. Regionalisation, personnel training, intersectoral collaboration, sustainability, community participation and Omanisation all converge in their aim to give individuals and families the knowledge they need to be able to improve their own health and wellbeing. Empowerment through knowledge aims to have families change some of their bad habits and adopt more healthful lifestyles. Most of the actions that need to be taken to reduce mortality and morbidity rates are preventive measures that can be taken most effectively and cheaply by families themselves -- and recent experience has shown that families will adopt new habits if they learn that those habits can improve their health and living standards. Healthy lifestyle habits can be adopted easily by all members of the family, including mothers, fathers, grandparents and children. This is particularly important for tackling adult diseases and causes

of morbidity associated with modernisation, such as diabetes, cardiovascular disease, tension and smoking.

26.7. Omanisation, training and capacity-building: Training sufficient numbers of Omani nationals to operate the health and social services system will be a major means of assuring quality and sustainability. This will create tens of thousands of new jobs for Omanis, promote far more effective health education through schools and health facilities, rationalise costs, enhance community participation and inter-sectoral cooperation, and raise the ability of regional and local officials to tackle their own communities' needs. A key aspect of this strategy is putting data to work for women and children, by strengthening routine evaluation, feedback, goal-setting and monitoring, through local data collection, studies and surveys.

26.8. Disparity reduction and equity assurance: The success in raising nationwide health standards has now shifted focus to identifying pockets of need and emerging disparities according to income, location, education levels or gender. People requiring special attention may include remote rural populations, large families with low or fixed incomes, unemployed or underemployed Omanis, and sectoral groups such as the disabled, illiterates, the aged, uneducated girls and women, single women and pre-school children. Women's fast changing roles and new work and education opportunities are transforming women's status in Omani society, which will affect traditional family habits and responsibilities. The advent of better educated women who participate more in the formal labour force is likely to bring about changes in traditional household management conditions, which in turn may increase stress on women and children. New issues that may need to be carefully addressed in this respect include, for example, equity issues facing working women and the quality of early childhood stimulation offered children at home.

Society in focus:

Regionalisation: Oman's strategy for sustainable quality health care

In the two decades after 1970, the government of Oman brought modern health care to its people by building and staffing a nationwide health services system that reached every part of the country. Today, responding to the equally big challenge of how to sustain and further improve health standards, Oman is in the midst of a profound strategic leap forward that is gradually putting control of the health care system in the hands of its local officials, staff and beneficiaries.

Regionalisation (also called decentralisation), which has been underway since the late 1980s, has given increasing planning, implementation and even fiscal authority to the director of health services in each of the ten health regions in Oman. Because local officials are more knowledgeable about their own region's needs and problems than ministry colleagues over 200 kilometres away in the capital, they are likely to respond to community health needs more quickly and efficiently.

Each region now has a health information and statistics section and regional health information officers who collect and analyse data before passing it on to Muscat every month. Dhahira region, with its population of 181,224 scattered across mountains, deserts and highland plains, is one of several regions that have

started publishing their own annual health statistics yearbook.

When the Dhahira region director general of health services and his senior medical staff recently assessed why certain health centres were relatively more crowded than others, they discovered this was due to the kinds of specialists who were resident at each centre. Consequently, they immediately reassigned some specialists to make them more easily acccessible throughout the region, which reduced patient loads and improved access for the public. They also instituted a new system for specialist doctors from the two regional hospitals at Ibri and Buraimi to make regular visits to the 11 health centres throughout the region's five wilayats. This has not only improved the quality of clinical services, but it also allowed the specialists to pass on their knowledge to other health personnel through on-the-spot training, which in turn improved the quality of health education conducted routinely at the local health centres. When the time came to assign doctors to the new hospital at Ibri, they were chosen on the basis of the community health needs that emerged from Dhahira's regional statistical reports.

The Dhahira MCH committee meets every month to discuss local trends and needs, and initiates the necessary actions without having to refer back to Muscat. Two examples of such actions were regional studies that were initiated for malaria prevention and to determine the causes of relatively high rates of spontaneous abortions. A region-wide malaria action plan has been formulated and is now being implemented. The regional health services directorate uses the available data to identify priority regional needs, to set its own targets for various health indicators, and to launch new interventions.

When the birth-spacing programme was launched nationally in Oman in 1994, the Dhahira MCH committee formulated its own regional action plan that includes training of doctors, nurses and medical orderlies. The community support groups that were initially formed to support the Baby Friendly Hospital Initiative have also been trained on birth-spacing.

When demand for birth-spacing services increased in late 1994, the regional health director general used his authority to buy a prefab for use in counselling couples, which has quickly increased the capacity to offer these services in the Ibri area. Previously, this would have required the submission of a request to Muscat and a long waiting period during which the request would have been studied and processed, and the purchase would also have had to be made from Muscat. Purchasing routine supplies similarly is now done regionally, without having to refer back to the capital.

Another area where regionalisation has spurred greater efficiency is in inter-sectoral cooperation and coordination. The Dhahira region MCH committee that meets regularly can better respond to local needs because it includes representatives from several other government agencies and ministries (ie. water, education, social affairs and labour, and municipal affairs and the environment). The effectiveness of such local cooperation has been evident in school health improvement, for example, as the health, education and water authorities now cooperate to monitor all water sources used by schools.

27. Breaking through: Oman's progress on its mid-decade goals

Oman has made excellent progress towards achieving the mid-decade goals, as indicated in the following list of each target and Oman's status as of mid-1995:

1. Goal: Eliminate neonatal tetanus by 1995.

Status: The TT immunization rate is over 95% for pregnant women; only one case of neonatal tetanus was reported in 1991 and none have been reported since then. The goal has been achieved.

2. Goal: Reduce measles deaths by 95% and measles cases by 90%.

Status: Measles cases and deaths have declined steadily in recent years, and no deaths due to measles were recorded in 1994. The goal has been achieved.

3. Goal: Increase the immunization coverage of six antigens of EPI to 80% or more; maintain a high level of immunization coverage (at least 95%) of children under one year of age.

Status: Both these goals have been achieved.

4. Goal: Eliminate poliomyelitis.

Status: Only two cases of poliomyelitis were reported in 1993. The goal is within reach.

5. Goal: Achieve 80% ORT use rates (increased fluids) with continued feeding during diarrhoeal episodes; reduce diarrhoea cases from 190,000 to 170,000.

Status: The ORT use rate is over 80% and rising due to intensive health education and guidance by health staff and community support groups. A total of 155,755 diarrhoea cases were reported to the health system in 1994. The goal has been achieved.

6. Goal: Virtual elimination of Vitamin A deficiency; at least 80 percent of children under 24 months of age receive adequate Vitamin A.

Status: A 1994 study showed that Vitamin A deficiency is a moderate public health problem among children under the age of three; it is being tackled through Vitamin A supplementation and public education on proper nutrition. The goal will be achieved.

7. Goal: Universal salt iodisation.

Status: IDD is a mild public health problem in Oman. Salt iodisation has been adopted and legislation to implement this policy has been introduced. The goal will be achieved.

8. Goal: Implement the Baby Friendly Hospital Initiative in all maternity facilities and end free and low-cost supplies of breastmilk substitutes.

Status: All hospitals have been certified as baby friendly and breast-milk substitutes are banned in government facilities. The goal has been achieved.

9. Goal: Increase exclusive breast-feeding during the first four months from 4% to 50%.

Status: Exclusive breast-feeding is well over 80%, due to the impact of BFHI. The goal has been achieved.

10. Goal: Signing and ratification of the Convention on the Rights of the Child.

Status: This goal is likely to be achieved in 1995.

10. Goal: Signing and ratification of the Convention on the Rights of the Child.
Status: This goal is likely to be achieved in 1995.

11. Goal: Reduction of 1990 levels of severe and moderate malnutrition by 20% or more.
Status: Based on the data from available studies, malnutrition in children under 5 years of age has declined from 16% in 1989 to 12% in 1994. The goal has been achieved.

12. Goal: Reduce by one-third the gap between the current primary school enrolment/retention rate and the year 2000 goal.
Status: The goal has been achieved.

13. Goal: Reduce by one-third the 1990 gender gap in primary education.
Status: The gender gap has been reduced to one percent in 1994 and the goal has been achieved.

14. Goal: Increase water supply and sanitation so as to narrow the gap between 1990 levels and universal access by the year 2000, of water supply by one-fourth and of sanitation by one-tenth.
Status: The goal has been achieved.

15. Goal: Reduce by one-third deaths due to ARI in children under five years of age, and reduce by one-fourth the incidence of moderate ARI morbidity.
Status: Based on MoH data for the period 1990-1994 showing a steady decline in ARI incidence and deaths, both goals are well on the way to being achieved.

16. Goal: Increase access to community-based rehabilitation services by children with disability and their families.
Status: Access is five percent and is likely to increase slowly, due to the lack of facilities and trained personnel. The goal is likely to be achieved with extra efforts and resources.

17. Goal: Screening for early detection of disability of children.
Status: Screening of schoolchildren and infants <5 is taking place in schools and the health system. Children aged 1-5 are screened when they come into contact with the health system for immunization and other services. This goal has been achieved.

ABBREVIATIONS

ANC	Ante-natal care
ARI	Acute respiratory infections
BFHI	Baby Friendly Hospital Initiative
CDD	Control of diarrhoeal diseases
CHS	Child Health Survey (1988/89)
CMR	Child mortality rate
DFCHP	Department of Family and Community Health Programmes
DGWCA	Directorate General of Women's and Children's Affairs
DPT	Diphtheria, pertussis, tetanus
EPI	Expanded Programme for Immunization
GDP	Gross domestic product
GNP	Gross national product
IFHI	Infant Friendly Hospital Initiative
IMR	Infant mortality rate
LBW	Low birth-weight
MOSAL	Ministry of Social Affairs and Labour
MCH	Maternal and child health
MoE	Ministry of Education
MoH	Ministry of Health
NCDP	National Community Development Programme
NGO	Non-governmental organisation
NHP	National Health Programme
NPA	National Programme of Action
NWCCP	National Woman and Child Care Plan
NWCCTF	National Woman and Child Care Task Force
OR	Omani Riyal
ORS	Oral rehydration salts
ORT	Oral rehydration therapy
OWA	Omani Women's Association
PAMAP	Public Authority for Marketing Agricultural Produce
PDO	Petroleum Development Oman
PEM	Protein energy malnutrition
PHC	Primary health care
PNC	Post-natal care
TBA	Traditional birth attendant
TT	Tetanus toxoid
U5MR	Under 5 mortality rate
UNICEF	United Nations Children's Fund
WHO	World Health Organisation

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