



Compendium on Environment Statistics of Pakistan - 2004

**Federal Bureau of Statistics
Government of Pakistan**

Foreword

As an inescapable concomitant with the traditional route of development, Pakistan has been facing natural resource degradation and pollution problems. The unsavory spectacle of air pollution, water contamination and other macro environmental impacts such as water logging, land degradation and desertification, are on rise. All this, in conjunction with rapid growth in population, has been instrumental to the expanding tentacles of poverty. In order to make an assessment of the environmental problems as a prelude to arrest the pace of degeneration and, provide for sustainable course of economic development, the availability of adequate data is imperative. This publication is an attempt to provide relevant statistics compiled through secondary sources.

The 1st Compendium was prepared in 1998 under the Technical Assistance of Asian Development Bank in accordance with, as far as possible, the guidelines of "United Nations Framework for Development of Environment Statistics (FDES)". This up-dating has been made without any project facilitation. Notwithstanding exclusive reliance on mail inquiry, all possible efforts have been made to collect available data and, quite a few new tables on quality of water, concentration of dust fall in big cities and, state of air quality in urban centers of Punjab, have also been included in the compendium. However, some tables included in the predecessor of this publication could not be up-dated due either to their being single time activity or the source agencies did not have the pertinent data. The same have been listed at appendix-IV to refer compendium-1998 for the requisite historical data. Similarly, international comparison of salient environmental indicators has also been included at appendix-V.

I am thankful to German Technical Cooperation (GTZ) for support in publishing this document. A PDF-version of this publication is available for free download at FBS-Website <http://www.statpak.gov.pk/depts>.

Hopefully, researchers, planners and environmentalists would find this data base developed in Federal Bureau of Statistics, useful for their specific pursuits.

Comments/suggestions for improvement would be welcome and highly appreciated.

ASAD ELAHI
Secretary

Statistics Division
Government of Pakistan
Islamabad
2005

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Section A

Socio-economic Activities and Natural Events

Environmental problems are mainly caused by a variety of demographic and socio-economic factors viz, population growth, agricultural and industrial development, poverty, etc. Human activities are associated with environment where continuous exchange of materials take place between them. Man exploits resources, without sustainability considerations. Any disturbance or contamination caused by human activities in the environment might ultimately produce harmful effects on living organisms.

This section presents data on population growth, housing, labour force, land utilization, agriculture, large scale manufacturing, minerals, energy, transport and communication, water quality, noise level, waste generation and disposal, air quality, wave heights and tides and recreation.

A-I Demographic Situation

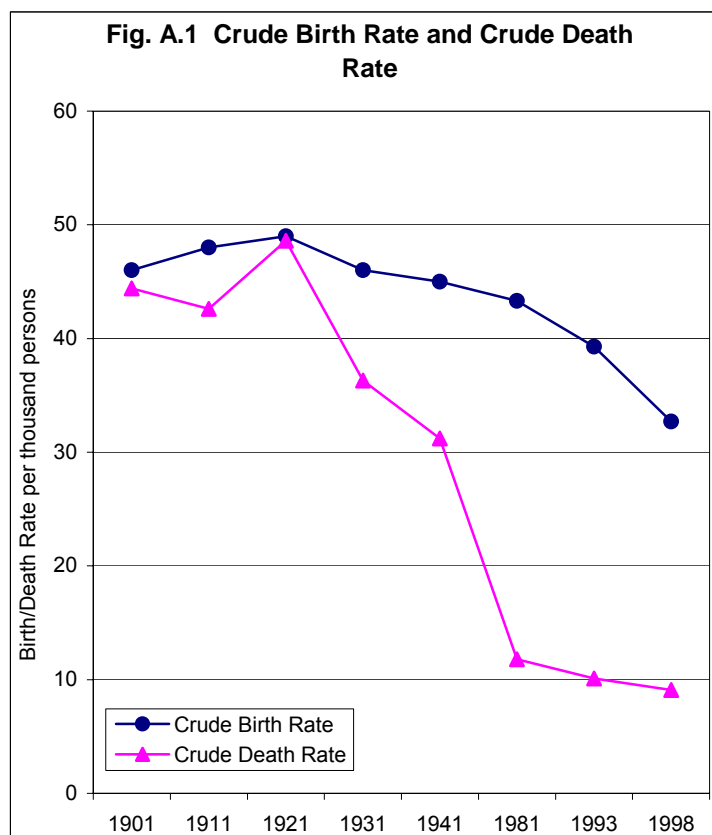
According to the last population census, 1998, the country's population was 132.352 million, to rank Pakistan as seventh most populous country of the world. It ranked 10th in 1991, below Japan, Bangladesh and Nigeria. Among the Asian countries, it is at fourth position. Pakistan has second highest average annual growth rate of 2.69 percent among the ten most populous countries. With this annual growth rate, the population of the country would double in the next 27 years (Table A-I). On the average about 3.4 million people are being added annually to the country's population.

Table A-I : Ten Most Populous Countries of the World, 2003

S. No	Country	Population (in million)	Rate of Natural increase	Projected Population 2025 (millions)	Projected Population 2050 (millions)
1	China	1288.7	0.6	1454.7	1393.6
2	India	1068.6	1.7	1363.0	1628.0
3	USA	291.5	0.6	351.1	421.8
4	Indonesia	220.5	1.6	281.9	315.6
5	Brazil	176.5	1.3	211.2	221.4
6	Pakistan	149.1	2.7	249.7	348.6
7	Bangladesh	146.7	2.2	208.3	254.6
8	Russia	145.5	0.7	136.9	119.1
9	Nigeria	133.9	2.8	206.4	307.4
10	Japan	127.5	0.1	121.1	100.6

Sources:- World Population Data Sheet, 2003.
Population Reference Bureau, Washington, D.C.

The country is passing through the third stage of demographic transition, where both the birth and death rates are declining, Fig. A.1 indicates demographic transition in the country since 1901. It shows that at the beginning of the century, both the birth and death rates were very high and rate of natural increase was very low (0.86%) during the intercensal period 1911-1921. Since 1921, the crude death rate started declining and reached to 9.1 per thousand population as compared to 48.6 per thousand population in 1918. Whereas, the crude birth rate (CBR) registered slow decline during this period. It declined from 49 per thousand population to 32.7 per thousand population to result in high population growth rate in the country. The population of the area now constitute Pakistan was 16.576 million in 1901 has increased to 132.4 million in 1998. Fig. A.2 reflects rapid population growth in the country since 1961.



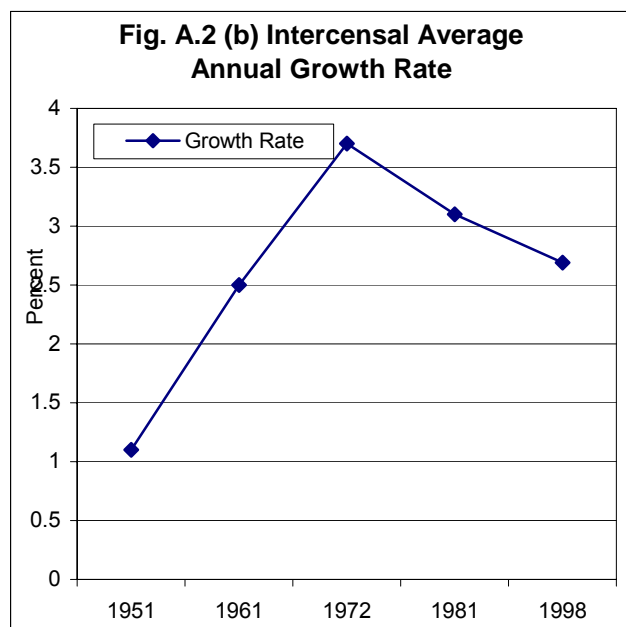
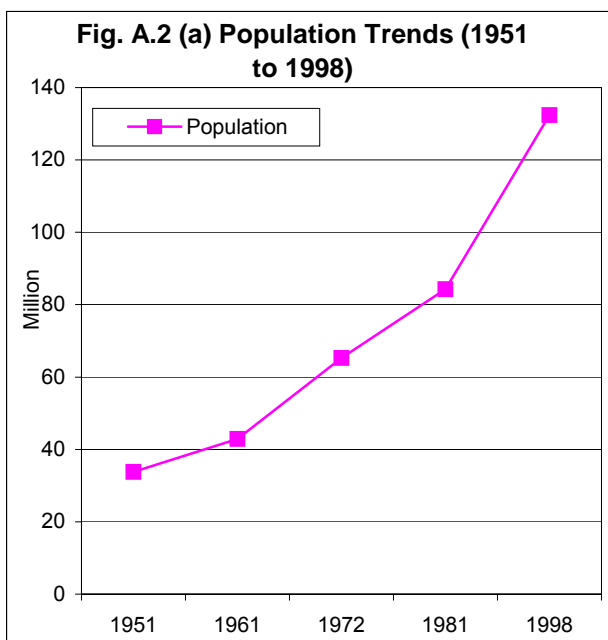


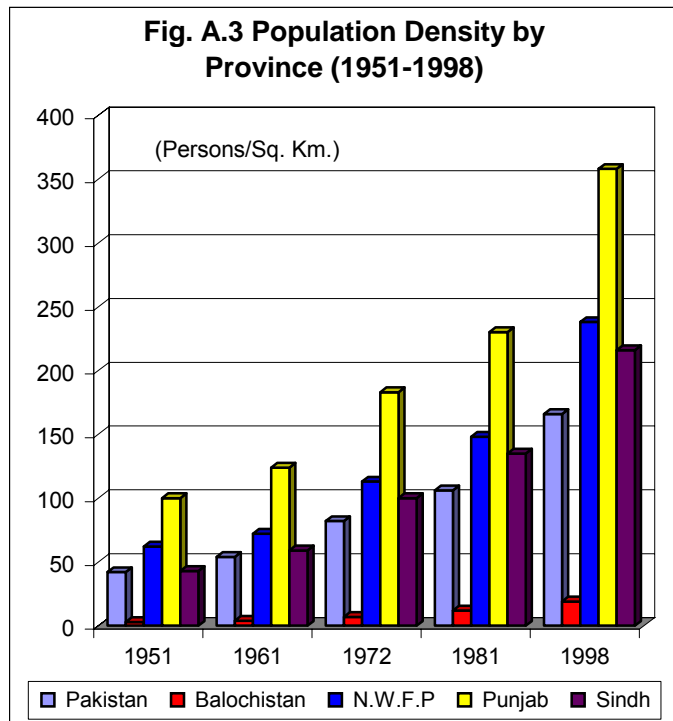
Table A-II Population Distribution, Growth Rates and Percentage Share by Urban and Rural Areas

Year	Population (Million)			Growth Rates			Percentage Share		
	All areas	Rural area	Urban area	All areas	Rural area	Urban area	All areas	Rural area	Urban area
1951	33.75	27.76	5.99	1.1	0.3	5.4	100.0	82.2	17.8
1961	42.88	33.23	9.65	2.5	1.8	4.9	100.0	77.5	22.5
1972	65.31	48.72	16.59	3.7	3.3	4.8	100.0	74.6	25.4
1981	84.25	60.41	23.84	3.1	2.6	4.4	100.0	71.7	28.3
1998	132.35	89.31	43.04	2.69	2.30	3.48	100.0	67.5	32.5

Source:- i) Population Census Organization.
ii) Planning & Development Division

A-I.i Population Density

The population density in the country has increased three times i.e. from 54 persons per square kilometer in 1961 to 166 persons per sq. kilometer in 1998. Province-wise analysis indicates that Punjab is the most densely populated province (358 persons per sq.km.), followed by NWFP (238 persons per sq.km.), Sindh (216 persons per sq.km), and Balochistan (19 persons per sq.km) in 1998 (Table A-02). Figure A.3 gives province wise population density during 1951-1998. As a result of rapid population growth in the country during 1961-1998, the density per sq.km has also increased in all the provinces, however, it varied among the provinces. Punjab registered 2.89 times increase (from 124 persons to 358 persons per sq.km), Sindh 3.66 times (from 59 persons to 216 persons per sq.km) NWFP 3.09 times (from 77 persons to 238 persons per sq.km) and Balochistan 4.75 times (from 4 persons to 19 persons per sq. km)



Source:- Population Census Organization

A-I.ii Urban-Rural Population Distribution

The urban population which was 17.8 percent of the total population in 1951 has increased to 32.5 percent in 1998, thus registering a high annual growth rate of 4.3 percent. As compared to this, the rural population has increased by 2.5 percent per year during the same period. The urban population which was 5.99 million in 1951 has increased to 43.04 million in 1998 i.e. about 7 times increase in 47 years, whereas, rural population has increased slightly over 3 times which indicates high pressure on urban areas (Table A-II). The share of rural population decreased from 82.2 percent in 1951 to 67.5 percent in 1998, indicating that Pakistan is on the way to rapid urbanization.

In 1931, there were only seven cities, which had over hundred thousand population. In 1981, there were 29 such cities. The number of cities with more than hundred thousand population are 51 according to the 1998 Census.

A-I.iii Fertility

In the absence of vital statistics registration system and consequential inadequacy of data, it is difficult to estimate accurate fertility rates in the country. However, some direct and indirect estimates of fertility under different assumptions were made through different surveys. One of the major source of such information is the Pakistan Demographic Survey (PDS) conducted by Federal Bureau of Statistics. This survey indicates decline in total fertility rate (TFR) in the country. TFR which was around 7 per woman in 1985 declined to 3.9 in 2003, whereas, the crude birth rate (CBR) which was 43.3 per thousand population in 1985 declined to 26.5 per thousand population in 2003. (Table A-III)

Table A-III:- Crude Birth, Crude Death and Total Fertility Rates

Year	Crude Birth Rate(Per 1000 Population)	Crude Death Rate (Per 1000 Population)	Rate of Natural Increase (%)	Total Fertility Rate (per Women)
1962-65	42.0	15.0	2.7	6.1
1976	42.8	11.5	3.1	6.9
1977	40.6	10.7	3.0	6.6
1978	40.9	10.1	3.1	6.6
1979	41.6	9.6	3.2	6.9
1984	43.3	11.8	3.1	6.9
1985	43.3	11.5	3.2	7.0
1986	43.3	10.1	3.3	6.9
1987	43.3	10.5	3.3	6.9
1988	40.5	10.8	3.0	6.5
1989	40.9	10.1	3.1	6.4
1990	40.6	10.6	3.0	6.2
1991	39.5	9.8	3.0	6.0
1992	39.3	10.1	2.9	5.8
1994	37.6	9.9	2.8	5.6
1995	37.4	9.5	2.8	5.6
1996	35.2	8.8	2.6	5.5
1997	33.8	8.9	2.5	5.0
1999	30.2	8.3	2.2	4.5
2000	29.1	7.8	2.1	4.3
2001	27.8	7.2	2.0	4.1
2003	26.5	7.0	2.05	3.9

Source:- Federal Bureau of Statistics(PGE: 1963 & 1962-65, PGS: 1976-1979 & PDS: 1984-2003)

A-I.iv Mortality

Crude death rate (CDR) provides an overall picture of the level of mortality in the country. Table above reveals that CDR was 15.0 per thousand population in 1962-65 declined to 7.0 per thousand population by 2003. It is mainly due to better health facilities, availability of life saving drugs, improved nutrition and introduction of vaccination programme. All these measures improved the health conditions in the country, thus resulting decline in mortality rate (Table A-III).

A-I.v Infant Mortality Rate

Infant mortality rate (IMR) is an important indicator of health situation in a country. Pakistan has very high infant mortality rate of 76.2 per thousand live births. IMR was 102.4 per thousand live births in 1991 declined to 76.2 per thousand live births in 2003. However, it is still high as compared to other developing countries. (Table A-IV).

A-I.vi Life Expectancy

Expectancy of life at birth is an important indicator of mortality. In the absence of vital statistics registration system, the adequate data on age specific deaths are not available. Pakistan Demographic Survey, conducted by Federal Bureau of Statistics, compiles such information on sample basis.

Table below presents life expectancy at birth by age and sex. It indicates that expectancy of life at birth which was 59.30 for male and 60.70 for female in 1991 increased to 64.73 for male and a little higher i.e. 65.56 for females in 2003. (Table A-IV).

Table A-IV: Infant Mortality Rates, and Life Expectancy at Birth, 1991-2003

Period	Infant Mortality Rate	Life Expectancy at Birth (years)	
		Male	Female
1991	102.4	59.30	60.70
1992	100.9	59.30	60.70
1993	100.80	59.30	60.70
1994	101.40	59.30	60.70
1996	85.5	60.31	61.88
1997	84.0	62.76	64.63
1999	81.5	64.00	66.00
2000	79.8	64.00	66.00
2001	77.1	64.00	66.00
2003	76.2	64.73	65.56

Source:- Federal Bureau of Statistics.

A-II Housing

In the Population Census and Surveys a "household "or a" housing unit" is defined as a socio-economic unit consisting of individuals who live together whether related to each other or not but sharing the same kitchen. Pakistan inherited shortage of housing units since independence in 1947. The government's contribution towards construction of houses mostly confined to provide housing facilities to its employees. However, land/plots are also being distributed to middle and low income population (Rukkunuddin, 1988).

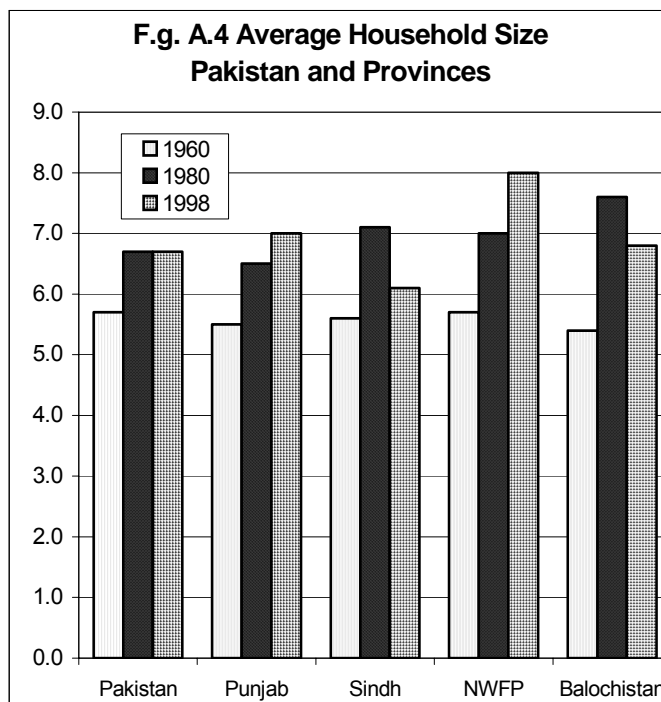
An analysis of data for the last four housing censuses indicates that the number of housing units which were about 7.816 million in 1960 increased to 19.211 million in 1998. Thus housing grew by 2.39 percent per annum during 1960-98 which is about 0.7 percent less than the population growth rate during the period. In the context of housing units deficit at the time of independence due to mass migration, coupled with high population growth, the country is continuously facing shortages of housing units and there is high pressure on the existing housing units. Table A-15 gives housing stocks during 1960-98 and percentage changes in three censuses by provinces and area.

As for province wise profile (Table A-15) of urban-rural housing stock, there is rapid increase in the urban of Punjab and Sindh during 1960-98 where as pace of construction in NWFP and Balochistan remained almost the same during the last 38 years.

The pressure on housing units can best be judged by the average household size. The average household size i.e. number of persons per household, was 5.7 in 1960, increased to 6.8 persons 1998. Provinces in this regard can be ranked in increasing order as Sindh (6.1), Balochistan (6.7), Punjab (7.0) and NWFP (8.0).(Table A-V).

Table A-V Average Household Size by Provinces and Urban/Rural Areas

Area	1960	1980	1998
Pakistan			
Urban	5.7	6.7	6.8
Rural	6.1	7.0	7.0
	5.6	6.0	6.8
Punjab			
Urban	5.5	6.5	6.9
Rural	5.7	6.9	7.1
	5.4	6.3	6.9
Sindh			
Urban	5.6	7.1	6.0
Rural	5.5	7.0	6.8
	5.7	7.1	5.5
NWFP			
Urban	5.7	7.0	8.0
Rural	5.8	7.1	7.9
	5.6	6.9	8.0
Balochistan			
Urban	5.4	7.6	6.7
Rural	5.4	7.6	7.8
	5.4	7.6	6.4

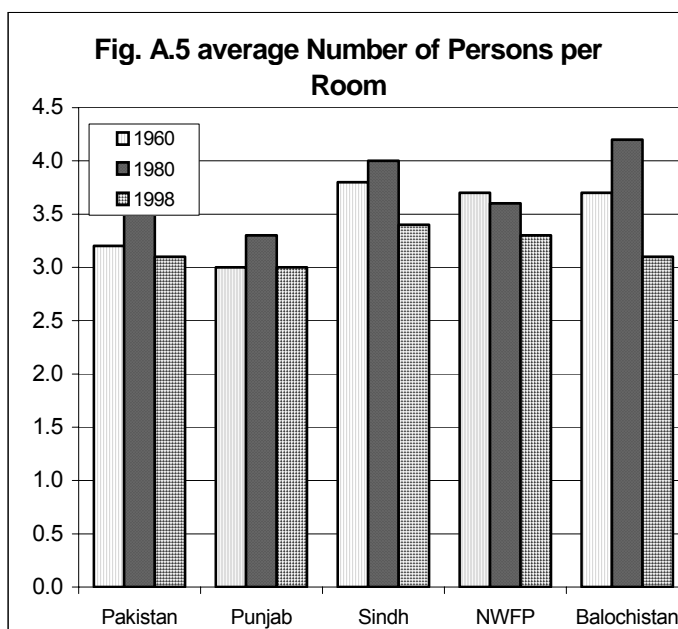


Source:- Population Census Organization

Average number of persons per room does also not reflect an enviable situation. In 1960 on the average 3.2 persons were living per room which increased to 3.5 persons per room in 1980 and again reduced to 3.1 in 1998 (Table A-VI).

Table A-VI: Average Number of Persons Per Room by Provinces and Urban/Rural Areas

Area	1960	1980	1998
Pakistan			
Urban	3.2	3.5	2.9
Rural	3.4	3.6	3.2
Punjab			
Urban	3.0	3.3	2.9
Rural	3.1	3.9	3.1
Sindh			
Urban	3.8	4.0	3.1
Rural	3.5	3.3	4.0
	4.0	4.7	4.0
NWFP			
Urban	3.7	3.6	3.3
Rural	3.3	3.2	3.1
	3.9	3.6	3.3
Balochistan			
Urban	3.7	4.2	3.1
Rural	3.0	3.2	3.1
	3.8	4.5	3.1



Source:- Population Census Organization.

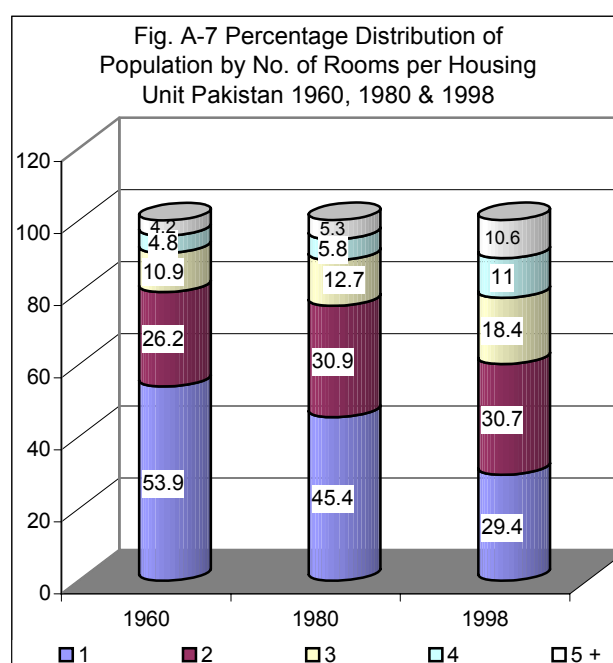
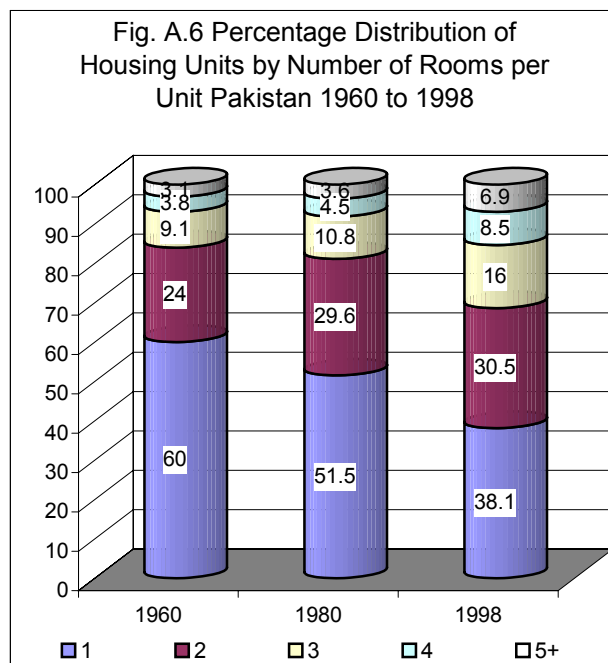
There were about 52 percent housing units in 1980 which had only one room, 30 percent with two rooms, whereas about 19 percent housing units had three or more rooms. The share of one room house declined to 38 percent in 1998 both for urban and rural areas. Similarly 45.4 percent of the population were residing in one room housing unit in 1980, 30.9 percent in two rooms housing unit, whereas about 24 percent of the population were residing in three rooms or more. The share of population residing in one room housing unit declined to 29.4

percent, whereas share of population residing in three rooms or more indicates slight increase for each category during 1998 as compared to 1980 while the share of population in two rooms remained the same. (Table A-VII).

Table A-VII: Percentage Distribution of the Housing Units and the Population by Number of Rooms per Unit by Urban-Rural Areas, Pakistan, 1960-98

Area/year	Total	Percent Distribution of Housing units by Number of Rooms Per Housing Unit					Percent Distribution of the Population by Number of Rooms Per Housing Unit					
		1	2	3	4	5+	1	2	3	4	5+	
PAKISTAN												
1960	100.00	60.0	24.0	9.1	3.8	3.1	53.9	26.2	10.9	4.8	4.2	
1980	100.00	51.5	29.6	10.8	4.5	3.6	45.4	30.9	12.7	5.8	5.3	
1998	100.00	38.1	30.5	16.0	8.5	6.9	29.4	30.7	18.4	11.0	10.6	
URBAN												
1960	100.00	56.4	24.8	9.3	4.7	4.8	48.1	27.5	11.6	6.1	6.7	
1980	100.00	42.6	31.5	13.7	6.5	5.7	35.3	32.0	15.4	7.9	9.4	
1998	100.00	30.4	31.7	19.1	10.1	8.7	23.7	31.0	20.9	12.2	12.1	
RURAL												
1960	100.00	61.1	23.7	9.1	3.5	2.6	55.6	28.8	10.7	4.4	3.5	
1980	100.00	55.1	28.8	9.6	3.7	2.8	49.2	30.1	11.4	4.8	4.5	
1998	100.00	41.6	30.0	14.5	7.7	6.1	32.0	30.6	17.2	10.3	9.9	

- Source:-**
1. Government of Pakistan, Housing Census of Pakistan, vol. 10, 1960, Ministry of Home and Kashmir Affairs Division, Karachi.
 2. Government of Pakistan, Housing Census Report of Pakistan, 1980, Population Census Organization, Islamabad



A-II.i Construction of Housing Units

An analysis of data on construction of housing units for different periods indicates that, out of the total housing units in 1998, only 55.9 percent were constructed more than 10 years back i.e 1987, whereas 25.03 percent during 1987-92, 18.2 percent in 1993-98. It reveals that pace of construction of housing units was slightly

slower during mid ninety (Table A-17).

A-II.ii Housing Units by Lighting Facilities

Only 30.6 percent of the housing units had electricity facilities in 1980 and it increased to 70.5 percent in 1998, whereas about 67.2 percent of the households were using kerosene oil for lighting in 1980, their share decreased to about 28 percent in 1998. A comparison of data by urban-rural areas reveals that 71 percent of the housing units in urban areas had electricity facilities in 1980 and such facility was available to about 93 percent households in 1998, whereas only 15 percent of rural housing units had electricity facilities in 1980 which increased to 60 percent in 1998. In rural areas 82.7 percent household were using kerosene oil for lighting purposes in 1980 and about 38 percent were using kerosene oil in 1998 (Table A-21).

A-II.iii Housing Units by Type of Cooking Fuel Used

Analysis of data suggests that 69 percent of housing units were using wood as cooking fuel in 1998 which is nearly at par with the 70 percent of 1980. About 6.2 percent of the households were using kerosene oil as cooking fuel in 1980 which declined to 3.7 percent in 1998, whereas only 6.5 percent of the housing units had the facilities of gas in 1980 which extended to 20.2 percent in 1998. About 58.1 percent urban households had gas facilities in 1998 as compared to only 2.8 percent of the rural households during the same year (Table A-23).

A-II.iv Housing Units by Water Facilities

An important basic need for the population is the access to safe drinking water. In 1980 only 20.3 percent housing units had access to safe tap water either available inside or outside the housing unit whereas, about 63.8 percent of the households were using ground water i.e. either hand pumps or well, and the remaining 15.8 percent were using water from ponds, springs, rivers and streams (Table A-26).

Analysis by area shows that about 58.3 percent of the urban population had access to safe tap water either inside or outside of the housing units in 1980 whereas, the share of such category increased to 65 percent in 1998. The situation in rural areas was worst where only 5.4 percent of the rural housing units had facilities of safe tap water in 1980 and their share increased to 17.3 percent in 1998. About 68.9 percent of rural housing units were using ground water in 1998 whereas, about 13.9 percent were using water for drinking purposes either from ponds, springs, rivers and streams (Table A-26).

Pakistan Integrated Household Survey(PIHS)-1998-99 results indicate that 26 percent of the households had facilities of tap water either inside or outside households, whereas, 65 percent of the households were using ground water i.e. from hand pump/motor pump or well and 8 percent from rivers, canal, ponds or streams. The area-wise analysis of survey data suggest that 55 percent of the urban households in 1998-99 had facilities of tap water either inside or outside the housing units, whereas 12 percent of the rural housing units had such facilities.

The survey results for 2001-2002 indicate that 25 percent of the households had access to tap water either inside or out side households, whereas 68 percent of the households were using ground water i.e. from hand pump/motor pump or well and 6 percent from rivers, canal, pounds or streams. The area wise analysis of survey data suggest that 58 percent of urban households in 2001-2002 had facilities of tap water either inside or outside the housing units, whereas 10 percent of the rural housing unites had such facilities (Table A-27)

A-II.v Housing Units with Latrine Facilities

According to PIHS, 2002, about 45 percent of the households had flush facility in their toilets, whereas, 12 percent without flush and 43 percent of the households had no latrine facility in their housing units. The area-wise analysis indicates that 89 percent of the urban household had flush system in their toilets, whereas 5 percent had no flush facility and 5 percent of the urban household did not have toilet facility in the housing units. As compared to this about 26 percent of the rural households had flush system in their toilets and 15 percent without flush, whereas 59 percent of the rural households had no toilet facility in their housing units (A-29).

A-III Labour Force

The economically active population or Labour Force is the group of persons who produce goods and services to meet the requirement of the society. In Pakistan, labour force is defined as all persons ten years of age and above who are working or looking for work for cash or kind, one week prior to the date of enumeration. The labour force participation rate in Pakistan is comparatively low mainly due to low participation of female in the labour force. There may be several explanation for this however, few are stated as early age marriages, strong social and cultural influence on free movement of women and absence of an organized labour market. The main sources of labour force and employment statistics are Population Census and Labour Force Survey conducted by Federal Bureau of Statistics on annual basis. According to the latest available Labour Force Survey, 2003-04, about 30.4 percent of the total population was in the civilian labour force. The analysis of data of last 17 years indicates that the total Civilian Labour Force which was 25.57 in 1981 increased to 30.4 in 2003-04. There was not much difference in the urban-rural labour force participation rates, according to 2003-04 Labour Force Survey, about 29.2 percent of the urban population (10 years and above) was in civilian labour force as against 31.0 percent for rural areas. The un-employment rate was only 2.34 percent in 2003-04. The urban ratio was slightly higher as compared to rural areas (Table A-30 & 31).

A-IV Land Utilization

Pakistan has 79.61 million hectares of land of which 59.44 million hectares have been surveyed and reported, which is about 75 percent of the total land. Of the total reported area only 38.6 percent was cropped area till 2003-04. The cropped area registered about 6 percent increase during (1991-92 to 2003-04) last 12 years i.e. about 5 percent each year. In the face of population increasing at an annual growth rate of about 2.69 percent, it is imperative to employ all means to increase agricultural productivity including as well the expansion of area under cultivation.

The net area sown during 2003-04 was 73 percent of the total cultivated area. About 6.87 million hectares of areas was sown more than once during 2003-04 (Table A-34). The analysis of data shows that Area sown more than once is continuously increasing since 1991-92. The share of "Area sown more than once" was about 30 percent of the total cropped area during 2003-04. This is an encouraging trend, which indicates a substantial expansion in productive capacity and a useful way of preventing soil degradation and rehabilitating problem of soils.

A-V Agriculture

A-V.i Area under Agriculture Crops

The wheat crop cultivated on 8.216 million hectares during 2003-04 occupies the highest area for cultivation as compared to other crops followed by Cotton (2.989 million hectares), Rice (2.461 million hectares), Sugarcane (1.075 million hectares), Maize (0.947 million hectares), Gram (0.982 million hectares) and various type of fruits like, Mango, Apple, Guava, Citrus Fruits, Bananas, Grapes and Dates 0.566 million hectares. An analysis of data for last 12 years regarding area under agricultural crops indicates fluctuating trends for different crops, however, shows increasing trend for some of the major crops like wheat, cotton, rice and fruits like bananas, apples and dates (Table A-35).

A-V.ii Production of Agriculture Crops

The wheat is a major crop cultivated on the larger area as compared to other crops. The production of wheat during 2003-04 was 19.500 million tones as against 15.684 million in 1991-92. The rice production was 3.243 million tones in 1991-92 which increased to 4.848 million tones in 2003-04. Like area under cultivation of various crops the production of various important crops also indicates fluctuating trends during 1991-92 to 2003-04. This may attribute to bad weather floods and other natural hazards. However, there was significant increase in the production of major crops during 2003-04 as compared to 1991-92 (Table A-36).

A-VI Water

Pakistan has entered into the 21st century with a challenge to meet food and fibre requirements for its population and to achieve the export targets. Water in Pakistan is becoming scarce, while major parts of conventional resources have already been developed.

In order to meet the needs of water and sanitation, food and fibre, industry and environmental protection, concerted efforts would be required to develop the next generation of resources. Comparatively, the cost of these are likely to be larger than of the existing projects. Achieving sustainable development will, thus, be a major challenge and conservation and utilization of available resources will undoubtedly be one of the most critical tools for realizing these objectives.

River flows: Pakistan is one of the very few countries in the world whose water resources entirely depend upon one river system- the Indus Basin. Although, in addition to the Indus River System, the Kharan Closed Desert Basin and the Mekran Coastal Basin located in Balochistan have some development potential but it constitutes less than three percent of the total surface water.

Of the total available annual flow of 145MAF in the Indus Basin, 105MAF is already being used through 19 barrages with 45 canal systems above and below rim stations. Average annual escapades below the Kotri Barrage going to the sea are 35MAF. Flow below Kotri provides an indication of the available potential since it is the end result of all enroute inflows, outflows, gains and losses of the system. In order to develop and utilize the surplus flows, some provision has to be made for minimum flow below Kotri to meet daily requirements of drinking, cultivation of riverine area, forests etc., and occasional needs for pallah fish, mangroves and to check the saltwater intrusion.

It would be pertinent to reiterate that the yield of our crops is lower than the world average inspite of favourable combination of land and agro-climatic environments. The primary reason for it is inadequate availability of water at critical times during the crop growth. The problem of already-restricted supplies is being compounded by the continuous silting-up of the existing reservoirs, which had initially provided some flexibility in meeting the demand-based water needs of crops.

Rainfall Harvesting: Monsoon and westerly disturbances are two main weather systems that contribute to the rainfall in Pakistan. The average annual rainfall is 291mm (11.4 inches). Nearly two-third is received in the Kharif (summer), while the rest in the Rabi (winter). During the three Monsoon months (July to September) almost half of the rainfall is received.

While a substantial portion of the rainfall occurring in the cultivated areas of the Indus Plain is consumed by crops as a consumptive use, in the foothill areas of Pakistan rainfall gives rise to flashy hill torrents, and major portion of the flow goes waste, in the form of evaporation. From the development point of view the potential of flows in hill torrent, Pakistan can be divided in to 13 major regions:

The hill torrents bring in flashy floods of short durations but of high magnitudes. Due to steep gradients, flood flows move with enormous velocity which results in the erosion of banks and bed of channels. Flood flows debauching onto the plain areas are generally charged with high silt contents which preclude their management by dams or reservoirs. As the flood flows traverse the flatter areas, they rapidly deposit their silt load as a result of reduction in velocity. Silting and scouring phenomena are largely responsible for frequent changes in flow regime and shifting of flow paths of hill torrents that are typical of geological young "fans". Unpredictable and erratic nature of floods and high silt contents thus pose a serious challenge to the ingenuity of water planners and engineers for their economic management.

Presently, a major part of hill torrent runoff not only goes waste but also causes untold miseries further aggravating conditions in the areas which are grossly underdeveloped. A rational planning of the existing water resources can ensure a systematic agriculture to lay the foundation for the socio-economic uplift. The conservation of flows of various hill torrent areas also conforms with the overall national planning for bringing additional areas under cultivation so as to produce more food, besides, improving the socio-economic conditions of the local population.

The total development potential of hill torrents is about 17MAF of which 5MAF has already been conserved through the construction of more than 500 structural interventions such as delay action dams, reservoirs, dispersion/diversion structures, flood retraining walls, etc. Thus, gross balance development potential is about 12 MAF for which 1,204 sites have been identified in 13 major hill torrent areas, with financial requirements of about Rs. 40 billion.

Glaciers and snow: Glacial area of the Upper Indus is around 22,500 sq km, where on an average three to four meters of snowfall occurs every year. The Upper Indus catchments contains some of the largest glaciers in

the world outside the Polar Regions. Glacier area of the Kabul River is located near Unai Pass of the Southern Hindukush, while glacial and snow melt area of Chenab and Jhelum rivers are located in the Occupied Jammu and Kashmir. The right bank tributaries of Jhelum River i.e., Kunhar and Neelum rivers carry major share of the snow melt, primarily, situated in Pakistan or along the Line of Control. Glaciers and snowmelt contribution is 85 percent in the case of Indus, 80 percent for Kabul, 75 percent for Chenab and slightly over 50 percent for Jhelum River.

It is estimated that the total volume of water stored in the glacial area of Indus river is about 340 MAF, while the volume of water stored in glacial area of Kabul, Chenab and Jhelum Rivers is 300 MAF. The yearly contribution of flow at rim stations as a result of melting of snow and ice is over 110 MAF. The formation and melting of snow and ice in the glacial area, is in a state of equilibrium. It must not be disturbed to get additional water benefits during drought conditions by resorting, to otherwise, highly tempting artificial techniques. If equilibrium is upset, the sustainability will be destroyed leading to disastrous consequences. Accordingly, no additional development potential is considered available from this valuable resource.

Groundwater: The readily available groundwater resources of Pakistan have played an increasingly important role in meeting the country's food and fibre requirements. Groundwater now supplies around 45 percent of crop water requirements in the country. The reservoirs underlying the Indus Plains are an inherent offshoot of the canal system, and are of immeasurable value in poverty alleviation in Pakistan. Ground water use permits farmers to exercise a greater control over the available water and results in timely application of water for crops. This has transformed the concept of low and uncertain crop yields to more secure and predictable form of crop production. Even away from the Indus Plains in the highland areas of Balochistan and North West Frontier Province, ground water has been crucial in supporting the agricultural sector. It is therefore, imperative that long-term sustainability of groundwater, as a resource, is maintained to ensure the growing food requirements of the country.

From the point of view of availability of groundwater, the country can be divided into two major areas, the predominantly canal irrigated Indus Plain primarily located in Punjab and Sindh, and the areas of the NWFP and Balochistan with a limited groundwater development potential in a few localized areas.

During the last 30 years or so, spectacular increase in the number of private tube wells has changed the underground paradigm entirely. In several groundwater areas, there has been a complete Volta face. Where some years ago high groundwater was a major threat, water levels have now declined due to private tube wells development. However, the pace at which the groundwater exploitation has unfolded has added complexity of its management. The number of users is over 2.5 million farmers, who extract groundwater through their own tube wells or buy water from their neighbours. Their behavioural patterns are highly variable and they understand little about any adverse interaction which is likely to result due to unsystematic and erratic nature of groundwater pumping. Their major interest is to pump ever more water to meet the rising crop water requirements. In many region, the impact on the groundwater resources is alarming; levels are declining rapidly to infeasible pumping depths, and there is intrusion of saline water in the fresh groundwater areas through lateral or upward movement.

Existing number of private tubewells in Pakistan is over 700,000 and annual groundwater extraction through private tube wells under the normal hydro-climatic conditions is of the order of 42 MAF. The province wise sustainable development potential is:

Province	(MAF) Sustainable potential
Punjab	36
Sindh	8*
NWFP	2
Balochistan	2

* Potential can be further increased to about 14 MAF (65 per cent of annual recharge) by using latest state-of-the-art-techniques.

Development potential and requirements: Remaining development potential of water resources is approaching a stage where complex factors involved, require fine-tuning to permit sustainability. Surface-water resources have some potential for development that are not fully exploited, while groundwater sources require system controls and a regulatory body to permit private operations to enhance production. Pakistan is facing increasing water needs, by growing population, increased urbanization, higher standards of living and by an agricultural policy which has emphasized on expanded production for future.

The development potential of the three water resources of Pakistan is summarized as:

Resource	(MAF) Development Potential
River flows	22
Rainfall harvesting (hill torrents)	12
Ground water:	
a)	6
b)	12*

* Under ultimate conditions, with the latest state-of-the-art techniques.

It has been estimated that the population of Pakistan will be around 221 million by the year-2025. In order to meet water requirements across various sector by the year 2025 i.e., agriculture, water supply/sanitation, industry etc., the country would need additional water to the tune of 20 MAF at the farm gate for agriculture and 8 MAF for other sectors. Agriculture requirements are based on the assumption of 50 percent increase in the yields of crops with non-water uses, like better seeds, fertilizers pesticides and better agronomic practices for which potential of 300 percent exists in Pakistan, (Dawn Economic & Business Review, July 12-18,2004 by Sabir Ali Bhatti)

Agricultural development in Pakistan is affected by two main constraints, suitable soil and water, particularly the latter one. There are two major sources of water supply in the country i.e. surface water and ground water. The main source of surface water is Indus Basin. The share of surface water is higher than the ground water towards the total availability of water. Moreover, the surface water availability during Kharif Season is higher than Rabi.

Year wise breakdown Table A-39 indicates that about 68.15% in kharif and 56.70% in rabi requirement for 2003-04 of water availability at farm gate met with surface water while remaining requirements are met with ground water by means of public and private tubewells , The over all surface water 63.19% was available during the year 2003-04 and the overall ground water 36.81% was available at farm gate during 2003-04.

A-VI.i Tubewells

Tubewells are the source of ground water supply in the country and contributed about 36.8 percent of total water availability in 2003-04. There were about 356 thousand tubewells in the country in 1991-92 and the number increased to 768 thousand in 2003-04, with an average annual growth rate of about 6.4 percent. The province of Punjab shared the maximum number of tubewells among the provinces i.e. 85.5 percent of the total tubewells, installed in the country during 2003-04, followed by Sindh 9.5 percent, Balochistan 3.4 percent, and NWFP about 1.7 percent (Table A-37).

A-VII Livestock

A-VII.i Livestock Population

Livestock share at 25 to 30 percent of the GDP in agriculture sector and about 12-15 percent of the total export earning. Besides, this sector also provide animals for land cultivation, land leveling and transportation, specially in the rural areas. (Rukhnuddin, 1988).

Analysis of data on live stock population for the period 1996-97 to 2003-04 indicates increase in various categories of animals. The number of buffalos which were 20.8 million in 1996-97 increased to 25.5 million in 2003-04, with 2.5% annual growth. The population of goats and sheep was higher as compared to other animals. The population of goats increased by 3.9 percent per year while the population of sheep increased by 0.6 percent per year during the same period (Table A-44).

A-VII.ii Livestock Products

The major live stock products are beef butter, mutton, poultry meat, milk and eggs. The beef production registered about 29 percent increase in last 11 years. From 844 thousand tonnes in 1992-93 it increased to 1087

thousand tonnes in 2003-04. Surprisingly the mutton production registered milder decrease (5.6 %) from 763 thousand tonnes in 1992-93 to 720 thousand tonnes in 2003-04. Although the production of beef has increased in 2003-04, it is still short in supply to meet the requirements of 132.4 million population as reflects, per capita availability of beef and mutton per year is only 8 Kg.

The milk is the major food item in Pakistan widely used for preparation of tea, sweets, butter and yogurt as well as for drinking purposes. The production of milk increased by 108% from 71.1 million tonnes in 1992-93 to 35.6 million tonnes in 2003-04. (Table A-45)

Poultry meat is also in high demand due to higher prices of beef and mutton since last few years. The poultry farming has increased considerably during the early 1991-92. The production for poultry meat surged by 43% from 265 thousand tonnes in 1992-93 to 378 thousand tonnes in 2003-04 during last 11 years. Eggs production was 5164 million in 1992-93 increased to 8102 million in 2003-04 during the same period by 57%. (Table A-45).

A-VIII Forestry

Forests play important role in the ecological and economic life. Pakistan with one of the lowest forest area in the world, is ranked 113 among 140 countries. About 20-25 percent of the total land area is the desired level for the forest. In the public sector the government has taken various initiatives for increasing the forest area in the country. Not with standing frequent, the tree plantation campaigns natural events like flood, land slides and erosion and man made (excessive grazing, deforestation due to reliance on wood as major fuel source and wanton falling of trees by timber mafia), the forest cover has not witnessed appreciable expansion. Besides, million Afghan refugees together with their herds of sheep and goats in different areas have also taken the big toll of the diminishing forest cover. (Rukhnuddin, 1988).

A-IX Transportation

Smoke that comes out of industrial units, houses, motor cars and other vehicular traffic contains gases like carbon dioxide, carbon monoxide, oxides of sulphur, nitrogen and carbon particles etc. All such compound and particles are injurious to health. The gases used as coolant in air conditioners, refrigerators and similar devices cause extremely harmful changes in the upper atmosphere, where they are believed to be decreasing the thickness of the Ozone layer which normally protects human and other living organisms from the injurious sun rays. If this process goes on unchecked, it will prove disastrous for environment and living organisms.

Transportation plays vital role in the development of the country, Railway tracks, roads and high ways are essential for economic development. However, the transport in cities and major urban centre is threat to the environment. The air pollution due to transport in large cities like Karachi, Lahore, Faisalabad, Peshawar, Quetta and Rawalpindi has considerably increased during the recent years. The vehicular emission of hydrocarbons, aldehydes, carbon monoxide, sulphur dioxide and nitrogen oxides are dangerous pollutants to human health, causing bronchitis, irritation, asthma attacks and irritate the eyes, arise primarily through vehicles emission in the urban areas (PNCS-94).

Analysis of transport statistics indicates that Pakistan has about 8 thousand route kilometers of railway in 2003-04. The railway route kilometers almost remained the same during last 23 years i.e. 1981-2004. However, there was decline in number of passengers, in 2003-04 as compared to 1981-82. The passenger traveled through railways in 1981-82 about 120 million declined by 37% and to 75.7 million in 2003-04. Similarly there is decline in freight handling during this period, mainly due to improved high ways, construction of Motor Way etc. Further due to better transportation system by roads, people prefer to travel through buses which are more comfortable and time saving as compared to trains (Table A-79).

The road length which was about 97 thousand km in 1981-82 increased by 164% to 256 thousand in 2003-04. The average annual growth in length during 1981 to 2003-04 was 4.4 percent whereas the length of high type roads during the same period increased about 291 percent (Table A-79).

Total registered vehicles during 1986 were 2.017 million, which increased by 159 percent during 18 years period to 5.232 million in 2003. There were about 72 thousand registered buses in 1986 and the number of buses increased to about 163 thousand in 2003. There were only 25 thousand taxis in the country in 1986 increased to 84 thousand in 2003. Of the total registered 163 thousand buses only 99.8 thousand were on road

in 2003. Among the 5.232 million registered vehicles 5.031 million vehicles were on road during 2003-04. Despite of considerable increase in the number of buses, taxis, motor rickshaws and wagons, the urban population is still facing the transport problem. The high population growth alongwith rapid urbanization has caused serious traffic problems in major cities (Table A-80-81). The analysis of transport data indicates increasing trends in almost all sorts of vehicles which badly affect the environment.

Table A-01: Population of Pakistan by Region/Province, Land Area and Percentage Distribution, 1951 to 1998 Censuses

Region/Province	Area Sq km	Population (In thousand)				
		1951	1961	1972	1981	1998
Pakistan	796096	33740	42880	65309	84254	132352
	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)
Islamabad	906	96	118	238	340	805
	(0.1)	(0.3)	(0.3)	(0.4)	(0.4)	(0.6)
Balochistan	347190	1167	1353	2429	4332	6566
	(43.6)	(3.5)	(3.2)	(3.7)	(5.1)	(5.0)
N.W.F.P	74521	4557	5731	8389	11061	17744
	(9.4)	(13.5)	(13.4)	(12.8)	(13.1)	(13.4)
Punjab	205344	20541	25464	37607	47292	73621
	(25.8)	(60.9)	(59.4)	(57.6)	(56.1)	(55.6)
Sindh	140914	6048	8367	14156	19029	30440
	(17.7)	(17.9)	(19.5)	(21.7)	(22.6)	(23.0)
FATA	27220	1332	1847	2491	2199	3176
	(3.4)	(3.9)	(4.3)	(3.8)	(2.6)	(2.4)

Source:- Population Census Organization

Note:- Percentage distribution is given in parenthesis

Table A-02: Population Density by Region/Province, 1951 to 1998 Censuses

(Persons/Sq. Km.)

Region / Province	1951	1961	1972	1981	1998
Pakistan	42	54	82	106	166
Islamabad Federal Capital Area	106	130	262	376	889
Balochistan	3	4	7	12	19
N.W.F.P	61	77	113	148	238
Punjab	100	124	183	230	358
Sindh	43	59	100	135	216
F.A.T.A	49	68	92	81	117

Source:- Population Census Organization

Table A-03: Population by Sex, Urban and Rural Areas, 1998, Census

Region / Province	All Areas			Urban Area		
	Both sexes	Male	Female	Both sexes	Male	Female
Pakistan	129,175,948	67,221,639	61,954,309	42,950,931	22,705,444	20,245,487
Islamabad Federal Capital Area	805,235	434,239	370,996	529,180	290,717	238,463
Balochistan	6,565,885	3,506,506	3,059,379	1,568,780	849,463	719,317
N.W.F.P	17,743,645	9,088,936	8,654,709	2,994,084	1,589,424	1,404,660
Punjab	73,621,290	38,094,367	35,526,923	23,019,025	12,071,377	10,947,648
Sindh	30,439,893	16,097,591	14,342,302	14,839,862	7,904,463	6,935,399
F.A.T.A	3,176,331	1,652,047	1,524,284	85,473	46,482	38,991
Region / Province	Rural Area					
	Both sexes	Male	Female			
Pakistan	86,225,017	44,516,195	41,708,822			
Islamabad Federal Capital Area	276,055	143,522	132,533			
Balochistan	4,997,105	2,657,043	2,340,062			
N.W.F.P	14,749,561	7,499,512	7,250,049			
Punjab	50,602,265	26,022,990	24,579,275			
Sindh	15,600,031	8,193,128	7,406,903			
F.A.T.A	3,090,858	1,605,565	1,485,293			

Source:- Population Census Organization's reports table-4

Note:- Pakistan does not include Fata.

**Table A-04 District - Wise Population by Sex and Rural/Urban Areas
1998 Census**

District/Area	1998-Census				1981 Popul- ation	1981-98 Avg. Annual Growth Rate
	House- Holds	Male	Female	Both Sexes		
Pakistan						
Pakistan	19,211,738	68,873,686	63,478,593	132,352,279	84,253,644	2.69
Rural	13,180,308	46,121,760	43,194,115	89,315,875	60,412,173	2.33
Urban	6,031,430	22,751,926	20,284,478	43,036,404	23,841,171	3.53
Islamabad						
Islamabad	128,753	434,239	370,996	805,235	340,286	5.19
Rural	42,178	143,522	132,533	276,055	135,922	4.25
Urban	86,575	290,717	238,463	529,180	204,364	5.75
Balochistan						
Balochistan	971,116	3,506,506	3,059,379	6,565,885	4,332,376	2.47
Rural	775,954	2,657,043	2,340,062	4,997,105	3,655,604	1.85
Urban	195,162	849,463	719,317	1,568,780	676,772	5.07
Quetta						
Quetta	87,091	412,064	347,877	759,941	381,566	4.13
Rural	21,414	104,305	90,499	194,804	95,847	4.26
Urban	65,677	307,759	257,378	565,137	285,719	4.09
Pishin						
Pishin	54,048	196,330	170,853	367,183	202,256	3.57
Rural	51,520	183,894	160,334	344,228	187,541	3.63
Urban	2,528	12,436	10,519	22,955	14,715	2.65
Killa Abdullah						
Killa Abdullah	45,948	203,324	166,945	370,269	176,341	4.46
Rural	40,998	171,387	142,090	313,477	146,548	4.57
Urban	4,950	31,937	24,855	56,792	29,793	3.87
Chagi						
Chagi	29,746	108,736	93,828	202,564	120,455	3.10
Rural	25,981	89,637	77,031	166,668	109,155	2.52
Urban	3,765	19,099	16,797	35,896	11,300	7.03
Loralai						
Loralai	40,073	158,168	139,387	297,555	235,038	1.40
Urban	36,568	137,691	124,880	262,571	221,138	1.01
Urban	3,505	20,477	14,507	34,984	13,900	5.58
Musa Khel						
Musa Khel	19,104	74,139	59,917	134,056	91,174	2.29
Rural	17,582	67,782	54,685	122,467	91,174	1.75
Urban	1,522	6,357	5,232	11,589	-	-

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**Table A-04: District - Wise Population by Sex and Rural/Urban Areas
1998 Census**

District/Area	1998-Census				1981 Popul- ation	1981-98 Avg. Annual Growth Rate
	House- Holds	Male	Female	Both Sexes		
Barkhan	14,625	54,365	49,180	103,545	61,686	3.09
Rural	13,758	50,135	45,740	95,875	61,686	2.63
Urban	867	4,230	3,440	7,670	-	-
Killa Saifullah	27,434	105,174	88,379	193,553	148,362	1.58
Rural	24,229	91,457	76,797	168,254	148,362	0.74
Urban	3,205	13,717	11,582	25,299	-	-
Zhob	34,294	149,787	125,355	275,142	213,285	1.51
Rural	29,830	124,079	107,220	231,299	181,354	1.44
Urban	4,464	25,708	18,135	43,843	31,931	1.88
Sibi	25,700	97,332	83,066	180,398	98,482	3.62
Rural	18,978	66,338	56,234	122,572	70,637	3.29
Urban	6,722	30,994	26,832	57,826	27,845	4.39
Ziarat	4,503	17,304	16,036	33,340	32,196	0.21
Rural	4,387	16,889	15,815	32,704	31,995	0.13
Urban	116	415	221	636	201	7.01
Kohlu	15,400	54,884	44,962	99,846	71,269	2.00
Rural	14,479	49,318	40,863	90,181	71,269	1.39
Urban	921	5,566	4,099	9,665	-	-
Dera Bugti	28,673	97,316	83,994	181,310	103,821	3.33
Rural	26,914	88,959	76,856	165,815	103,821	2.79
Urban	1,759	8,357	7,138	15,495	-	-
Jafarabad	60,864	225,028	207,789	432,817	265,342	2.92
Rural	51,929	180,233	167,061	347,294	246,596	2.03
Urban	8,935	44,795	40,728	85,523	18,746	9.33
Nasirabad	38,605	129,412	116,482	245,894	129,112	3.86
Rural	33,742	108,890	98,573	207,463	119,979	3.27
Urban	4,863	20,522	17,909	38,431	9,133	8.81
Jhal Magsi	16,087	58,868	51,073	109,941	68,092	2.86
Rural	15,073	54,669	47,175	101,844	68,092	2.39
Urban	1,014	4,199	3,898	8,097	-	-

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**Table A-04: District - Wise Population by Sex and Rural/Urban Areas
1998 Census**

District/Area	1998-Census				1981 Popul- ation	1981-98 Avg. Annual Growth Rate
	House- Holds	Male	Female	Both Sexes		
Bolan	38,727	155,488	132,568	288,056	237,123	1.15
Rural	34,075	134,496	114,073	248,569	214,263	0.88
Urban	4,652	20,992	18,495	39,487	22,860	3.27
Kalat	34,410	122,935	114,899	237,834	209,149	0.76
Rural	30,470	105,684	98,356	204,040	198,112	0.17
Urban	3,940	17,251	16,543	33,794	11,037	6.80
Mastung	20,447	87,334	77,311	164,645	132,044	1.31
Rural	17,742	74,768	65,746	140,514	115,594	1.15
Urban	2,705	12,566	11,565	24,131	16,450	2.28
Khuzdar	77,006	220,023	197,443	417,466	276,449	2.45
Rural	59,566	157,261	141,957	299,218	245,562	1.17
Urban	17,440	62,762	55,486	118,248	30,887	8.21
Awaran	21,735	62,114	56,059	118,173	110,353	0.40
Rural	21,735	62,114	56,059	118,173	110,353	0.40
Urban	-	-	-	-	-	-
Kharan	35,630	107,261	99,648	206,909	128,040	2.86
Rural	32,190	92,934	86,169	179,103	117,568	2.51
Urban	3,440	14,327	13,479	27,806	10,472	5.91
Lasbela	49,171	167,470	146,078	312,695	188,139	3.03
Rural	33,966	103,778	93,493	197,271	156,768	1.36
Urban	15,205	63,692	51,732	115,424	31,371	7.96
Kech	81,799	216,566	196,638	413,204	379,467	0.50
Rural	69,182	179,866	164,735	344,601	327,130	0.31
Urban	12,617	36,700	31,903	68,603	52,337	1.60
Gwadar	33,680	99,436	86,062	185,498	112,385	2.99
Rural	16,385	45,890	39,456	85,346	69,132	1.25
Urban	17,295	53,546	46,606	100,152	43,253	5.06
Panjgur	36,316	125,648	108,403	234,051	160,750	2.23
Rural	33,261	114,589	98,165	212,754	151,255	2.03
Urban	3,055	11,059	10,238	21,297	9,495	4.86

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**Table A-04: Agency - Wise Population by Sex and Rural/Urban Areas
1998 Census**

Agency/Area	1998-Census				1981 Popul- ation	1981-98 Avg. Annual Growth Rate
	House- Holds	Male	Female	Both Sexes		
			FATA			
F.A.T.A.	341,114	1,652,047	1,524,284	3,176,331	2,198,547	2.19
Rural	332,506	1,605,565	1,485,293	3,090,858	2,198,547	2.02
Urban	8,608	46,482	38,991	85,473	-	-
Bajaure	65,439	305,137	290,090	595,227	289,206	4.33
Rural	65,439	305,137	290,090	595,227	289,206	4.33
Urban	-	-	-	-	-	-
Mohmand	37,123	175,404	159,049	334,453	163,933	4.28
Rural	37,123	175,404	159,049	334,453	163,933	4.28
Urban	-	-	-	-	-	-
Khyber	54,416	284,602	262,128	546,730	284,256	3.92
Rural	48,890	254,803	237,564	492,367	284,256	3.28
Urban	5,526	29,799	24,564	54,363	-	-
Kurram	41,732	229,634	218,676	448,310	294,362	2.50
Rural	39,435	216,541	206,624	423,165	294,362	2.16
Urban	2,297	13,093	12,052	25,145	-	-
Orakzai	25,546	112,766	112,675	225,441	358,751	2.69
Rural	25,546	112,766	112,675	225,441	358,751	2.69
Urban	-	-	-	-	-	-
North Waziristan	39,188	192,432	168,814	361,246	238,910	2.46
Rural	38,403	188,842	166,439	355,281	238,910	2.36
Urban	785	3,590	2,375	5,965	-	-
South Waziristan	50,093	231,080	198,761	429,841	309,454	1.95
Rural	50,093	231,080	198,761	429,841	309,454	1.95
Urban	-	-	-	-	-	-
Tribal Area Adjacent						
PESHAWAR	6,113	27,063	26,778	53,841	37,061	2.22
Rural	6,113	27,063	26,778	53,841	37,061	2.22
Urban	-	-	-	-	-	-

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**Table A-04: Agency - Wise Population by Sex and Rural/Urban Areas
1998 Census**

Agency/Area	1998-Census				1981 Popul- ation	1981-98 Avg. Annual Growth Rate
	House- Holds	Male	Female	Both Sexes		
Tribal Area						
Adjacent Kohat	9,474	45,472	42,984	88,456	57,245	2.59
Rural	9,474	45,472	42,984	88,456	57,245	2.59
Urban	-	-	-	-	-	-
Tribal Area						
Adjacent Bannu	2,001	10,380	9,213	19,593	63,213	-6.65
Rural	2,001	10,380	9,213	19,593	63,213	-6.65
Urban	-	-	-	-	-	-
Tribal Area Adjacent						
Lukky Murwat	930	3,450	3,537	6,987	16,149	-4.81
Rural	930	3,450	3,537	6,987	16,149	-4.81
Urban	-	-	-	-	-	-
Tribal Area Adjacent						
Dera Ismail Khan	5,500	20,497	18,493	38,990	55,824	-2.09
Rural	5,500	20,497	18,493	38,990	55,824	-2.09
Urban	-	-	-	-	-	-
Tribal Area						
Adjacent Tank	3,559	14,130	13,086	27,216	30,183	-0.61
Rural	3,559	14,130	13,086	27,216	30,183	-0.61
Urban	-	-	-	-	-	-

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**Table A-04: District – Wise Population by Sex and Rural/Urban Areas
1998 Census**

District/Area	1998-Census				1981 Popul- ation	1981-98 Avg. Annual Growth Rate
	House- Holds	Male	Female	Both Sexes		
N.W.F.P						
N.W.F.P	2,211,236	9,088,936	8,654,709	17,743,645	11,061,328	2.82
Rural	1,842,488	7,499,512	7,250,049	14,749,561	9,395,675	2.69
Urban	368,748	1,589,424	1,404,660	2,994,084	1,665,653	3.51
Chitral						
	40,060	162,082	156,607	318,689	208,560	2.52
Rural	36,185	145,485	142,582	288,067	208,560	1.92
Urban	3,875	16,597	14,025	30,622	-	-
Upper Dir						
	71,705	291,582	284,276	575,858	362,565	2.76
Rural	68,965	279,846	273,111	552,957	362,565	2.51
Urban	2,740	11,736	11,165	22,901	-	-
Lower Dir						
	76,531	355,728	361,921	717,649	404,844	3.42
Rural	72,039	332,219	341,095	673,314	404,844	3.04
Urban	4,492	23,509	20,826	44,335	-	-
Buner						
	55,860	253,035	253,013	506,048	265,517	3.86
Rural	55,860	253,035	253,013	506,048	265,517	3.86
Urban	-	-	-	-	-	-
Swat						
	142,311	648,008	609,594	1,257,602	715,938	3.37
Rural	123,244	556,266	527,468	1,083,734	627,860	3.26
Urban	19,067	91,742	82,126	173,868	88,078	4.08
Shangla						
	53,382	223,748	210,815	434,563	251,546	3.27
Rural	53,382	223,748	210,815	434,563	251,546	3.27
Urban	-	-	-	-	-	-
Malakand P/A						
	49,330	233,556	218,735	452,291	257,797	3.36
Rural	45,112	210,756	198,356	409,112	257,797	2.75
Urban	4,218	22,800	20,379	43,179	-	-
Kohistan						
	73,622	261,942	210,628	472,570	465,237	0.09
Rural	73,622	261,942	210,628	472,570	465,237	0.09
Urban	-	-	-	-	-	-

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**Table A-04: District – Wise Population by Sex and Rural/Urban Areas
1998 Census**

District/Area	1998-Census				1981 Popul- ation	1981-98 Avg. Annual Growth Rate
	House- Holds	Male	Female	Both Sexes		
Batgram	46,438	158,563	148,715	307,278	339,119	-0.58
Rural	46,438	158,563	148,715	307,278	339,119	-0.58
Urban	-	-	-	-	-	-
Mansehra	172,040	571,881	580,958	1,152,839	770,235	2.40
Rural	163,503	540,232	551,231	1,091,463	732,799	2.37
Urban	8,537	31,649	29,727	61,376	37,436	2.95
Abbottabad	135,575	440,718	439,948	880,666	647,635	1.82
Rural	113,914	352,044	370,718	722,762	550,669	1.61
Urban	21,661	88,674	69,230	157,904	96,966	2.91
Haripur	104,407	345,561	346,667	692,228	479,031	2.19
Rural	92,369	303,016	306,477	609,493	424,022	2.16
Urban	12,038	42,545	40,190	82,735	55,009	2.43
Mardan	173,088	753,442	706,658	1,460,100	881,465	3.01
Rural	138,463	598,464	566,508	1,164,972	715,163	2.91
Urban	34,625	154,978	140,150	295,128	166,302	3.43
Swabi	133,234	516,540	510,264	1,026,804	625,035	2.96
Rural	109,913	425,745	421,845	847,590	566,734	2.39
Urban	23,321	90,795	88,419	179,214	58,301	6.82
Charsadda	128,158	530,724	491,640	1,022,364	630,811	2.88
Rural	103,354	430,476	399,037	829,513	498,977	3.03
Urban	24,804	100,248	92,603	192,851	131,834	2.26
Peshawar	235,215	1,065,188	961,663	2,026,851	1,113,303	3.59
Rural	115,700	543,287	500,748	1,044,035	547,055	3.87
Urban	119,515	521,901	460,915	982,816	566,248	3.29

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**Table A-04: District - Wise Population by Sex and Rural/Urban Areas
1998 Census**

District/Area	1998-Census				1981 Popul- ation	1981-98 Avg. Annual Growth Rate
	House- Holds	Male	Female	Both Sexes		
Nowshera	112,042	455,598	418,775	874,373	537,638	2.90
Rural	82,484	330,757	316,586	647,343	386,647	3.08
Urban	29,558	124,841	102,189	227,030	150,991	2.43
Kohat	74,695	282,844	279,800	562,644	326,617	3.25
Rural	54,520	198,880	211,851	410,731	238,798	3.24
Urban	20,175	83,964	67,949	151,913	87,819	3.27
Hangu	29,944	154,021	160,508	314,529	182,474	3.25
Rural	23,271	121,063	129,249	250,312	148,047	3.14
Urban	6,673	32,958	31,259	64,217	34,427	3.73
Karak	43,170	211,393	219,403	430,796	249,681	3.26
Rural	40,168	197,349	205,554	402,903	236,002	3.19
Urban	3,002	14,044	13,849	27,893	13,679	4.28
Bannu	68,920	349,125	326,542	675,667	423,018	2.79
Rural	62,998	322,638	305,353	627,991	379,808	3.00
Urban	5,922	26,487	21,189	47,676	43,210	0.58
Lakki Marwat	53,302	250,336	239,689	490,025	288,759	3.16
Rural	48,140	225,925	217,222	443,147	270,004	2.96
Urban	5,162	24,411	22,467	46,878	18,755	5.53
D.I. Khan	112,784	448,990	404,005	852,995	494,432	3.26
Rural	96,895	382,358	344,830	727,188	402,837	3.53
Urban	15,889	66,632	59,175	125,807	91,595	1.88
Tank	25,423	124,331	113,885	238,216	141,062	3.13
Rural	21,949	105,418	97,057	202,475	116,059	3.33
Urban	3,474	18,913	16,828	35,741	25,003	2.12

Contd...

**Table A-04: District - Wise Population by Sex and Rural/Urban Areas
1998 Census**

District/Area	1998-Census				1981 Popul- ation	1981-98 Avg. Annual Growth Rate
	House- Holds	Male	Female	Both Sexes		
Punjab						
Punjab	10,537,127	38,094,367	35,526,923	73,621,290	47,292,441	2.64
Rural	7,336,193	26,022,990	24,579,275	50,602,265	34,240,795	2.32
Urban	3,200,934	12,071,377	10,947,648	23,019,025	13,051,646	3.39
Attock						
Attock	206,678	636,338	638,597	1,274,935	876,667	2.23
Rural	165,159	492,832	511,011	1,003,843	745,266	1.77
Urban	41,519	143,506	127,586	271,092	131,401	4.35
Rawalpindi						
Rawalpindi	521,507	1,722,477	1,641,434	3,363,911	2,121,450	2.75
Rural	251,101	773,021	802,617	1,575,638	1,106,595	2.10
Urban	270,406	949,456	838,817	1,788,273	1,014,855	3.39
Jhelum						
Jhelum	150,225	468,112	468,845	936,957	659,012	2.09
Rural	111,696	328,544	349,083	677,627	491,095	1.91
Urban	38,529	139,568	119,762	259,330	167,917	2.59
Chakwal						
Chakwal	187,076	518,249	565,476	1,083,725	775,600	1.99
Rural	166,309	452,479	499,554	952,033	711,045	1.73
Urban	20,767	65,770	65,922	131,692	64,555	4.28
Sargodha						
Sargodha	411,209	1,372,883	1,293,096	2,665,979	1,911,849	1.97
Rural	300,421	982,874	933,073	1,915,947	1,408,595	1.82
Urban	110,788	390,009	360,023	750,032	503,254	2.37
Bhakkar						
Bhakkar	158,055	543,661	507,795	1,051,456	665,884	2.72
Rural	133,798	456,070	426,712	882,782	568,870	2.62
Urban	24,257	87,591	81,083	168,674	97,014	3.31
Khushab						
Khushab	145,187	451,439	454,272	905,711	641,366	2.05
Rural	109,419	336,224	340,518	676,742	495,647	1.85
Urban	35,768	115,215	113,754	228,969	145,719	2.69
Mianwali						
Mianwali	148,837	530,311	526,309	1,056,620	711,529	2.35
Rural	118,572	417,950	418,660	836,610	572,078	2.26
Urban	30,265	112,361	107,649	220,010	139,451	2.72

Contd...

**Table A-04: District - Wise Population by Sex and Rural/Urban Areas
1998 Census**

District/Area	1998-Census				1981 Popul- ation	1981-98 Avg. Annual Growth Rate
	House- Holds	Male	Female	Both Sexes		
Faisalabad	750,975	2,826,908	2,602,639	5,429,547	3,561,909	2.51
Rural	435,968	1,613,428	1,497,686	3,111,114	2,315,648	1.75
Urban	315,007	1,213,480	1,104,953	2,318,433	1,246,261	3.72
Jhang	434,495	1,474,099	1,360,446	2,834,545	1,970,944	2.16
Rural	339,346	1,128,866	1,042,689	2,171,555	1,527,366	2.09
Urban	95,149	345,233	317,757	662,990	443,578	2.39
Toba Tek Singh	226,946	831,602	789,991	1,621,593	1,134,572	2.12
Rural	185,950	675,190	640,992	1,316,182	948,937	1.94
Urban	40,996	156,412	148,999	305,411	185,635	2.97
Gujranwala	448,818	1,770,255	1,630,685	3,400,940	2,108,365	2.85
Rural	223,211	870,217	811,685	1,681,902	1,180,642	2.10
Urban	225,607	900,038	819,000	1,719,038	927,723	3.69
Hafizabad	117,354	433,320	399,660	832,980	567,572	2.28
Rural	87,064	315,320	290,545	605,865	434,962	1.97
Urban	30,290	118,000	109,115	227,115	132,610	3.21
Gujrat	305,097	1,026,256	1,021,752	2,048,008	1,408,585	2.22
Rural	225,870	725,766	754,070	1,479,836	1,051,698	2.03
Urban	79,227	300,490	267,682	568,172	356,887	2.77
Mandi Bahauddin	173,408	594,127	566,425	1,160,552	846,114	1.88
Rural	148,476	504,711	479,420	984,131	765,391	1.49
Urban	24,932	89,416	87,005	176,421	80,723	4.70
Sialkot	366,251	1,396,532	1,326,949	2,723,481	1,802,505	2.46
Rural	269,973	1,021,471	988,681	2,010,152	1,327,404	2.47
Urban	96,278	375,061	338,268	713,329	475,101	2.42
Narowal	170,178	636,217	628,880	1,265,097	908,977	1.96
Rural	149,218	557,823	552,888	1,110,711	818,283	1.81
Urban	20,960	78,394	75,992	154,386	90,694	3.18

Contd..

**Table A-04: District - Wise Population by Sex and Rural/Urban Areas
1998 Census**

District/Area	1998-Census				1981 Popul- ation	1981-98 Avg. Annual Growth Rate
	House- Holds	Male	Female	Both Sexes		
Lahore	881,708	3,328,502	2,990,243	6,318,745	3,544,942	3.46
Rural	150,360	587,099	522,558	1,109,657	556,456	4.14
Urban	731,348	2,741,403	2,467,685	5,209,088	2,988,486	3.32
Kasur	337,649	1,243,818	1,132,057	2,375,875	1,528,002	2.63
Rural	263,084	959,688	873,796	1,833,484	1,196,428	2.54
Urban	74,565	284,130	258,261	542,391	331,574	2.94
Okara	337,866	1,167,481	1,065,511	2,232,992	1,487,261	2.42
Rural	266,246	891,217	827,367	1,718,584	1,214,577	2.06
Urban	71,620	276,264	238,144	514,408	272,684	3.80
Sheikupura	453,248	1,729,082	1,591,947	3,321,029	2,110,153	2.70
Rural	339,545	1,275,493	1,174,720	2,450,213	1,729,508	2.07
Urban	113,703	453,589	417,227	870,816	380,645	4.99
Vehari	301,201	1,083,812	1,006,604	2,090,416	1,328,808	2.70
Rural	254,737	910,319	844,665	1,754,984	1,147,482	2.53
Urban	46,464	173,493	161,939	335,432	181,326	3.68
Sahiwal	267,006	953,561	889,633	1,843,194	1,281,526	2.16
Rural	224,757	796,378	744,826	1,541,204	1,080,331	2.11
Urban	42,249	157,183	144,807	301,990	201,195	2.42
Pakpattan	199,672	668,164	618,516	1,286,680	843,623	2.51
Rural	173,248	573,016	530,457	1,103,473	730,149	2.46
Urban	26,424	95,148	88,059	183,207	113,474	2.86
Multan	433,362	1,635,768	1,481,083	3,116,851	1,970,075	2.73
Rural	257,063	937,549	864,554	1,802,103	1,172,591	2.56
Urban	176,299	698,219	616,529	1,314,748	797,484	2.98
Lodhran	161,437	609,202	562,598	1,171,800	739,912	2.74
Rural	139,033	520,977	480,735	1,001,712	666,180	2.43
Urban	22,404	88,225	81,863	170,088	73,732	5.04

Contd...

**Table A-04: District - Wise Population by Sex and Rural/Urban Areas
1998 Census**

District/Area	1998-Census				1981 Popul- ation	1981-98 Avg. Annual Growth Rate
	House- Holds	Male	Female	Both Sexes		
Khanewal	292,796	1,072,492	995,998	2,068,490	1,369,766	2.45
Rural	242,874	883,777	820,452	1,704,229	1,139,838	2.39
Urban	49,922	188,715	175,546	364,261	229,928	2.74
Dera Ghazi Khan	209,255	853,782	789,336	1,643,118	943,663	3.31
Rural	179,190	735,347	678,932	1,414,279	821,722	3.24
Urban	30,065	118,435	110,404	228,839	121,941	3.77
Rajanpur	151,733	580,822	522,796	1,103,618	638,921	3.27
Rural	131,691	497,795	445,668	943,463	577,019	2.93
Urban	20,042	83,027	77,128	160,155	61,902	5.75
Leiah	152,050	579,009	541,942	1,120,951	666,517	3.10
Rural	132,838	504,431	472,317	976,748	603,745	2.87
Urban	19,212	74,578	69,625	144,203	62,772	5.01
Muzaffargarh	358,144	1,373,036	1,262,867	2,635,903	1,497,736	3.38
Rural	312,592	1,193,044	1,101,514	2,294,558	1,341,713	3.20
Urban	45,552	179,992	161,353	341,345	156,023	4.71
Bahawalpur	354,356	1,278,775	1,154,316	2,433,091	1,453,438	3.08
Rural	261,509	922,528	845,259	1,767,787	1,123,334	2.70
Urban	92,847	356,247	309,057	665,304	330,104	4.21
Bahawalnagar	307,133	1,067,411	994,036	2,061,447	1,373,747	2.41
Rural	251,465	864,501	804,145	1,668,646	1,128,814	2.32
Urban	55,668	202,910	189,891	392,801	244,933	2.82
Rahimyarkhan	416,215	1,636,864	1,504,189	3,141,053	1,841,451	3.19
Rural	334,410	1,317,045	1,207,426	2,524,471	1,541,386	2.94
Urban	81,805	319,819	296,763	616,582	300,065	4.32

Contd...

**Table A-04: District - Wise Population by Sex and Rural/Urban Areas
1998 Census**

District/Area	1998-Census				1981 Popul- ation	1981-98 Avg. Annual Growth Rate
	House- Holds	Male	Female	Both Sexes		
Sindh						
Sindh	5,022,392	16,097,591	14,342,302	30,439,893	19,028,666	2.80
Rural	2,850,989	8,193,128	7,406,903	15,600,031	10,785,630	2.19
Urban	2,171,403	7,904,463	6,935,399	14,839,862	8,243,036	3.52
Jacobabad						
	252,713	744,014	681,558	1,425,572	1,011,212	2.04
Rural	198,383	563,128	515,053	1,078,181	852,786	1.39
Urban	54,330	180,886	166,505	347,391	158,426	4.72
Shikarpur						
	149,758	456,589	423,849	880,438	596,409	2.32
Rural	120,403	347,102	321,357	668,459	481,503	1.95
Urban	29,355	109,487	102,492	211,979	114,906	3.67
Larkana						
	328,063	993,576	933,490	1,927,066	1,138,580	3.14
Rural	247,078	705,503	664,551	1,370,054	882,377	2.62
Urban	80,985	288,073	268,939	557,012	256,203	4.67
Sukkur						
	138,553	483,251	425,122	908,373	560,566	2.88
Rural	79,008	236,210	210,058	446,268	318,353	2.01
Urban	59,545	247,041	215,064	462,105	242,213	3.87
Ghotki						
	177,432	511,363	459,186	970,549	562,105	3.26
Rural	152,971	429,127	382,921	812,048	485,058	3.08
Urban	24,461	82,236	76,265	158,501	77,047	4.33
Khairpur						
	255,261	810,448	736,139	1,546,587	981,190	2.71
Rural	201,576	619,660	561,711	1,181,371	733,956	2.84
Urban	53,685	190,788	174,428	365,216	247,234	2.32
Naushahro Feroz						
	187,988	568,574	518,997	1,087,571	829,051	1.61
Rural	161,453	468,909	426,258	895,167	719,096	1.30
Urban	26,535	99,665	92,739	192,404	109,955	3.34
Nawab Shah						
	177,522	555,677	515,856	1,071,533	813,534	1.63
Rural	139,493	409,177	379,997	789,174	657,384	1.08
Urban	38,029	146,500	135,859	282,359	156,150	3.54
Dadu						
	305,116	887,061	801,750	1,688,811	1,081,611	2.65
Rural	247,613	699,864	628,185	1,328,049	930,019	2.12
Urban	57,503	187,197	173,565	360,762	151,592	5.23
Hyderabad						
	476,321	1,511,025	1,380,463	2,891,488	2,059,026	2.02
Rural	257,873	741,407	680,980	1,422,387	1,147,787	1.27
Urban	218,448	769,618	699,483	1,469,101	911,239	2.85

Contd...

**Table A-04: District - Wise Population by Sex and Rural/Urban Areas
1998 Census**

District/Area	1998-Census				1981 Popul- ation	1981-98 Avg. Annual Growth Rate
	House- Holds	Male	Female	Both Sexes		
Badin	211,354	597,573	538,471	1,136,044	776,614	2.26
Rural	182,076	498,532	451,024	949,556	694,425	1.86
Urban	29,278	99,041	87,447	186,488	82,189	4.93
Thatta	220,068	589,341	523,853	1,113,194	761,039	2.26
Rural	199,291	524,303	464,152	988,455	688,340	2.15
Urban	20,777	65,038	59,701	124,739	72,699	3.22
Sanghar	251,195	762,284	690,744	1,453,028	917,863	2.74
Rural	204,753	589,691	532,021	1,121,712	720,170	2.64
Urban	46,442	172,593	158,723	331,316	197,693	3.08
Mirpur Khas	148,470	471,096	434,839	905,935	577,879	2.68
Rural	108,536	315,835	289,925	605,760	393,629	2.57
Urban	39,934	155,261	144,914	300,175	184,250	2.91
Umerkot	122,335	349,754	313,341	663,095	383,018	3.28
Rural	104,851	289,648	261,983	551,631	334,982	2.98
Urban	17,484	60,106	51,358	111,464	48,036	5.07
Tharparker	163,147	499,859	414,432	914,291	540,985	3.13
Rural	156,591	478,826	395,638	874,464	515,913	3.15
Urban	6,556	21,033	18,794	39,827	25,072	2.76
Malir	154,265	548,645	432,767	981,412	429,570	4.98
Rural	57,192	171,388	149,558	320,946	170,067	3.80
Urban	97,073	377,257	283,209	660,466	259,503	5.65
Karachi East	399,465	1,464,360	1,281,654	2,746,014	1,487,410	3.67
Rural	-	-	-	-	17,925	-
Urban	399,465	1,464,360	1,281,654	2,746,014	1,469,485	3.74
Karachi West	305,377	1,149,200	956,723	2,105,923	912,698	5.04
Rural	31,848	104,818	91,531	196,349	41,816	9.52
Urban	273,529	1,044,382	865,192	1,909,574	870,882	4.72
Karachi South	264,245	943,365	801,673	1,745,038	1,251,304	1.97
Rural	-	-	-	-	-	-
Urban	264,245	943,365	801,673	1,745,038	1,251,304	1.97
Karachi Central	333,744	1,200,536	1,077,395	2,277,931	1,357,002	3.09
Rural	-	-	-	-	44	-
Urban	333,744	1,200,536	1,077,395	2,277,931	1,356,958	3.09

Source:- Population Census Organization

Table A-05: Population of Twelve Major Cities 1931-1998

City	1931	1941	1951	1961	1972	1981	1998
Karachi**	263,565	386,655	1,068,459	1,912,598	3,515,402	5,208,132	9,204,480
Lahore (M.C & Cantt.)	429,747	671,659	849,333	1,296,477	2,169,742	2,952,689	5,143,495
Faisalabad (M,C)	42,932	69,930	179,127	425,248	823,343	1,104,209	2,008,861
Rawalpindi (M.C & Cantt.)	119,284	185,042	236,877	340,175	614,809	794,834	1,409,768
Multan (M.C & Cantt.)	119,457	142,768	190,122	358,201	538,949	732,070	1,197,384
Hyderabad (M.C & Cantt.)	101,699	134,693	241,801	434,537	628,631	751,529	1,166,894
Gujranwala (M.C & Cantt.)	58,716	84,545	120,852	196,154	323,880	600,993	1,132,509
Peshawar (M.C & Cantt.)	121,866	173,420	151,435	217,885	272,697	566,248	982,816
Quetta (M.C & Cantt.)	60,272	64,476	83,892	106,633	158,026	285,719	565,137
Islamabad	-	-	-	-	76,641	204,364	529,180
Sargodha (M.C & Cantt.)	26,761	36,420	78,447	129,291	200,460	291,362	458,440
Sialkot (M.C & Cantt.)	100,973	138,708	156,378	167,294	203,650	302,009	421,502

Source:-Population Census Organization

* City means an urban locality or an agglomeration of more than one urban locality adjacent to each other except Islamabad and Rawalpindi, which are treated as independent cities.

** Karachi city comprises Karachi East, West, South, Central and Malir.

**Table A-06: Population by Age, Sex, Urban and Rural Areas,
1998 Census
Pakistan**

Age groups (Years)	All Areas			Urban Area		
	Both sexes	Male	Female	Both sexes	Male	Female
	1	2	3	4	5	6
All ages	129,175,948	67,221,639	61,954,309	42,950,931	22,705,444	20,245,487
0 - 4	19,118,132	9,761,275	9,356,857	5,584,155	2,853,842	2,730,313
5 - 9	20,215,016	10,570,613	9,644,403	6,003,891	3,104,873	2,899,018
10 - 14	16,731,599	8,909,137	7,822,462	5,625,260	2,935,498	2,689,762
15 - 19	13,399,612	6,909,333	6,490,279	4,846,276	2,513,595	2,332,681
20 - 24	11,587,769	5,814,957	5,772,812	4,186,197	2,204,749	1,981,448
25 - 29	9,521,220	4,878,521	4,642,699	3,429,369	1,854,154	1,575,215
30 - 34	8,039,581	4,232,271	3,807,310	2,956,478	1,628,479	1,327,999
35 - 39	6,166,621	3,254,204	2,912,417	2,320,382	1,270,188	1,050,194
40 - 44	5,745,473	2,930,509	2,814,964	2,085,927	1,118,773	967,154
45 - 49	4,563,233	2,360,081	2,203,152	1,568,575	848,525	720,050
50 - 54	4,148,255	2,200,655	1,947,600	1,371,764	741,981	629,783
55 - 59	2,777,184	1,505,344	1,271,840	909,223	504,493	404,730
60 - 64	2,637,178	1,418,158	1,219,020	798,738	430,670	368,068
65 - 69	1,554,008	849,919	704,089	478,330	264,816	213,514
70 - 74	1,408,171	777,588	630,583	385,912	213,517	172,395
75 & above	1,562,896	849,074	713,822	400,454	217,291	183,163
Age groups (Years)	Rural Area					
	Both sexes	Male	Female			
	7	8	9			
All ages	86,225,017	44,516,195	41,708,822			
0 - 4	13,533,977	6,907,433	6,626,544			
5 - 9	14,211,125	7,465,740	6,745,385			
10 - 14	11,106,339	5,973,639	5,132,700			
15 - 19	8,553,336	4,395,738	4,157,598			
20 - 24	7,401,572	3,610,208	3,791,364			
25 - 29	6,091,851	3,024,367	3,067,484			
30 - 34	5,083,103	2,603,792	2,479,311			
35 - 39	3,846,239	1,984,016	1,862,223			
40 - 44	3,659,546	1,811,736	1,847,810			
45 - 49	2,994,658	1,511,556	1,483,102			
50 - 54	2,776,491	1,458,674	1,317,817			
55 - 59	1,867,961	1,000,851	867,110			
60 - 64	1,838,440	987,488	850,952			
65 - 69	1,075,678	585,103	490,575			
70 - 74	1,022,259	564,071	458,188			
75 & above	1,162,442	631,783	530,659			

Note: Pakistan does not include FATA

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**Table A-06: Population by Age, Sex, Urban and Rural Areas,
1998 Census
Federal Capital Area Islamabad**

Age groups (Years)	All Areas			Urban Area		
	Both sexes	Male	Female	Both sexes	Male	Female
	1	2	3	4	5	6
All ages	805,235	434,239	370,996	529,180	290,717	238,463
0 - 4	96,069	49,174	46,895	59,132	30,255	28,877
5 - 9	105,553	54,547	51,006	65,925	34,128	31,797
10 - 14	103,529	54,273	49,256	66,272	34,920	31,352
15 - 19	89,385	47,931	41,454	58,608	31,903	26,705
20 - 24	75,342	41,802	33,540	51,049	28,944	22,105
25 - 29	64,095	34,389	29,706	44,020	24,413	19,607
30 - 34	58,629	31,938	26,691	40,569	22,851	17,718
35 - 39	49,450	27,530	21,920	34,463	19,586	14,877
40 - 44	44,616	24,795	19,821	30,942	17,556	13,386
45 - 49	35,439	20,364	15,075	24,191	14,388	9,803
50 - 54	28,218	16,287	11,931	19,023	11,328	7,695
55 - 59	18,366	10,887	7,479	11,974	7,444	4,530
60 - 64	14,576	8,116	6,460	9,277	5,304	3,973
65 - 69	8,639	4,818	3,821	5,508	3,080	2,428
70 - 74	6,737	3,720	3,017	4,178	2,334	1,844
75 & above	6,592	3,668	2,924	4,049	2,283	1,766
Age groups (Years)	Rural Area					
	Both sexes		Male		Female	
	7	8	9			
All ages	276,055		143,522		132,533	
0 - 4	36,937		18,919		18,018	
5 - 9	39,628		20,419		19,209	
10 - 14	37,257		19,353		17,904	
15 - 19	30,777		16,028		14,749	
20 - 24	24,293		12,858		11,435	
25 - 29	20,075		9,976		10,099	
30 - 34	18,060		9,087		8,973	
35 - 39	14,987		7,944		7,043	
40 - 44	13,674		7,239		6,435	
45 - 49	11,248		5,976		5,272	
50 - 54	9,195		4,959		4,236	
55 - 59	6,392		3,443		2,949	
60 - 64	5,299		2,812		2,487	
65 - 69	3,131		1,738		1,393	
70 - 74	2,559		1,386		1,173	
75 & above	2,543		1,385		1,158	

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**Table A-06: Population by Age, Sex, Urban and Rural Areas,
1998 Census
Balochistan**

Age groups (Years)	All Areas			Urban Area		
	Both sexes	Male	Female	Both sexes	Male	Female
	1	2	3	4	5	6
All ages	6,565,885	3,506,506	3,059,379	1,568,780	849,463	719,317
0 - 4	1,092,298	551,371	540,927	238,452	122,377	116,075
5 - 9	1,141,077	620,734	520,343	244,984	130,339	114,645
10 - 14	830,857	483,498	347,359	196,003	107,978	88,025
15 - 19	671,561	360,609	310,952	169,501	90,526	78,975
20 - 24	579,178	290,319	288,859	151,066	80,055	71,011
25 - 29	491,395	254,280	237,115	130,047	71,974	58,073
30 - 34	389,301	209,818	179,483	106,196	61,602	44,594
35 - 39	308,752	161,471	147,281	80,447	45,027	35,420
40 - 44	275,001	142,640	132,361	70,482	38,193	32,289
45 - 49	210,067	109,897	100,170	53,556	29,860	23,696
50 - 54	184,339	101,684	82,655	43,450	24,222	19,228
55 - 59	109,868	58,215	51,653	26,913	15,059	11,854
60 - 64	116,954	67,256	49,698	24,812	13,699	11,113
65 - 69	55,671	31,034	24,637	12,473	7,048	5,425
70 - 74	55,091	32,772	22,319	10,602	6,071	4,531
75 & above	54,475	30,908	23,567	9,796	5,433	4,363
Age groups (Years)	Rural Area					
	Both sexes	Male	Female			
	7	8	9			
All ages	4,997,105	2,657,043	2,340,062			
0 - 4	853,846	428,994	424,852			
5 - 9	896,093	490,395	405,698			
10 - 14	634,854	375,520	259,334			
15 - 19	502,060	270,083	231,977			
20 - 24	428,112	210,264	217,848			
25 - 29	361,348	182,306	179,042			
30 - 34	283,105	148,216	134,889			
35 - 39	228,305	116,444	111,861			
40 - 44	204,519	104,447	100,072			
45 - 49	156,511	80,037	76,474			
50 - 54	140,889	77,462	63,427			
55 - 59	82,955	43,156	39,799			
60 - 64	92,142	53,557	38,585			
65 - 69	43,198	23,986	19,212			
70 - 74	44,489	26,701	17,788			
75 & above	44,679	25,475	19,204			

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**Table A-06: Population by Age, Sex, Urban and Rural Areas,
1998 Census
N.W.F.P**

Age groups (Years)	All Areas			Urban Area		
	Both sexes	Male	Female	Both sexes	Male	Female
	1	2	3	4	5	6
All ages	17,743,645	9,088,936	8,654,709	2,994,084	1,589,424	1,404,660
0 - 4	2,884,942	1,479,358	1,405,584	424,280	218,275	206,005
5 - 9	3,021,295	1,579,203	1,442,092	451,958	234,615	217,343
10 - 14	2,468,859	1,305,573	1,163,286	411,197	214,652	196,545
15 - 19	1,858,479	950,241	908,238	340,728	178,964	161,764
20 - 24	1,459,737	711,544	748,193	275,536	148,922	126,614
25 - 29	1,192,991	575,583	617,408	223,298	120,294	103,004
30 - 34	976,840	491,413	485,427	190,479	105,881	84,598
35 - 39	742,951	377,667	365,284	147,441	80,632	66,809
40 - 44	756,832	364,903	391,929	142,242	74,651	67,591
45 - 49	608,349	303,715	304,634	109,559	58,972	50,587
50 - 54	550,201	283,015	267,186	92,974	50,272	42,702
55 - 59	351,044	188,391	162,653	58,028	32,833	25,195
60 - 64	337,606	180,155	157,451	51,697	28,214	23,483
65 - 69	183,550	101,097	82,453	29,007	16,437	12,570
70 - 74	173,935	97,703	76,232	23,650	13,289	10,361
75 & above	176,034	99,375	76,659	22,010	12,521	9,489
Age groups (Years)	Rural Area					
	Both sexes	Male	Female			
	7	8	9			
All ages	14,749,561	7,499,512	7,250,049			
0 - 4	2,460,662	1,261,083	1,199,579			
5 - 9	2,569,337	1,344,588	1,224,749			
10 - 14	2,057,662	1,090,921	966,741			
15 - 19	1,517,751	771,277	746,474			
20 - 24	1,184,201	562,622	621,579			
25 - 29	969,693	455,289	514,404			
30 - 34	786,361	385,532	400,829			
35 - 39	595,510	297,035	298,475			
40 - 44	614,590	290,252	324,338			
45 - 49	498,790	244,743	254,047			
50 - 54	457,227	232,743	224,484			
55 - 59	293,016	155,558	137,458			
60 - 64	285,909	151,941	133,968			
65 - 69	154,543	84,660	69,883			
70 - 74	150,285	84,414	65,871			
75 & above	154,024	86,854	67,170			

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**Table A-06: Population by Age, Sex, Urban and Rural Areas,
1998 Census
Punjab**

Age groups (Years)	All Areas			Urban Area		
	Both sexes	Male	Female	Both sexes	Male	Female
	1	2	3	4	5	6
All ages	73,621,290	38,094,367	35,526,923	23,019,025	12,071,377	10,947,648
0 - 4	10,480,207	5,350,281	5,129,926	2,940,535	1,501,060	1,439,475
5 - 9	11,226,497	5,821,600	5,404,897	3,214,377	1,657,820	1,556,557
10 - 14	9,597,332	5,030,702	4,566,630	3,075,043	1,594,777	1,480,266
15 - 19	7,584,740	3,896,020	3,688,720	2,577,944	1,326,563	1,251,381
20 - 24	6,553,287	3,281,053	3,272,234	2,210,310	1,145,995	1,064,315
25 - 29	5,322,858	2,703,659	2,619,199	1,788,423	951,237	837,186
30 - 34	4,651,423	2,419,130	2,232,293	1,575,343	852,820	722,523
35 - 39	3,579,170	1,884,357	1,694,813	1,249,544	678,385	571,159
40 - 44	3,265,422	1,668,552	1,596,870	1,103,588	588,615	514,973
45 - 49	2,626,890	1,341,527	1,285,363	828,145	438,784	389,361
50 - 54	2,457,188	1,295,079	1,162,109	746,907	398,931	347,976
55 - 59	1,706,480	920,780	785,700	505,031	277,228	227,803
60 - 64	1,608,147	861,031	747,116	448,031	241,452	206,579
65 - 69	1,001,794	546,582	455,212	276,692	152,613	124,079
70 - 74	905,881	500,002	405,879	229,479	127,595	101,884
75 & above	1,053,974	574,012	479,962	249,633	137,502	112,131
Age groups (Years)	Rural Area					
	Both sexes	Male	Female			
	7	8	9			
All ages	50,602,265	26,022,990	24,579,275			
0 - 4	7,539,672	3,849,221	3,690,451			
5 - 9	8,012,120	4,163,780	3,848,340			
10 - 14	6,522,289	3,435,925	3,086,364			
15 - 19	5,006,796	2,569,457	2,437,339			
20 - 24	4,342,977	2,135,058	2,207,919			
25 - 29	3,534,435	1,752,422	1,782,013			
30 - 34	3,076,080	1,566,310	1,509,770			
35 - 39	2,329,626	1,205,972	1,123,654			
40 - 44	2,161,834	1,079,937	1,081,897			
45 - 49	1,798,745	902,743	896,002			
50 - 54	1,710,281	896,148	814,133			
55 - 59	1,201,449	643,552	557,897			
60 - 64	1,160,116	619,579	540,537			
65 - 69	725,102	393,969	331,133			
70 - 74	676,402	372,407	303,995			
75 & above	804,341	436,510	367,831			

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**Table A-06: Population by Age, Sex, Urban and Rural Areas,
1998 Census
Sindh**

Age groups (Years)	All Areas			Urban Area		
	Both sexes	Male	Female	Both sexes	Male	Female
	1	2	3	4	5	6
All ages	30,439,893	16,097,591	14,342,302	14,839,862	7,904,463	6,935,399
0 - 4	4,564,616	2,331,091	2,233,525	1,921,756	981,875	939,881
5 - 9	4,720,594	2,494,529	2,226,065	2,026,647	1,047,971	978,676
10 - 14	3,731,022	2,035,091	1,695,931	1,876,745	983,171	893,574
15 - 19	3,195,447	1,654,532	1,540,915	1,699,495	885,639	813,856
20 - 24	2,920,225	1,490,239	1,429,986	1,498,236	800,833	697,403
25 - 29	2,449,881	1,310,610	1,139,271	1,243,581	686,236	557,345
30 - 34	1,963,388	1,079,972	883,416	1,043,891	585,325	458,566
35 - 39	1,486,298	803,179	683,119	808,487	446,558	361,929
40 - 44	1,403,602	729,619	673,983	738,673	399,758	338,915
45 - 49	1,082,488	584,578	497,910	553,124	306,521	246,603
50 - 54	928,309	504,590	423,719	469,410	257,228	212,182
55 - 59	591,426	327,071	264,355	307,277	171,929	135,348
60 - 64	559,895	301,600	258,295	264,921	142,001	122,920
65 - 69	304,354	166,388	137,966	154,650	85,638	69,012
70 - 74	266,527	143,391	123,136	118,003	64,228	53,775
75 & above	271,821	141,111	130,710	114,966	59,552	55,414
Age groups (Years)	Rural Area					
	Both sexes		Male		Female	
	7		8		9	
All ages	15,600,031		8,193,128		7,406,903	
0 - 4	2,642,860		1,349,216		1,293,644	
5 - 9	2,693,947		1,446,558		1,247,389	
10 - 14	1,854,277		1,051,920		802,357	
15 - 19	1,495,952		768,893		727,059	
20 - 24	1,421,989		689,406		732,583	
25 - 29	1,206,300		624,374		581,926	
30 - 34	919,497		494,647		424,850	
35 - 39	677,811		356,621		321,190	
40 - 44	664,929		329,861		335,068	
45 - 49	529,364		278,057		251,307	
50 - 54	458,899		247,362		211,537	
55 - 59	284,149		155,142		129,007	
60 - 64	294,974		159,599		135,375	
65 - 69	149,704		80,750		68,954	
70 - 74	148,524		79,163		69,361	
75 & above	156,855		81,559		75,296	

source:- Population Census Organization

**Table A-07: Percentage Distribution of Population (10 years and over)
By Marital Status Pakistan and Provinces, 2003-04**

Region/Province	Marital status				
	Total	Never Married	Married	Widow/ Widower	Divorced
Pakistan					
Both Sexes	100.00	44.39	50.98	4.32	0.31
Male	100.00	49.25	47.94	2.53	0.28
Female	100.00	39.35	54.13	6.18	0.35
Balochistan					
Both Sexes	100.00	41.30	56.15	2.48	0.07
Male	100.00	46.93	51.49	1.55	0.02
Female	100.00	34.82	61.50	3.55	0.13
N.W.F.P.					
Both Sexes	100.00	45.69	49.95	4.18	0.18
Male	100.00	52.24	45.58	1.98	0.20
Female	100.00	39.48	54.10	6.26	0.16
Punjab					
Both Sexes	100.00	44.77	50.05	4.72	0.45
Male	100.00	49.03	47.47	3.09	0.41
Female	100.00	40.46	52.67	6.38	0.49
Sindh					
Both Sexes	100.00	43.37	52.72	3.80	0.11
Male	100.00	48.71	49.48	1.74	0.07
Female	100.00	37.41	56.34	6.11	0.14

Source:- Labour Force Survey 2003-2004 FBS

**Table A-08: Population (10 years and above) by Age, Sex and Literacy
2003-04**

Age group (Years)	Population			Literates		
	Both sexes	Male	Female	Both sexes	Male	Female
10 & above	103396783	52591167	50805616	53393267	33473308	19919959
10 - 14	19061972	9910950	9151022	12366771	7135879	5230892
15 - 19	16735147	8606002	8129145	11162190	6509866	4652324
20 - 24	13069776	6467871	6601905	8052819	4765646	3287174
25 - 29	9800656	4726266	5074390	5209804	3260316	1949488
30 - 34	7967581	3740264	4227317	3767608	2396194	1371414
35 - 39	7887423	3920077	3967346	3498662	2313914	1184748
40 - 44	6556317	3303345	3252972	2571129	1842006	729124
45 - 49	5867889	3018326	2849563	2293513	1680586	612927
50 - 54	4494779	2269084	2225695	1489135	1115213	373922
50 - 59	3499013	1835000	1664013	1082079	862489	219590
60 - 64	3126796	1663739	1463057	790103	662435	127668
65 & above	5329434	3130243	2199191	1109454	928765	180689
Age group (Years)	Literacy Ratio					
	Both sexes	Male	Female			
10 & above	51.64	63.65	39.21			
10 - 14	9.69	10.90	8.40			
15 - 19	8.74	9.95	7.47			
20 - 24	6.31	7.28	5.28			
25 - 29	4.08	4.98	3.13			
30 - 34	2.95	3.66	2.20			
35 - 39	2.74	3.54	1.90			
40 - 44	2.01	2.81	1.17			
45 - 49	1.80	2.57	0.98			
50 - 54	1.17	1.70	0.60			
50 - 59	0.85	1.32	0.35			
60-64	0.62	1.01	0.21			
65 & above	0.87	1.42	0.29			

Source :- Labour Force Survey 2003-2004 FBS

Table A-09: Disabled Population by Sex, Nature of disability, Urban-Rural Areas And Provinces, 1998 Census

Area/Sex	Total	Blind	Deaf and mute	Crippled	Insane	Mentally Retarded	Having more than one disability	Others
Pakistan								
All Areas								
Both Sexes	3,286,630	264,762	244,254	622,025	210,129	249,823	270,381	1,425,256
Male	1,915,102	145,656	139,168	379,989	119,139	134,489	140,393	856,268
Female	1,371,528	119,106	105,086	242,036	90,990	115,334	129,988	568,988
Urban Area								
Both Sexes	1,112,631	92,606	80,537	175,891	81,053	90,702	91,534	500,308
Male	654,858	51,954	45,941	110,250	47,013	49,083	47,488	303,129
Female	457,773	40,652	34,596	65,641	34,040	41,619	44,046	197,179
Rural Area								
Both Sexes	2,173,999	172,156	163,717	446,134	129,076	159,121	178,847	924,948
Male	1,260,244	93,702	93,227	269,739	72,126	85,406	92,905	553,139
Female	913,755	78,454	70,490	176,395	56,950	73,715	85,942	371,809
Federal Capital Area Islamabad								
All Areas								
Both Sexes	8,434	778	1,020	2,521	1,051	679	384	2,001
Male	5,188	455	619	1,546	602	367	233	1,366
Female	3,246	323	401	975	449	312	151	635
Urban Area								
Both Sexes	4,438	387	534	1,336	810	334	224	813
Male	2,649	263	319	849	448	158	132	480
Female	1,789	124	215	487	362	176	92	333
Rural Area								
Both Sexes	3,996	391	486	1,185	241	345	160	1,188
Male	2,539	192	300	697	154	209	101	886
Female	1,457	199	186	488	87	136	59	302

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Table A-09: Disabled Population by Sex, Nature of disability, Urban-Rural Areas and Provinces, 1998 Census

Area/Sex	Total	Blind	Deaf and mute	Crippled	Insane	Mentally Retarded	Having more than one disability	Others
Balochistan								
All Areas								
Both Sexes	146,421	12,329	7,677	21,685	6,729	8,217	9,304	80,480
Male	83,420	6,632	4,320	12,029	3,555	4,401	4,607	47,876
Female	63,001	5,697	3,357	9,656	3,174	3,816	4,697	32,604
Urban Area								
Both Sexes	28,450	3,945	1,543	4,798	1,715	1,698	1,944	12,807
Male	16,502	2,152	1,015	2,973	979	895	924	7,564
Female	11,948	1,793	528	1,825	736	803	1,020	5,243
Rural Area								
Both Sexes	117,971	8,384	6,134	16,887	5,014	6,519	7,360	67,673
Male	66,918	4,480	3,305	9,056	2,576	3,506	3,683	40,312
Female	51,053	3,904	2,829	7,831	2,438	3,013	3,677	27,361
N.W.F.P								
All Areas								
Both Sexes	375,448	27,176	28,888	119,019	22,169	27,917	30,452	119,827
Male	221,983	14,327	17,031	71,214	13,186	15,968	15,686	74,571
Female	153,465	12,849	11,857	47,805	8,983	11,949	14,766	45,256
Urban Area								
Both Sexes	48,114	2,748	4,255	13,571	3,152	4,150	3,516	16,722
Male	29,447	1,669	2,965	8,437	1,951	2,347	1,946	10,132
Female	18,667	1,079	1,290	5,134	1,201	1,803	1,570	6,590
Rural Area								
Both Sexes	327,334	24,428	24,633	105,448	19,017	23,767	26,936	103,105
Male	192,536	12,658	14,066	62,777	11,235	13,621	13,740	64,439
Female	134,798	11,770	10,567	42,671	7,782	10,146	13,196	38,666

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Table A-09: Disabled Population by Sex, Nature of disability, Urban-Rural Areas and Provinces, 1998 Census

Area/Sex	Total	Blind	Deaf and mute	Crippled	Insane	Mentally Retarded	Having more than one disability	Others
Punjab								
All Areas								
Both Sexes	1,826,623	154,962	149,257	380,440	123,215	143,739	147,348	727,662
Male	1,073,840	85,420	85,939	235,632	72,213	77,641	78,076	438,919
Female	752,783	69,542	63,318	144,808	51,002	66,098	69,272	288,743
Urban Area								
Both Sexes	488,213	40,121	40,042	101,479	39,004	41,558	37,927	188,082
Male	291,947	22,508	23,020	63,957	23,902	22,905	20,196	115,459
Female	196,266	17,613	17,022	37,522	15,102	18,653	17,731	72,623
Rural Area								
Both Sexes	1,338,410	114,841	109,215	278,961	84,211	102,181	109,421	539,580
Male	781,893	62,912	62,919	171,675	48,311	54,736	57,880	323,460
Female	556,517	51,929	46,296	107,286	35,900	47,445	51,541	216,120
Sindh								
All Areas								
Both Sexes	929,400	69,491	57,409	98,143	56,961	69,259	82,888	495,249
Male	530,600	38,818	31,256	59,532	29,579	36,110	41,786	293,519
Female	398,800	30,673	26,153	38,611	27,382	33,149	41,102	201,730
Urban Area								
Both Sexes	543,416	45,405	34,163	54,707	36,372	42,962	47,923	281,884
Male	314,313	25,362	18,622	34,034	19,733	22,778	24,290	169,494
Female	229,103	20,043	15,541	20,673	16,639	20,184	23,633	112,390
Rural Area								
Both Sexes	385,984	24,086	23,246	43,436	20,589	26,297	34,965	213,365
Male	216,287	13,456	12,634	25,498	9,846	13,332	17,496	124,025
Female	169,697	10,630	10,612	17,938	10,743	12,965	17,469	89,340

Source:- Population Census Organization

Note:- This table excludes data of the Federally Administered Tribal Areas (FATA)

Table A-10: Population (10 years and above) by Activity, Age, Sex, Urban and Rural Areas, 2003-04 All Areas

Age group/Sex (year)	Total	Working	Looking for work	Domestic Work	Students	Others
Both Sexes						
10 years & above	103396783	41748926	3477219	31963804	19333670	6873165
10-14	19061972	2128607	312064	2323094	12533436	1764771
15-19	16735147	5433763	823695	4560563	5591986	325140
20-24	13069776	6038145	694907	4974235	1130603	231887
25-29	9800656	5056923	387983	4152348	72334	131069
30-34	7967581	4211616	197761	3427393	5311	125500
35-39	7887423	4521744	134465	3124529	.	106685
40-44	6556317	3824166	115019	2507176	.	109957
45-49	5867889	3386623	121902	2246247	.	113117
50-54	4494779	2479242	132162	1710167	.	173208
55-59	3499013	1816631	138023	1263900	.	280459
60 & above	8456230	2851467	419240	1674150	.	3511372
Male						
10 years & above	52591167	34687033	2445652	262958	11297615	3897909
10-14	9910950	1579513	248621	22769	7274855	785193
15-19	8606002	4429358	648530	60721	3246395	220999
20-24	6467871	5026296	516689	36729	721563	166593
25-29	4726266	4272191	275708	32187	49491	96690
30-34	3740264	3465136	137802	26915	5311	105100
35-39	3920077	3753209	74999	15614	.	76255
40-44	3303345	3124236	80126	15983	.	83000
45-49	3018326	2847027	65472	16650	.	89177
50-54	2269084	2068971	74976	9661	.	115476
55-59	1835000	1571432	74168	7098	.	182302
60 & above	4793982	2549665	248559	18632	.	1977125
Female						
10 years & above	50805616	7061892	1031568	31700846	8036055	2975256
10-14	9151022	549094	63443	2300326	5258581	979578
15-19	8129145	1004405	175165	4499842	2345592	104141
20-24	6601905	1011848	178217	4937506	409040	65294
25-29	5074390	784733	112274	4120161	22843	34379
30-34	4227317	746480	59958	3400479	.	20400
35-39	3967345	768534	59465	3108916	.	30430
40-44	3252972	699929	34893	2491193	.	26956
45-49	2849563	539596	56430	2229597	.	23941
50-54	2225695	410271	57186	1700506	.	57732
55-59	1664013	245199	63855	1256802	.	98157
60 & above	3662248	301802	170681	1655518	.	1534247

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Table A-10: Population (10 years and above) by Activity, Age, Sex, Urban and Rural Areas, 2003-04 Urban Area

Age group/Sex (year)	Total	Working	Looking for work	Domestic Work	Students	Others
Both Sexes						
10 years & above	36991015	13107796	1407805	11031187	9080193	2364033
10-14	6430024	334603	87469	383869	5227111	396973
15-19	6213134	1476081	308328	1292415	3041853	94458
20-24	5121175	2144599	330613	1800683	754582	90698
25-29	3604914	1787466	189631	1515719	53613	58486
30-34	2875704	1461303	104641	1259254	3035	47470
35-39	2882595	1522692	52561	1264533	.	42809
40-44	2392253	1333577	60592	942969	.	55115
45-49	2150799	1151644	49148	901704	.	48304
50-54	1569977	770842	49607	678738	.	70791
55-59	1151995	499069	56571	463444	.	132911
60 & above	2598444	625920	118644	527859	.	1326020
Male						
10 years & above	19124701	11755863	1073606	103498	4764862	1426873
10-14	3249345	282359	78417	6686	2672930	208954
15-19	3208433	1284357	248818	22694	1586728	65836
20-24	2713447	1919511	247613	19010	465139	62174
25-29	1844108	1594112	156928	15477	37029	40561
30-34	1433816	1310824	73597	7050	3035	39309
35-39	1428954	1361522	31278	1983	.	34173
40-44	1290699	1191431	45389	7886	.	45993
45-49	1116366	1041822	29351	8307	.	36887
50-54	797267	709526	38061	2582	.	47098
55-59	611908	465442	39602	4686	.	102177
60 & above	1430358	594959	84552	7135	.	743712
Female						
10 years & above	17866313	1351933	334200	10927689	4315332	937160
10-14	3180679	52244	9052	377183	2554181	188019
15-19	3004701	191725	59511	1269720	1455125	28621
20-24	2407728	225088	83000	1781673	289443	28524
25-29	1760806	193354	32703	1500242	16583	17925
30-34	1441888	150480	31043	1252204	.	8161
35-39	1453641	161171	21283	1262550	.	8636
40-44	1101555	142147	15203	935082	.	9122
45-49	1034433	109822	19797	893397	.	11417
50-54	772709	61316	11545	676156	.	23693
55-59	540088	33627	16969	458758	.	30734
60 & above	1168086	30961	34093	520724	.	582308

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Table A-10: Population (10 years and above) by Activity, Age, Sex, Urban and Rural Areas, 2003-04 Rural Area

Age group/Sex (year)	Total	Working	Looking for work	Domestic work	Students	Others
Both Sexes						
10 years & above	66405769	28641130	2069414	20932617	10253477	4509132
10-14	12631948	1794004	224595	1939225	7306325	1367799
15-19	10522013	3957682	515367	3268149	2550134	230682
20-24	7948601	3893546	364293	3173552	376021	141189
25-29	6195742	3269458	198352	2636628	18721	72583
30-34	5091878	2750313	93120	2168139	2276	78030
35-39	5004827	2999052	81904	1859997	.	63876
40-44	4164064	2490588	54426	1564207	.	54842
45-49	3717090	2234979	72755	1344543	.	64814
50-54	2924803	1708401	82555	1031430	.	102417
55-59	2347018	1317562	81451	800455	.	147549
60 & above	5857786	2225547	300596	1146291	.	2185352
Male						
10 years & above	33466466	22931171	1372046	159460	6532753	2471036
10-14	6661605	1297154	170204	16082	4601925	576239
15-19	5397569	3145001	399712	38027	1659667	155162
20-24	3754424	3106786	269076	17719	256424	104419
25-29	2882158	2678079	118780	16710	12461	56129
30-34	2306449	2154312	64205	19864	2276	65791
35-39	2491123	2391688	43722	13631	.	42082
40-44	2012647	1932806	34737	8096	.	37007
45-49	1901959	1805205	36122	8343	.	52290
50-54	1471817	1359445	36915	7079	.	68378
55-59	1223092	1105990	34566	2412	.	80125
60 & above	3363623	1954706	164008	11497	.	1233413
Female						
10 years & above	32939303	5709959	697368	20773156	3720724	2038096
10-14	5970343	496849	54392	1923143	2704400	791559
15-19	5124443	812680	115654	3230122	890467	75520
20-24	4194177	786760	95217	3155833	119597	36770
25-29	3313584	591379	79572	2619919	6260	16454
30-34	2785429	596000	28915	2148275	.	12239
35-39	2513705	607364	38182	1846365	.	21794
40-44	2151417	557783	19689	1556111	.	17834
45-49	1815131	429774	36633	1336200	.	12524
50-54	1452986	348955	45640	1024350	.	34039
55-59	1123926	211573	46886	798044	.	67424
60 & above	2494163	270841	136589	1134794	.	951939

Source:- Primary Data Labour Force Survey 2003-2004 FBS

Table A-11: Population (15 years and Above) by Age groups, Sex and Marital Status for Urban and Rural Areas, 2003-04
All Areas

Age Group (Years)	Sex	Marital Status				
		Total	Never married	Married	Widowed	Divorced
15 and above	Both Sexes	84334813	26859095	52688069	4466325	321324
	Male	42680218	15998314	25207429	1328867	145608
	Female	41654595	10860781	27480640	3137458	175716
15-19	Both Sexes	16735147	15389876	1336645	2308	6318
	Male	8606002	8379131	224563	2308	.
	Female	8129145	7010745	1112082	.	6318
20-24	Both Sexes	13069776	7743825	5269514	22645	33792
	Male	6467871	4921272	1525251	8550	12798
	Female	6601905	2822553	3744263	14095	20994
25-29	Both Sexes	9800657	2444116	7273625	36430	46486
	Male	4726267	1805048	2898658	8831	13730
	Female	5074390	639068	4374967	27599	32756
30-34	Both Sexes	7967583	730898	7103011	81364	52310
	Male	3740264	548464	3145849	23267	22684
	Female	4227319	182434	3957162	58097	29626
35-39	Both Sexes	7887423	221923	7454624	153776	57100
	Male	3920077	143306	3699082	41136	36553
	Female	3967346	78617	3755542	112640	20547
40-44	Both Sexes	6556316	104147	6185156	233550	33463
	Male	3303345	59824	3173946	57750	11825
	Female	3252971	44323	3011210	175800	21638
45-49	Both Sexes	5867889	76322	5432977	327662	30928
	Male	3018325	45914	2884763	75030	12618
	Female	2849564	30408	2548214	252632	18310
50-54	Both Sexes	4494779	48389	4000144	425244	21002
	Male	2269085	32228	2134542	93861	8454
	Female	2225694	16161	1865602	331383	12548
55-59	Both Sexes	3499014	28730	2962041	498370	9873
	Male	1835001	22580	1692326	111699	8396
	Female	1664013	6150	1269715	386671	1477
60 and above	Both Sexes	8456229	70869	5670332	2684976	30052
	Male	4793981	40547	3828449	906435	18550
	Female	3662248	30322	1841883	1778541	11502

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Table A-11: Population (15 years and Above) by Age groups, Sex and

Marital Status for Urban and Rural Areas, 2003-04

Urban Area

Age Group (Years)	Sex	Marital Status				
		Total	Never married	Married	Widowed	Divorced
15 and above	Both Sexes	30560992	11529107	17325363	1597314	109208
	Male	15875358	6907460	8514150	410583	43165
	Female	14685634	4621647	8811213	1186731	66043
15-19	Both Sexes	6213134	5961133	249644	-	2357
	Male	3208433	3170061	38372	-	-
	Female	3004701	2791072	211272	-	2357
20-24	Both Sexes	5121174	3668751	1429425	4887	18111
	Male	2713446	2323682	381747	262	7755
	Female	2407728	1345069	1047678	4625	10356
25-29	Both Sexes	3604915	1257186	2319970	9221	18538
	Male	1844109	948510	890982	.	4617
	Female	1760806	308676	1428988	9221	13921
30-34	Both Sexes	2875705	377973	2460567	22921	14244
	Male	1433816	283652	1140959	3520	5685
	Female	1441889	94321	1319608	19401	8559
35-39	Both Sexes	2882596	120430	2681323	60165	20678
	Male	1428955	85821	1306910	19213	17011
	Female	1453641	34609	1374413	40952	3667
40-44	Both Sexes	2392253	56739	2242181	88469	4864
	Male	1290699	39703	1224858	24577	1561
	Female	1101554	17036	1017323	63892	3303
45-49	Both Sexes	2150799	40602	1977676	121228	11293
	Male	1116366	26545	1058168	28367	3286
	Female	1034433	14057	919508	92861	8007
50-54	Both Sexes	1569977	16399	1357376	187895	8307
	Male	797268	11832	738746	46444	246
	Female	772709	4567	618630	141451	8061
55-59	Both Sexes	1151995	4371	954802	191100	1722
	Male	611908	3215	576617	30354	1722
	Female	540087	1156	378185	160746	.
60 and above	Both Sexes	2598444	25523	1652399	911428	9094
	Male	1430358	14439	1156791	257846	1282
	Female	1168086	11084	495608	653582	7812

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Table A-11: Population (15 years and Above) by Age groups, Sex and Marital Status for Urban and Rural Areas, 2003-04
Rural Area

Age Group (Years)	Sex	Marital Status				
		Total	Never married	Married	Widowed	Divorced
15 and above	Both Sexes	53773821	15329988	35362706	2869011	212116
	Male	26804860	9090854	16693279	918284	102443
	Female	26968961	6239134	18669427	1950727	109673
15-19	Both Sexes	10522013	9428743	1087001	2308	3961
	Male	5397569	5209070	186191	2308	.
	Female	5124444	4219673	900810	.	3961
20-24	Both Sexes	7948602	4075074	3840089	17758	15681
	Male	3754425	2597590	1143504	8288	5043
	Female	4194177	1477484	2696585	9470	10638
25-29	Both Sexes	6195742	1186930	4953655	27209	27948
	Male	2882158	856538	2007676	8831	9113
	Female	3313584	330392	2945979	18378	18835
30-34	Both Sexes	5091878	352925	4642444	58443	38066
	Male	2306448	264812	2004890	19747	16999
	Female	2785430	88113	2637554	38696	21067
35-39	Both Sexes	5004827	101493	4773301	93611	36422
	Male	2491122	57485	2392172	21923	19542
	Female	2513705	44008	2381129	71688	16880
40-44	Both Sexes	4164063	47408	3942975	145081	28599
	Male	2012646	20121	1949088	33173	10264
	Female	2151417	27287	1993887	111908	18335
45-49	Both Sexes	3717090	35720	3455301	206434	19635
	Male	1901959	19369	1826595	46663	9332
	Female	1815131	16351	1628706	159771	10303
50-54	Both Sexes	2924802	31990	2642768	237349	12695
	Male	1471817	20396	1395796	47417	8208
	Female	1452985	11594	1246972	189932	4487
55-59	Both Sexes	2347019	24359	2007239	307270	8151
	Male	1223093	19365	1115709	81345	6674
	Female	1123926	4994	891530	225925	1477
60 and above	Both Sexes	5857785	45346	4017933	1773548	20958
	Male	3363623	26108	2671658	648589	17268
	Female	2494162	19238	1346275	1124959	3690

Source:- Labour Force Survey 2003-2004 Data sets FBS

**Table A-12: Employed Population (10 years and above) by Industry, Occupation, Sex, Broad Age Group and Rural/Urban Areas 2003-04
All Areas**

Occupation group	Total Employed population	Less than 25 Years			25-59 Years		
		Male	Female	Both Sexes	Male	Female	Both Sexes
	1	2	3	4	5	6	7
All Occupations	41748926	11035167	2565347	13600514	21102201	4194743	25296944
Legislators, Senior Officials And Managers	4790888	1093818	16903	1110721	3273526	71279	3344805
Professionals	827646	65071	28619	93690	577064	99428	676492
Technicians And Associate Professionals	2038444	191380	180688	372068	1171516	424036	1595552
Clerks	684114	106111	5315	111426	552925	10882	563807
Service Workers And Shop And Market Sales Workers	2152698	940507	17739	958246	1097035	34136	1131171
Skilled Agricultural And Fishery Workers	14578880	3192830	918397	4111227	6554385	2298435	8852820
Craft And Related Trades Workers	6628353	2271964	546238	2818202	3103290	453305	3556595
Plant And Machine Operators And Assemblers	1565260	368347	4772	373119	1153828	4873	1158701
Elementary Occupations	8482643	2805139	846676	3651815	3618631	798370	4417001
Occupation group	60 Years and above						
	Male		Female		Both Sexes		
	8		9		10		
All Occupations	2549665		301802		2851467		
Legislators, Senior Officials And Managers	322676		12686		335362		
Professionals	53777		3687		57464		
Technicians And Associate Professionals	59796		11027		70823		
Clerks	8341		540		8881		
Service Workers And Shop And Market Sales Workers	63281		-		63281		
Skilled Agricultural And Fishery Workers	1414391		200442		1614833		
Craft And Related Trades Workers	243574		9981		253555		
Plant And Machine Operators And Assemblers	33440				33440		
Elementary Occupations	350390		63437		413827		

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Table A-12: Employed Population (10 years and above) by Industry, Occupation, Sex, Broad Age Group and Rural/Urban Areas 2003-04
Urban Area

Occupation group	Total Employed population	Less than 25 Years			25-59 Years		
		Male	Female	Both Sexes	Male	Female	Both Sexes
	1						
All Occupations	13107796	3486226	469057	3955283	7674678	851915	8526593
Legislators, Senior Officials And Managers	2750977	585293	6918	592211	1967872	23935	1991807
Professionals	494223	35136	11797	46933	347308	73029	420337
Technicians And Associate Professionals	1102319	113923	112228	226151	589800	258295	848095
Clerks	459236	68946	5315	74261	367995	10632	378627
Service Workers And Shop And Market Sales Workers	1204511	500314	10747	511060	635065	24117	659182
Skilled Agricultural And Fishery Workers	593834	117769	19068	136837	313851	56735	370586
Craft And Related Trades Workers	3465628	1224295	208114	1432409	1720803	197288	1918090
Plant And Machine Operators And Assemblers	722329	155481	4772	160253	536388	2170	538558
Elementary Occupations	2314739	685068	90098	775166	1195596	205714	1401310
Occupation group	60 Years and above						
	Male		Female		Both Sexes		
	8		9		10		
All Occupations	594959		30961		625920		
Legislators, Senior Officials And Managers	164657		2301		166958		
Professionals	26108		845		26953		
Technicians And Associate Professionals	23155		4918		28073		
Clerks	5808		540		6348		
Service Workers And Shop And Market Sales Workers	34269		-		34269		
Skilled Agricultural And Fishery Workers	78491		7920		86411		
Craft And Related Trades Workers	112491		2637		115128		
Plant And Machine Operators And Assemblers	23518		-		23518		
Elementary Occupations	126463		11799		138263		

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Table A-12: Employed Population (10 years and above) by Industry, Occupation, Sex, Broad Age Group and Rural/Urban Areas 2003-04
Rural Area

Occupation group	Total Employed population	Less than 25 Years			25-59 Years		
		Male	Female	Both Sexes	Male	Female	Both Sexes
	1	2	3	4	5	6	7
All Occupations	164657	2301	166958	164657	2301	164657	2301
Legislators, Senior Officials And Managers	2039911	508525	9985	518510	1305654	47344	1352998
Professionals	333423	29935	16822	46757	229756	26399	256155
Technicians And Associate Professionals	936125	77457	68460	145917	581716	165741	747457
Clerks	224878	37165	-	37165	184929	250	185180
Service Workers And Shop And Market Sales Workers	948187	440193	6992	447186	461971	10019	471989
Skilled Agricultural And Fishery Workers	13985047	3075061	899329	3974390	6240535	2241700	8482235
Craft And Related Trades Workers	3162725	1047669	338124	1385793	1382487	256018	1638505
Plant And Machine Operators And Assemblers	842931	212865	-	212865	617440	2703	620143
Elementary Occupations	6167903	2120071	756577	2876648	2423035	592656	3015690
Occupation group	60 Years and above						
	Male		Female		Both Sexes		
	8		9		10		
All Occupations	1954706		270841		2225547		
Legislators, Senior Officials And Managers	158019		10385		168404		
Professionals	27669		2842		30511		
Technicians And Associate Professionals	36641		6109		42750		
Clerks	2533		-		2533		
Service Workers And Shop And Market Sales Workers	29012		-		29012		
Skilled Agricultural And Fishery Workers	1335900		192522		1528422		
Craft And Related Trades Workers	131082		7345		138427		
Plant And Machine Operators And Assemblers	9922		-		9922		
Elementary Occupations	223926		51638		275564		

Source:- Labour Force Survey-2003-04

**Table A-13: Working Population (10 Years and above) by industry, Employment Status, Sex and Broad Age Group, 2003-04
All Areas**

Major Industry Division	Total Employed Population	Less than 25 years			25-59 Years		
		Male	Female	Both Sexes	Male	Female	Both Sexes
	1	2	3	4	5	6	7
Total employed persons	41748925	11035167	2565347	13600514	21102202	4194742	25296944
Agriculture, forestry, hunting and fishing	17971772	4422639	1643683	6066322	7293449	2873398	10166847
Mining and quarrying	27600	7080	.	7080	18968	1552	20520
Manufacturing	5734184	1904882	570709	2475591	2598106	456470	3054576
Electricity, gas, water and sanitary services	280190	33748	.	33748	238304	3411	241715
Construction	2433688	831580	11877	843457	1479692	6260	1485952
Wholesale, retail trade, restaurants & hotels	6177829	1929027	23662	1952689	3759643	80634	3840277
Transport, storage and communication	2394127	628370	4235	632605	1684700	4941	1689641
Financing, insurance, real estate and business services	441539	59566	2008	61574	364956	2511	367467
Community, social and personal services	6266819	1214524	309173	1523697	3646958	765565	4412523
Activities not adequately described	21177	3751	.	3751	17426	.	17426
Major Industry Division	60 Years and above						
		Male		Female		Both Sexes	
		8		9		10	
Total employed persons	2549665		301802		2851467		
Agriculture, forestry, hunting and fishing	1499873		238730		1738603		
Mining and quarrying	.		.		.		
Manufacturing	193095		10922		204017		
Electricity, gas, water and sanitary services	4727		.		4727		
Construction	104279		.		104279		
Wholesale, retail trade, restaurants & hotels	372177		12686		384863		
Transport, storage and communication	71341		540		71881		
Financing, insurance, real estate and business services	12498		.		12498		
Community, social and personal services	291675		38924		330599		
Activities not adequately described	-		-		-		

Contd...

Table A-13: Working Population (10 years and above) by Industry, Employment Status, Sex and Broad Age Group, 2003-04 Urban Area

Major Industry Division	Total Employed Population	Less than 25 years			25-59 Years		
		Male	Female	Both Sexes	Male	Female	Both Sexes
	1	2	3	4	5	6	7
Total employed persons	13107795	3486225	469057	3955282	7674678	851915	8526593
Agriculture, forestry, hunting and fishing	778408	156005	59936	215941	355797	113378	469175
Mining and quarrying	5635	1824	.	1824	2937	874	3811
Manufacturing	3141839	1049248	219275	1268523	1582240	196968	1779208
Electricity, gas, water and sanitary services	157860	19630	.	19630	130092	3411	133503
Construction	708958	223651	.	223651	455781	4112	459893
Wholesale, retail trade, restaurants & hotels	3489195	1094909	10791	1105700	2166970	30459	2197429
Transport, storage and communication	1152871	270022	2707	272729	833529	3678	837207
Financing, insurance, real estate and business services	355304	48743	2008	50751	293498	2511	296009
Community, social and personal services	3299458	618442	174340	792782	1839318	496524	2335842
Activities not adequately described	18267	3751	.	3751	14516	.	14516
Major Industry Division	60 Years and above						
	Male		Female		Both Sexes		
	8		9		10		
Total employed persons	594959		30961		625920		
Agriculture, forestry, hunting and fishing	83199		10093		93292		
Mining and quarrying	.		.		.		
Manufacturing	92642		1466		94108		
Electricity, gas, water and sanitary services	4727		.		4727		
Construction	25414		.		25414		
Wholesale, retail trade, restaurants & hotels	183765		2301		186066		
Transport, storage and communication	42395		540		42935		
Financing, insurance, real estate and business services	8544		.		8544		
Community, social and personal services	154273		16561		170834		
Activities not adequately described	-		-		-		

Contd...

Table A-13: Working Population (10 years and above) by Industry, Employment Status, Sex and Broad Age Group, 2003-04 Rural Area

Major Industry Division	Total Employed Population	Less than 25 years			25-59 Years		
		Male	Female	Both Sexes	Male	Female	Both Sexes
	1	2	3	4	5	6	7
Total employed persons	28641130	7548942	2096290	9645232	13427524	3342827	16770351
Agriculture, forestry, hunting and fishing	17193364	4266634	1583747	5850381	6937652	2760020	9697672
Mining and quarrying	21965	5256	.	5256	16031	678	16709
Manufacturing	2592345	855634	351434	1207068	1015866	259502	1275368
Electricity, gas, water and sanitary services	122330	14118	.	14118	108212	.	108212
Construction	1724730	607929	11877	619806	1023911	2148	1026059
Wholesale, retail trade, restaurants & hotels	2688634	834118	12871	846989	1592673	50175	1642848
Transport, storage and communication	1241256	358348	1528	359876	851171	1263	852434
Financing, insurance, real estate and business services	86235	10823	.	10823	71458	.	71458
Community, social and personal services	2967361	596082	134833	730915	1807640	269041	2076681
Activities not adequately described	2910	.	.	.	2910	.	2910
	60 Years and above						
Major Industry Division	Male		Female		Both Sexes		
	8		9		10		
Total employed persons	1954706		270841		2225547		
Agriculture, forestry, hunting and fishing	1416674		228637		1645311		
Mining and quarrying	.		.		.		
Manufacturing	100453		9456		109909		
Electricity, gas, water and sanitary services	.		.		.		
Construction	78865		.		78865		
Wholesale, retail trade, restaurants & hotels	188412		10385		198797		
Transport, storage and communication	28946		.		28946		
Financing, insurance, real estate and	3954		.		3954		
Community, social and personal services	137402		22363		159765		
Activities not adequately described	-		-		-		

Source:- Prim Labour Force Survey Data sets, 2003-04 FBS

Table A-14: Households by Region/Province and Urban/Rural Areas, 1998 Census

(Number)

Area	Number Of Household		
	All Areas	Urban Areas	Rural Areas
Pakistan	19,211,738	6,031,430	13,180,308
Islamabad	128,753	86,575	42,178
Balochistan	971,116	195,162	775,954
N.W.F.P.	2,211,236	368,748	1,842,488
Punjab	10,537,127	3,200,934	7,336,193
Sindh	5,022,392	2,171,403	2,850,989
FATA	341,114	8,608	332,506
Area	Percentage of household		
	All Areas	Urban Areas	Rural Areas
Pakistan	100.0	31.4	68.6
Islamabad	100.0	67.2	32.8
Balochistan	100.0	20.1	79.9
N.W.F.P.	100.0	16.7	83.3
Punjab	100.0	30.4	69.6
Sindh	100.0	43.2	56.8
FATA	100.0	2.5	97.5

Source:- Population Census Organisation-1998 Census.

**Table A-15: Housing Units by Provinces and Urban/Rural Areas,
Housing Censuses, 1960 to 1998**

(000 Numbers)

Province Area	1960		1973		1980		1998*	
	No. of H. Holds	Percen- tage	No. of H. Holds	Percen- tage	No. of H. Holds	Percen- tage	No. of H. Holds	Percen- tage
Pakistan	7,816	100.0	10,881	100.0	12,588*	100.0	19,211**	100.0
Urban	1,699	21.7	2,847	26.2	3,554	28.2	6,031	31.4
Rural	6,117	78.3	8,034	73.8	9,034	71.8	13,180	68.6
Balochistan	296	100.0	512	100.0	593	100.0	971	100.0
Urban	52	17.6	74	14.5	92	15.5	195	20.1
Rural	244	82.4	438	85.5	501	84.5	775	79.8
N.W.F.P	792	100.0	1,074	100.0	1,616*	100.0	2,211**	100.0
Urban	125	15.8	183	17.0	234	14.5	368	16.6
Rural	667	84.2	891	83.0	1,382	85.5	1,842	83.3
Punjab	5,163	100.0	6,745	100.0	7,597***	100.0	10,537	100.0
Urban	963	18.7	1,529	22.7	2,005***	26.4	3,201	30.4
Rural	4,200	81.3	5,216	77.3	5,592***	73.6	7,336	69.6
Sindh	1,565	100.0	2,550	100.0	2,782	100.0	5,022	100.0
Urban	559	35.7	1,061	41.6	1,223	44.0	2,171	43.2
Rural	1,006	64.3	1,489	58.4	1,559	56.0	2,851	56.8

Source:- Population Census Organization-1998-Census

* It excludes FATA

** Islamabad & FATA are included

*** Islamabad is included

**Table A-16: Housing Units by Tenure and Household Size Housing
Census, 1998**

(Number)					
Region/ Province	Housing Units	Owned	Rented	Rent free	Person per Housing Unit
Pakistan*					
All Areas	19,211,738	15,597,255	1,659,255	1,955,228	6.8
Urban	6,031,430	4,156,710	1,366,448	508,272	7.0
Rural	13,180,308	11,440,545	292,807	1,446,956	6.8
Islamabad					
All Areas	128,753	61,484	51,296	15,973	6.2
Urban	86,575	30,057	44,409	12,109	6.0
Rural	42,178	31,427	6,887	3,864	6.5
Balochistan					
All Areas	971,116	841,329	48,456	81,331	6.7
Urban	195,162	139,508	39,630	16,024	7.8
Rural	775,954	701,821	8,826	65,307	6.4
N.W.F.P.					
All Areas	2,211,236	1,782,544	188,058	240,634	8.0
Urban	368,748	234,720	106,670	27,358	7.9
Rural	1,842,488	1,547,824	81,388	213,276	8.0
Punjab					
All Areas	10,537,127	8,742,289	749,088	1,045,750	6.9
Urban	3,200,934	2,336,347	604,952	259,635	7.1
Rural	7,336,193	6,405,942	144,136	786,115	6.9
SINDH					
All Areas	5,022,392	3,862,334	612,788	547,270	6.0
Urban	2,171,403	1,410,515	568,708	192,180	6.8
Rural	2,850,989	2,451,819	44,080	355,090	5.5

Source:- Population Census Organization

- Data of FATA included in Pakistan

Table A-17: Owned Housing Units by Period of Construction Population Census 1998

(Number)

Province/Area	Total	Under Construction	Less Than 5	5 - 10	More Than 10
Pakistan*					
All areas	15,597,255	138,162	2,839,381	3,904,829	8,714,883
Urban	4,156,710	47,647	613,804	863,895	2,631,364
Rural	11,440,545	90,515	2,225,577	3,040,934	6,083,519
Islamabad					
All areas	61,484	769	8,689	13,327	38,699
Urban	30,057	288	4,085	5,566	20,118
Rural	31,427	481	4,604	7,761	18,581
Baluchistan					
All areas	841,329	6,150	124,853	193,569	516,757
Urban	139,508	1,704	17,415	30,472	89,917
Rural	701,821	4,446	107,438	163,097	426,840
NWFP					
All areas	1,782,544	8,572	182,866	332,376	1,258,730
Urban	234,720	1,965	26,780	42,726	163,249
Rural	1,547,824	6,607	156,086	289,650	1,095,481
Punjab					
All areas	8,742,289	63,408	1,615,785	2,373,227	4,689,869
Urban	2,336,347	23,587	355,862	490,994	1,465,904
Rural	6,405,942	39,821	1,259,923	1,882,233	3,223,965
Sindh					
All areas	3,862,334	57,962	885,743	947,532	1,971,097
Urban	1,410,515	20,097	209,401	293,433	887,584
Rural	2,451,819	37,865	676,342	654,099	1,083,513

Source:- Population Census Organization.

* Data of FATA is included

**Table A-18: Housing Units by Household Size, Number of Rooms
Census-1998**

Housing Unit per Household Size	Number of Housing units by number of rooms							Percent Housing Unit	Rooms Per Housing Units
	Total Housing Units	One Room	Two Rooms	Three Rooms	Four Rooms	Five Rooms	6 and More		
Pakistan*	19,211,738	7,321,589	5,867,364	3,068,362	1,625,621	630,122	698,680	100	2.2
1 Person	555,658	400,429	93,788	33,807	14,912	5,412	7,310	3	1.5
2 Persons	1,462,941	993,216	303,677	97,012	40,150	13,946	14,940	8	1.5
3 Persons	1,533,462	894,644	393,192	146,540	59,001	20,581	19,504	8	1.7
4 Persons	1,880,097	943,822	549,345	223,578	98,739	33,791	30,822	10	1.8
5 Persons	2,211,784	955,899	701,117	317,123	141,174	51,638	44,833	12	2.0
6 Persons	2,460,296	932,783	830,267	392,700	181,445	64,734	58,367	13	2.1
7 Persons	2,170,193	727,450	766,265	376,914	178,339	63,361	57,864	11	2.2
8 Persons	1,872,988	552,824	676,005	353,296	172,635	61,415	56,813	10	2.3
9 Persons	1,482,644	384,182	535,060	299,697	154,655	56,030	53,020	8	2.4
10 Persons & more	3,581,675	536,340	1,018,648	827,695	584,571	259,214	355,207	19	3.0
Percent	100.00	38.11	30.54	15.97	8.46	3.28	3.64	-	-
Persons per house unit	6.8	5.3	6.9	7.9	8.9	9.6	11.4	-	-

Source:- Population Census Organization

* Pakistan includes data of FATA

**Table A-19: Housing Units by Material Used in Outer-walls
Population Census-1998**

Province/ Area	Housing Units by Construction material used in outer-walls				
	Total	Baked bricks/ Blocks/Stone	Unbaked bricks/ Earth Bond	Wood/ Bamboo	Others
Pakistan*					
All areas	19211738	11230921	6624295	1041823	314699
Urban	6031430	5172798	733622	92394	32616
Rural	13180308	6058123	5890673	949429	282083
Islamabad					
All areas	128753	117167	9812	1058	716
Urban	86575	79154	6236	749	436
Rural	42178	38013	3576	309	280
Balochistan					
All areas	971116	143704	659370	118319	49723
Urban	195162	73987	102958	15398	2819
Rural	775954	69717	556412	102921	46904
NWFP					
All areas	2211236	1281992	825648	50985	52611
Urban	368748	270640	89692	4826	3590
Rural	1842488	1011352	735956	46159	49021
Punjab					
All areas	10537127	7160177	3206609	75581	94760
Urban	3200934	2877767	292680	14722	15765
Rural	7336193	4282410	2913929	60859	78995
Sindh					
All areas	5022392	2396138	1733528	788447	104279
Urban	2171403	1868260	237138	56621	9384
Rural	2850989	527878	1496390	731826	94895

Source:- Population Census of Pakistan, 1998

* Pakistan includes data of FATA

Table A-20: Housing Units by Material Used in Roofs
Housing Census 1998

Province/ Area	Number of Housing Units by Construction material used in Roofs				
	Total	RCC/RBC	Cement/Iron sheets	Wood/ Bamboo	Others
Pakistan					
All areas	19211738	4110266	2511750	11017601	1572121
Urban	6031430	2735206	1187555	1823079	285590
Rural	13180308	1375060	1324195	9194522	1286531
Islamabad					
All areas	128753	95703	13639	13945	5466
Urban	86575	66339	9128	8415	2693
Rural	42178	29364	4511	5530	2773
Balochistan					
All areas	971116	50399	55427	782526	82764
Urban	195162	39396	35099	113527	7140
Rural	775954	11003	20328	668999	75624
NWFP					
All areas	2211236	362012	202306	1535390	111528
Urban	368748	144688	46304	166826	10930
Rural	1842488	217324	156002	1368564	100598
Punjab					
All areas	10537127	2308137	1182872	5933073	1113045
Urban	3200934	1384710	396069	1207702	212453
Rural	7336193	923427	786803	4725371	900592
Sindh					
All areas	5022392	1282460	1047523	2456569	235840
Urban	2171403	1098789	700258	320675	51681
Rural	2850989	183671	347265	2135894	184159

Source:- Population Census Organization-1998

Note:- This Table excludes data of FATA but Pakistan includes data of FATA

Table A-21: Housing Units by Lighting Facilities in Urban-Rural Areas, Population Census Report, 1980 & 1998

(000 Number)

Area/Year	Total	Electricity	Kerosene Oil	Others
Pakistan				
1980 (a)	12587	3849	8463	275
Percent	100.0	30.6	67.2	2.2
1998 (b)				
1998 (b)	19212	13536	5354	322
Percent	100.0	70.5	27.9	1.7
Urban				
1980 (a)	3554	2525	989	40
Percent	100.0	71.0	27.8	1.1
1998 (b)				
1998 (b)	6031	5618	336	77
Percent	100.0	93.2	5.6	1.3
Rural				
1980 (a)	9033	1324	7474	235
Percent	100.0	14.7	82.7	2.6
1998 (b)				
1998 (b)	13180	7918	5017	245
Percent	100.0	60.1	38.1	1.9

Source: -(a) Government of Pakistan, Housing, Census Report, 1980
Population Census organization, Islamabad.

(b) Census Report of Pakistan-1998, Population Census Organization, Islamabad

Table A-22: Housing Units by Source of Lighting Used Population Census, 1998

(Number)

Province/Area	Total	Electricity	Kerosene Oil	Other lighting source
Pakistan *				
All areas	19211738	13535731	5353715	322292
Urban	6031430	5617813	336389	77228
Rural	13180308	7917918	5017326	245064
Islamabad				
All areas	128753	117778	10323	652
Urban	86575	79125	7028	422
Rural	42178	38653	3295	230
Balochistan				
All areas	971116	452743	479307	39066
Urban	195162	166616	24975	3571
Rural	775954	286127	454332	35495
N.W.F.P				
All areas	2211236	1596298	541906	73032
Urban	368748	353129	11967	3652
Rural	1842488	1243169	529939	69380
Punjab				
All areas	10537127	7638015	2803543	95569
Urban	3200934	2991427	180423	29084
Rural	7336193	4646588	2623120	66485
Sindh				
All areas	5022392	3519524	1395349	107519
Urban	2171403	2019443	111884	40076
Rural	2850989	1500081	1283465	67443

Source:- Population Census Organization

* Pakistan includes data of FATA

Table A-23: Housing Units by Type of Cooking Fuel Used in Urban/Rural Areas, Housing Census 1980 and Population Census-1998

(Thousand Numbers)

Area/Year	Total	Wood	Charcoal	Kerosene	Gas	Electricity	Others
Pakistan							
1980 (a)	12587	8810	87	781	813	10	2086
Percent	100.0	70.0	0.7	6.2	6.5	0.1	16.6
1998 (b)							
1998 (b)	19212	13224	-	715	3879	-	1394
Percent	100.0	68.8	-	3.7	20.2	-	7.3
Urban							
1980 (a)	3554	1714	46	714	786	4	290
Percent	100.0	48.2	1.3	20.1	22.1	0.1	8.2
1998 (b)							
1998 (b)	6032	1929	-	426	3507	-	170
Percent	100.0	32.0	-	7.1	58.1	-	2.8
Rural							
1980 (a)	9033	7096	41	66	27	7	1796
Percent	100.0	78.6	0.5	0.7	0.3	0.1	19.9
1998 (b)							
1998 (b)	13181	11295	-	289	373	-	1224
Percent	100.0	85.7	-	2.2	2.8	-	9.3

Source:- (a) Government of Pakistan, Housing Census report of Pakistan 1980, Population Census Organization, Islamabad

(b) Population Census-1998, Pakistan Census Organization

**Table A-24: Housing Units by Source of Cooking Fuel Used
Population Census-1998**

Province/Area	Number of Cooking fuel used.				
	Total	Wood	Kerosene oil	Gas	Others
Pakistan					
All areas	19211738*	13223586	715126	3879387	1393639
Urban	6031430	1928853	425741	3506787	170049
Rural	13180308	11294733	289385	372600	1223590
Islamabad					
All areas	128753	49113	5708	72118	1814
Urban	86575	20561	2617	62277	1120
Rural	42178	28552	3091	9841	694
Balochistan					
All areas	971116	792012	42284	95516	41304
Urban	195162	104838	11556	72931	5837
Rural	775954	687174	30728	22585	35467
N.W.F.P					
All areas	2211236	1850195	52958	216701	91382
Urban	368748	160908	27776	168223	11841
Rural	1842488	1689287	25182	48478	79541
Punjab					
All areas	10537127	7196534	398078	1861942	1080573
Urban	3200934	1170185	262955	1667573	100221
Rural	7336193	6026349	135123	194369	980352
Sindh					
All areas	5022392	3023001	210175	1628740	160476
Urban	2171403	465073	120521	1535431	50378
Rural	2850989	2557928	89654	93309	110098

Source:- Population Census Organization

* It includes data of FATA

Table A-25: Housing Units by Facilities like Kitchen, Bathroom and Latrine in Urban/Rural Areas Population Census-1998

(Number)

Province/ Area	Total House- holds	Kitchen			Bath Rooms			Latrine		
		Separate	Shared	None	Separate	Shared	None	Separate	Shared	None
Pakistan										
All areas	19211738*	6282888	3765325	9163525	6395270	4434460	8382008	5489923	3927478	9794337
Urban	6031430	2689710	1587605	1754115	2929644	2233492	868294	3056623	2307643	667164
Rural	13180308	3593178	2177720	7409410	3465626	2200968	7513714	2433300	1619835	9127173
Islamabad										
All areas	128753	80856	21188	26709	75424	22040	31289	71414	21786	35553
Urban	86575	57335	16540	12700	56826	16551	13198	55651	16869	14055
Rural	42178	23521	4648	14009	18598	5489	18091	15763	4917	21498
Balochistan										
All areas	971116	220670	447755	302691	257964	405307	307845	180420	284135	506561
Urban	195162	66370	104389	24403	70772	105017	19373	68180	100905	26077
Rural	775954	154300	343366	278288	187192	300290	288472	112240	183230	480484
N.W.F.P										
All areas	2211236	729881	459669	1021686	762175	525665	923396	541857	401703	1267676
Urban	368748	145795	105977	116976	156380	143473	68895	153295	146323	69130
Rural	1842488	584086	353682	904710	605795	382192	854501	388562	255380	1198546
Punjab										
All areas	10537127	3316841	1165407	6054879	3380942	1878800	5277385	2794768	1660854	6081505
Urban	3200934	1374366	542706	1283862	1589799	1029510	581625	1688411	1080278	432245
Rural	7336193	1942475	622701	4771017	1791143	849290	4695760	1106357	580576	5649260
Sindh										
All areas	5022392	1742340	1630199	1649853	1704622	1563036	1754734	1775744	1535152	1711496
Urban	2171403	1040183	817583	313637	1049550	938233	183620	1085003	962620	123780
Rural	2850989	702157	812616	1336216	655072	624803	1571114	690741	572532	1587716

Source:- Population Census Organization

* It includes data of FATA

Table A-26: Housing Units by Water Facilities in Urban/Rural Areas, Housing Census, 1980 and Population Census, 1998

(Thousand Numbers)

Area/Year	Total	Piped Water		Hand Pump		Well	Others (*)
		Inside	Outside	Inside	Outside		
Pakistan							
1980 (a)	12587	1589	972	4317	1545	2171	1993
Percent	100.0	12.6	7.7	34.3	12.3	17.2	15.8
1998(b)							
1998(b)	19211	5394	803	8083	972	1914	2045
Percent	100.0	28.1	4.2	42.1	5.1	10.0	10.6
Urban							
1980 (a)	3554	1360	712	970	201	250	61
Percent	100.0	38.3	20.0	27.3	5.7	7.0	1.7
1998(b)							
1998(b)	6031	3632	290	1549	79	269	212
Percent	100.0	60.2	4.8	25.7	1.3	4.5	3.5
Rural							
1980 (a)	9033	229	260	3347	1344	1921	1932
Percent	100.0	2.5	2.9	37.1	14.9	21.3	21.4
1998(b)							
1998(b)	13180	1762	512	6535	893	1645	1833
Percent	100.0	13.4	3.9	49.6	6.8	12.5	13.9

Source:- (a) Government of Pakistan, Housing Census Report of Pakistan 1980, Population Census Organization, Islamabad
 (b) Government of Pakistan, Census Report of Pakistan-1998, Population Census Organization
 (*) Others include water supply from ponds, etc

Table A-27: Percentage Distribution of Households by Main Source of Drinking Water- Pakistan and Provinces

Province and water source	1998-99 PIHS			2001-02 PIHS		
	Urban	Rural	Overall	Urban	Rural	Overall
Pakistan						
Tap in House	50	9	22	53	8	22
Tap outside House	5	3	4	5	2	3
Hand Pump	18	53	43	14	56	44
Moter Pump	20	12	14	22	14	17
Dug Well	2	11	8	2	10	7
River/Canal/Stream	0	12	8	0	9	6
Other	3	1	2	3	1	1
Total	100	100	100	100	100	100
Balochistan						
Tap in House	69	13	20	75	13	23
Tap outside House	8	5	5	5	1	2
Hand Pump	1	2	2	2	1	1
Moter Pump	4	6	6	3	12	11
Dug Well	13	42	38	11	35	31
River/Canal/Stream	2	31	27	2	37	31
Other	3	1	1	3	1	1
Total	100	100	100	100	100	100
N.W.F.P						
Tap in House	51	23	27	48	26	30
Tap outside House	11	11	11	9	9	9
Hand Pump	9	11	9	7	11	10
Moter Pump	14	8	18	19	7	9
Dug Well	13	19	18	14	18	17
River/Canal/Stream	2	27	23	1	28	24
Other	0	1	1	2	1	1
Total	100	100	100	100	100	100
Punjab						
Tap in House	45	7	18	50	5	18
Tap outside House	4	1	2	4	1	2
Hand Pump	21	70	56	16	69	54
Moter Pump	28	16	19	30	19	22
Dug Well	1	4	3	1	4	3
River/Canal/Stream	0	2	2	0	2	1
Other	0	0	0	0	0	0
Total	100	100	100	100	100	100
SINDH						
Tap in House	58	6	29	59	3	26
Tap outside House	6	1	3	8	1	4
Hand Pump	17	50	35	14	66	44
Moter Pump	9	4	6	11	4	7
Dug Well	2	13	8	1	14	9
River/Canal/Stream	0	23	13	0	10	6
Other	9	3	5	8	1	4
Total	100	100	100	100	100	100

Source:- Federal Bureau of Statistics (Pakistan Integrated Household Survey)

Table A-28 Housing Units by Source of Drinking Water-Inside and Outside, Population Census-1998

(Number)

Province/ Areas	Inside House			Outside House				
	Pipe	Hand-pump	Well	Pipe	Hand-pump	Well	Pond	Others
Pakistan *								
All areas	5394297	8083293	938553	802506	972299	975193	548467	1497130
Urban	3632384	1548617	213507	290285	79112	55111	16754	195660
Rural	1761913	6534676	725046	512221	893187	920082	531713	1301470
Islamabad								
All areas	73751	6377	10107	7785	2465	23607	627	4034
Urban	65098	2808	3513	5896	1464	6204	142	1450
Rural	8653	3569	6594	1889	1001	17403	485	2584
Balochistan								
All areas	245794	23699	136589	42023	19931	156292	162332	184456
Urban	130640	3948	23700	10918	1359	6364	6429	11804
Rural	115154	19751	112889	31105	18572	149928	155903	172652
N.W.F.P								
All areas	601209	213947	406773	271275	27320	185563	89345	415804
Urban	197323	47907	59441	37267	3914	10951	731	11214
Rural	403886	166040	347332	234008	23406	174612	88614	404590
Punjab								
All areas	2564569	6358893	209798	230143	558537	236112	113321	265754
Urban	1754038	1182160	78972	101508	39162	11973	2324	30797
Rural	810531	5176733	130826	128635	519375	224139	110997	234957
Sindh								
All areas	1866717	1470895	120923	227665	362869	308191	158197	506935
Urban	1481063	311714	46555	133948	33194	18150	7080	139699
Rural	385654	1159181	74368	93717	329675	290041	151117	367236

Source:- Population Census Organization

* Includes data of FATA

Table A-29 Percentage Distribution of Housing Units by Type of Toilet Used and Urban/Rural Areas of Pakistan and Provinces

Province and Sanitation System	1998-99 PIHS			2001-02 PIHS		
	Urban	Rural	Overall	Urban	Rural	Overall
Pakistan						
Household Flush	88	2	41	89	26	45
Non-Flush	6	15	12	5	15	12
Communal Latrine	-	-	-	-	-	-
No Toilet	6	63	46	5	59	43
Total	100	100	100	100	100	100
Balochistan						
Household Flush	56	4	10	56	5	13
Non-Flush	40	59	57	38	39	39
Communal Latrine	-	-	-	-	-	-
No Toilet	4	37	33	7	57	48
Total	100	100	100	100	100	100
N.W.F.P						
Household Flush	71	20	28	73	26	33
Non-Flush	20	32	30	23	38	36
Communal Latrine	-	-	-	-	-	-
No Toilet	9	48	42	4	36	31
Total	100	100	100	100	100	100
Punjab						
Household Flush	88	26	44	91	31	48
Non-Flush	4	2	2	2	2	2
Communal Latrine	-	-	-	-	-	-
No Toilet	9	72	54	7	68	50
Total	100	100	100	100	100	100
Sindh						
Household Flush	92	14	49	91	17	48
Non-Flush	5	28	18	7	34	23
Communal Latrine	-	-	-	-	-	-
No Toilet	2	58	33	3	49	30
Total	100	100	100	100	100	100

Source:- Pakistan Integrated Household Survey (PIHS), Federal Bureau of Statistics

- Notes:-
1. Households having the type of toilets indicated, expressed as a percentage of the total number of households
 2. Categories "Flush" consists of flush connected to public sewerage. Flush connected to pit and flush to open drain while "Non-Flush" contains dry raised latrine and dry pit latrine
 3. Communal latrine was not included as a separate category in the 1998-99 PIHS questionnaire nor for the 2000-PIHS questionnaire.
 4. Totals may not add up to 100 because of rounding.

Table A-30: Percentage Distribution of Civilian Labour Force

Year	Total			Employed			Unemployed		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
1981 (*)	27.57	26.72	0.85	26.56	25.78	0.78	1.01	0.94	0.07
1982-83	30.19	26.71	3.48	29.01	25.59	3.42	1.18	1.11	0.07
1984-85	29.56	26.78	2.79	28.46	25.72	2.75	1.10	1.06	0.04
1985-86	28.72	25.83	2.89	27.67	24.83	2.84	1.04	0.99	0.05
1986-87	29.40	25.60	3.81	28.51	24.74	3.76	0.90	0.85	0.04
1987-88	28.83	25.54	3.28	27.92	24.67	3.25	0.90	0.87	0.03
1990-91	27.97	24.00	3.97	26.21	22.91	3.30	1.76	1.09	0.67
1991-92	28.11	23.66	4.45	26.47	22.65	3.82	1.64	1.01	0.63
1992-93	27.86	23.72	4.15	26.54	22.83	3.72	1.32	0.89	0.43
1993-94	27.88	23.59	4.29	26.53	22.67	3.86	1.35	0.92	0.43
1994-95	27.46	23.80	3.66	25.98	22.82	3.16	1.48	0.98	0.50
1996-97	28.69	24.34	4.35	26.93	23.31	3.62	1.75	1.03	0.73
1997-98	29.38	24.85	4.53	27.65	23.80	3.85	1.73	1.05	0.68
1999-00	28.97	24.45	4.52	26.70	22.96	3.74	2.27	1.48	0.78
2001-02	29.61	24.84	4.76	27.16	23.18	3.98	2.45	1.66	0.79
2003-04	30.41	24.97	5.44	28.07	23.32	4.75	2.34	1.64	0.69

Source:- Federal Bureau of Statistics
 (*) = Population Census, 1981

Table A-31: Percentage Distribution of Population by Economic Category

Economic category	1981 (*)	1986-87	1990-91	1991-92	1992-93	1993-94
All Areas						
Total population	100.00	100.00	100.00	100.00	100.00	100.00
Civilian labour force	27.57	29.40	27.97	28.11	27.86	27.88
i) Employed	26.72	28.51	26.21	26.47	26.54	26.53
ii) Un-employed	0.85	0.90	1.76	1.64	1.32	1.35
Not in civilian labour force	72.43	70.60	72.03	71.89	72.14	72.12
Urban Area						
Total population	100.00	100.00	100.00	100.00	100.00	100.00
Civilian labour force	25.35	26.26	26.37	26.08	25.83	25.79
i) Employed	24.03	25.08	24.22	24.26	24.31	24.11
ii) Un-employed	1.32	1.18	2.16	1.82	1.52	1.68
Not in civilian labour force	74.65	73.74	73.63	73.92	74.17	74.21
Rural Area						
Total population	100.00	100.00	100.00	100.00	100.00	100.00
Civilian labour force	28.49	30.81	28.70	28.99	28.76	28.73
i) Employed	27.82	30.04	27.13	27.42	27.53	27.52
ii) Un-employed	0.67	0.77	1.57	1.57	1.23	1.21
Not in civilian labour force	71.51	69.19	71.30	71.01	71.24	71.27

Note: - (*) = Population Census, 1981

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Table A-31: Percentage Distribution of Population by Economic Category

Economic category	1994-95	1996-97	1997-98	1999-00	2001-02	2003-04
All Areas						
Total population	100.00	100.00	100.00	100.00	100.00	100.00
Civilian labour force	27.46	28.69	29.38	28.97	29.61	30.41
i) Employed	25.98	26.93	27.65	26.70	27.16	28.07
ii) Un-employed	1.48	1.75	1.73	2.27	2.45	2.34
Not in civilian labour Force	72.54	71.31	70.62	71.03	70.39	69.59
Urban Area						
Total population	100.00	100.00	100.00	100.00	100.00	100.00
Civilian labour force	26.12	27.15	26.98	27.14	29.10	29.20
i) Employed	24.32	25.21	24.84	24.45	26.25	26.37
ii) Un-employed	1.80	1.95	2.15	2.69	2.85	2.83
Not in civilian labour Force	73.88	72.85	73.02	72.86	70.90	70.80
Rural Area						
Total population	100.00	100.00	100.00	100.00	100.0	100.0
Civilian labour force	28.00	29.42	30.58	29.82	29.85	31.02
i) Employed	26.66	27.76	29.06	27.75	27.59	28.93
ii) Un-employed	1.34	1.66	1.52	2.07	2.25	2.09
Not in civilian labour Force	72.00	70.58	69.42	70.18	70.15	68.98

Source:- Labour Force Surveys of the respective years, Federal Bureau of Statistics

Note: - Total may not add to 100 due to rounding effect.

Table A-32: Percentage Distribution of Employed Persons by Major Industry Division- All Areas

Major Industry Division	1981 (*)	1986-87	1990-91	1991-92	1992-93	1993-94
	1	2	3	4	5	6
Total employed persons	100.00	100.00	100.00	100.00	100.00	100.00
Agriculture, forestry, hunting and fishing	52.72	49.24	47.45	48.27	47.55	50.04
Mininig and quarrying	0.4	0.23	0.15	0.25	0.10	0.09
Manufacturing	9.16	14.00	12.23	12.28	10.90	10.03
Electricity, gas, water and sanitary services	0.6	0.73	0.83	0.79	0.84	0.87
Construction	4.19	6.01	6.62	6.33	6.93	6.50
Wholesale, retail trade, restaurants & hotels	9.42	12.05	13.24	13.10	13.32	12.78
Transport, storage and communication	4.14	5.25	5.24	5.51	5.52	4.95
Financing, insurance, real estate and business services	0.76	0.77	0.89	0.76	0.82	0.78
Community, social and personal services	13.7	11.48	13.27	12.65	13.83	13.92
Activities not adequately described	4.92	0.25	0.06	0.07	0.19	0.05
Major Industry Division	1994-95	1996-97	1997-98	1999-00	2001-02	2003-04
	7	8	9	10	11	12
Total employed persons	100.00	100.00	100.00	100.00	100.00	100.00
Agriculture, forestry, hunting and fishing	46.79	44.15	47.25	48.42	42.09	45.05
Mininig and quarrying	0.12	0.10	0.19	0.07	0.07	0.07
Manufacturing	10.38	11.10	9.96	11.48	13.84	13.73
Electricity, gas, water and sanitary services	0.82	0.98	0.70	0.70	0.81	0.67
Construction	7.21	6.75	6.26	5.78	6.05	5.83
Wholesale, retail trade, restaurants & hotels	14.50	14.62	13.87	13.50	14.85	14.80
Transport, storage and communication	5.07	5.71	5.48	5.03	5.90	5.73
Financing, insurance, real estate and business services	0.77	0.98	0.87	0.82	0.89	1.06
Community, social and personal services	14.28	15.58	15.36	14.20	15.50	15.01
Activities not adequately described	0.07	0.04	0.05	..	..	0.05

Contd...

Table A-32: Percentage Distribution of Employed Persons by Major Industry Division- Urban Areas

Major Industry Division	1981 (*)	1986-87	1990-91	1991-92	1992-93	1993-94
	1	2	3	4	5	6
Total employed persons	100.00	100.00	100.00	100.00	100.00	100.00
Agriculture, forestry, hunting and fishing	7.38	6.37	7.63	6.89	5.80	5.55
Mininig and quarrying	0.28	0.24	0.17	0.30	0.20	0.08
Manufacturing	18.28	27.25	22.35	23.25	21.31	21.24
Electricity, gas, water and sanitary services	1.18	1.63	1.55	1.71	1.59	1.62
Construction	6.43	6.40	6.59	6.80	6.72	6.64
Wholesale, retail trade, restaurants & hotels	21.82	24.91	26.57	25.40	27.26	27.22
Transport, storage and communication	8.65	9.81	9.07	9.37	10.00	8.74
Financing, insurance, real estate and business services	2.12	2.32	2.25	2.00	2.23	2.22
Community, social and personal services	26.41	20.66	23.75	23.86	24.53	26.55
Activities not adequately described	7.43	0.41	0.07	0.15	0.37	0.12
Major Industry Division	1994-95	1996-97	1997-98	1999-00	2001-02	2003-04
	7	8	9	10	11	12
Total employed persons	100.00	100.00	100.00	100.00	100.00	100.00
Agriculture, forestry, hunting and fishing	5.80	5.69	5.56	5.70	5.19	5.94
Mininig and quarrying	0.14	0.13	0.07	0.07	0.07	0.04
Manufacturing	20.10	21.02	19.72	23.78	25.08	23.97
Electricity, gas, water and sanitary services	1.53	1.75	1.43	1.31	1.33	1.20
Construction	6.49	6.64	7.36	6.32	5.67	5.41
Wholesale, retail trade, restaurants & hotels	28.63	26.38	28.41	27.06	27.19	26.62
Transport, storage and communication	8.47	9.39	10.03	7.90	8.26	8.80
Financing, insurance, real estate and business services	2.13	2.55	2.37	2.35	2.18	2.71
Community, social and personal services	26.58	26.35	24.95	25.54	25.03	25.71
Activities not adequately described	0.13	0.10	0.03	0.00	-	0.14

Contd...

Table A-32: Percentage Distribution of Employed Persons by Major Industry Division- Rural Areas

Major Industry Division	1981 (*)	1986-87	1990-91	1991-92	1992-93	1993-94
	1	2	3	4	5	6
Total employed persons	100.00	100.00	100.00	100.00	100.00	100.00
Agriculture, forestry, hunting and fishing	68.76	65.24	63.79	64.15	63.76	66.00
Mininig and quarrying	0.44	0.22	0.14	0.23	0.06	0.10
Manufacturing	5.93	9.05	8.08	7.97	6.86	6.00
Electricity, gas, water and sanitary services	0.39	0.39	0.54	0.43	0.55	0.60
Construction	3.4	5.86	6.63	6.16	7.02	6.44
Wholesale, retail trade, restaurants & hotels	5.03	7.25	7.77	8.37	7.91	7.60
Transport, storage and communication	2.54	3.55	3.68	4.03	3.78	3.58
Financing, insurance, real estate and business services	0.28	0.18	0.34	0.28	0.26	0.26
Community, social and personal services	9.2	8.05	8.97	8.34	9.68	9.39
Activities not adequately described	4.03	0.19	0.06	0.04	0.12	0.03
Major Industry Division	1994-95	1996-97	1997-98	1999-00	2001-02	2003-04
	7	8	9	10	11	12
Total employed persons	100.00	100.00	100.00	100.00	100.00	100.00
Agriculture, forestry, hunting and fishing	61.94	60.83	65.13	65.85	59.01	60.03
Mininig and quarrying	0.11	0.09	0.24	0.07	0.07	0.08
Manufacturing	6.78	6.78	5.77	6.46	8.68	9.05
Electricity, gas, water and sanitary services	0.56	0.63	0.39	0.45	0.56	0.43
Construction	7.47	6.80	5.79	5.56	6.23	6.02
Wholesale, retail trade, restaurants & hotels	9.29	9.52	7.62	7.98	9.20	9.39
Transport, storage and communication	3.81	4.11	3.53	3.86	4.82	4.33
Financing, insurance, real estate and business services	0.27	0.32	0.23	0.20	0.30	0.30
Community, social and personal services	9.73	10.90	11.26	9.57	11.13	10.36
Activities not adequately described	0.05	0.01	0.06	..	..	0.01

Source:-Federal Bureau of Statistics, Labour Force Surveys of the respective years.

Note:- Labour Force Survey was not conducted during 1988-89 and 1989-90.

Table A-33: Percentage Distribution of Employed Persons by Major Occupational Group, All Areas

Major Occupation Group	1997-98	1999-00	2001-02	2003-04
Total employed persons	100.00	100.00	100.00	100.00
Legislators, Senior Officials and Managers	9.76	11.00	11.56	11.48
Professionals	3.00	2.21	2.08	1.98
Technicians and Associate Professionals	2.95	4.17	4.74	4.88
Clerks	1.84	1.56	1.71	1.64
Service Workers and Shop and Market Sale Workers	6.02	4.58	5.67	5.16
Skilled Agricultural and Fishery Workers	39.91	40.03	34.69	34.92
Craft and related Trade Workers	12.71	15.05	16.20	15.88
Plant and Machine Operators and Assemblers	3.68	3.28	3.92	3.75
Elementary (Unskilled) Occupations	20.13	18.13	19.44	20.32

Contd...

**Table A-33: Percentage Distribution of Employed Persons
by Major Occupational Group, Urban Areas**

Major Occupation Group	1997-98	1999-00	2001-02	2003-04
Total employed persons	100.00	100.00	100.00	100.00
Legislators, Senior Officials and Managers	21.09	22.26	20.45	20.99
Professionals	6.03	4.31	3.91	3.77
Technicians and Associate Professionals	5.30	7.11	7.47	8.41
Clerks	4.50	3.73	3.56	3.50
Service Workers and Shop and Market Sale Workers	10.99	8.42	10.05	9.19
Skilled Agricultural and Fishery Workers	4.53	4.66	4.64	4.53
Craft and related Trade Workers	22.49	28.34	27.35	26.44
Plant and Machine Operators and Assemblers	6.33	5.32	5.22	5.51
Elementary (Unskilled) Occupations	18.75	15.81	17.40	17.66

Contd...

**Table A-33: Percentage Distribution of Employed Persons
by Major Occupational Group, Rural Areas**

Major Occupation Group	1997-98	1999-00	2001-02	2003-04
Total employed persons	100.00	100.00	100.00	100.00
Legislators, Senior Officials and Managers	4.90	6.41	7.48	7.12
Professionals	1.70	1.35	1.24	1.16
Technicians and Associate Professionals	1.96	2.97	3.49	3.27
Clerks	0.70	0.66	0.87	0.79
Service Workers and Shop and Market Sale Workers	3.89	3.00	3.66	3.31
Skilled Agricultural and Fishery Workers	55.07	54.46	48.47	48.83
Craft and related Trade Workers	8.52	9.62	11.10	11.04
Plant and Machine Operators and Assemblers	2.54	2.45	3.33	2.94
Elementary (Unskilled) Occupations	220.72	19.08	20.38	21.54

Source:- Federal Bureau of Statistics Labour Force Surveys of the respective years.

Table A-34 Land Utilization Statistics

(Million Hectares)

year	Total area	Total area reported col (3+4+5+6)	Forest area	Not available for cultivation	Culturable waste
	1	2	3	4	5
1991-92	79.61	57.87	3.47	24.48	8.86
1992-93	79.61	58.06	3.48	24.35	8.83
1993-94	79.61	58.13	3.45	24.43	8.74
1994-95	79.61	58.50	3.60	24.44	8.91
1995-96	79.61	58.51	3.61	24.35	8.87
1996-97	79.61	59.23	3.58	24.61	9.06
1997-98	79.61	59.32	3.60	24.61	9.15
1998-99	79.61	59.28	3.60	24.52	9.23
1999-00	79.61	59.28	3.78	24.45	9.09
2000-01	79.61	59.44	3.77	24.37	9.17
2001-02	79.61	59.33	3.80	24.31	8.95
2002-03	79.61	59.48	4.04	24.25	8.96
2003-04	79.61	59.44	4.04	24.20	9.08
year	Cultivated area Col (7+8)	Current fallow	Net area sown	Area sown more than once	Total cropped area COL(8+9)
	6	7	8	9	10
1991-92	21.06	4.87	16.19	5.53	21.72
1992-93	21.40	4.95	16.45	5.99	22.44
1993-94	21.51	5.29	16.22	5.65	21.87
1994-95	21.55	5.42	16.13	6.01	22.14
1995-96	21.68	5.19	16.49	6.10	22.59
1996-97	21.98	5.48	16.50	6.23	22.73
1997-98	21.96	5.48	16.48	6.56	23.04
1998-99	21.93	5.35	16.58	6.28	22.86
1999-00	21.96	5.67	16.29	6.45	22.74
2000-01	22.13	6.73	15.40	6.64	22.04
2001-02	22.27	6.60	15.67	6.45	22.12
2002-03	22.21	6.61	15.60	6.25	21.85
2003-04	22.12	6.05	16.07	6.87	22.94

Source: - Agriculture Statistics of Pakistan 2003-04 M/O Food Agriculture & Livestock

TableA-35: Area under Agricultural Crops

(000 Hectares)

Year	Rice	Wheat	Bajra	Jowar	Maize	Barley	Gram	Masoor
1991-92	2,096.9	7,877.6	312.8	382.7	847.5	149.0	996.9	58.7
1992-93	1,973.4	8,299.7	487.3	403.4	867.5	159.5	1,007.6	63.5
1993-94	2,187.1	8,034.2	302.9	364.7	878.5	150.6	1,045.0	51.5
1994-95	2,124.6	8,169.8	508.5	438.2	889.5	165.0	1,064.5	61.0
1995-96	2,161.7	8,376.5	406.8	417.8	938.7	171.6	1,118.9	65.5
1996-97	2,251.1	8,109.1	302.9	369.6	927.7	152.1	1,100.2	69.5
1997-98	2,317.3	8,354.6	460.0	390.3	932.6	162.7	1,102.3	64.8
1998-99	2,423.6	8,229.9	462.6	382.7	962.2	137.2	1,076.9	57.8
1999-00	2,515.4	8,463.0	313.0	357.4	961.7	123.6	971.8	54.9
2000-01	2,376.6	8,180.8	389.6	353.6	944.0	113.0	905.0	46.0
2001-02	2,114.2	8,057.5	417.1	357.6	941.6	110.6	933.9	44.8
2002-03	2,225.2	8,033.9	349.3	338.1	935.5	107.7	963.0	49.0
2003-04	2460.6	8216.2	539.3	392.5	947.1	101.6	982.3	51.6
Year	Mash	Mung	Other Pulses (a)	Rapeseed & mustard	Sesamum	Linseed	Groundnut	Cotton
1991-92	79.4	125.8	18.2	286.5	69.5	8.8	88.9	2,835.5
1992-93	76.6	146.8	17.8	284.6	82.2	8.3	94.8	2,835.9
1993-94	64.5	167.9	14.5	268.5	73.1	7.6	92.0	2,804.6
1994-95	54.7	179.7	15.3	300.6	80.2	7.7	96.6	2,652.8
1995-96	58.2	199.1	15.3	319.6	89.5	8.3	102.3	2,997.3
1996-97	57.4	192.4	13.0	353.9	99.5	8.3	104.8	3,148.6
1997-98	49.0	195.4	12.8	339.5	96.1	8.0	107.9	2,959.7
1998-99	45.8	199.5	12.8	326.7	71.1	7.7	97.5	2,922.8
1999-00	43.4	202.7	10.5	327.3	71.7	7.2	92.5	2,983.1
2000-01	45.7	219.2	10.7	272.1	101.0	4.7	81.5	2,927.5
2001-02	54.7	239.2	10.2	268.9	135.6	6.2	99.4	3,115.8
2002-03	55.4	257.7	7.9	280.6	87.9	5.9	86.4	2,793.6
2003-04	48.7	256.0	10.6	279.8	59.8	6.1	102.6	2,989.3

Note:- (a) Includes " Moth and Arhar etc. pulses."

Contd...

Table A-35: Area Under Agricultural Crops

(000 Hectares)

Year	Jute	Sun hemp	Sugar cane	Tobacco	Potato	Vegetables (b)	Garlic	Chilies
1991-92	0.09	5.4	896.1	53.8	75.6	215.0	7.3	84.3
1992-93	0.01	5.1	884.6	58.2	76.0	223.1	7.6	45.4
1993-94	0.05	4.1	962.8	57.4	79.3	232.0	7.7	83.7
1994-95	0.05	3.9	1,009.0	47.4	79.3	245.4	8.5	86.5
1995-96*	0.03	3.8	963.1	46.1	78.9	209.7	9.1	86.2
1996-97	0.03	3.4	964.5	49.0	85.8	215.4	8.5	87.2
1997-98	0.03	3.1	1,056.2	53.4	104.7	220.5	8.8	90.4
1998-99	0.02	2.8	1,155.1	57.3	109.5	224.0	9.2	88.7
1999-00	0.02	2.8	1,009.8	56.4	110.5	220.6	8.6	86.8
2000-01	0.02	3.1	960.8	45.6	101.5	221.4	7.9	84.5
2001-02	0.02	3.2	999.7	49.4	105.2	224.2	7.0	48.7
2002-03	0.02	2.4	1,099.6	46.6	115.8	224.6	7.0	56.4
2003-04	0.00	2.3	1074.5	45.6	109.7	236.6	6.9	55.8
Year	Onion	Citrus Fruit	Banana	Mango	Apple	Guava	Grapes	Dates
1991-92	64.0	176.2	11.3	86.0	27.8	49.2	3.5	42.4
1992-93	67.6	176.2	12.3	83.6	31.4	50.6	3.8	41.2
1993-94	70.3	185.0	12.5	84.8	39.5	53.0	8.1	73.2
1994-95	74.8	190.7	24.0	88.3	40.4	54.4	8.2	73.5
1995-96	77.9	193.6	24.7	89.5	41.8	55.3	8.4	73.9
1996-97	80.8	194.4	25.1	90.4	43.5	56.0	8.5	74.5
1997-98	81.4	196.1	26.0	92.8	44.6	56.8	8.7	75.1
1998-99	85.5	197.0	26.4	93.5	45.9	58.5	8.9	75.5
1999-00	109.8	197.7	28.0	94.1	51.7	60.0	10.4	76.9
2000-01	105.6	198.7	30.3	97.0	58.2	63.4	12.5	78.6
2001-02	103.8	194.2	31.2	99.0	48.6	64.3	12.7	78.5
2002-03	108.0	181.6	29.7	102.8	47.5	62.8	12.7	77.9
2003-04	109.0	176.5	31.6	103.1	110.8	60.6	12.8	74.8

Source:- Provincial Agriculture Department**Note: -** (*) Excluding melons except cucumber since 1995-96.

(b) Excluding potato & Sugar beet.

Table A-36: Production of Agricultural Crops

(000 Tonnes)

Year	Rice	Wheat	Bajra	Jowar	Maize	Barley	Gram	Masoor
1991-92	3,243.1	15,684.2	138.7	224.5	1,203.1	139.9	512.8	26.1
1992-93	3,116.1	16,156.5	203.1	238.4	1,183.6	158.3	347.3	28.2
1993-94	3,994.7	15,213.0	137.5	212.3	1,213.0	145.7	410.7	25.1
1994-95	3,446.5	17,002.4	228.2	263.4	1,318.1	164.0	558.5	31.0
1995-96	3,966.5	16,907.4	161.5	254.8	1,503.9	174.4	679.6	34.0
1996-97	4,304.8	16,650.5	145.6	219.2	1,490.8	150.0	594.4	35.0
1997-98	4,333.0	18,694.0	211.3	231.3	1,517.3	174.1	767.1	37.1
1998-99	4,673.8	17,857.6	212.9	227.8	1,665.0	137.4	697.9	37.7
1999-00	5,155.6	21,078.6	155.6	220.4	1,652.0	117.5	564.5	35.5
2000-01	4,802.6	19,023.7	199.0	218.5	1,643.2	98.9	397.0	26.9
2001-02	3,882.0	18,226.5	216.4	221.6	1,664.4	99.8	362.1	26.2
2002-03	4,478.5	19,183.3	189.2	202.6	1,737.1	99.6	675.2	29.2
2003-04	4,847.6	19,499.8	273.7	238.1	1,897.4	97.6	611.1	31.1
Year	Mash	Mung	Other Pulse (a)	Rapeseed & mustard	Sesamum	Linseed	Ground nut	Cotton (000 bales)
1991-92	37.1	50.9	8.5	219.7	28.7	4.4	96.1	12,822.2
1992-93	30.3	62.1	8.0	206.9	34.0	4.1	101.1	9,053.8
1993-94	28.6	69.3	6.6	197.4	32.3	3.9	95.9	8,041.1
1994-95	26.9	80.0	7.4	229.4	36.2	4.2	105.7	8,697.1
1995-96	28.4	90.6	7.7	254.5	39.5	4.6	112.8	10,594.9
1996-97	28.4	89.5	6.6	285.6	44.9	4.6	117.4	9,374.2
1997-98	25.8	88.9	6.7	291.5	42.5	4.5	112.4	9,183.8
1998-99	25.1	90.5	7.0	279.4	32.1	4.9	104.0	8,790.2
1999-00	23.7	94.8	5.8	297.3	35.4	4.5	99.1	11,240.0
2000-01	25.7	104.5	6.1	230.6	50.7	2.7	91.3	10,731.9
2001-02	27.6	115.4	5.6	221.3	69.6	3.0	101.0	10,612.6
2002-03	29.0	138.4	4.4	235.0	19.2	3.0	90.1	10,210.6
2003-04	24.6	140.8	5.7	238.1	24.7	3.1	114.7	10,047.7

Note:- (a) Including " Moth and Arhar etc. Pulses".

Contd...

Table A-36: Production of Agricultural Crops

(000 Tonnes)

Year	Jute	Sunhemp	Sugar cane	Tobacco	Potato	Vegetables * (b)	Garlic	Chillies
1991-92	0.1	3.4	38,864.9	97.3	859.8	2,875.5	62.6	142.3
1992-93	0.0	3.3	38,058.9	101.6	932.8	3,017.7	66.2	75.3
1993-94	0.0	2.6	44,427.0	100.2	1,056.2	3,149.5	66.4	141.5
1994-95	0.0	2.6	47,168.4	80.9	1,105.0	3,359.7	76.9	94.9
1995-96	0.0	2.5	45,229.7	79.9	1,063.5	2,783.2	82.5	135.8
1996-97	0.0	2.2	41,998.4	91.6	963.6	2,858.0	76.1	140.1
1997-98	0.0	2.0	53,104.2	98.6	1,425.5	2,946.8	79.8	140.2
1998-99	0.0	1.9	55,191.1	108.8	1,810.4	2,995.4	82.7	136.6
1999-00	0.0	1.9	46,332.6	107.7	1,868.4	2,863.1	76.3	115.5
2000-01	0.0	2.1	43,606.3	85.1	1,665.7	2,859.7	63.9	174.6
2001-02	0.0	2.2	48,041.6	94.5	1,730.7	2,873.7	56.5	93.3
2002-03	0.0	1.7	52,055.8	88.2	1,946.3	2,880.3	57.7	98.9
2003-04	0.0	1.6	53,419.0	86.2	1,938.1	3,028.6	56.5	96.4
Year	Onion	Citrus fruits	Banana	Mango	Apple	Guava	Grapes	Dates
1991-92	808.9	1,629.8	44.2	787.2	295.3	373.1	35.5	292.9
1992-93	853.7	1,665.3	52.0	793.7	339.0	384.0	37.6	275.2
1993-94	911.5	1,849.4	53.2	839.3	442.4	402.3	40.3	578.6
1994-95	1,013.1	1,932.8	79.5	883.7	533.1	420.3	42.9	531.5
1995-96	1,097.6	1,959.5	81.7	907.8	553.5	441.6	72.0	532.5
1996-97	1,131.0	2,002.6	83.2	914.5	568.5	447.7	74.1	534.4
1997-98	1,076.5	2,037.0	93.6	916.8	573.1	454.9	74.3	537.5
1998-99	1,138.2	1,861.5	94.6	916.4	589.3	468.3	75.8	721.6
1999-00	1,648.0	1,943.2	125.2	937.7	377.3	494.5	40.3	579.9
2000-01	1,563.3	1,897.7	139.4	989.8	438.9	525.5	51.1	612.5
2001-02	1,385.0	1,830.3	149.7	1,037.1	367.1	538.5	52.6	630.3
2002-03	1,427.5	1,702.3	142.9	1,034.6	315.4	531.6	51.8	625.0
2003-04	1,449.0	1,760.3	174.7	1,055.9	333.8	549.6	50.8	426.8

Source:- Ministry of Food, Agriculture & Livestock

Note:- (b) Excluding Potato and Sugar beet.

Table A-37: Number of Tube wells by Province

Year	Total	Balochistan	NWFP	Punjab	Sindh
1991-92	355,840	16,852	7,766	309,593	21,629
1992-93	374,099	15,552	7,977	328,261	22,309
1993-94	444,179	16,303	8,367	396,459	23,050
1994-95	463,463	16,303	8,549	415,271	23,340
1995-96	485,050	17,568	8,666	435,228	23,588
1996-97	506,805	21,059	9,727	452,431	23,588
1997-98	531,259	22,048	11,956	473,667	23,588
1998-99	563,216	22,048	11,956	500,631	28,581
1999-00	609,975	21,115	11,956	543,243	33,661
2000-01	659,278	21,115	12,842	588,130	37,191
2001-02	703,093	25,734	12,747	610,750	53,862
2002-03	762,902	25,734	12,758	656,898	67,512
2003-04	768,327	25,734*	12,739	656,898*	72,956

Source:- Agriculture Statistics of Pakistan-2003-04, M/O Agriculture Food. & Livestock (Economic Wing)

* Revised

Table A-38: Number and Area of Farms by Size of Farm – 2000

Size of farm (Hectares)	Farms		Farm area		Average size of Farm area (Hectares)
	Number	percent	Hectares	percent	
All Farms	6,620,224	-	20,437,554	-	-
Government Farms	170.0	-	30,772	-	-
Private Farms	6,620,054	100	20,406,782	100	3.1
Under 0.5	1,290,098	19	362,544	2	0.3
0.5 to under 1.0	1,099,330	17	821,245	4	1.0
1.0 to under 2.0	1,425,370	22	1,981,277	10	2.5
2.0 to under 3.0	966,411	15	2,256,772	11	5.0
3.0 to under 5.0	890,755	13	3,442,507	17	7.5
5.0 to under 10.0	580,200	9	3,891,228	19	12.5
10.0 to under 20.0	260,791	4	3,324,310	16	25.0
20.0 to under 40.0	77,773	1	1,955,330	10	50.0
40.0 to under 60.0	15,277	*	689,070	3	100.0
60.0 and above	14,054	*	1,682,491	8	150.0

Source:- Agriculture Statistics of Pakistan-2003-04

* Negligible

Table A-39: Overall Water Availability at Farm Gate

(MAF)

Year/Season	Surface Water		Ground Water		Total Water Availability
	At Canal Head	At Farm Gate	Public Tube Wells	Private Tube Wells	
1987-88					
Kharif	71.10	45.21	5.52	14.96	65.69
Rabi	38.00	26.03	5.54	14.96	46.53
Total	109.10	71.24	11.06	29.92	112.22
1988-89					
Kharif	66.60	46.22	5.67	15.31	67.20
Rabi	38.50	26.46	5.69	15.31	47.46
Total	105.10	72.68	11.36	30.62	114.66
1989-90					
Kharif	65.27	47.18	5.82	15.66	68.66
Rabi	36.82	26.98	5.84	15.66	48.48
Total	102.09	74.16	11.66	31.32	117.14
1990-91					
Kharif	69.01	48.26	5.97	16.01	70.24
Rabi	40.74	27.38	5.99	16.01	49.38
Total	109.75	75.64	11.96	32.02	119.62
1991-92					
Kharif	71.11	49.27	6.10	16.34	71.71
Rabi	38.38	27.88	6.12	16.34	50.34
Total	109.49	77.15	12.22	32.68	122.05
1992-93					
Kharif	61.58	50.26	6.27	16.96	73.49
Rabi	39.35	28.38	6.29	16.96	51.63
Total	100.93	78.64	12.56	33.92	125.12
1993-94					
Kharif	71.42	51.01	6.32	17.39	74.72
Rabi	36.16	29.55	6.34	17.40	53.29
Total	107.58	80.56	12.66	34.79	128.01
1994-95					
Kharif	57.31	51.08	6.37	17.82	75.27
Rabi	37.14	30.15	6.39	17.84	54.38
Total	94.45	81.23	12.76	35.66	129.65

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Table A-39: Overall Water Availability at Farm Gate

(MAF)

Year/Season	Surface Water		Ground Water		Total Water Availability
	At Canal Head	At Farm Gate	Public Tube Wells	Private Tube Wells	
1995-96					
Kharif	62.80	51.15	6.42	18.25	75.82
Rabi	39.58	30.31	6.44	18.28	55.03
Total	102.38	81.46	12.86	36.53	130.85
1996-97					
Kharif	72.72	51.22	6.47	18.68	76.37
Rabi	38.40	30.47	6.49	18.72	55.68
Total	111.12	81.69	12.96	37.40	132.05
1997-98					
Kharif	67.50	51.30	0.96	19.11	71.37
Rabi	35.64	30.65	0.97	19.16	50.78
Total	103.14	81.95	1.93	38.27	122.15
1998-99					
Kharif	72.79	51.73	0.96	19.25	71.94
Rabi	37.91	30.98	0.97	19.38	51.33
Total	110.70	82.71	1.93	38.63	123.27
1999-00					
Kharif	74.71	51.97	0.96	19.11	72.04
Rabi	31.99	31.40	0.97	19.16	51.53
Total	106.70	83.37	1.93	38.27	123.57
2000-01					
Kharif	62.85	52.57	0.96	19.53	73.06
Rabi	23.32	31.65	0.97	19.82	52.44
Total	86.17	84.22	1.93	39.35	125.5
2001-02					
Kharif	58.11	52.62	0.96	19.67	73.25
Rabi	21.50	31.72	0.97	20.04	52.73
Total	79.61	84.34	1.93	39.71	125.98
2002-03					
Kharif	68.19	52.68	0.96	19.81	73.45
Rabi	28.22	31.78	0.97	20.27	53.02
Total	96.41	84.46	1.93	40.08	126.47
2003-04					
Kharif	69.59	54.70	0.96	24.60	80.26
Rabi	33.56	34.80	0.97	25.61	61.38
Total	103.15	89.50	1.93	50.21	141.64

Source:- Agricultural Statistics of Pakistan 2003-04 M/o Food, Agriculture & Livestock

Note:- Data does not include scrap tube well

Table A-40: Production of Chemical Fertilizers

(000 Tonnes)

Year	Total	Urea	Ammonium Nitrate	Ammonium Sulphate	SSP Phosphate	Nitro Phosphate
1990-91	2,957	2,050	319	92	175	321
1991-92	2,795	1,898	300	93	194	310
1992-93	3,203	2,306	302	93	205	297
1993-94	3,875	3,104	243	82	195	251
1994-95	3,826	3,000	314	80	147	285
1995-96	4,166	3,258	383	84	104	337
1996-97	4,017	3258	330	78	1	350
1997-98	3,894	3284	316	0.5	-	293
1998-99	4,242	3550	339	-	22	285
1999-00	5,960	3995	386	-	146	371
2000-01	5,127	3983	374	-	160	285
2001-02	5,057	4260	329	-	162	306
2002-03	5,194	4407	335	-	147	305
2003-04	5316	4435	350	-	168	363

Source:- National Fertilizer Development Centre, Islamabad

Table A-41: Season-Wise Consumption of Fertilizers

(000 Nutrient Tonnes)

Year	Kharif				Rabi				Total			
	N	P	K	All	N	P	K	All	N	P	K	All
1981	358	77	7	442	461	154	13	628	819	231	20	1070
1982	420	78	7	505	523	171	19	712	944	248	26	1217
1983	404	83	7	494	534	184	19	737	940	267	27	1232
1984	386	90	9	485	559	206	15	780	945	296	24	1265
1985	457	95	9	561	649	251	23	923	1106	346	32	1484
1986	543	106	13	662	725	266	26	1,017	1268	372	39	1679
1987	583	152	22	757	681	257	24	962	1264	409	46	1719
1988	588	124	15	727	730	252	12	994	1318	376	27	1721
1989	622	141	13	776	774	254	30	1,058	1396	395	43	1834
1990	692	150	10	852	761	235	17	1,013	1453	385	27	1865
1991	715	165	15	895	764	252	14	1,030	1479	417	29	1925
1992	737	144	8	889	829	300	16	1,145	1566	444	24	2034
1993	840	239	7	1,086	862	281	15	1,158	1702	520	22	2244
1994	721	105	7	833	982	311	12	1,305	1703	416	19	2138
1995	862	161	13	1,036	1065	315	15	1,395	1927	476	28	2431
1996	1050	209	6	1,265	941	233	4	1,178	1991	442	10	2443
1997	981	153	7	1,141	1089	359	13	1,461	2070	512	20	2602
1998	987	201	6	1,194	1070	263	15	1,348	2057	464	21	2542
1999	1075	217	8	1,300	1133	363	10	1,506	2208	580	18	2806
2000	1134	311	9	1454	1211	360	14	1585	2345	671	23	3039
2001	1049	329	8	1386	1111	295	9	1415	2160	624	17	2801
2002	1117	258	9	1384	1201	422	12	1635	2318	680	21	3019
2003	1183	210	9	1402	1346	457	13	1816	2529	667	21	3218

Source:- National Fertilizer Development Centre (NDFC), Islamabad**Note:-** Kharif = 1st April to 30th September

Rabi = 1st October to 31st March

Table A-42: Usage of Fertilizers by Crops

(000 Nutrient Tonnes)

Year	Wheat	Rice	Maize	Cotton	Sugarcane	Others	Total
1990-91	889.71	189.30	75.72	378.60	208.23	151.44	1,893.00
1991-92	885.48	188.40	75.36	376.80	207.24	150.72	1,884.00
1992-93	1,009.38	214.76	85.90	429.52	236.24	171.81	2,147.61
1993-94	1,009.09	214.20	85.88	429.40	236.17	171.76	2,146.50
1994-95	1,026.05	218.31	87.32	436.62	240.14	174.64	2,183.08
1995-96	1,182.00	251.50	100.60	503.00	276.70	201.20	2,515.00
1996-97	1,094.54	129.82	54.05	557.40	256.02	321.17	2,413.00
1997-98	1,206.12	143.05	59.56	614.23	282.12	353.91	2,658.99
1998-99	1,171.77	138.98	57.87	596.73	274.08	343.83	2,583.26
1999-00	1,285.24	152.44	63.47	654.52	300.63	377.13	2,833.43
2000-01	1,344.45	159.46	66.39	684.67	314.48	394.50	2,963.95
2001-02	1,328.41	157.56	65.60	676.51	310.72	389.80	2,928.60
2002-03	1,369.76	162.46	67.64	697.57	320.40	401.93	3,019.76
2003-04	1,461.50	173.34	72.17	744.28	341.85	428.85	3,222.00

Source:- National Fertilizer Development Centre (P & D Division).Islamabad

Table A-43:Consumption of Pesticides

Year	Quantity (M.T)			Value (Million Rs.)
	Imports	Production	Total	
1991	6,157	14,056	20,213	5,536
1992	6,619	16,748	23,439	6,554
1993	6,128	14,151	20,279	5,384
1994	10,693	14,175	24,868	5,808
1995	20,136	23,239	43,375	7,274
1996	24,151	19,068	43,219	9,987
1997	24,168	13,836	38,004	9,904
1998	22,765	18,811	41,576	6,960
1999	27,210	18,470	45,680	7,324
2000	19,764	41,535	61,299	4,971
2001	20,678	26,914	47,592	7,741
2002	27,103	42,794	69,897	6,790
2003	24,028	54,105	78,133	8,138
2004	35,250	77,678	1,12,928	11,242

Source: - Agriculture Statistics of Pakistan-2003-04, M/O Food, Agriculture & Livestock (Economic Wing)

Table A-44: Estimated Livestock Population

(000 Heads)

Years Cattle → ↓	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04
Cattle								
1. Bulls 3 years & above								
a) For breeding	286	292	297	303	309	314	321	327
b) For work	3,452	3,516	3,516	3,651	3721	3793	3867	3942
c) Others	-	-	-	-	-	-	-	-
2. Cows 3 years & above								
a) In milk	6,443	6,564	6,688	6,815	6945	7080	7217	7359
b) Dry	2,425	2,471	2,517	2,565	2614	2665	2717	2770
c) Not yet calved	1,338	1,363	1,389	1,416	1443	1471	1499	1528
3. Bulls less than 3 years	3,634	3,702	3,772	3,844	3917	3993	4071	4150
4. Cows less than 3 years	3,224	3,284	3,346	3,410	3475	3542	3611	3681
Total Cattle	20,802	21,192	21,592	22,004	22424	22858	23303	23757
Buffaloes								
1. Bulls								
3 years & above								
a) For breeding	204	209	215	221	228	235	242	249
b) For work	168	172	177	182	188	193	199	205
c) Others	-	-	-	-	-	-	-	-
2. Buffaloes								
3 years & above								
a) In milk	8,027	8,253	8,488	8,734	8990	9258	9537	9829
b) Dry	2,501	2,571	2,644	2,721	2801	2884	2971	3062
c) Not yet calved	2,023	2,080	2,139	2,201	2265	2333	2403	2477
3. Bulls less than 3 years	3,377	3,472	3,571	3,674	3782	3895	4012	4136
4. Buffaloes less than 3 years	4,538	4,665	4,798	4,936	5081	5232	5390	5555
Total Buffaloes:-	20,838	21,422	22,032	22,669	23335	24030	24754	25513

Contd...

Table A-44: Estimated Livestock Population

(000 heads)

Years → Cattle ↓	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04
Sheep								
1. Male 1 year & above	3,429	3,448	3,468	3,489	3511	3535	3559	3885
2. Female 1 year & above	13,360	13,435	13,512	13,595	13681	13772	13867	13967
3. Young stock less than 1 year	6,879	6,917	6,958	7,000	7044	7091	7140	7192
Total Sheep:-	23,668	23,800	23,938	24,084	24236	24398	24566	24744
Goats								
1. Male 1 year & above	4,505	5599	5801	6,010	6227	6452	6686	6929
2. Female 1 year & above	23,161	23994	24858	25,755	26686	27651	28653	29694
3. Young stock less than 1 year	14,084	14590	15116	15,661	16227	16814	17424	18056
Total Goats:-	41,750	44,183	45,775	47,426	49140	50917	52763	54679
Camels								
1. 3 years & above	617	610	602	595	589	582	577	571
2. Less than 3 years	186	184	182	180	178	176	174	172
Total Camels:-	803	794	784	775	767	758	751	743
Asses								
1. 3 years & above	2,862	2,816	2,969	3,026	3082	3140	3199	3261
2. Less than 3 years	753	767	781	796	811	826	841	858
Total Asses:-	3,615	3,583	3,750	3,822	3893	3966	4640	4119
Horses								
1. 3 years & above	276	273	271	270	268	266	265	263
2. Less than 3 years	55	54	54	53	53	52	52	52
Total Horses:-	331	327	325	323	321	318	317	315
Mules								
1. 3 years & above	118	126	136	146	158	168	182	195
2. Less than 3 years	24	25	27	29	32	34	36	39
Total Mules:-	142	151	163	175	190	202	218	234
Poultry								
Total Poultry (Million)	382	276	278	282	292	330	346	353

Source:- Agriculture Statistics of Pakistan 2003-04 M/O Food Agriculture & Livestock

Table A-45: Estimated Livestock Products

Products	Unit	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98
Milk production	000 tonnes	17,120	18,006	18,936	28,577	29930	30,126
Milk available for human consumption	000 tonnes	13,825	14,542	15,294	22,970	23580	24,215
Meat Production							
Beef	000 tonnes	844	887	931	898	919	940
Mutton	000 tonnes	763	817	875	588	602	617
Poultry meat	000 tonnes	265	296	308	355	387	284
Other Product							
Wool (Sheep)	000 tonnes	50.5	51.7	53.1	38.1	38.3	38.5
Hair (Goat)	000 tonnes	8.1	8.9	9.4	15.6	16.2	16.7
Bones	000 tonnes	270.7	276.9	283.2	295.7	302.3	309.2
Fat	000 tonnes	107.2	109.9	112.9	110.1	112.6	115.2
Blood	000 tonnes	45.1	47.3	30.7	32.0	32.8	33.6
Eggs	Million Nos.	5,164	5,740	5,927	5,927	5,757	6,015
Hides	Million Nos.	6.1	6.2	6.3	7.0	7.1	7.3
Skins	Million Nos.	36.0	37.8	38.1	32.7	34.5	35.3
Casings	Million Nos.	4.3	4.3	4.4	6.9	7.1	7.2
Guts	Million Nos.	12.9	23.7	24.6	32.4	33.2	34.1

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Table A-45: Estimated Livestock Products

Products	Unit	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04
Milk production	000 tonnes	30,948	31804	32695	33624	34593	35603
Milk available for human consumption	000 tonnes	24,877	25566	26284	27055	27811	28624
Meat Production							
Beef	000 tonnes	963	985	1009	1035	1060	1087
Mutton	000 tonnes	633	649	666	683	702	720
Poultry meat	000 tonnes	310	322	339	355	372	378
Other Product							
Wool (Sheep)	000 tonnes	38.7	38.9	39.2	39.9	39.7	40.0
Hair (Goat)	000 tonnes	17.3	18.0	18.6	19.3	20.0	20.7
Bones	000 tonnes	316.3	323.7	331.4	339.4	347.6	356.2
Fat	000 tonnes	117.7	120.6	123.5	126.5	129.6	132.9
Blood	000 tonnes	34.4	40.9	41.9	42.9	44.0	45.2
Eggs	Million Nos.	8,261	8,463	7505	7679	7991	8102
Hides	Million Nos.	7.4	7.6	7.8	7.9	8.2	8.4
Skins	Million Nos.	36.2	37.2	38.2	39.3	40.3	41.4
Casings	Million Nos.	7.4	7.6	7.7	7.9	8.1	8.3
Guts	Million Nos.	35.0	35.9	36.8	37.8	38.9	39.9

Source:- Agriculture Statistics of Pakistan-2003-04 M/O Food, Agriculture & Livestock
(Economic Wing)

Table A-46: Estimated Milk Production

(000 Tonnes)

Years	Cows	Buffaloes	Sheep	Goats	Total
1992-93					
Gross Production	3,928	12,546	44	602	17,120
Human Consumption	3,142	10,037	44	602	13,825
1993-94					
Gross Production	4,073	13,246	47	640	18,006
Human Consumption	3,258	10,597	47	640	14,542
1994-95					
Gross Production	4,293	13,984	49	680	19,006
Human Consumption	3,378	11,187	49	680	15,294
1995-96					
Gross Production	9,333	18,705	30	509	28,577
Human Consumption	7,467	14,964	30	509	22,970
1996-97					
Gross Production	9,505	19,868	30	527	29,930
Human Consumption	7,604	15,419	30	527	23,580
1997-98					
Gross Production	9,682	19,868	30	546	30,126
Human Consumption	7,745	15,894	30	546	24,215
1998-99					
Gross Production	9,863	20,489	30	565	30,948
Human Consumption	7,890	16,391	30	565	24,877
1999-00					
Gross Production	10,049	21,138	31	586	31,804
Human Consumption	8,039	16,910	31	586	25,566
2000-01					
Gross Production	10240	21817	31	607	32,695
Human Consumption	8192	17454	31	607	26,284
2001-02					
Gross Production	10437	22527	31	629	33,624
Human Consumption	8350	18022	31	652	27,055
2002-03					
Gross Production	10639	23271	31	652	34,593
Human Consumption	8511	18617	31	652	27,811
2003-04					
Gross Production	10847	24050	31	675	35,603
Human Consumption	8678	19240	31	675	28,624

Source: -M/O Food, Agriculture & Livestock

Table A-47: Estimated Meat and Eggs Production

(000 Tonnes/Million No)

Years	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04
Beef								
Cattle	442 (44)	450 (45)	459 (46)	467 (47)	476 (48)	486 (49)	495 (50)	505 (50)
Buffaloes	477 (48)	490 (49)	504 (50)	518 (52)	533 (53)	549 (55)	565 (57)	582 (58)
Total Beef	919 (92)	940 (94)	963 (96)	985 (99)	1009 (100)	1035 (104)	1060 (106)	1087(108)
Mutton								
Sheep	215 (60)	216 (60)	217 (61)	218 (61)	220 (61)	221 (62)	223 (62)	224 (63)
Goats	387 (108)	401 (112)	416 (116)	431 (121)	446 (125)	462 (129)	479 (134)	496 (139)
Total Mutton	602 (168)	617 (172)	633 (177)	649 (182)	666 (186)	683 (191)	702 (196)	720 (202)
POULTRY MEAT	387	284	310	322	339	355	372	378
Total Meat	1908 (260)	1841(266)	1906 (273)	1956 (281)	2014 (281)	2073 (295)	2134 (303)	2185(310)
EGGS (Million No)	5,757	6,015	8,261	8,463	7505	7679	7991	8102

Source:- Agriculture Statistics of Pakistan-2003-04, M/O Food, Agriculture & Livestock**Note:-** Figures in parentheses are of edible offal's.

Table A-48: Fish Production

(000 Tonnes)

Year	Category	Pakistan	Balochistan	NWFP (a)	Punjab (b)	Sindh
1986	Inland	84.0	-	0.7	32.5	50.8
	Marine	331.7	91.3	-	-	240.4
	Total	415.7	91.3	0.7	32.5	291.2
1987	Inland	91.6	-	0.8	37.2	53.6
	Marine	336.1	87.5	-	-	248.6
	Total	427.7	87.5	0.8	37.2	302.2
1988	Inland	96.5	-	0.5	42.0	54.0
	Marine	348.9	100.1	-	-	248.8
	Total	445.4	100.1	0.5	42.0	302.8
1989	Inland	105.0	-	1.1	46.4	57.5
	Marine	341.2	97.2	-	-	244.0
	Total	446.2	97.2	1.1	46.4	301.5
1990	Inland	113.2	-	1.5	51.4	60.3
	Marine	369.8	107.2	-	-	262.6
	Total	483.0	107.2	1.5	51.4	322.9
1991	Inland	115.9	-	3.4	54.5	58.0
	Marine	402.8	107.1	-	-	295.7
	Total	518.7	107.1	3.4	54.5	353.7
1992	Inland	121.6	-	3.4	58.2	60.0
	Marine	431.5	112.3	-	-	319.2
	Total	553.1	112.3	3.4	58.2	379.2
1993	Inland	122.5	-	3.5	58.7	60.3
	Marine	499.2	119.8	-	-	379.4
	Total	621.7	119.8	3.5	58.7	439.7

Note:- (a) Includes Northern Areas
(b) Includes Mangla Dam

Table A-48: Fish Production

(000 Tonnes)

Year	Category	Pakistan	Balochistan	NWFP (a)	Punjab (b)	Sindh
1994	Inland	139.5	-	1.1	66.6	71.8
	Marine	418.6	123.1	-	-	295.5
	Total	558.1	123.1	1.1	66.6	367.3
1995	Inland	136.4	-	1.6	59.4	75.4
	Marine	405.5	122.5	-	-	283.0
	Total	541.9	122.5	1.6	59.4	358.4
1996	Inland	160.2	-	1.5	67.3	91.4
	Marine	395.3	125.1	-	-	270.2
	Total	555.5	125.1	1.5	67.3	361.6
1997	Inland	167.5	-	0.9	64.1	102.5
	Marine	422.2	130.4	-	-	291.8
	Total	589.7	130.4	0.9	64.1	394.3
1998	Inland	163.5	-	0.9	56.0	106.6
	Marine	433.5	130.8	-	-	302.7
	Total	597.0	130.8	0.9	56.0	409.3
1999	Inland	179.8	-	1.0	65.7	113.1
	Marine	474.6	123.1	-	-	351.6
	Total	654.4	123.1	1.0	65.7	464.7
2000	Inland	176.4	-	1.0	61.8	113.6
	Marine	438.4	129.7	-	-	308.7
	Total	614.8	129.7	1.0	61.8	422.3
2001	Inland	178.6	-	1.1	62.0	115.5
	Marine	451.0	135.3	-	-	315.7
	Total	629.6	135.3	1.1	62.0	431.2
2002	Inland	183.3	-	1.3	65.0	117.0
	Marine	454.5	136.5	-	-	318.0
	Total	637.8	136.5	1.3	65.0	435.0
2003	Inland	165.7	-	2.0	61.4	102.3
	Marine	400.5	126.8	-	-	273.7
	Total	566.2	126.8	2.0	61.4	376.0
2004	Inland	170.5	-	2.5	63.0	105.0
	Marine	403.0	128.0	-	-	275.0
	Total	573.5	128.0	2.5	63.0	380.0

Source:- Directorate of Marine Fisheries Karachi

Table A-49: Total Catch of Fish and their Indices

Year	Total Catch of Fish (000 Metric Tonnes)			Index (Base: 1980 = 100)		
	Total	Inland	Marine	Total	Inland	Marine
1980	279.3	46.3	233.0	100.0	100.0	100.0
1981	317.8	56.3	261.5	113.8	121.6	112.2
1982	337.3	59.1	278.2	120.8	127.6	119.4
1983	343.4	60.3	283.1	123.0	130.2	121.5
1984	378.6	70.6	308.0	135.6	152.5	132.2
1985	408.4	75.1	333.3	146.2	162.2	143.0
1986	415.7	84.0	331.7	148.8	181.4	142.4
1987	427.7	91.6	336.1	153.1	197.8	144.2
1988	445.4	96.5	348.9	159.5	208.4	149.7
1989	446.2	105.0	341.2	159.8	226.8	146.4
1990	483.0	113.2	369.8	172.9	244.5	158.7
1991	518.7	115.9	402.8	185.7	250.3	172.9
1992	553.1	121.6	431.5	198.0	262.6	185.2
1993	621.7	122.5	499.2	222.6	264.6	214.2
1994	558.1	139.5	418.6	199.8	301.3	179.7
1995	541.9	136.4	405.5	194.0	294.6	174.0
1996	555.5	160.2	395.3	198.9	346.0	169.7
1997	589.7	167.5	422.2	211.1	361.7	181.2
1998	597	163.5	433.5	213.7	353.1	186.1
1999	654.5	179.8	474.7	234.3	388.6	203.7
2000	614.8	176.5	438.3	220.1	381.2	188.1
2001	629.6	178.6	452.0	225.4	385.7	194.0
2002	637.8	183.3	454.5	225.4	395.8	195.0

Source:- Directorate of Marine Fisheries, Karachi

Table A-50: Fishermen Engaged in Marine and Inland Fisheries

(Number)

Year	Marine			Inland	Grand total
	Karachi and Sindh coasts	Balochistan coast	Total		
1980	54,896	19,625	74,521	116,935	191,456
1981	60,771	21,034	81,805	118,098	199,903
1982	63,050	21,431	84,481	120,906	205,387
1983	63,525	21,531	85,056	124,375	209,431
1984	64,795	22,027	86,822	131,760	218,582
1985	65,835	23,361	89,196	130,920	220,116
1986	66,447	23,990	90,437	137,389	227,826
1987	66,703	20,861	87,564	154,254	241,818
1988	67,604	23,524	91,128	156,865	247,993
1989	67,800	23,600	91,400	156,950	248,350
1990	68,577	26,022	94,599	170,760	265,359
1991	68,918	26,554	95,472	194,321	289,793
1992	79,267	30,642	109,909	185,765	295,674
1993	79,464	31,647	111,111	199,339	310,450
1994	80,070	29,796	109,866	207,388	317,254
1995	80,383	31,555	111,938	277,976	389,914
1996	80,971	32,698	113,669	287,738	401,407
1997	84,190	33,904	118,094	298,311	416,405
1998	84,772	34,427	119,199	259,679	378,878
1999	85,104	36,416	121,520	214,660	336,180
2000	90,205	36,976	127,181	145,559	272,740
2001	92,104	38,200	130,304	148,600	278,904
2002	94,000	41,000	135,000	236,000	371,000

Source:- Directorate of Marine Fisheries, Karachi

Table A-51: Number of Fishing Crafts in Pakistan

Year	Sindh and Balochistan Coasts					Inland Sail boat (a)	Grand Total
	Trawlers	Gill netter	Mechanised cum Sail boats	Sail boat (a)	Total		
1983	1,431	1,125	3,790	3,242	9,588	10,766	20,354
1984	1,539	1,183	4,163	2,888	9,773	11,572	21,345
1985	1,631	1,249	4,417	3,118	10,415	12,188	22,603
1986	1,650	1,311	4,694	3,114	10,769	14,326	25,095
1987	1,700	1,546	4,927	3,142	11,315	15,797	27,112
1988	1,850	1,731	5,140	3,414	12,135	14,645	26,780
1989	1,985	1,882	5,516	3,500	12,883	15,037	27,920
1990	2,000	2,063	5,972	5,478	15,513	15,159	30,672
1991	2,007	2,113	6,026	5,664	15,810	17,981	33,791
1992	2,009	2,195	6,392	5,740	16,336	14,473	30,809
1993	2,028	2,369	6,524	5,793	16,714	14,645	31,359
1994	2,245	2,725	6,976	5,973	17,919	20,402	38,321
1995	2,252	2,812	7,256	5,918	18,238	16,439	34,677
1996	2,310	2,964	7,548	5,948	18,770	16,760	35,530
1997	2,427	3,126	7,806	6,292	19,651	16,882	36,533
1998	2,522	3,398	7,945	6,324	20,189	17,689	37,878
1999	2,564	3,600	8,034	6,383	20,581	19,222	39,803
2000	2,570	3,646	8,237	6,533	20,986	12,574	33,560
2001	2,610	3,702	8,301	6,590	21,203	12,610	33,813
2002	2,599	3,782	8,343	6,591	21,315	12,801	34,116
2003	2,702	4,018	8,853	6,834	22,407	11,885	34,292
2004	2,800	4,150	8,960	6,220	22,130	11,586	33,716

Source:- Marine Fisheries Department

Note:- (a) Including Oar/Row Boats

Table A-52: Increase in Forest Area between 1993 and 2018

(000 ha)

Forest Category	Area in 1993	Area Added 1993-2017	Area in 2018
Coniferous Fores	1,913	226	2,139
Scrub Forests	1,191	-	1,191
Riverain Forests	173	138	311
Irrigated Plantations	103	50	153
Mangrove forests	207	75	282
Linear & Amenity Planting	16	135	151
Farmland Plancing 1/	491	2,066	2,557
Upland Watershed Planting 2/	130	1529	1,659
Private Plant. on Public Land 3/	-	155	155
Total	4224	4374	8598
Graphic Area	87980	87980	87980
Forest Cover %	4.8	5.0	9.8

Source:- Forestry Sector Master Plan (FSMP) National Perspective-Vol.1

Note:- 1/ Includes misc. planting for Punjab and Sindh
 2/ Includes misc. planting for NWFP and AJK
 3/ Private planting on public non-forest land

Table A-53: Forest Products of Pakistan

Year	Total		Timber		Firewood	
	Quantity 000 Cu.m	Value Million Rs.	Quantity 000 Cu.m	Value Million Rs.	Quantity 000 Cu.m	Value Million Rs.
Major Products						
1992-93	691	518.0	371	454.0	320	64.0
1993-94	703	847.7	187	776.5	516	71.2
1994-95	684	681.4	338	615.9	346	65.5
1995-96	720	615.6	363	615.6	357	-
1996-97	343	592.0	126	478.0	217	114.0
1997-98	490	688.0	216	591.0	274	97.3
1998-99	383	1,277.3	184	1,191.0	199	86.2
1999-00	868	1,003.3	425	666.2	443	337.1
2000-01	805	1,043.4	380	648.7	425	394.6
2001-02	770	1,575.2	363	1,188.1	465	387.1
2002-03	828	1,446.3	384	961.6	444	484.7
2003-04	620	914.3	370	675.1	250	239.2
Year	Resin		Mazri		Ephedra	
Minor Products (Tonnes)						
1992-93	1,752		39,382		15,067	
1993-94	3,133		67,866		879	
1994-95	716		45,937		16,294	
1995-96	2,661		49,719		-	
1996-97	557		1,658		-	
1997-98	386		7,709		-	
1998-99	238		5,109		-	
1999-00	447		3,430		0.022	
2000-01	398		3,481		1.101	
2001-02	417		4887		0.919	
2002-03	-		4331		494.6	
2003-04	385		5516		510	

Source:- Agriculture Statistics of Pakistan-2003-04, M/O Food, Agriculture & Livestock

Table A-54: Uses of Forest Resources (Estimated Wood Consumption in Various End-uses)

(000 Cub. metres)

Year	Total	Pulp and Paper Industries (a)	Construction (b)	Furniture (b)	Fuel wood (b)	Others (b)
1980	18,860	32	506	164	16,850	1,308
1981	19,430	36	521	169	17,360	1,344
1982	20,020	42	537	174	17,880	1,387
1983	20,600	60	533	179	18,420	1,408
1984	21,240	80	570	184	18,970	1,436
1985	21,870	81	587	190	19,540	1,472
1986	22,526	108	605	196	20,126	1,491
1987	23,225	146	623	201	20,730	1,525
1988	23,922	162	642	208	21,352	1,558
1989	24,639	193	661	214	21,992	1,579
1990	25,380	229	680	220	22,651	1,600
1991	27,523	225	695	224	24,740	1,639
1992	27,080	244	712	230	24,226	1,668
1993	29,815	264	995	403	26,223	1,930
1994	30,530	285	1,028	424	26,769	2,024
1995	31,243	304	1,061	445	27,316	2,117
1996	31,955	323	1,093	466	27,862	2,211
1997	32,576	250	1,126	487	28,409	2,304
1998	33,425	256	1,155	500	29,150	2,364
1999	34,298	263	1,185	513	29,911	2,426
2000	35,192	270	1,216	526	30,691	2,489
2001	35,570	278	1,250	585	33,560	2,510
2002	59,716	459	2,052	445	27,100	1,333

Source:- Pakistan Forest Institute, Peshawar.

Note:- (a) The local paper-industry is based on non-woody raw materials, whereas it uses imported wood pulp. The figures are the round wood equivalent of the wood pulp imports.
 (b) Estimated wood consumption in various uses.

Table A-55: Production of Manufacturing Items

Year Production → ↓	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03
(i) Vegetable Products (a)								
No. of Reporting Factories	76	74	79	88	86	84	87	87
Production (000 Tonnes)	733	714	719	773	698	835	797	772
(ii) Sugar (b)								
No. of Reporting Factories	65	70	69	72	76	76	76	76
Production (000 Tonnes)	2,426	2,383	3,555	3542	2429	2556	3247	3686
(iii) Tea Blended (c)								
No. of Reporting Factories	4	5	4	5	5	5	6	5
Production (000 Tonnes)	59	61	61	59	55	46	55	58
(iv) Beverages (d)								
No. of Reporting Factories	105	157	160	153	155	157	157	164
Production (Million bottles)	1,573	1,390	1,798	2219	2332	2542	2492	2289
(v) Cigarettes (d)								
No. of Reporting Factories	30	27	26	27	27	24	24	14
Production (Billion No.)	46	46	48	52	47	58	55	49
(vi) Cotton Textiles (Mill Sector)								
No. of Reporting Mills	349	357	353	348	351	353	354	363
Production of Cotton								
Cloth (000 sq. metre)	327	333	340	385	437	490	568	582
(vii) Jute Textiles								
No. of Reporting Mills	14	12	11	11	12	12	13	13
Total Production (000 Tonnes)	71	69	95	85	85	89	82	94

Contd....

Table A-55: Production of Manufacturing Items

Year Production	→ ↓	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03
(viii) Paper and Board									
No. of Reporting Factories		77	81	76	75	80	87	95	19
Board									
Total Production Paper (000 Tonnes)		193	149	178	187	206	285	292	146
Total Production Board (000 Tonnes)		110	198	166	174	228	246	256	228
(ix) Chemicals									
No. of Reporting Factories		13	13	13	13	13	13	13	12
Soda Ash		221	247	240	239	246	218	215	281
Caustic Soda		109	118	116	120	141	146	150	164
Sulphuric Acid		69	31	28	27	58	57	59	56
Chlorine Gas		9	9	10	11	14	14	15	16
(x) Chemicals Fertilizers									
No. of Reporting Factories		10	10	10	10	11	11	11	11
Urea		3,260	3,259	3,284	3522	3785	4005	4260	4402
Super phosphate		104	0.1	-	22	146	160	161	147
Ammonium Sulphate		84	81	..	..	..	..	..	..
Ammonium Nitrate		383	330	316	339	386	374	329	335
Nitro Phosphate		337	350	293	285	261	283	306	305
Dai Ammonium phosphate		..	..	..	..	129	320	67	..
(xi) Paints & Varnishes (By weight) (a)									
No. of Reporting Factories		31	52	40	47	63	97	100	100
Production (000 Tonnes)		8	8	6	6	7	11	10	4

Contd...

Table A-55: Production of Manufacturing Items

Year → Production ↓	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03
(xii) Paints & Varnishes								
(By Volume) (a)								
No. of Reporting Factories	46	87	102	95	152	209	211	211
Production (Million Litres)	16	17	20	21	21	33	27	47
(xiii) Cosmetics (a)								
No. of Reporting Factories	68	79	80	67	75	76	75	..
Production (Million Containers)	105	157	172	207	283	385	363	..
(xiv) Soap and Detergents (a) Toilet Soap								
No. of Reporting Factories	25	30	27	22	22	22	22	..
Production (000 Tonnes)	60	69	73	76	83	71	76	..
Detergents								
No. of Reporting Factories	26	26	23	22	29	26	22	..
Production (000 Tonnes)	28	27	29	31	39	49	59	..
Detergents Bars								
No. of Reporting Factories	18	25	25	26	30	38	35	..
Production (Tonnes)	9,984	8,385	10,576	9696	13305	14608	18294	..
Detergents Liquids								
No. of Reporting Factories	1	3	4	2	5	2	2	..
Production (Tonnes)	419	1,160	2,606	328	347	397	288	..

Contd...

Table A-55: Production of Manufacturing Items

Year Production → ↓	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03
(xv) Cycle Tyres (b)								
No. of Reporting Factories	11	11	12	12	12	9	9	9
Production (000 No.)	3,988	4,112	3,445	3665	3766	4051	4569	5330
(xvi) Cycle Tubes (b)								
No. of Reporting Factories	11	11	12	12	12	9	9	9
Production (000 No.)	5,594	5,205	4,978	5529	5937	5891	6938	8942
(xvii) Motor Tyres (a)								
No. of Reporting Factories	7	7	7	4	4	4	4	4
Production (000 No.)	1,003	525	765	845	856	884	908	1082
(xviii) Motor Tubes (a)								
No. of Reporting Factories	6	7	4	4	4	4	4	4
Production (000 No.)	909	643	665	586	490	520	555	616
(xix) Cement (c)								
No. of Reporting Factories	20	20	24	24	24	24	24	24
Production (000 No.)	9,567	9,536	9,364	9635	9314	9674	9935	10845
(xx) Steel Products (000 Tonnes)								
Coke	686	663	668	589	663	717	695	775
Pig Iron	1,002	1,069	1,016	989	1107	1071	1043	1140
Billets	332	379	350	276	344	415	412	408
H.R Sheets/Strips/ Plates/Coils	486	465	423	451	490	442	383	546

Contd...

Table A-55: Production of Manufacturing Items

Year Production → ↓	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03
C.R Sheets/Strips/ Plates/Coils	155	159	159	148	163	140	127	192
Galvanize Sheets	59	49	62	62	60	56	41	39
(xxi) Sewing Machines								
No. of Reporting Factories	5	6	7	7	7	7	7	7
Production (000 Numbers)	84	61	36	30	28	27	24	31
(xxii) Air conditioners(a)								
No. of Reporting Factories	15	15	-	-	-	-	-	-
Production (000 Numbers)	80	56	-	-	-	-	-	-
(xxiii) Electric Motor (a)								
No. of Reporting Factories	23	23	23	23	23	23	23	23
Production (000 Numbers)	24	23	26	34	28	17	20	23
(xxiv) Transfermers (a)								
No. of Reporting Factories	10	10	10	10	10	10	10	10
Production (000 Numbers)	23	14	7	15	13	10	14	18
(xxv) Televisions (a)								
No. of Reporting Factories	19	12	11	11	11	9	9	9
Production (000 Numbers)	278	186	107	128	122	97	450	758

Contd...

Table A-55: Production of Manufacturing Items

Year → Production ↓	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03
(xxvi) Electric Bulbs (a)								
No. of Reporting Factories	-	-	-	-	-	-	-	-
Production (Million No.)	46	56	63	67	-	55	55	58
(xxvii) Electric Tubes (a)								
No. of Reporting Factories	-	-	-	-	-	-	-	-
Production (000 No.)	5,417	7,598	8,354	8074	7144	10542	10441	10844
(xxviii) Manufacture/ Assembly of Automobiles(Nos)								
Cars (b)	31,079	33,462	33,683	38682	32461	39573	40601	62893
Jeeps (4x4) (b)	2,274	792	657	622	380	459	570	374
Light Commercial								
Vehicles (b)	6,834	9,817	9,886	8079	6656	6965	8491	12174
Trucks (c)	3,030	2,916	1,850	1131	977	952	1141	1950
Buses (c)	438	362	425	1220	1508	1337	1099	1340
Motorcycles/Scooters/ Rickshaws (d)	121,809	117,188	96,991	93167	94881	117858	133334	176591
(xxix) Tractors (e)								
No. of Reporting Factories	-	-	-	-	-	-	-	-
Production (No.s)	16,093	10,417	14,144	26885	35038	32553	24331	26501
(xxx) Bicycles (e)								
No. of Reporting Factories	5	5	5	5	5	5	5	5
Production (000 No.s)	545	432	452	504	534	570	553	630

Source:- (a) i. Provincial Bureau of Statistics Since, July, 2002
 (b) i. Central Bureau of Revenue from July, 1992 to June, 1998
 ii. Ministry of Industries since July, 98
 (c) Provincial Bureau of Statistics
 (d) Central Board of Revenue upto June, 2002 and M/O Industries from July, 2002
 Pakistan Electronics Manufacturing Association (PEMA)

Table A-56: Mineral Production in Pakistan

(Tonnes)

Year	Argonite/ marble	Barytes	Bauxite	Celestite	China clay
1991-92	320,859	30,118	3,954	1,069	42,344
1992-93	388,570	26,337	4,847	1,682	37,454
1993-94	459,734	18,334	4,064	4,398	48,074
1994-95	462,097	20,079	4,456	1,403	30,986
1995-96	458,088	14,058	2,284	762	43,031
1996-97	459,275	30,463	3,726	812	66,057
1997-98	344,869	29,923	5,015	961	67,914
1998-99	411,653	17,604	11,216	642	67,478
1999-00	578,742	25,901	9,685	802	63,456
2000-01	619,662	28,252	3,728	807	46,579
2001-02	629,653	21,484	12,233	382	53,542
2002-03	1,158,487	40,745	4,098	402	39,575
2003-04	993,558	44,207	4,847	570	25,204
Year	Chromite	Ebry	Fire clay stone	Flourite	Fuller's earth
1991-92	28,252	1,441	138,772	917	20,825
1992-93	22,936	1,018	132,273	2,156	22,609
1993-94	10,765	880	115,998	1,253	16,984
1994-95	13,513	2,984	151,889	1,329	15,154
1995-96	27,439	-	111,955	867	18,033
1996-97	35,282	366	109,943	869	12,274
1997-98	35,480	141	94,435	135	18,303
1998-99	18,402	177	152,979	300	15,624
1999-00	25,669	225	139,056	675	19,378
2000-01	16,459	45	163,723	1,091	12,926
2001-02	24,185	75	171,056	1,288	15,521
2002-03	30,657	-	116,515	1,305	14,723
2003-04	29,230	680	192,728	1,166	13,986

Contd...

Table A-56: Mineral Production in Pakistan

(Tonnes)

Year	Dolomite	Gypsum	Lime stone	Magnesite	Manganese
1991-92	180,987	470,601	8,527,574	6,333	-
1992-93	220,241	533,420	9,015,232	5,047	202
1993-94	228,090	665,723	9,125,169	7,000	-
1994-95	227,079	623,504	9,682,416	5,237	566
1995-96	185,115	419,835	9,739,869	14,981	1,175
1996-97	215,556	521,565	9,491,324	6,679	424
1997-98	116,046	307,129	11,166,009	3,397	-
1998-99	198,831	241,540	9,466,626	3,455	-
1999-00	347,583	355,188	9,588,846	4,513	130
2000-01	352,689	364,449	10,868,167	4,645	1,500
2001-02	312,886	401,740	10,819,571	4,637	-
2002-03	340,864	424,107	11,880,275	2,645	1,551
2003-04	297,419	467,065	13,150,127	6,074	40
Year	Ochres	Rock Salt	Silica sand	Soap stone	Sulphur
1991-92	1,001	832,620	132,409	36,796	215
1992-93	1,000	895,107	158,186	48,117	510
1993-94	745	916,132	168,790	44,430	715
1994-95	4,623	889,908	152,423	34,120	510
1995-96	8,081	957,775	184,203	39,939	20
1996-97	2,047	1,066,480	154,322	45,425	640
1997-98	3,147	971,122	135,210	49,027	22,458
1998-99	4,080	1,190,291	158,100	42,339	19,103
1999-00	4,793	1,357,815	166,744	47,977	22,812
2000-01	4,691	1,393,688	154,867	46,989	17,428
2001-02	5,064	1,423,478	156,599	38,780	22,580
2002-03	6,733	1,426,067	185,415	65,797	19,402
2003-04	7,861	1,639,516	259,009	52,483	23,873

Source:- Provincial Directorate of Industries & Mineral Development

Table A-57: Crude Oil Production by Field

(US Barrels)

Province/Field	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04
PUNJAB							
Balkassar	143619	136470	111199	155878	157279	140766	125071
Dhulian	10463	34709	40129	42387	58506	62126	51622
Joyamair	95665	80658	56895	50621	42321	28699	18998
Khaur	2128	1876	1896	2002	1882	1859	1460
Meyal	282918	124465	81283	103424	334083	509571	312556
Minwal	171083	151497	106917	70141	82100	61101	39942
Pariwali	271325	366867	280224	561655	368458	325694	291421
Pindori	571768	548602	1554263	1563870	1856921	2071396	2875358
Turkwal	374180	468844	347311	398869	352226	233631	80917
Bhalsyedan	-	-	-	20094	71359	47360	33082
Chak Naurang	321207	262452	254143	193330	183243	171490	164295
Chanda	-	-	-	25305	126137	-	-
Dakhni	222971	229544	236940	219764	190521	189676	210392
Dhodak	903984	923157	923903	769473	889709	858816	887350
Fimkassar	1411751	1124915	505134	220918	185718	199747	195140
Kal	590695	602623	607855	586417	568289	557042	559291
Missa Keswal	353864	244081	195682	164949	224559	233371	144012
Rajian	503427	237720	252586	548650	415944	444722	430410
Sadkal	90599	79655	659115	472319	342376	173621	79517
Toot	108255	86140	75737	79944	78439	81543	90518
Bhangali	85010	263725	225985	167669	140246	148525	67464
Dhurnal	391381	425158	156542	39382	314532	384256	252030
Ratana	72400	48042	37019	29507	19519	24497	46841
Adhi	953035	922749	949254	896025	843106	1163111	1428537
Punjab Total	7931728	7363949	7660012	7382593	7847473	8112620	8386224
SINDH	-	-	-	-	-	-	-
Zamzama	-	-	-	41655	206426	194405	602811
Kadanwri	-	-	-	-	-	25607	18501
Bhit	-	-	-	-	-	-	76482
Bhullan Shan	-	-	-	-	-	-	15304
Bobi	188134	62007	89399	182630		-	5210
Buzdar	-	-	-	-	11575	-	-
Chak-2	-	-	-	-	-	24985	1368
Chak-63	-	-	-	-	-	4490	42705
Daru	-	-	97706	119340	86281	72988	74816
Kunnar	-	-	299204	1126836	1137809	1244161	1463921
Lashari Centre	288706	108007	89839	98548	297977	375768	277428
Missan	-	99083	74361	56544	41410	49010	54219
Nooral Jagir	-	-	-	-	-	-	42346
Palli	-	4245	12912	1439	1158	1165	-
Pasakhi	726991	1563405	559228	1477163	1263672	1020926	832250
Pasakhi North	419603	330035	1035960	-	-	381455	372270

Contd...

Table A-57: Crude Oil Production by Field

(US Barrels)

Province/Field	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04
Qadirpur	100627	94528	108234	117741	115101	112231	205520
Resham	-	-	-	-	-	51475	-
Sono	691933	774925	658070	467729	477954	285747	201843
Tando Alam	381661	538768	453228	336786	326813	441499	688043
Tando Allah Yar	-	-	5954	-	-	-	-
Thora	551137	494871	314141	318134	407057	871417	730070
Thora East	-	94055	186835	110670	-	-	-
Uch	-	-	-	-	-	-	2372
Miano	-	-	-	-	1269	3394	15411
Naimat Basal	-	-	-	-	-	-	49323
Suraj South	-	-	-	-	-	-	28434
Umer	-	-	-	-	-	-	229879
Kandhkot	16561	16177	16263	12531	29963	14780	10926
Sui	13186	9651	9564	9226	6366	14866	13211
Mazarani	-	-	-	-	-	-	20549
Akri North	490486	452147	411382	480648	506759	459557	356366
Ali Zaur	-	-	-	-	-	-	52296
Bachal	-	701	-	-	-	-	-
Badin	-	-	619076	493329	1498135	-	-
Bari	101958	68848	55422	41688	34120	20697	21452
Bhatti	-	177913	-	-	-	204191	159985
Bukhari	-	126788	-	-	-	32444	14960
Buzdar	-	-	-	-	-	54100	42646
Buzdar South	-	-	40196	85509	-	9005	-
Buzdar South/deep	162695	105166	65182	91404	57415	59620	60968
Dabhi,Dabhi N.& S	487568	1305220	1608219	1720176	1919998	1273606	542693
Duphri	-	-	-	-	-	198	-
Ghungro	680442	354526	298116	637237	1095678	938919	547707
Golarchi	-	4631	-	-	-	7272	3402
Halipota	123186	57936	82059	44274	117	-	-
Jabo	109480	48492	71666	239601	218338	321118	361003
Jagir	520044	400184	391469	479155	602970	532280	409035
Jalal	-	3872	-	-	-	-	-
Jhaberi	-	-	-	-	7860	85899	8339

Contd...

Table A-57: Crude Oil Production by Field

(US Barrels)

Province/Field	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04
unathi South	-	-	-	14050	16197	532	1727
Kato	159780	43829	831	3003	-	9157	352
Keyhole-G	37630	21977	-	-	-	16218	356134
Khaskheli	532750	468734	343376	236933	212454	186537	190469
Khorewah & K. Deep	1493	159753	643	261	-	117566	101356
Koli	-	49320	-	-	-	-	-
Laghari	282161	239773	154136	116498	94565	81991	64124
Liari	113931	224496	402805	594271	563776	415795	140136
Liari Deep	-	-	-	-	8766	36874	17852
Makhdumpur	-	7187	-	7	-	23715	17748
Matli	-	379	-	-	-	-	-
Mazari	933125	457543	318694	220753	198450	229077	190372
Mazari South	1263692	1196391	1252393	1284403	1068282	647976	465884
Mazari South Deep	146427	228792	382101	225956	442263	298683	288686
M. Ismail	62211	32770	16362	993	105	41449	30179
Muban	-	24646	24491	43075	43736	51975	57643
Nari	-	9223	-	-	-	1709	-
Paniro	99709	123186	202064	138143	116440	29242	29850
Pir	47662	6876	3170	2363	-	-	1411
Raj	-	-	-	-	-	4348	706
Rajo	-	-	-	30281	86578	40223	6568
Rind	159216	34252	883	30828	-	253322	316878
Sakhi	287068	593554	656717	731999	680334	391713	559101
Shah Dino	-	-	-	-	-	20416	145839
Sonro	-	-	51625	77061	43971	739018	587801
Tajedi	369321	227407	163580	118807	116496	116839	78003
Tangri	1453256	1056662	1029584	887645	1184558	1565309	739212
Turk&Turk deep	607616	112843	-	-	-	62482	101568
Zaur	-	-	-	61334	118383	755406	953763
Zaur Deep	-	-	83406	92371	-	18377	12012
Zaur South	-	-	-	-	-	-	127281
Sindh Total	12611446	12615774	12740546	13701028	15347575	15345224	14238719
Grand Total	20543174	19985677	20394604	21083621	23195048	23457844	22624943

Source:- Pakistan Energy Year Book 2004 Published by Hydrocarbon Development Institute of Pakistan

Table A-58: Petroleum Energy Products Consumption by Sector

(Tonnes)

(TOE)

Sector/Year	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04
Domestic	498,949	492,768	477,305	450,960	334,501	282,521	231,459
	514,781	508,508	492,717	465,668	345,213	291,449	238,773
Industrial	2,081,172	2,139,889	2,115,860	1,924,048	1,611,995	1,604,068	1,493,080
	2,043,460	2,098,513	2,074,608	1,888,831	1,587,463	1,584,771	1,481,873
Agriculture *	244,977	249,229	293,034	254,833	225,742	196,747	183,506
	255,217	259,647	305,269	265,467	235,149	204,842	191,1080
Transport **	7,364,767	7,846,063	8,307,977	8,157,893	8,018,777	8,082,273	8,464,042
	7,729,075	8,250,299	8,727,484	8,581,246	8,439,120	8,505,689	8,909,350
Power	6,053,784	5,525,669	6,227,595	6,487,988	6,305,419	6,019,958	2,739,763
	5,905,759	5,390,013	6,071,584	6,326,024	6,145,500	5,868,192	2,672,432
Other Government	380,756	376,133	346,050	372,176	463,654	266,387	309,263
	396,298	392,154	360,371	385,579	481,648	278,967	324,288
Total:	16,624,405	16,629,751	17,767,821	17,647,898	16,960,088	16,451,954	13,421,113
	16,844,590	16,899,134	18,032,033	17,912,815	17,234,093	16,733,909	13,817,797
Annual growth rate	6.53%	0.14%	6.73%	-0.67%	-3.90%	-3.00%	-18.42%

Source:- Pakistan Energy Year Book,2004 Published by Hydrocarbon Development Institute of Pakistan

Note: - * HSD consumption for tractors in agriculture sector is not separately available and is included in the transport sector. Agriculture sector represents LDO only

** Include MTBE used in road transport

Table A-59: Petroleum Energy Products Consumption by Province

Unit : Tonnes

(TOE)

Province	Year						
	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04
Balochistan	1864389	1779929	1744401	2176530	1282156	1134647	889518
N.W.F.P	1253080	1347869	1331452	1241725	1183295	1146391	1241454
Punjab	8705204	8833710	9589707	9533324	9656382	9760023	7938372
Sindh	4612608	4580897	5231082	4828670	4967649	4544408	3547229
A.J. Kashmir	409309	356727	135392	132565	144610	148439	201224
Total:	16844590	16899132	18032034	17912814	17234093	16733909	13817797
Annual Growth rate	6.30%	0.14%	6.73%	-0.67%	-3.90%	-3.00%	-18.42%

Source:- Pakistan Energy Year Book, 2004 Published by Hydrocarbon Development Institute of Pakistan

Table A-60: Consumption of Petroleum (Energy) Products by Fuel(Metric Ton)
(TOE)

Product	1997-98	1998-99	1999-00	2000-0+1	2001-02	2002-03	2003-04
Aviation Fuel	462657	640577	660530	628249	600329	570435	640809
	480363	664032	684194	651125	622993	591323	664374
Motor Sprit 80 RON*	1238229	1189042	1225646	120549	-	-	-
	1293610	1241597	1292372	128795	-	-	-
Motor Sprit 87RON*	-	-	-	968053	1079767	1086708	1232576
	-	-	-	1031566	1153623	1161039	1316884
H.O.B.C.	62144	56952	33955	15160	12715	11634	11099
	66072	60551	36101	16118	13519	12369	11800
H.S.D.	6280509	6616774	6954310	6987967	6961371	6980981	7253375
	6602699	6956215	7311066	7346450	7318489	7339105	7625473
L.D.O.	248037	257712	302645	281547	241544	220654	200735
	258405	268484	315296	293316	251641	229877	209126
Furnace Oil	7818741	7386166	8103580	8189150	7692009	7269834	3823620
	7613108	7191910	7890456	7973775	7489709	7078637	3723059
Kerosene	514088	500528	487155	457223	372353	311708	258899
	530333	516345	502549	471671	384119	321558	267080
Total	16624405	16647751	17767821	17647898	16960088	16451954	13421113
	16844590	16899133	18032033	17912815	17234093	16733909	13817797
Annual Growth Rate	0.0653	0.0014	0.0673	-0.67%	-3.90%	-3.00%	-18.42%

Source:- Pakistan Energy Year Book 2004 Published by Hydrocarbon Development Institute of Pakistan

* Included MTBE used in industry and road transport.

Table A-61: Consumption of Indigenous Coal by Sector

(Tonnes)

Sector	Power(WAPDA)	Brick-Kiln *	Domestic	Total
1990-91	24603	3025520	3785	3053908
1991-92	39490	3052393	6824	3098707
1992-93	46689	3216633	3232	3266554
1993-94	43602	3486958	3310	3533870
1994-95	40713	2998888	3238	3042839
1995-96	398926	3235813	3087	3637826
1996-97	351933	3191319	9662	3552914
1997-98	346549	2809883	2273	3158705
1998-99	415349	3044763	1332	3461444
1999-00	348052	2818767	1035	3167854
2000-01	205782	2837872	998	3044652
2001-02	249421	2577546	1069	2828036
2002-03	203623	2606852	1111	2811586
2003-04	184992	2589445	10	2775484
ACGR	-14.9%	-3.2%	-4.7%	6.8%

Source:- Pakistan Energy Year Book,2004 Published by Hydrocarbon Development Institute of Pakistan

Note:- * Estimated by deducting other documented uses from the total production.

Table A-62: Associated Gas Production By Field

(Million cubic feet)

Province/Field	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04
Bhalsyedian	-	-	-	95	579	539	473
Fimkassar (Punjab)	146	493	176	117	20	-	-
Missa Keswal (Punjab)	655	1616	370	375	385	538	375
Toot (Punjab)	489	676	-	-	-	-	-
Bhangali (Punjab)	-	602	887	701	654	1124	446
Dhurnal (Punjab)	2015	1915	608	133	838	1143	742
Balkassar (Punjab)	-	-	-	-	344	18	18
Dhulian (Punjab)	293	1404	1605	1357	1791	966	629
Meyal (Punjab)	2823	3726	4204	4154	4026	3213	2369
Pariwali (Punjab)	2660	3374	2660	4464	3732	3522	3151
Pindori (Punjab)	2053	2056	5269	5404	6236	6390	8894
Turkwal (Punjab)	448	643	340	297	691	517	176
Akri North (Sindh)	-	-	-	-	-	80	62
Bachal (Sindh)	-	387	-	-	-	-	-
Dabhi N (Sindh)	2485	835	2275	1056	1813	3750	3429
Dabhi S (Sindh)	-	1288	684	-	-	116	2218
Halipota (Sindh)	329	173	288	187	-	-	-
Jagir (Sindh)	-	-	120	110	238	222	160
JhaberiSuth (Sindh)	-	-	-	-	-	431	118
Junathi South (Sindh)	-	-	-	890	3226	72	388
Khaskeli (Sindh)	-	443	265	-	-	101	190
Laghari (Sindh)	-	86	-	-	-	45	49
Lyari (Sindh)	44	134	161	120	128	122	52
Mazari (Sindh)	1027	1012	692	625	640	509	1204
Mazari S&S Deep (Sindh)	570	782	1054	641	450	623	924
Meyum Ismail Deep	-	-	-	-	1582	1966	3805
Nari (Sindh)	9	508	-	27	491	129	-
Sakhi (Sindh)	-	480	743	741	747	580	4419
Tangri (Sindh)	-	478	791	595	597	742	607
Zaur (Sindh)	-	-	-	213	7364	5112	4591
Zaur Deep (Sindh)	-	-	3168	3802	2806	1516	603
Zaur South (Sindh)	-	-	-	-	-	-	230
Others (Sindh)	-	288	-	20	139	476	523**
Total: Million CFt	16046	23399	26360	26124	39517	34562	40845
TOE	462718	672906	769625	759021	1129132	1009176	1219162
Annual growth rate	-24.64%	45.82%	12.65%	-0.90%	51.27%	-12.54%	18.18%

Source:- Pakistan Energy Year Book 2004 Published by Hydrocarbon Development Institute of Pakistan

Note:- ** Includes Ali Zaur, Duphri, Keyhole G, Muban, Rajo, Tajedi.

Table A-63: Non-Associated Gas Production by Field

(Million cubic feet)

(TOE)

Province/Field	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04
Zamzama (Sindh)	-	-	-	6356	33561	31287	90440
	-	-	-	121400	651083	606968	1754536
Kadanwari (Sindh)	24964	25429	21433	21601	23586	20247	17225
	584158	595039	501532	464422	507099	435311	408233
Bhit (Sindh)	-	-	-	-	-	28194	108724
	-	-	-	-	-	566699	2468035
Mari (Sindh)	136632	139908	146943	147653	149575	156290	159010
	2418386	2476372	2600891	2613458	2647478	2766333	2814477
Bhullan Shah (Sindh)	-	-	-	-	-	-	619
	-	-	-	-	-	-	16837
Dakhni (Punjab)	5464	5552	6188	5914	5155	5136	5377
	139878	142131	158413	149624	130422	129941	136038
Daru (Sindh)	-	-	4347	4167	3089	2753	2969
	-	-	98677	120010	86183	76809	82835
Dhodak (Punjab)	13526	18302	13710	11487	13653	13239	13785
	328682	444739	333153	279134	331768	321708	334976
Loti (Balochistan)	14780	16087	12887	12722	13815	12874	11341
	297078	323349	259029	255712	277682	258767	227954
Nandpur/Panjpir (Punjab)	-	659	6081	18798	19471	20274	17324
	-	5206	48040	154144	105143	109780	93550
Nooral Jagir (Sindh)	-	-	-	-	-	-	390
	-	-	-	-	-	-	11193
Pirkoh (Balochistan)	47529	38697	48922	42016	30995	24171	19852
	1017121	828116	1046931	899142	663293	517259	424833
Qadirpur (Sindh)	78904	75690	95081	116265	125306	139196	116638
	1680655	1612197	2025225	2464818	2656487	2950955	2472726
Sadkal (Punjab)	4269	3401	4029	4577	5305	3564	1917
	118251	94208	111603	126783	146949	98723	53101
Sari/Hundi (Sindh)	1207	-	-	-	-	1046	785
	24744	-	-	-	-	21443	16093
Uch (Balochistan)	-	-	8875	41746	49703	49773	62863
	-	-	89638	421635	502000	502707	634916
Miano (Sindh)	-	-	-	-	11100	51403	57839
	-	-	-	-	243090	1125726	1260890
Sawan (Sindh)	-	-	-	-	-	-	95646
	-	-	-	-	-	-	2104212
Ratana (Punjab)	2124	1484	1198	958	605	587	982
	58198	40662	32825	26249	16456	15966	26318
Kasuar (Sindh)	-	-	-	-	-	-	126
	-	-	-	-	-	-	2848

Contd...

Table A-63: Non-Associated Gas Production by Field

(Million cubic feet)

(TOE)

Province/Field	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04
Naimat Basal (Sindhi)	-	-	-	-	-	-	3670
	-	-	-	-	-	-	85144
Siraj South (Sindh)	-	-	-	-	-	-	1324
	-	-	-	-	-	-	30982
Umer (Sindh)	-	-	-	-	-	-	266
	-	-	-	-	-	-	7421
Adhi (Punjab)	6988	6942	7140	6802	6742	7121	6984
	195664	194376	199920	186375	184731	195115	208123
Hasan (Sindh)	-	-	-	2026	2916	4897	6014
	-	-	-	31606	45490	76393	122084
Kandhkot (Sindh)	36019	32293	37350	36832	41182	38003	37062
	716778	642631	743265	732957	819522	756260	737534
Mazarani (Sindh)	-	-	-	-	-	14	3564
	-	-	-	-	-	337	85892
Sui (Balochistan)	256848	305063	299817	290884	279648	271428	254652
	5676341	6741892	6625956	6777597	6515798	6324272	5933392
Sara Suri (Sindh)	-	-	8122	12089	10869	10108	5574
	-	-	155130	230900	207598	193063	106463
Bari (Sindh)	-	-	-	-	-	8	12
	-	-	-	-	-	200	300
Bhatti (Sindh)	5439	3157	7198	8384	9188	7534	7142
	131080	76084	173472	212954	233375	191364	181407
Bukhari (Sindh)	5702	7375	5047	3969	2448	2054	1368
	165358	213875	146363	115101	70992	59566	39672
Buzdar (Sindh)	-	-	-	-	-	13296	14955
	-	-	-	-	-	299160	336488
Buzdar S.Deep (Sindh)	-	104	13605	14989	13539	1620	198
	-	2319	303392	334255	301920	36450	4455
Golarchi (Sindh)	917	1079	977	1012	1389	3964	2489
	22558	26543	24034	24693	33892	96722	60732
Liari Deep (Sindh)	-	-	-	-	204	1265	1231
	-	-	-	-	5365	33270	32375
Jabo(Sindh)	3822	1280	45	12	53	739	1217
	82937	27776	977	258	1140	15889	26166
Jalal (Sindh)	1608	278	6516	1269	-	-	-
	40361	6978	163552	31725	-	-	-

Contd...

Table A-63: Non-Associated Gas Production by Field(Million cubic feet)
(TOE)

Province/Field	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04
Jhaberi (Sindh)	-	-	-	-	881	5365	2564
	-	-	-	-	15418	93888	44870
Kato (Sindh)	3039	1198	346	65	128	225	6
	88739	34982	10103	1898	3738	6570	175
Khorewah (Sindh)	11776	13749	9782	9087	6565	9781	9539
	300288	350600	249441	231719	167408	249416	243245
Khorewah Deep (Sindh)	1291	958	798	577	976	521	441
	32275	23950	19950	14425	24400	13025	11025
Koli (Sindh)	1529	3212	3097	649	-	-	-
	37308	78373	75567	15836	-	-	-
Makhpur & Deep (Sindh)	618	3209	6830	5112	4262	3441	2260
	12731	66105	140698	105307	87797	70885	46556
Matli (Sindh)	785	130	107	444	-	-	-
	18997	3146	2589	10745	-	-	-
Pir (Sindh)	3841	1635	432	251	837	245	185
	95641	40712	10757	6250	20841	6101	4607
Raj (Sindh)	-	-	-	-	-	2354	646
	-	-	-	-	-	54377	14923
Rind (Sindh)	-	172	-	391	563	261	423
	-	3698	-	8407	12105	5612	9095
Sonro (Sindh)	-	-	377	804	659	3005	2784
	-	-	8106	17286	14169	64608	59856
Turk (Sindh)	10782	9891	8257	6787	5046	1169	1987
	293270	269035	224590	181213	134728	31212	53053
Turk Deep (Sindh)	2365	4609	6445	12614	11227	9551	9341
	52972	103242	144368	281292	250362	212987	208304
Oher** (Sindh)	-	-	-	-	-	24	155
	-	-	-	-	-	600	3875
Total:	683663	721543	791605	849309	884241	958027	1065250
	14652377	15468336	16728185	17649327	18115918	19592134	21910568

Source:- Pakistan Energy Year Book,2004 Published by Hydrocarbon Development Institute of Pakistan

Table A-64: Natural Gas Consumption by Sector(Million cubic feet)
(TOE)

Sector	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04
Domestic	134500	131656	139973	140899	144186	153508	155174
	3147305	3080742	3275367	3297037	3373942	3592094	3631072
Commercial	18764	21466	21712	20618	22130	22776	24192
	439081	502293	508065	482461	517848	532964	566093
Gen-Industry	115250	121431	134916	138503	151416	164968	193395
	2696852	2841487	3157042	3240970	3543141	3860255	4525445
Cement	12092	7988	8558	6977	7063	3445	7711
	282956	186920	200254	163262	165273	80619	180437
Fertilizer (as Feedstock)	110260	125698	132171	132520	137478	140975	145128
	2088680	2442157	2585401	2594849	2694330	2764389	2860871
Fertilizer (as fuel use)	37493	41776	44981	42873	40111	39636	40222
	718968	819262	895275	854768	795478	784086	798142
Power	179042	183694	227364	281255	314851	335636	469738
	3890752	4004676	4804985	5405202	6018854	6447739	9471461
Transport (CNG)	515	2178	2426	4423	7369	11320	15858
	12049	50971	56764	103498	172430	264885	371075
Total	607916	635887	712101	768068	824604	872265	1051418
	13276643	13928508	15483153	16142047	17281296	18327029	22404596
Annual growth rate	1.69%	4.60%	11.98%	7.86%	7.36%	5.78%	20.54%

Source:- Pakistan Energy Year Book,2004 published by Institute of Pakistan.

Note:- * Including feed stock of total gas supply to fertilizer

Table A-65: Natural Gas Consumption 2003-04 by ProvinceUnit: Million CFT
TOE

Sector	Punjab	N.W.F.P	Sindh	Balochistan	Total
Domestic	87578	12829	48336	6431	155174
	2049325	300199	1131062	150485	3631072
Commercial	15099	1942	6694	457	24192
	353317	45443	156640	10694	566093
Gen-Industry	94354	9404	89465	172	193395
	2207884	220054	2093481	4027	4525445
Cement	3341	602	3768	-	7711
	78179	14087	88171	-	180437
Fertilizer (as Feedstock)	76866	58	68204	-	145128
	1549848	1349	1309674	-	2860871
Fertilizer (as Fuel use)	21681	12	18529	-	40222
	443627	281	354235	-	798142
Power	175859	-	222918	70961	469738
	3806682	-	4838004	826776	9471461
Transport	10290	2360	3190	18	15858
	240786	55224	74646	419	371075
Total	485068	27207	461104	78039	1051418
	10729647	636635	10045913	992401	22404596

Source:- Pakistan Energy Year Book,2004 published by Hydrocarbon Development Institute of Pakistan.

Table A-66: Gas Supplies to Fertilizer and Power Sectors by Source

(Million cubic feet)

(TOE)

Sector/Source	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04
Fertilizer Sector							
SNGPL	33757	41462	42287	40765	40753	41315	43788
	789907	970204	989520	953904	953625	966761	1024631
SSGCL	-	10665	18256	19791	20033	20379	22585
	-	249572	427182	463109	468772	476869	528489
Mari Gas Field	113997	115347	116609	114836	116803	118918	118977
	2017740	2041642	2063974	2032604	2067412	2104845	2105893
Total Fertilizer Sector	147754	167474	177152	175392	177589	180611	185350
	2807647	3261418	3480676	3449617	3489808	3548474	3659013
Power Sector							
SNGPL	38133	48528	62792	80806	84118	90491	170756
	892305	1135560	1469330	1890860	1968350	2117478	3995690
SSGCL	47785	45398	53596	61340	79442	89366	136665
	1118161	1062314	1254139	1435356	1858943	2091164	3197961
Bhalsyedan Gas Field	-	-	-	-	552	1111	471
	-	-	-	-	15230	30666	13013
Kandhkot Gas Field	35816	32028	37156	36677	40985	37775	36781
	712736	637364	739396	729872	815606	751720	731942
Mari Gas Field	22492	24226	30002	32477	32411	36984	39616
	398102	428800	531035	574836	573675	654617	701200
Nandpur/Panjpir Gas Field	-	-	6081	18901	19455	20276	17245
	-	-	48040	102065	105059	109490	93123
Sara/Suri Gas Field	-	-	7870	11911	10813	10034	5519
	-	-	150313	227493	206536	191646	105415
Sui Gas Field	34817	33513	23669	3740	-	-	-
	769448	740637	523096	87137	-	-	-
Uch Gas Field	-	-	6198	35404	47075	49600	62685
	-	-	89638	357581	475456	500957	633117
Total Power Sector	179043	183693	227364	281256	314851	335636	469738
	3890752	4004675	4804987	5405202	6018854	6447739	9471461

Source:- Pakistan Energy Year Book,2004 published by Hydrocarbon Development Institute of Pakistan.

Table A-67: Installed Capacity of Electricity Generation As on 30th June

Unit:MW

Type/Power Station	1998	1999	2000	2001	2002	2203	2004
A- Hydel (WAPDA)							
Tarbela	3478	3478	3478	3478	3478	3478	3478
Ghazi Barotha	-	-	-	-	-	-	1450
Mangla	1000	1000	1000	1000	1000	1000	1000
Warsak	240	240	240	240	240	240	240
Chashma	-	-	-	-	184	184	184
Malakand	20	20	20	20	20	20	22
Dargai	20	20	20	20	20	20	20
Rasul	22	22	22	22	22	22	20
Shadiwal	14	14	14	14	14	14	14
Chichoki Malian	13	13	13	13	13	13	14
Nandipur	14	14	14	14	14	14	13
Kurram Garhi	4	4	4	4	4	4	4
Renala	1	1	1	1	1	1	1
Chitral	1	1	1	1	1	1	1
Jagran	Commissioned in October 2000			30	30	30	30
Hydel Sub-Total	4827	4826	4826	4857	5041	5041	6491
B.1 Thermal (WAPDA)							
GTPS Shahdra	85	85	85	-	-	-	-
SPS Faisalabad	132	132	132	132	132	132	132
GTPS Faisalabad	244	244	244	244	244	244	244
NGPS Multan	260	260	260	195	130	130	130
TPS Multan cantt.	20	20	20	-	-	-	-
TPS Muzaffar Garh	1350	1370	1370	1350	1350	1350	1350
TPS Guddu	1655	1655	1655	1655	1655	1655	1655
TPS Sukkur	50	50	50	-	-	-	-
GTPS Kotri	174	174	174	174	174	174	174
TPS Jamshoro	850	880	880	880	850	850	850
FBC Lakhra	150	150	150	150	150	150	150
TPS Quetta	95	94	94	-	-	-	-
GTPS Panjgur	-	-	-	32	32	32	32
TPS Pasni	17	17	17	18	18	18	18
Thermal WAPDA Sub-Total	5082	5131	5131	4830	4735	4735	4735

Contd...

Table A-67: Installed Capacity of Electricity Generation As on 30th June

Unit:MW

Type/Power Station	1998	1999	2000	2001	2002	2003	2004
B.2. Thermal (KESC)							
TPS Korangi	250	250	316	316	316	316	316
GTPS Korangi Town	100	80	80	80	80	80	80
GTPS Site	125	100	100	100	100	100	100
TPS Bin Qasim	1260	1260	1260	1260	1260	1260	1260
Thermal (KESC) Sub-Total	1735	1690	1756	1756	1756	1756	1756
B.3. Thermal (IPPs)							
AES Lalpir	362	362	362	362	362	362	362
AES Pak Gen	365	365	365	365	365	365	365
Altern Energy	Commissioned on 6th June 2001				11	10	10.5
Fauji Kabirwala			157	157	157	157	157
Gul Ahmed	136	136	136	136	136	136	136
Habibullah			129	129	129	129	127
HUBCO	1292	1292	1292	1292	1292	1292	1292
Japan Power			135	136	136	135	135
KAPCO	1466	1466	1466	1500	1466	1466	1466
Kohinoor Energy	131	131	131	131	131	131	131
Rousch Power	-	-	412	412	412	412	450
Saba Power	-	-	134	134	134	134	134
Southern Electric	-	-	117	117	117	117	117
Tapal Energy	126	126	126	126	126	126	126
Uch Power	-	-	586	586	586	586	564
Thermal Private Sub-Total	3878	3878	5548	5583	5795	5794	5808
C. NUCLEAR							
KANUPP	137	137	137	137	137	137	137
CHASNUPP	Commissioned on 15th September 2001			325	325	325	325
Nuclear Sub-Total	137	137	137	462	462	462	462
Grand Total	15659	15663	17399	17488	17789	17787	19252
Of which:							
Thermal- Total	10695	10700	12436	12169	12286	12285	12299

Source:- Pakistan Energy Year Book, 2004 Published by Hydrocarbon Development Institute of Pakistan

Table A-68: Gross Generation of Electricity by Source

Unit: GWh

Source	1997-98	1998-99	1999-00	2001-01	2001-02	2002-03	2003-04
Hydel (WAPDA)	22060	22449	19288	17194	18941	22351	26944
Thermal (WAPDA)	17450	15884	19137	16835	18659	19574	20972
KESC	7318	6613	7745	7990	8709	8808	9724
IPPs	14902	20171	19182	24101	23805	23209	21426
Thermal-Total	39670	42668	46064	48926	51174	51591	52122
Nuclear (KANUPP)	375	284	399	312	492	236	78
CHASNUPP	-	-	-	1686	1798	1504	1682
Nuclear-Total	375	284	399	1997	2291	1740	1760
Total Generation	62105	65402	65751	68117	72405	75682	80827
Of which							
WAPDA	39510	38333	38425	34029	37600	41925	47916
Annual growth rate	5.04%	5.31%	0.53%	3.60%	6.29%	4.53%	6.80%

Source:- Pakistan Energy Year Book, 2004 Published by Hydrocarbon Development Institute of Pakistan.

Table A-69: Electricity Consumption by Sector (Public Utilities Only)

(GWh)

(TOE)

Sector	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04
Domestic	18,750	19,394	21,455	22,765	23,210	23,624	25,846
	1,527,031	1,579,466	1,747,271	1,853,992	1,890,216	1,923,919	2,104,889
Commercial	2,334	2,409	2,544	2,774	2,951	3,218	3,689
	190,052	196,194	207,202	225,912	240,309	262,101	300,407
Industrial	12,297	12,061	13,202	14,349	15,141	16,181	17,366
	1,001,487	982,278	1,075,194	1,168,545	1,233,104	1,317,802	1,414,326
Agriculture	6,937	5,620	4,540	4,924	5,607	6,016	6,669
	564,918	457,676	369,757	401,008	456,609	489,941	543,122
Street Light	387	224	239	213	212	244	262
	31,554	18,238	19,444	17,362	17,231	19,851	21,344
Traction	16	15	15	13	11	10	9
	1,278	1,197	1,224	1,062	924	792	735
Bulk Supplies	3,796	3,523	3,541	3,500	3,445	3,318	3,603
	309,158	286,943	288,405	285,060	280,601	270,189	293,464
Other Govt.	55	50	50	46	45	45	46
	4,447	4,046	4,086	3,783	3,666	3,632	3,777
Total:	44,572	43,296	45,586	48,584	50,622	52,655	57,491
	3,629,925	3,526,038	3,712,583	3,956,724	4,122,661	4,288,227	4,682,063
Annual growth rate	3.86%	-2.86%	5.29%	6.58%	4.19%	4.02%	9.18%

Source:- Pakistan Energy Year Book,2004 Published by Hydrocarbon Development Institute of Pakistan

Table A-70: Electricity Consumption by Province (Public Utilities Only)

(GWh)

(TOE)

Sector	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04
Punjab	25,639	25,244	27,033	28,797	30,565	32,328	35,374
	2,088,012	2,055,902	2,201,544	2,345,189	2,489,222	2,632,768	2,880,896
Sindh	10,436	10,122	10,204	10,807	10,505	10,704	11,624
	849,892	824,321	831,016	880,126	855,566	871,770	946,670
NWFP	6,794	6,243	6,528	6,843	7,000	6,758	7,230
	553,268	508,453	531,611	557,315	570,040	550,411	588,772
Balochistan	1,704	1,687	1,822	2,138	2,552	2,864	3,263
	138,753	137,362	148,413	174,093	207,832	233,278	265,725
Total:	44,572	43,296	45,587	48,585	50,622	52,655	57,491
	3,629,926	3,526,038	3,712,584	3,956,723	4,122,661	4,288,227	4,682,063

Source:- Pakistan Energy Year Book,2004 Published by Hydrocarbon Development Institute of Pakistan

Table A-71: Fuel Consumption for Thermal Power Generation

(TOE)

Fuel	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04
Coal	155046	185827	155718	92067	111591	91101	82765
Furnace Oil	5754092	5259056	5966134	6208506	6065386	5779335	2608548
Diesel Oil	150554	129997	105449	117518	80107	88850	63272
Gas	3890752	4004676	4804985	5405202	6018854	6447739	9471461
Total:	9,950,444	9,579,556	11,032,286	11,823,293	12,275,938	12,407,024	12,226,047
Annual Growth Rate	6.04%	-3.73%	15.16%	7.17%	3.83%	1.07%	-1.46%

Source:- Pakistan Energy Year Book,2004 Published by Hydrocarbon Development Institute of Pakistan

Table A-72: Thermal Electricity Generation by Fuel

(TOE)

Fuel	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04
Coal	406	501	410	241	285	231	198
Oil	23706	23006	26083	26904	26034	24353	12711
Gas	15558	19161	19572	21780	24855	27006	39213
Total:	39,669	42,669	46,064	48926	51174	51591	52122
Annual growth Rate	4.61%	7.56%	7.96%	6.21%	4.59%	0.82%	1.03%

Source:- Pakistan Energy Year Book,2004 Published by Hydrocarbon Development Institute of Pakistan

Table A-73: Field-wise Production of Coal in Pakistan

(Tonnes)

Province/Field	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04
BALUCHISTAN							
Sor Range	155330	146706	155484	154598	140028	167252	145039
Degari	65199	68588	63336	50954	44811	62993	58552
Sharigh	119589	114308	117926	111391	123330	157724	167128
Sinjidi	175790	204969	214618	202543	199744	196115	161410
Mach	224141	228005	265405	239653	228821	219649	188473
Harnai-Khost Nasaka-Zardalu	184025	179641	128793	116076	136143	55608	124639
Duki	261867	285045	269058	311977	382172	420929	417726
Pir Ismail Ziarat	344478	388519	407700	421980	400794	359890	325051
Abegum	43979	55645	59081	62513	69246	69236	57730
Barkhan	-	-	175	1545	17457	-	-
Sub Total	1,574,398	1,671,426	1,681,576	1673230	1742546	1709396	1645748

Contd ...

Table A-73: Field-wise Production of Coal in Pakistan

(Tonnes)

Province\Field	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04
NWFP							
Makerwal/Gula Khel/ Kohat	53875	61042	46355	41536	58539	53198	183571
Sub Total	53875	61042	46355	41536	58539	53198	183571
Punjab							
Makerwal/Salt Range	365605	479090	454529	401346	505371	502326	535066
Sub Total	365605	479090	454529	401346	505371	502326	535066
Sindh							
Lakhra	1154329	1243743	972498	970738	1006715	1031129	900613
Jhimpir	10498	6143	12896	7802	14865	15537	10486
Sub Total	1164827	1249886	985394	978540	1021580	1046666	911099
Grand Total	3158705	3461444	3167854	3094652	3328036	3311586	3275484
Annual growth rate	-11.10%	9.58%	-8.48%	-2.31%	7.54%	-0.49%	-1.09%

Source:- Pakistan Energy Year Book, 2004 Published by Hydrocarbon Development Institute of Pakistan

Table A-74: Energy Consumption by Sector

Unit: TOE

Sector	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04
Domestic						
Oil	508508	492717	465668	345213	291449	238773
Gas	3080742	3275367	3297037	3373942	3592094	3631072
LPG*	174394	193266	208357	285608	284510	303716
Electricity **	1579466	1747271	1853992	1890216	1923919	2104889
Coal	596	463	447	478	497	468
Sub-Total	5,343,706	5,709,084	5,825,500	5,895,458	6092468	6278918
From 1997-98 to 2000-01 Includes 75% of net LPG supplies.						
Commercial						
LPG*	58131	64422	69452	50957	56793	61134
Gas	502293	508065	482461	517848	532964	566093
Electricity**	196194	207202	225912	240309	262101	300407
Sub-Total	756,618	779,689	777,825	809,113	851857	927633
*From 1996-97 to 2000-01 Includes 75% of net LPG supplies.						
Industrial						
Oil	2098513	2074608	1888831	1587463	1584771	1481873
Gas*	3847669	4252572	4259000	4503891	4724960	5504024
Electricity**	982278	1075194	1168545	1233104	1317802	1414326
Coal	1362227	1261116	1292034	1484516	1690777	2703437
Sub-Total	8,290,687	8,663,489	8,608,411	8,808,974	9318309	11103662
*Includes energy consumption in fertilizer production.						
Agricultural						
Oil*	259647	305269	265467	235149	204842	191080
Electricity**	457676	369757	401008	456609	489941	543122
Sub-Total	717,323	675,026	666,475	691,758	694783	734202

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Table A-74: Energy Consumption by Sector

Unit: TOE

Sector	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04
* HSD consumption for tractors in agriculture sector is not separately available and is included in the transport sector. Agriculture sector represents LDO only.						
Transport						
Aviation Fuel	455627	501493	469701	414318	445907	494216
Motor Spirit	1222375	1272433	1146637	1119405	1138269	1291339
HOBC	55056	30260	10286	8854	8462	8507
Kerosene	567	1076	583	451	456	458
HSD	6508037	6907146	6924276	6881102	6899630	7111674
LOD	549	1195	5309	1124	556	533
Furnace Oil	8089	13882	24454	13865	12408	2623
Electricity**	1197	1224	1062	924	792	735
Natural Gas*	50980	56764	103498	172430	264885	371075
Sub-Total	8,302,477	8,785,472	8,685,806	8,612,474	8771365	9281160
* Compressed Natural Gas (CNG)						
Other Govt.						
Oil	392154	360371	385579	481648	278967	324288
Electricity**	309227	311935	306206	301498	293672	318585
LPG	-	-	-	3139	11464	15520
Sub-Total	701,381	672,306	691,785	786,285	584103	658393
** @ 3412 Btu/kWh Also include bulk supplies and street light						
Sector						
Domestic	5,343,706	5,709,084	5,825,500	5,895,458	6,092,468	6,278,918
Commercial	756,618	779,689	777,825	809,113	851,857	927,633
Industrial	8,290,687	8,663,489	8,608,411	8,808,974	9,318,309	11,103,662
Agricultural	717,323	675,026	666,475	691,758	694,783	734,202
Transport	8,302,477	8,785,472	8,685,806	8,612,474	8,771,365	9,281,160
Other Govt.	701,381	672,306	691,785	786,286	584,103	658,393
Grand Total	24,112,191	25,285,067	25,255,802	25,604,063	26,312,885	28,983,968

Source:- Pakistan Energy Year Book 2004 Hydrocarbon Development Institute of Pakistan

Table A-75: International Shipping-Entered and Cleared at Karachi Port/Port Qasim

Port/Year	Vessels Entered			Vessels Cleared		
	Number	Net registered tonnage		Number	Net registered tonnage	
		In ballast	With cargo		In ballast	With cargo
Karachi Port						
1990-91	1,805	921	13,060	1,787	7,813	6,096
1991-92	1,968	1,296	13,280	1,944	7,351	7,241
1992-93	2,102	1,020	14,076	2,077	8,263	6,904
1993-94	1,941	922	13,926	1,901	8,072	6,674
1994-95	1,901	1,297	13,870	1,906	8,093	7,132
1995-96	1,746	841	14,494	1,735	8,453	6,744
1996-97	1,714	1,133	14,393	1,717	8,583	7,010
1997-98	1,524	1,207	12,950	1,524	8,021	6,153
1998-99	1,625	1,246	13,216	1,617	7,942	6,484
1999-00	1,587	1,231	12,938	1,588	7,425	6,839
2000-01	1564	1296	14182	1573	8313	7207
2001-02	1680	1354	14872	1673	7713	8518
Port Qasim						
1990-91	244	389	1,259	243	1,265	414
1991-92	274	268	1,896	276	1,921	293
1992-93	279	311	3,355	283	3,353	316
1993-94	293	380	3,053	295	3,167	379
1994-95	421	601	3,987	417	4,099	608
1995-96	347	429	4,271	352	4,501	428
1996-97	384	295	5,170	381	5,138	331
1997-98	455	134	8,793	458	4,702	4157
1998-99	566	326	8,359	575	4,821	4496
1999-00	590	249	8,656	591	4,799	4398
2000-01	612	406	8,215	618	4,677	4270
2001-02	562	916	7,885	566	4,563	4295

Source:- Karachi Port Trust and Port Qasim Authority

Table A-76: Number and Registered Tonnage of Native Crafts by Nationalities which Entered/Cleared in Coastal Shipping with Cargo into/From Karachi Port

Year	Entered					
	Pakistani		Arabian		Total	
	No.of Country Crafts	Net Tonnage of Country Crafts	No.of Country Crafts	Net Tonnage of Country Crafts	No.of Country Crafts	Net Tonnage of Country Crafts
1990-91	-	-	586	159,232	586	159,232
1991-92	-	-	516	153,599	516	153,599
1992-93	-	-	480	160,316	480	160,316
1993-94	-	-	515	177,680	515	177,680
1994-95	2	314	234	74,490	236	74,804
1995-96	-	-	132	43,494	132	43,494
1996-97	-	-	202	57,510	202	57,510
1997-98	-	-	255	86,970	255	86,970
1998-99	-	-	280	92,881	280	92,881
1999-00	-	-	438	136,032	438	136,032
2000-01	-	-	586	89,772	586	89,772
2001-02	-	-	566	67,834	566	67,834
Year	Cleared					
	Pakistani		Arabian		Total	
	No.of Country Crafts	Net Tonnage of Country Crafts	No.of Country Crafts	Net Tonnage of Country Crafts	No.of Country Crafts	Net Tonnage of Country Crafts
1990-91	-	-	580	158,274	580	158,274
1991-92	-	-	523	150,114	523	150,114
1992-93	-	-	491	174,775	491	174,775
1993-94	-	-	505	177,553	505	177,553
1994-95	2	314	238	74,294	240	74,608
1995-96	-	-	134	42,321	134	42,321
1996-97	-	-	198	64,959	198	64,959
1997-98	-	-	248	77,055	248	77,055
1998-99	-	-	264	77,123	264	77,123
1999-00	-	-	422	139,251	422	139,251
2000-01	-	-	571	132,321	571	132,321
2001-02	-	-	564	125,422	564	125,422

Source:- Karachi Port Trust.

**Table A-77: Total Passengers Handled at Civil Airports in Pakistan
(Scheduled and Non-scheduled)**

(Numbers)

Year	Domestic					International		
	Em-barked	Dis-Embark	Terminal	Transit	Total	Em-barked	Dis-Embark	Terminal
1991-92	3,659,214	3,659,214	7,318,428	216,728	7,535,156	2,017,931	1,774,060	3,791,991
1992-93	3,861,459	3,861,459	7,722,918	229,525	7,952,443	1,963,647	1,827,464	3,791,111
1993-94	4,417,983	4,417,983	8,835,966	244,684	9,080,650	1,985,520	1,938,664	3,924,184
1994-95	4,325,716	4,325,716	8,651,432	248,471	8,899,903	2,001,198	1,922,848	3,924,046
1995-96	4,516,782	4,516,782	9,033,564	249,077	9,282,641	2,065,019	2,012,222	4,077,241
1996-97	4,183,878	4,183,878	8,367,756	262,773	8,630,529	2,164,488	2,048,866	4,213,354
1997-98	4,205,160	4,205,160	8,410,320	266,815	8,677,472	2,246,607	2,116,034	4,362,641
1998-99	3,520,920	3,520,920	7,041,840	221,847	7,263,687	2,193,851	2,122,017	4,315,868
1999-00	3,527,385	3,527,385	7,054,770	207,304	7,262,074	2,369,341	2,299,952	4,669,293
2000-01	3,174,207	3,174,920	6,349,840	171,339	6,521,179	2,663,512	2,537,540	5,201,052
2001-02	2,484,293	2,484,293	4,968,586	90,436	5,059,022	2,335,599	2,226,559	4,562,158
2002-03	2,715,738	2,715,738	5,431,476	76,778	5,508,254	2,523,023	2,354,022	4,877,045
Year	International		Total (Domestic + International)					
	Transit	Total	Em-barked	Dis-embarked	Terminal	Transit	Total	
1991-92	375,215	7,451,205	5,677,145	5,433,274	11,110,419	591,943	11,702,362	
1992-93	337,114	7,652,570	5,825,106	5,688,923	11,514,029	566,639	12,080,668	
1993-94	268,129	8,342,167	6,403,503	6,356,647	12,760,150	512,813	13,272,963	
1994-95	237,219	8,249,762	6,326,914	6,248,564	12,575,478	485,690	13,061,168	
1995-96	297,313	8,594,023	6,581,801	6,529,004	13,110,805	546,390	13,657,195	
1996-97	283,501	8,397,232	6,348,366	6,232,744	12,581,110	546,274	13,127,384	
1997-98	309,603	8,567,801	6,451,767	6,321,194	12,772,961	576,755	13,349,716	
1998-99	305,931	7,836,788	5,714,771	5,642,937	11,357,708	527,778	11,885,486	
1999-00	297,208	8,196,678	5,896,726	5,827,337	11,724,063	504,512	12,228,575	
2000-01	316,514	8,375,972	5,838,432	5,712,460	11,550,892	487,853	12,038,745	
2001-02	267,293	7,046,451	4,819,892	4,710,852	9,530,744	357,729	9,888,473	
2002-03	234,867	7,592,783	5,238,761	5,069,760	10,308,521	311,645	10,620,166	

Source:- Civil Aviation Authority, Karachi.

Table A-78: Air Traffic of Passengers, Freight and Mail of Pakistan International Airlines

Year	Kilometers Flown	Passenger Kilometers performed	Tonne kilometers performed			
			Passengers	Freight	Mail	Total
Domestic Scheduled						
1991-92	24,058	2,641,005	226,167	30,843	1,079	258,089
1992-93	24,571	2,434,966	231,656	36,589	965	269,210
1993-94	23,345	2,276,864	208,098	35,082	589	243,769
1994-95	22,345	2,312,068	204,700	35,057	399	240,156
1995-96	21,904	2,006,406	182,721	34,914	276	217,911
1996-97	21,829	2,031,540	184,893	34,836	236	219,965
1997-98	21,754	2,056,672	187,064	34,757	198	222,019
1998-99	20,472	1,970,664	179,315	33,308	275	212,898
1999-00	20,453	1,936,533	176,047	30,772	304	207,123
2000-01	18,596	1,960,360	177,686	32,825	398	210,909
2001-02	14,753	1,554,989	140,410	34,133	371	174,914
2002-03	15,054	1,651,540	149,243	37,909	426	187,578
International Scheduled						
1991-92	42,168	7,431,731	680,216	352,002	8,549	1,040,767
1992-93	44,368	7,551,046	691,151	357,945	8,485	1,057,581
1993-94	45,355	7,825,200	714,907	393,919	8,183	1,117,009
1994-95	49,994	9,407,153	741,854	416,497	7,731	1,166,082
1995-96	51,982	8,473,583	780,265	392,194	8,038	1,180,497
1996-97	52,901	8,813,428	802,337	381,153	7,366	1,190,856
1997-98	53,819	9,053,273	724,410	370,112	6,695	1,101,217
1998-99	52,300	8,903,840	813,159	311,993	7,322	1,132,474
1999-00	55,084	9,321,095	852,153	300,767	6,690	1,159,610
2000-01	57,490	9,502,899	938,887	331,312	9,276	1,279,475
2001-02	48,187	9,222,528	835,951	306,151	7,023	1,149,125
2002-03	48,831	9,551,824	866,496	319,391	7,475	1,193,352

Source:- Civil Aviation Authority, Karachi.

Table A-79: Transport Statistics

Year	Railways						Length of Roads (Km.)		
	Route kilometers	Number of Passengers Carried (Million)	Freight Carried (M.Tons)	Freight Tonne kilometres	Locomotives (Nos.)	Freight Wagons (Nos.)	Total	High Type	Low Type
1981-82	8,774.87	120.00	11.00	7,067	963	36,213	96,859	40,380	56,479
1982-83	8,822.87	123.00	12.00	7,323	979	35,990	99,793	42,773	57,020
1983-84	8,774.87	107.00	11.00	7,385	943	35,782	111,916	48,325	63,591
1984-85	8,774.87	95.00	11.00	7,203	916	35,341	118,471	52,120	66,351
1985-86	8,774.87	83.00	12.00	6,270	879	35,237	126,243	56,318	69,925
1986-87	8,774.87	78.00	12.00	7,820	837	34,867	133,953	61,464	72,489
1987-88	8,774.87	80.00	12.00	8,113	806	35,929	142,941	68,880	74,061
1988-89	8,774.87	84.70	10.43	8,364	773	36,249	151,449	74,355	77,094
1989-90	8,775.00	84.60	9.30	7,226	768	35,842	162,345	81,981	80,364
1990-91	8,775.00	84.90	7.72	5,709	753	34,851	170,823	86,839	83,984
1991-92	8,775.00	73.30	7.56	5,962	752	30,369	182,709	95,374	87,335
1992-93	8,775.00	59.00	7.77	6,180	703	29,451	189,321	99,083	90,238
1993-94	8,775.00	61.72	8.04	5,938	676	29,228	196,817	104,001	92,816
1994-95	8,775.00	67.70	8.11	6,711	678	30,117	207,645	111,307	96,338
1995-96	8,775.00	73.65	6.85	5,077	622	26,755	218,345	118,428	99,917
1996-97	8,775.00	68.80	6.36	4,607	633	25,213	229,595	126,117	103,478
1997-98	8,775.00	64.90	5.98	4,447	611	24,275	240,885	133,462	107,423
1998-99	7,791.00	64.99	5.45	4,330	596	24,456	247,484	137,352	110,132
1999-00	7,791.00	68.00	4.77	3,612	597	23,906	248,340	138,200	110,140
2000-01	7,791.00	68.80	5.89	4,520	610	23,893	249,972	144,652	105,320
2001-02	7,791.00	69.00	5.90	4,688	577	23,893	251,661	148,877	102,784
2002-03	7,791.00	73.40	5.86	4,569	577	23,722	251,845*	151,028	100,817
2003-04	7,791.00	75.70	6.14	4,769	592	21,812	255,856	157,975	97,881

Source:- Economic Survey of Pakistan, 2004-05

* Estimated

Table A-80: Number of Motor Vehicles Registered

Year	Motor Cars Jeep & Station Wagons	Motor Cabs/ Taxies	Buses/ Mini Buses	Trucks	Motor Cycle 2 wheels	Motor Cycle/ Motor Rickshaws 3 Wheels	Others	Total
1986	474,744	25,419	71,690	81,019	946,861	47,669	369,905	2,017,307
1987	526,254	26,844	75,996	87,746	1,021,966	48,513	413,990	2,201,309
1988	575,337	27,805	79,556	94,283	1,093,933	48,880	450,115	2,369,909
1989	630,342	29,668	81,533	102,726	1,158,609	49,380	485,659	2,537,917
1990	682,636	32,304	84,016	105,245	1,250,749	50,862	507,025	2,712,837
1991	731,960	33,235	89,094	107,171	1,381,136	52,439	528,878	2,923,913
1992	819,350	41,245	94,988	111,391	1,497,017	56,267	558,926	3,179,184
1993	868,159	47,897	98,681	114,394	1,573,370	59,510	589,281	3,351,292
1994	902,654	52,444	107,440	118,389	1,679,259	62,183	615,497	3,537,866
1995	923,577	53,400	113,516	119,174	1,754,737	63,370	642,174	3,669,948
1996	966,747	54,501	114,415	123,658	1,842,531	69,756	666,549	3,838,157
1997	1,068,116	83,182	119,365	131,322	1,995,421	76,224	700,315	4,173,945
1998	1,085,969	83,687	125,929	132,895	2,068,730	81,777	724,309	4,303,296
1999	1,162,876	83,844	150,108	145,111	2,175,488	95,345	746,718	4,559,490
2000	1,182,307	83,892	154,401	148,569	2,260,772	99,376	772,279	4,701,596
2001	1,201,738	83,940	158,694	152,027	2,346,056	103,407	797,840	4,883,702
2002	1,282,371	83,954	162,672	170,615	2,407,466	115,919	825,552	5,048,549
2003	1,292,888	84,277	162,957	178,883	2,544,567	122,448	846,017	5,232,037

Source:- Federal Bureau of Statistics

Table A-81: Motor Vehicles on Road

(000 Number)

Year	Motor Cycles/ Scooters	Motor Cars	Jeeps	Station Wagons	Tractors	Buses
1991-92	971.8	429.1	31.6	43.6	275.3	45.0
1992-93	1,165.5	465.8	35.6	48.8	353.0	51.7
1993-94	1,287.3	493.7	38.0	52.7	376.6	56.4
1994-95	1,482.0	516.8	41.3	56.0	399.8	60.9
1995-96	1,481.9	538.4	43.5	29.1	424.8	64.5
1996-97	1,576.0	564.5	45.5	62.0	439.8	68.2
1997-98	1,691.4	593.0	47.8	65.0	463.6	72.5
1998-99	1,833.7	731.3	16.7	60.6	489.8	84.4
1999-00	2,010.0	815.7	17.0	73.9	528.4	92.8
2000-01	2,218.9	928.0	18.3	93.8	579.4	94.0
2001-02	2,286.2	988.1	40.6	98.9	588.1	95.6
2002-03	2,401.8	1,035.4	41.2	100.4	595.3	97.8
2003-04	2,533.9	1,096.5	43.5	104.6	609.0	99.8
Year	Taxi Cabs Taxies	Rickshaws	Delivery Vans	Trucks	Others	Total
1991-92	33.5	42.4	61.4	75.8	86.0	2,095.5
1992-93	40.0	46.7	69.8	84.2	99.2	2,460.3
1993-94	44.5	50.5	74.0	92.0	125.4	2,690.4
1994-95	47.9	53.4	78.2	98.3	115.8	2,950.4
1995-96	51.4	58.7	81.3	104.2	124.0	3,001.8
1996-97	54.1	65.6	84.3	110.3	127.6	3,197.9
1997-98	57.3	74.6	87.6	117.1	138.2	3,408.1
1998-99	68.5	56.7	51.7	121.0	140.1	3,654.4
1999-00	69.8	59.9	55.5	127.4	149.8	4,000.2
2000-01	86.6	79.8	72.4	132.3	167.1	4,471.0
2001-02*	86.8	79.6	74.2	133.5	170.6	4,642.2
2002-03*	87.0	79.9	75.1	138.2	156.2	4,808.3
2003-04*	87.2	80.3	75.8	139.4	161.1	5,031.1

Source:- Economic Survey of Pakistan, 2004-05

* Estimated

Table A-82: Post and Telecommunications

Year	No. of Post Offices			No. of Telephone Offices		
	Urban	Rural	Total	Urban	Rural	Total
1991-92	1,909	11,471	13,380	299	210	509
1992-93	1,983	11,213	13,196	320	210	530
1993-94	1,970	11,315	13,285	327	85	412
1994-95	2,026	11,294	13,320	330	86	416
1995-96	2,092	11,327	13,419	319	104	423
1996-97	2,024	11,192	13,216	340	93	433
1997-98	2,044	11,250	13,294	356	92	448
1998-99	2,103	10,751	12,854	308	93	401
1999-00	2,103	10,751	12,854	293	91	384
2000-01	2,302	9,932	12,234	293	91	384
2001-02	1,983	10,284	12,267	258	104	362
2002-03	1,808	10,446	12,254	239	87	326
2003-04	1,808	10,446	12,254	215	73	288

Contd...

Table A-82: Post and Telecommunications

Year	Inter net connection (Million)	No. of PCO	Telephones (000 Nos)	TV Sets (000 Nos)	Mobilephone
1991-92	-	4,676	1,460.7	1,613	-
1992-93	-	5,618	1,547.5	1,773	-
1993-94	-	6,422	1,801.1	1,975	-
1994-95	-	4,600	2,126.1	2,149	-
1995-96	-	9,410	2,375.8	2,273	68,038
1996-97	-	10,040	2,557.6	2,522	1,35,027
1997-98	0.01	10,071	2,756.1	2,736	1,96,096
1998-99	0.2	10,107	2,861.1	3,034	2,65,614
1999-00	0.5	10,400	3,124.0	4,015	3,06,493
2000-01	0.8	66,968	3,340.0	3,432	7,42,606
2001-02	1.0	97,751	3,655.5	3,604	16,98,536
2002-03	1.6	139,493	3,981.0	3,604	24,04,400
2003-04	..	180,901*	4,460.0	3,829	50,22,908

Source:- Economic Survey of Pakistan, 2004-05

Note:- Radio and VCR License have been abolished since 1st July, 1999

* Included Cardpay phones

.. Not available

Table A-83: Traffic Accidents in Pakistan

(Number)

Year	Total number of accident	Accident		Persons		Total Number of Vehicles involved
		Fatal	Non- Fatal	Killed	Injured	
1991-92	9,993	4,255	5,738	5,214	12,260	11,349
1992-93	11,379	4,745	6,634	5,616	12,897	12,874
1993-94	10,916	4,511	6,405	5,492	12,228	12,719
1994-95	10,468	4,476	5,992	5,627	12,169	11,636
1995-96	9,974	4,347	5,627	5,424	11,319	10,799
1996-97	9,610	4,191	5,419	5,027	11,149	10,849
1997-98	9,663	4,041	5,622	4,858	11,597	10,892
1998-99	10,080	4,340	5,740	5,240	11,413	12,061
1999-00	9,735	4,193	5,542	5,130	11,469	11,083
2000-01	10,651	4,491	6,160	5,532	13,307	11,722
2001-02	10,033	4,379	5,654	5,248	11,922	10,765
2002-03	9,377	4,045	5,332	4,813	10,643	10,100
2003-04	10,308	4,184	6,124	5,199	12,927	10,852

Contd...

Table A-83: Traffic Accidents in Balochistan

(Number)

Year	Total number of accidents	Accident		Persons		Total Number of vehicles involved
		Fatal	Non- Fatal	Killed	Injured	
1991-92	338	118	220	115	262	369
1992-93	380	125	255	130	284	397
1993-94	429	135	294	140	343	437
1994-95	418	132	286	148	357	422
1995-96	438	129	309	141	397	463
1996-97	399	150	249	156	331	435
1997-98	315	103	212	128	303	364
1998-99	339	120	219	141	303	389
1999-00	373	131	242	150	297	412
2000-01	430	127	303	140	388	469
2001-02	345	101	244	129	351	395
2002-03	9,377	4,045	5,332	4,813	10,643	10,100
2003-04	415	141	274	148	420	469

Contd...

Table A-83: Traffic Accidents in N.W.F.P.

(Number)

Year	Total number of accidents	Accident		Persons		Total Number of vehicles involved
		Fatal	Non- Fatal	Killed	Injured	
1991-92	2,100	536	1,564	738	3,037	2,242
1992-93	2,437	639	1,798	782	3,239	2,561
1993-94	2,460	609	1,851	760	3,198	2,638
1994-95	2,391	668	1,723	776	3,090	2,609
1995-96	2,417	649	1,768	797	3,037	2,698
1996-97	2,193	645	1,548	825	2,927	2,442
1997-98	2,310	600	1,710	730	2,977	2,502
1998-99	2,374	649	1,725	774	2,859	2,535
1999-00	2,448	653	1,795	738	2,745	2,544
2000-01	2,705	695	2,010	839	3,330	2,973
2001-02	2,459	641	1,818	720	2,790	2,633
2002-03	2,402	583	1,819	708	2,662	2,783
2003-04	2,728	652	2,076	919	3,735	2,956

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Table A-83: Traffic Accidents in Punjab

(Number)

Year	Total number of accidents	Accident		Persons		Total Number of vehicles involved
		Fatal	Non- Fatal	Killed	Injured	
1991-92	5,104	2,486	2,618	3,078	6,680	6,251
1992-93	5,697	2,784	2,913	3,396	6,940	6,948
1993-94	5,321	2,550	2,771	3,127	6,161	6,581
1994-95	5,305	2,523	2,782	3,105	6,623	5,946
1995-96	4,875	2,438	2,437	3,115	5,603	5,332
1996-97	4,577	2,170	2,407	2,609	5,448	5,286
1997-98	4,916	2,270	2,646	2,703	5,898	5,858
1998-99	5,251	2,481	2,770	3,001	6,204	6,438
1999-00	4,826	2,324	2,502	2,954	6,341	5,127
2000-01	5,277	2,518	2,759	3,174	6,954	5,491
2001-02	5,270	2,641	2,629	3,214	6,804	5,523
2002-03	4,771	2,386	2,385	2,884	6,159	5,008
2003-04	5,015	2,407	2,608	2,977	6,714	5,195

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Table A-83: Traffic Accidents in Sindh

(Number)

Year	Total number of accidents	Accident		Persons		Total Number of vehicles involved
		Fatal	Non- Fatal	Killed	Injured	
1991-92	2,451	1,115	1,336	1,283	2,281	2,487
1992-93	2,865	1,197	1,668	1,308	2,434	2,968
1993-94	2,706	1,217	1,489	1,465	2,526	3,063
1994-95	2,354	1,153	1,201	1,598	2,099	2,659
1995-96	2,244	1,131	1,113	1,371	2,282	2,306
1996-97	2,441	1,226	1,215	1,437	2,443	2,686
1997-98	2,122	1,068	1,054	1,297	2,419	2,168
1998-99	2,116	1,090	1,026	1,324	2,047	2,699
1999-00	2,088	1,085	1,003	1,288	2,086	3,000
2000-01	2,239	1,151	1,088	1,379	2,635	2,789
2001-02	1,959	996	963	1,185	1,977	2,214
2002-03	1,798	944	854	1,083	1,463	1,858
2003-04	2,150	984	1166	1,155	2,058	2,232

Source:- Crime Branch of Provincial Police Departments.

Table A-84: River In-flow at Rim Stations in Pakistan

(Million Acre Feet)

Year	Indus at Tarbela U/S			Jhelum at Mangla U/S			Chenab at Marala U/S		
	Kharif	Rabi	Total	Kharif	Rabi	Total	Kharif	Rabi	Total
1981-82	50.10	5.66	55.76	18.37	4.22	22.59	23.45	4.64	28.09
1982-83	41.03	7.72	48.75	15.65	5.68	21.33	22.88	4.92	27.80
1983-84	51.51	8.47	59.98	22.72	3.50	26.22	26.20	3.62	29.82
1984-85	54.75	7.38	62.13	15.66	3.01	18.67	21.28	2.80	24.08
1985-86	44.86	8.12	52.98	12.07	5.57	17.64	19.37	4.86	24.23
1986-87	50.80	8.95	59.75	20.62	7.22	27.84	22.19	5.51	27.70
1987-88	48.03	10.05	58.08	21.38	6.45	27.83	20.41	4.80	25.21
1988-89	63.15	8.47	71.62	19.74	4.24	23.98	27.46	5.23	32.69
1989-90	46.10	9.44	55.54	18.01	6.70	24.71	19.74	5.67	25.41
1990-91	61.85	10.83	72.68	19.71	7.69	27.40	23.42	6.56	29.98
1991-92	58.31	9.23	67.54	25.13	5.98	31.11	23.26	5.55	28.81
1992-93	55.22	10.15	65.37	25.18	6.82	32.00	22.60	5.18	27.78
1993-94	44.48	8.58	53.06	18.69	4.01	22.70	19.53	3.45	22.98
1994-95	65.12	8.83	73.95	20.82	5.67	26.49	24.55	5.65	30.20
1995-96	53.17	9.47	62.64	21.91	6.17	28.08	26.40	5.47	31.87
1996-97	59.24	9.04	68.28	24.93	4.11	29.04	27.48	4.41	31.89
1997-98	46.27	8.99	55.26	16.96	7.06	24.02	21.74	6.55	28.28
1998-99	55.26	9.01	64.27	18.10	3.61	21.71	23.16	4.78	27.94
1999-00	56.15	8.83	64.98	11.23	3.19	14.42	18.70	4.35	23.05
2000-01	45.61	7.17	52.78	10.27	2.28	12.55	17.20	2.73	19.93
2000-02	41.47	6.62	48.09	8.23	3.66	11.89	16.00	2.90	18.90
2003-04 (P)	-	-	-	12.30	5.10	17.40	18.02	5.47	23.49

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Table A-84: River In-flow at Rim Stations in Pakistan

(Million Acre Feet)

Year	Ravi at Balloki U/S			Sutlej at Sulemanki		
	Kharif	Rabi	Total	Kharif	Rabi	Total
1981-82	4.81	1.75	6.56	0.47	0.20	0.67
1982-83	3.50	1.59	5.09	0.66	0.21	0.87
1983-84	4.71	0.91	5.62	1.25	0.63	1.88
1984-85	3.39	0.88	4.27	0.36	0.08	0.44
1985-86	2.96	1.57	4.53	1.16	0.22	1.38
1986-87	3.82	1.41	5.23	0.73	0.38	1.11
1987-88	1.58	1.08	2.66	0.30	0.04	0.34
1988-89	6.21	2.77	8.98	4.05	3.55	7.60
1989-90	1.66	0.65	2.31	0.54	0.16	0.70
1990-91	3.28	1.67	4.95	4.66	0.30	4.96
1991-92	2.50	1.52	4.02	0.51	0.14	0.65
1992-93	4.96	0.70	5.66	3.48	0.33	3.81
1993-94	3.47	0.11	3.58	2.81	0.05	2.86
1994-95	4.80	0.43	5.23	7.31	0.34	7.65
1995-96	6.89	0.79	7.68	6.88	0.70	7.58
1996-97	5.14	0.47	5.61	2.48	0.46	2.94
1997-98	3.91	1.99	5.90	1.79	1.68	3.47
1998-99	3.40	1.20	4.60	4.08	3.58	7.66
1999-00	0.97	0.26	1.23	1.15	0.17	1.32
2000-01	0.56	0.11	0.67	0.30	0.10	0.40
2000-02	0.93	0.43	1.36	0.01	0.01	0.02
2003-04 (P)	0.41	0.45	0.86	0.00	0.03	0.03

Source:-Water and Power Development Authority (WAPDA).

(P) Provisional

Table A-85: Population Served with Water Supply and Sanitation Facilities in WASA Area, District Lahore

Description	Unit	1997-98	1998-99	1999-00	2000-01	2001-02
Total Population	Million	4,577	4,714	4,856	5,001	5,151
Population in WASA Area	Million	4.358	4.489	4.623	4.762	4.905
Population served with pipe water supply	Million	3.791	3.905	4.022	4.143	4.267
Percentage of Total Population within WASA area I	%	87	87	87	87	87
Quantum of Water Supply(Daily)	Million Gallons	290.000	290.000	290.000	290.000	290.000
Population Served with Sewerage & Drainage	Million	3.412	3.515	3.620	3.729	3.840
Facilities Percentage of Total population	%	78	78	78	78	78
Per Person Supply	GPCD	76	74	72	70	68

Source:- Water and Sanitation Agency (WASA), Lahore

Table A-86: Population Served with Water Supply, Sewerage and Drainage Facilities of Various Cities

Particulars	Unit	1997-98	1998-99	1999-00	2000-01	2001-02
Rohri						
1. Total Population (approx.)	Thousand	44143	45909	47745	49655	51641
2. Population Served with Pipe Water Supply	Thousand	44143	45909	47745	49655	51641
3. Percentage of Total Population	%	100	100	100	100	100
4. Quantum of water Supply (daily)	Million Gallons	1.324	1.377	1.432	1.489	1.549
5. Population Served with Sewerage & Drainage Facilities.	Thousand	44.143	45.909	47.745	49.655	51.641
6. Percentage of Total Population	%	100	100	100	100	100
Tando Allahyar						
1. Total Population (approx.)	Thousand	86.056	89.498	93.078	96.801	100.673
2. Population Served with Pipe Water Supply	Thousand	71.600	71.600	71.600	71.600	71.600
3. Percentage of Total Population	%	83	80	77	74	71
4. Quantum of water Supply (daily)	Million Gallons	2.148	2.148	2.148	2.148	2.148
5. Population Served with Sewerage & Drainage Facilities.	Thousand	47.700	47.700	47.700	47.700	47.700
6. Percentage of Total Population	%	55	53	51	49	47

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Table A-86: Population Served with Water Supply, Sewerage and Drainage Facilities of Various Cities

Particulars	Unit	1997-98	1998-99	1999-00	2000-01	2001-02
Umar Kot						
1. Total Population (approx.)	Thousand	35.159	36.565	38.028	39.549	41.130
2. Population Served with Pipe Water Supply	Thousand	28.475	28.475	28.475	28.475	28.475
3. Percentage of Total Population	%	81	78	75	72	69
4. Quantum of water Supply (daily)	Million Gallons	0.854	0.854	0.854	0.854	0.854
5. Population Served with Sewerage & Drainage Facilities.	Thousand	25.740	25.740	25.740	25.740	25.740
6. Percentage of Total Population	%	73	70	68	65	63
Thull						
1. Total Population (approx.)	Thousand	28.724	29.873	31.068	32.311	33.603
2. Population Served with Pipe Water Supply	Thousand	28.724	29.873	31.068	32.311	33.603
3. Percentage of Total Population	%	100	100	100	100	100
4. Quantum of water Supply (daily)	Million Gallons	0.862	0.896	0.932	0.969	1.008
5. Population Served with Sewerage & Drainage Facilities.	Thousand	25.000	25.000	25.000	25.000	25.000
6. Percentage of Total Population	%	87	84	80	77	74

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Table A-86: Population Served with Water Supply, Sewerage and Drainage Facilities of Various Cities

Particulars	Unit	1997-98	1998-99	1999-00	2000-01	2001-02
Kotri						
1. Total Population (approx.)	Thousand	61.130	63.575	66.118	68.763	71.514
2. Population Served with Pipe Water Supply	Thousand	61.130	63.575	66.118	68.763	71.514
3. Percentage of Total Population	%	100	100	100	100	100
4. Quantum of water Supply (daily)	Million Gallons	1.833	1.907	1.983	2.062	2.145
5. Population Served with Sewerage & Drainage Facilities.	Thousand	53.900	53.900	53.900	53.900	53.900
6. Percentage of Total Population	%	88	85	82	78	75
Faisalabad						
1. Total Population (approx.)	Thousand	1906.000	1977.000	2050.000	2126.000	2287.000
1. Population Served with Pipe Water Supply	Thousand	1296.000	1285.000	1353.000	1445.000	1554.000
2. Percentage of Total Population	%	65	65	66	68	68
3. Quantum of water Supply (daily)	Million Gallons	49.75	49.75	55.75	59.75	65.00
4. Population Served with Sewerage & Drainage Facilities.	Thousand	1238.000	1286.000	1394.000	1488.000	1715.000
5. Percentage of Total Population	%	65	65	68	70	75

Source:- 1. Public Health Engineering Research Laboratory, Hyderabad.
2. Faisalabad Development Authority

Table A-87: Distance To Water Source By Province and Distance, PIHS 2001-02

Province and Water source	Percentage of Households					
	Inside The House	0-0.5 Km	0.5-1 km	1-2 Km	2-5 Km	Over 5 Km
Punjab						
Tap water	91	9	0	0	0	0
Hand pump / M.pump	92	7	1	0	0	0
Dug well	51	41	6	1	0	0
River/Canal/Stream/Pond	27	61	10	2	0	0
Total	89	10	1	0	0	0
Sindh						
Tap water	87	12	0	0	0	0
Hand pump /M.pump	79	20	1	1	0	0
Dug well	9	78	8	3	1	0
River/Canal/Stream/Pond	5	85	9	0	0	0
Total	68	27	2	1	1	1
N.W.F.P						
Tap water	78	22	0	0	0	0
Hand pump /M.pump	80	19	1	0	0	0
Dug well	69	30	0	0	0	0
River/Canal/Stream/Pond	5	87	6	0	0	1
Total	59	39	2	0	0	0
Balochistan						
Tap water	93	7	0	0	0	0
Hand pump /M.pump	36	47	3	1	3	11
Dug well	53	32	9	2	1	4
River/Canal/Stream/Pond	2	90	4	3	0	0
Total	45	45	4	2	1	3
Overall Pakistan						
Tap water	87	12	0	0	0	0
Hand pump /M.pump	88	11	1	0	0	0
Dug well	45	47	5	1	1	1
River/Canal/Stream/Pond	8	84	7	1	0	1
Total	79	19	1	0	0	0

Source:- PIHS 2001.02 Federal Bureau of Statistics.

- Note:-**
- Households traveling the distance indicated to the water source as a percentage of all households using the specified "Total" gives the households traveling the distance included as percentage of all households in the province
 - Categories: "Tap water "consist of both tap water inside and outside house "Handpump/ M.pump includes hand pump both inside and outside; moterpump and tube well outside the house; "Dug well" includes well open and well closed both inside and outside house
 - Totals for columns may not add up to 100 because of rounding

Table A-88: Laboratory Test Results of Wastewater Quality in Lahore

Date of Sampling	Time Hrs	Sample ID No.	Sampling Location	Flow Rate (m ³ /sec)	Temp (°C)	pH	DO (mg/l)	Cond (uS/cm)	Odor (TON)
				1	2	3	4	5	6
			National Environmental Quality Standards		40.0	6.0 to 9.0			
04.04.00	1150	E061	River Ravi BRB Siphon (Composite)	366.0	26.1	8.3	6.4	227.0	1.1
07.04.00	1125	E066	New Shadbagh Sewage Drain, Bund Road	6.8	27.5	7.6	2.0	998.0	20.0
04.04.00	1645	E062	River Ravi Bara Dari Nar Boat Station	88.0	29.0	8.5	4.9	180.0	10.0
07.04.00	1530	E068	Babu Sabu Drain, Bund Road	9.0	28.9	7.4	1.1	1191.0	3.3
05.04.00	1055	E063	Babu Sabu Outfall (Before Joining River Ravi)	7.3	28.7	7.3	0.6	953.0	1.1
07.04.00	1300	E067	Main Outfall Drain, Bund Road	2.2	27.0	7.5	1.8	1081.0	20.0
09.04.00	1450	E074	Deg Nullah, Sheikhpura Road	1.9	29.8	7.3	0.7	3070.0	10.0
09.04.00	1255	E073	Choti Deg Nullah, Sheikhpura Road	0.9	27.8	8.7	0.6	3600.0	20.0
11.04.00	1400	E078	Bhed Nullah, Sheikhpura Road	0.5	35.5	9.3	0.2	1815.0	50.0
08.04.00	1400	E071	Hudiarra Drain, From India	3.6	28.6	7.8	0.6	2300.0	10.0
08.04.00	1100	E070	Hudiarra Drain, Ferozpur Road	8.3	28.3	8.0	0.7	1579.0	50.0
12.04.00	1330	E079	Satokattla Drain Defence Road	6.5	32.1	7.6	0.4	1369.0	33.3
07.04.00	1655	E069	Hudiarra Drain, Multan Road	9.1	29.4	7.7	1.0	1765.0	20.0
05.04.00	1430	E064	River Ravi at Junction of Hudiarra Drain	78.9	29.2	7.4	3.0	645.0	10.0
05.04.00	1720	E065	River 1 KM D/S of Hudiarra Drain	480.0	27.7	7.7	1.2	516.0	10.0
13.04.00	900	E080	Baloki Headworks (Composite)	340.0	25.1	7.5	5.3	333.0	1.0
09.04.00	1140	E072	Chichokimalian Drain, Sheikhpura Road	0.4	27.5	9.0	0.8	4660.0	14.5
11.04.00	1215	E077	Barian Drain 1km off Sheikhpura Road	1.8	32.3	7.0	0.7	2270.0	6.7
10.04.00	1250	E075	Deg Nullah II, before River after Baloki HW	1.0	27.9	8.0	1.0	5310.0	1.1
10.04.00	1705	E076	Mundwana, Samundri Drain before Ravi	1.3	30.7	8.4	0.4	4220.0	100.0
Duplicate Analysis By									
13.04.00		E080	Baloki Headworks	-	-	-	-	-	-
11.04.00		E077	Barian Drain 1km off Sheikhpura Road	-	-	-	-	-	-

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Table A-88: Laboratory Test Results of Wastewater Quality in Lahore

Date of Sampling	Time Hrs	Sample ID No.	Sampling Location	Turb (NTU)	Color (TCU)	BOD _s (mg/l)	COD (mg/l)	TSS (mg/l)	O&G (mg/l)	T-N (mg/l)
				7	8	9	10	11	12	13
			National Environmental Quality Standards			80.0	150.0	200.0	10.0	
04.04.00	1150	E061	River Ravi BRB Siphon (Composite)	55.0	1.0	9.2	16.9	124.0	ND	1.1
07.04.00	1125	E066	New Shadbagh Sewage Drain, Bund Road	126.0	20.0	110.0	162.3	855.0	ND	38.1
04.04.00	1645	E062	River Ravi Bara Dari Nar Boat Station	62.0	1.0	12.1	26.6	162.0	ND	2.8
07.04.00	1530	E068	Babu Sabu Drain, Bund Road	75.0	50.0	110.0	179.8	249.0	ND	38.6
05.04.00	1055	E063	Babu Sabu Outfall (Before Joining River Ravi)	37.0	ND	102.0	111.8	110.0	ND	4.5
07.04.00	1300	E067	Main Outfall Drain, Bund Road	105.0	70.0	109.0	214.4	342.0	ND	29.7
09.04.00	1450	E074	Deg Nullah, Sheikhpura Road	128.0	1000.0	159.0	831.1	348.0	ND	ND
09.04.00	1255	E073	Choti Deg Nullah, Sheikhpura Road	126.0	35.0	109.0	196.8	278.0	ND	2.8
11.04.00	1400	E078	Bhed Nullah, Sheikhpura Road	47.0	ND	140.0	582.4	405.0	ND	2.8
08.04.00	1400	E071	Hudiara Drain, From India	85.0	1000.0	449.0	862.0	537.0	ND	3.6
08.04.00	1100	E070	Hudiara Drain, Ferozpur Road	42.0	200.0	163.0	215.0	5982.0	ND	4.0
12.04.00	1330	E079	Satokattla Drain Defence Road	64.0	50.0	103.0	252.7	170.0	ND	18.5
07.04.00	1655	E069	Hudiara Drain, Multan Road	37.0	15.0	117.0	387.8	126.0	ND	8.4
05.04.00	1430	E064	River Ravi at Junction of Hudiara Drain	21.0	10.0	63.0	165.6	133.0	ND	8.4
05.04.00	1720	E065	River 1 KM D/S of Hudiara Drain	46.0	10.0	7.1	36.4	134.0	ND	12.3
13.04.00	900	E080	Baloki Headworks (Composite)	34.0	25.0	7.1	33.4	80.0	ND	ND
09.04.00	1140	E072	Chichokimalian Drain, Sheikhpura Road	56.0	50.0	73.0	77.6	1562.0	ND	65.0
11.04.00	1215	E077	Barian Drain 1km off Sheikhpura Road	237.0	50.0	142.0	2383.0	736.0	53.3	3.9
10.04.00	1250	E075	Deg Nullah II, before River after Baloki HW	98.0	1000.0	105.0	1046.0	495.0	ND	5.0
10.04.00	1705	E076	Mundwana, Samundri Drain before Ravi	48.0	ND	161.0	180.1	152.0	ND	6.7
Duplicate Analysis By PCSIR										
13.04.00		E080	Baloki Headworks	-	-	6.2	15.1	20.0	0.6	0.1
11.04.00		E077	Barian Drain 1km off Sheikhpura Road	-	-	965.0	2826.0	1092.0	2.7	0.3

Table A-88: Laboratory Test Results of Wastewater Quality in Lahore

Date of Sampling	Time Hrs	Sample ID No.	Sampling Location	E-Coli (MPN/100ml)	As (ppb)	Cu (ppm)	Cr (ppm)	Cd (ppm)	Pb (ppm)	Zn (ppm)
				14	15	16	17	18	19	20
			National Environmental Quality Standards		1000.0	1.0	1.0	1.0	0.5	5.0
04.04.00	1150	E061	River Ravi BRB Siphon (Composite)	<1.0	-	-	-	-	-	-
07.04.00	1125	E066	New Shadbagh Sewage Drain, Bund Road	>180.0	-	-	-	-	-	-
04.04.00	1645	E062	River Ravi Bara Dari Nar Boat Station	>180.0	-	-	-	-	-	-
07.04.00	1530	E068	Babu Sabu Drain, Bund Road	>180.0	-	-	-	-	-	-
05.04.00	1055	E063	Babu Sabu Outfall (Before Joining River Ravi)	>180.0	-	-	-	-	-	-
07.04.00	1300	E067	Main Outfall Drain, Bund Road	>180.0	-	-	-	-	-	-
09.04.00	1450	E074	Deg Nullah, Sheikhpura Road	>180.0	13.0	<0.5	<0.5	<0.1	<0.2	<0.2
09.04.00	1255	E073	Choti Deg Nullah, Sheikhpura Road	>180.0	11.0	<0.5	25.0	<0.1	<0.2	<0.2
11.04.00	1400	E078	Bhed Nullah, Sheikhpura Road	>180.0	25.0	0.8	<0.5	<0.1	<0.2	0.9
08.04.00	1400	E071	Hudiara Drain, From India	>180.0						
08.04.00	1100	E070	Hudiara Drain, Ferozpur Road	>180.0	10.0	<0.5	<0.5	<0.1	<0.2	<0.2
12.04.00	1330	E079	Satokattla Drain Defence Road	>180.0	-	-	-	-	-	-
07.04.00	1655	E069	Hudiara Drain, Multan Road	>180.0	25.0	<0.5	<0.5	<0.1	<0.2	<0.2
05.04.00	1430	E064	River Ravi at Junction of Hudiara Drain	>180.0	-	-	-	-	-	-
05.04.00	1720	E065	River 1 KM D/S of Hudiara Drain	>180.0	<10.0	<0.5	<0.5	<0.1	<0.2	<0.2
13.04.00	900	E080	Baloki Headworks (Composite)	>180.0	-	-	-	-	-	-
09.04.00	1140	E072	Chichokimalian Drain, Sheikhpura Road	>180.0	28.0	<0.5	<0.5	<0.1	<0.2	<0.2
11.04.00	1215	E077	Barian Drain 1km off Sheikhpura Road	>180.0	14.0	2.0	<0.5	<0.1	0.2	0.3
10.04.00	1250	E075	Deg Nullah II, before River after Baloki HW	161.0	-	-	-	-	-	-
10.04.00	1705	E076	Mundwana, Samundri Drain before Ravi	>180.0	-	-	-	-	-	-
Duplicate Analysis By NUST										
13.04.00		E080	Baloki Headworks	1.0						
11.04.00		E077	Barian Drain 1km off Sheikhpura Road	1.0	<0.5ppm	<0.5	<0.5	<0.5	<0.5	<0.1

Source:- Environment Protection Agency Laboratories, Govt. of Punjab, Lahore

Table A-89: Laboratory Test Results of Wastewater Quality in Rawalpindi/Islamabad

Date of Sampling	Time Hrs	Sample ID No.	Sampling Location	Flow Rate (m ³ /sec)	Temp (°C)	pH	DO (mg/1)	Cond (uS/cm)	Odor (TON)
				1	2	3	4	5	6
			National Environmental Quality Standards		40.0	6.0 to 9.0			
04.04.00	1400	E092	E-8 Near Navy House Karakuram Road	0.5	18.2	7.4	5.7	210.0	4.0
13.04.00	400	E110	E-7 Hill Side Road opp. St. 16	0.0	20.5	7.7	0.7	760.0	16.0
04.04.00	1230	E091	F-8/2 Befor Fatima Jinah Park	0.1	25.4	7.3	3.8	560.0	64.0
05.04.00	1000	E093	F-6/2 Near Alkhizar Mosque Margalla Road	0.1	16.0	7.4	5.8	200.0	1.0
05.04.00	1100	E094	F-5/2 Near Azad Jammun Kashmir Sectt.	0.1	18.8	7.6	4.6	230.0	4.0
06.04.00	1000	E095	Near American Embassy	0.5	17.5	7.8	6.5	590.0	1.0
06.04.00	1145	E096	Peshawar Road	0.1	22.3	7.6	2.2	850.0	16.0
07.04.00	1100	E097	I-10 Pirwadahi Crossing Nullah 1	2.1	20.8	7.9	0.5	930.0	16.0
07.04.00	1200	E098	I-10 Pirwadahi Crossing Nullah 2	7.1	20.4	7.4	0.8	910.0	16.0
07.04.00	1300	E099	I-10 Pirwadahi Crossing, 200M after Joining	2.7	20.3	7.6	0.1	960.0	16.0
10.04.00	1330	E101	Nallah Leh Near Guwalmandi Bridge	10.8	23.8	7.1	0.3	1320.0	64.0
10.04.00	1445	E102	Jahanda Chichi, Air Port Road	7.8	24.4	7.1	0.1	1340.0	64.0
13.04.00	1045	E108	Nallah Leh at Gulistan Colony Line-1	8.6	30.0	7.3	1.9	1260.0	64.0
11.04.00	1025	E105	Nallah Leh before joining River Swan	9.6	24.2	7.6	2.1	1590.0	64.0
07.04.00	1500	E100	Chattar Park	0.8	20.8	8.1	6.1	600.0	1.0
13.04.00	1220	E109	Rawal Dam	1.2	19.8	7.8	6.0	410.0	1.0
12.04.00	1300	E107	Stream Water Korang Nallah Lehtrar Road	1.9	26.9	7.6	2.4	58.0	4.0
12.04.00	1015	E106	Nallah Kura, Shahrah-e-Islamabad	1.2	27.6	8.1	4.8	680.0	2.0
11.04.00	1245	E103	River Swan before Swan Bridge	10.1	26.3	8.2	7.6	770.0	4.0
11.04.00	1130	E104	Mix of Swan and Nallah Leh	10.5	25.4	7.6	5.4	1140.0	16.0
Duplicate Analysis By									
11.04.00		E105	Nallah Leh before joining River Swan	-	-	-	-	-	-
12.04.00		E106	Nallah Kura, Shahrah-e-Islamabad	-	-	-	-	-	-

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Table A-89: Laboratory Test Results of Wastewater Quality in Rawalpindi/Islamabad

Date of Sampling	Time Hrs	Sample ID No.	Sampling Location	Turb (NTU)	Color (TCU)	BOD ₅ (mg/1)	COD (mg/1)	TSS (mg/1)	O&G (mg/1)	T-N (mg/1)
				7	8	9	10	11	12	13
			National Environmental Quality Standards			80.0	150.0	200.0	10.0	
04.04.00	1400	E092	E-8 Near Navy House Karakoram Road	13.7	0.0	6.8	25.6	4041.0	BDL	BDL
13.04.00	400	E110	E-7 Hill Side Road opp. St. 16	9.9	10.0	58.0	89.3	50.0	BDL	18.5
04.04.00	1230	E091	F-8/2 Befor Fatima Jinah Park	49.0	70.0	60.1	101.3	16154.0	BDL	12.3
05.04.00	1000	E093	F-6/2 Near Alkhizar Mosque Margalla Road	9.3	0.0	17.0	18.4	107.0	BDL	BDL
05.04.00	1100	E094	F-5/2 Near Azad Jammun Kashmir Sectt.	11.4	1.0	12.2	20.9	42.0	BDL	BDL
06.04.00	1000	E095	Near American Embassy	4.0	10.1	16.3	19.3	47.0	BDL	BDL
06.04.00	1145	E096	Peshawar Road	6.4	70.0	31.3	58.2	146.0	BDL	1.7
07.04.00	1100	E097	I-10 Pirwadahi Crossing Nullah 1	6.4	70.0	57.6	83.7	358.0	BDL	10.1
07.04.00	1200	E098	I-10 Pirwadahi Crossing Nullah 2	18.5	70.0	59.5	114.3	89.0	BDL	3.4
07.04.00	1300	E099	I-10 Pirwadahi Crossing, 200M after Joining	17.0	70.0	34.2	81.0	210.0	BDL	5.1
10.04.00	1330	E101	Nallah Leh Near Guwalmandi Bridge	41.5	70.0	139.1	357.5	284.0	BDL	6.7
10.04.00	1445	E102	Jahanda Chichi, Air Port Road	65.1	70.0	139.3	215.4	272.0	BDL	5.6
13.04.00	1045	E108	Nallah Leh at Gulistan Colony Line-1	64.5	70.0	118.8	209.6	127.0	BDL	37.5
11.04.00	1025	E105	Nallah Leh before joining River Swan	59.3	50.0	81.7	147.1	255.0	BDL	51.0
07.04.00	1500	E100	Chattar Park	0.5	0.0	14.2	34.8	43.0	BDL	BDL
13.04.00	1220	E109	Rawal Dam	2.6	10.0	BDL	7.0	106.0	BDL	BDL
12.04.00	1300	E107	Stream Water Korang Nallah Lehtrar Road	22.6	70.0	10.9	15.8	77.0	BDL	BDL
12.04.00	1015	E106	Nallah Kura, Shahrah-e-Islamabad	7.7	0.0	16.0	18.4	36.0	BDL	BDL
11.04.00	1245	E103	River Swan before Swan Bridge	6.1	20.0	26.9	45.6	94.0	BDL	BDL
11.04.00	1130	E104	Mix of Swan and Nallah Leh	43.5	20.0	42.6	68.7	22.0	BDL	5.0
Duplicate Analysis By PCSIR										
11.04.00		E105	Nallah Leh before joining River Swan	-	-	256	1676.0	253.0	0.4	0.2
12.04.00		E106	Nallah Kura, Shahrah-e-Islamabad	-	-	12.5	31.6	15.0	0.4	0.1

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Table A-89: Laboratory Test Results of Wastewater Quality in Rawalpindi/Islamabad

Date of Sampling	Time Hrs	Sample ID No.	Sampling Location	E-Coli (MPN/100ml)	As (ppb)	Cu (ppm)	Cr (ppm)	Cd (ppm)	Pb (ppm)	Zn (ppm)
				14	15	16	17	18	19	20
			National Environmental Quality Standards		1000.0	1.0	1.0	1.0	0.5	5.0
04.04.00	1400	E092	E-8 Near Navy House Karakoram Road	18 +	-	-	-	-	-	-
13.04.00	400	E110	E-7 Hill Side Road opp. St. 16	18 +	-	-	-	-	-	-
04.04.00	1230	E091	F-8/2 Befor Fatima Jinah Park	18 +	-	-	-	-	-	-
05.04.00	1000	E093	F-6/2 Near Alkhizar Mosque Margalla Road	0.0	-	-	-	-	-	-
05.04.00	1100	E094	F-5/2 Near Azad Jammun Kashmir Sectt.	18 +	-	-	-	-	-	-
06.04.00	1000	E095	Near American Embassy	18 +	-	-	-	-	-	-
06.04.00	1145	E096	Peshawar Road	18 +	-	-	-	-	-	-
07.04.00	1100	E097	I-10 Pirwadahi Crossing Nullah 1	18 +	<10.0	<0.5	<0.5	<0.1	<0.2	<0.2
07.04.00	1200	E098	I-10 Pirwadahi Crossing Nullah 2	18 +	<10.0	<0.5	<0.5	<0.1	<0.2	<0.2
07.04.00	1300	E099	I-10 Pirwadahi Crossing, 200M after Joining	18 +	<10.0	<0.5	<0.5	<0.1	<0.2	<0.2
10.04.00	1330	E101	Nallah Leh Near Guwalmandi Bridge	18 +	<10.0	<0.5	<0.5	<0.1	<0.2	0.3
10.04.00	1445	E102	Jahanda Chichi, Air Port Road	18 +	-	-	-	-	-	-
13.04.00	1045	E108	Nallah Leh at Gulistan Colony Line-1	18 +	-	-	-	-	-	-
11.04.00	1025	E105	Nallah Leh before joining River Swan	18 +	11.0	3.0	<0.5	<0.1	0.3	0.3
07.04.00	1500	E100	Chattar Park	18 +	-	-	-	-	-	-
13.04.00	1220	E109	Rawal Dam	18 +	-	-	-	-	-	-
12.04.00	1300	E107	Stream Water Korang Nallah Lehtrar Road	18 +	-	-	-	-	-	-
12.04.00	1015	E106	Nallah Kura, Shahrah-e-Islamabad	18 +	<10.0	<0.5	<0.5	<0.1	<0.2	<0.2
11.04.00	1245	E103	River Swan before Swan Bridge	18 +	-	-	-	-	-	-
11.04.00	1130	E104	Mix of Swan and Nallah Leh	18 +	<10.0	<0.5	<0.5	<0.1	<0.2	<0.2
Duplicate Analysis By NUST										
11.04.00		E105	Nallah Leh before joining River Swan	<0.5ppm	<0.1	<0.5	<0.5	<0.5	<0.1	-
12.04.00		E106	Nallah Kura, Shahrah-e-Islamabad	<0.5ppm	<0.1	<0.5	<0.5	<0.5	<0.5	-

Source:- Environment Protection Agency Laboratories, Govt. of Punjab, Lahore

Table A-90: Municipal Solid Waste Disposal System (Transportation) at Selected Cities during, 2002

Type of Vehicles	Selected cities by number of vehicles								
	Gujranwala*	Faisalabad	Karachi*	Hyderabad	Peshawar	Bannu	Quetta	Sibi	Lahore
Donkey Carts	102	-	-	51	-	-	-	-	-
Bullock Carts	-	-	-	-	-	-	-	-	40
Suzuki Pickup	-	-	-	-	4	-	1	-	-
Tractor Trolleys	40	17	-	5	7	4	6	3	49
Truck	-	6	389	7	21	2	43	-	204
Dumpers	-	22	-	3	-	-	22	-	27
Mech Loader	5	11	-	2	16	1	1	-	31

Source:- Tehsil Municipal Administration of each district

* Data is repeated

Table A-91: Municipal Solid Waste Disposal System (by Number of Employees) at selected cities during 2002

Name of cities	Zone/Sectors	Supervisory Staff	Supervisors	Working Staff	Sweeper/Sanitary workers	Total staff Col.(3+5)
1	2	3	4	5	6	7
Gujranwala*	4	59	30	1,066	1,742	1,125
Faisalabad	2	118	72	3,123	2,597	3,241
Lahore	6	302	18	2,187	6,900	2,489
Bahawalpur	2	1	40	125	485	126
Karachi*	4	334	244	11,571	11,142	11,905
Hyderabad	1	45	-	890	890	935
Peshawar	5	4	40	1,625	1,101	1,629
Bannu	1	8	-	72	65	80
Quetta	22	66	44	978	978	1,044
Sibi	2	6	6	179	179	185
Tota	49	943	494	21,816	26,079	22,759

Source:- Tehsil Municipal Administration of each district

* Data is repeated

Table A-92: Municipal Solid Waste Disposal System (Sanitary Landfill/Dumps) at selected cities during 2002

Name of City	Existing Dumps		Proposed land, fill/site
	Number	Size	
Gujranwala	3	-	-
Faisalabad	2	40 Acres	At Chak Muhammad Jaranwala Road
Bahawalpur	4	-	-
Lahore	3	638Kanal/Private Land	Kaachaa village site/Private Land
Karachi	-	-	-
Hyderabad	Many plots	-	-
Peshawar	1	24Kanals	-
Bannu	1	50Kanals	Topi Ghulam Qadir
Quetta	1	65Acres	Eastern By Pass
Sibi	Many sites	-	-

Source:- Tehsil Municipal Administration of each district

Table A-93: Garbage Collection System From The Household By Province

Province and Garbage Collection System	2001-02 PIHS		
	Urban	Rural	Overall
Punjab			
Municipality	19	0	6
Privately	19	9	12
No System	62	90	82
Total	100	100	100
Sindh			
Municipality	14	0	6
Privately	43	2	19
No System	43	97	75
Total	100	100	100
N.W.F.P			
Municipality	5	0	1
Privately	30	17	19
No System	65	83	80
Total	100	100	100
Balochistan			
Municipality	10	0	2
Privately	15	0	3
No System	75	100	96
Total	100	100	100
Pakistan			
Municipality	16	0	5
Privately	28	9	14
No System	56	91	81
Total	100	100	100

Source:- Federal Bureau of Statistics, Pakistan Integrated Household Survey (PIHS).

Total may not add to 100 because of rounding.

Table A-94: Type of Sanitation System Used-by Province

Province and Sanitation System	1998-99 PIHS			2001-02 PIHS		
	Urban	Rural	Overall	Urban	Rural	Overall
Punjab						
Underground Drains	36	2	12	38	1	12
Covered Drains	5	1	2	7	1	3
Open Drains	49	41	43	47	42	43
Soak pit	-	-	-	-	-	-
No system	10	57	43	8	56	42
Total	100	100	100	100	100	100
Sindh						
Underground Drains	65	1	30	69	2	30
Covered Drains	6	0	3	2	0	1
Open Drains	22	12	16	19	12	15
Soak pit	-	-	-	-	-	-
No system	7	87	51	10	85	54
Total	100	100	100	100	100	100
N.W.F.P						
Underground Drains	7	0	1	1	0	1
Covered Drains	3	0	1	1	0	0
Open Drains	72	25	32	75	30	37
Soak pit	-	-	-	-	-	-
No system	19	74	66	23	69	62
Total	100	100	100	100	100	100
Balochistan						
Underground Drains	5	0	1	4	0	1
Covered Drains	5	0	1	2	0	1
Open Drains	52	2	8	59	2	8
Soak pit	-	-	-	-	-	-
No system	37	98	91	34	95	85
Total	100	100	100	100	100	100
Pakistan						
Underground Drains	44	1	14	45	1	14
Covered Drains	5	1	2	5	1	2
Open Drains	41	31	34	40	33	35
Soak pit	-	-	-	-	-	-
No system	10	68	50	10	66	49
Total	100	100	100	100	100	100

Source:- Federal Bureau of Statistics, Pakistan Integrated Household Survey (PIHS).

- Note:-**
1. Households connected to the drainage system indicated, expressed as a percentage of the total number of households.
 2. "Soak pit" was not included as a separate category in the 1996-97 PIHS questionnaire nor in the 1998-99 questionnaire nor in the 2000-01 "Covered drains" is not included in the 1996-97 PIHS questionnaire
 3. Totals may not add up to 100 because of rounding

**Table A-95: State of Air Quality in Urban Centers of Punjab
(From 2002 to June 2003)**

Name of City	Location	Type of site	Date	Ozone Ppb	SO ₂ ppb	Co ppm	No ₂ ppb	NO _x ppb	PM ug/m ³	Noise Decibel dB (A)	Humidity %	W. Speed M/sec	NMHC ppm
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Bahawalnagar	Christian Chowk	Busy road side	09.01.02	4	49	4	36	211	557	Peak hrs 77-80 Lean hrs 65-75	36	1.1	6
Bahawalpur	Circular Road	Busy road side	11.01.02	3	18	4	61	136	384.3	Peak hrs 72-68 Lean hrs 68-72	35	1.2	-
Bahawalpur	Fareed Gate	Busy road side	12.01.02	3	25	3	86	201	377	73-68	35	1.1	-
Bhakkar	Jhang Chowk	Busy road side	31.10.02	5	-	4	25.9	115.5	420	-	78	1.1	-
Bhakkar	Near Thal Textile Mills	Residential Area	31.10.02	5.8	-	1	11	13	140.6	-	76	1.2	-
Chakwal	Residential colony of dist Employees	Residential Area	18.01.03	14.1	-	1	5	18	324	-	80	1.2	-
Chakwal	Tehsil Chowk	Commercial Area	17.01.03	12.6	-	1.5	29.1	85.5	455.8	-	85.5	24.5	-
Cunian/Kasur	Multan Road	Industrial		21	-	1		65	265	79	40	3.1	-
DG Khan	Traffic Chowk	Busy Intersection	20.10.02	2	4	4	46	83	340	61-69	35	1.7	-
Faisalabad	Ghulam Muhammadabad	Residential Area	20.12.02	10	-	0.1	40	41	475	-	48	1.5	1.55
Faisalabad	Kotwali Chowk	Busy Chowk	18.12.02	16.1	-	3.1	70.1	224.9	1095.8	-	37.8	1.2	-
Faisalabad	Near General Bus Stand	Busy road side	21.12.02	11	-	2.3	73	157	1068	-	60.1	1.6	-
Faisalabad	Samundri Road	Industrial	22.12.02	14.1	-	0.2	29.1	41.2	471.1	-	49.5	1.9	-
Faisalabad	Abdullah pur Chowk	Busy Chowk	19.12.02	17.3	-	3.7	35.1	60.4	790	-	52.4	1.8	-
Gujranwala	Bagban-pura	Busy Chowk/ Commercial	14.12.02	13.7	-	7.8	50.7	134.1	1122	-	41.8	1.1	
Gujranwala	Gondlan-wala Chowk	Busy Chowk	13.12.02	4.3	-	4	66	208	728	-	32	1.2	4.8
Gujranwala	Sheikupura Road	Industrial	15.12.02	12	-	1.5	37.9	65.1	650.4	-	29	2.2	
Gujranwala	Sialkot Road	Residential Area	16.12.02	20.3	-		20.1	36.3	235.8	-	44.5	1.2	
Khushab		Busy road side	24.10.02	6	-	3	59.9	202	557	-	-	-	-
Khushab	Near DCO Office	Residential Area	02.11.02	15	-	1	50	123	280	-	-	-	-
Lahore	Azadi Chowk	Busy Chowk	03.10.02	10	-	4	67	132	445	89	47	1.2	-

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**Table A-95: State of Air Quality in Urban Centers of Punjab
(From 2002 to June 2003)**

Name of City	Location	Type of site	Date	Ozone Ppb	SO2 ppb	Co ppm	No ppb	NOx ppb	PM ug/m3	Noise Decibel	Humidity %	W. Speed M/sec	NMHC ppm
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Lahore		Industrial	22.01.03	15.9	-	1	29.4	44	246	67	89	1.1	-
Lahore	Qartaba Chowk	Industrial	18.09.02	11	-	3	58	214	623	81	48	1.2	-
Layyah	Traffic Chowk	Busy Road side	22.01.03	2	2	2.2	72	75	153.5	63-71	35	1.7	-
Lodhran	Main Bazar Multan Road	Busy Road side/ Commercial	04.03.02	8	6	2.2	39	74	354	57-83	38	1.2	-
Mainwali	Railway Road	Busy Road side	25.10.02	8	-	2	37.5	84.3	290	-	-	-	-
Mainwali	Railway Road	Residential area	26.10.02	3	-	2	26.6	41.2	228	-	-	-	-
Pakpattan	Main Bazar Nagina Chowk	Busy Road side/ Commercial	06.03.02	8	23	6.8	76	121	467	67.88	38	1.0	-
R.y. Khan	Industrial Area	Industrial area	14.01.02	3	25	2	42	79	345	58-73	36	1.2	-
R.y. Khan	Near DCO Office	Busy Road side	15.01.02	3	13	2.4	61	138	361	61-69	37	1.6	-
Rajanpur	Main Bazar	Busy Road side/ Commercial	18.01.02	3	4	4	32	68	331	62-67	34	1.8	-
Sargodha	Noori Chowk	Busy Road side	27.04.02	7	13	3.5	69	134	445	69-92	36	1.2	-

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WHO Guideline	Ug/m3	120	125	No defined limit
	Ppb	62	48	200
	Mg/m3		10	107
	Ppm		9	
	Averaging Time	8 hour/ day	24 hours	8 hour/ day
				1 hour

Note:- Ppm= Part per Million SO2 Sulfur dioxide
 Ug/m3 Microgram CO Carbon monoxide
 DB Decibel NO2 Nitrogen dioxide
 Nox Oxide of Nitrogen PM10 Particulate matter below 10micron size

Source:- Environment Protection Agency Laboratories Govt. of Punjab, Lahore.

Table A-96: Concentration of Dust Fall in Big Cities of Punjab

Tons/Km/Month

S.No.	Name of District								
	Year 2002	Faisala- bad	Gujrat	Jhang	Lahore	Multan	Rawal- pindi	Sheikh- upura	Sialkot
1	January	12	-	73	58	-	-	-	106
2	February	71	47	-	67	-	38	-	107
3	March	-	-	-	71	106	45	82	-
4	April	62	-	-	105	-	50	97	-
5	May	-	-	-	82	-	80	-	115
6	June		-	-	98	257	-	-	61
7	July	82	-	-	38	-	-	-	73
8	August	128	-	-	68	-	-	-	78
9	September	62	-	-	98	-	-	-	108
10	October	125 (Oct. + Nov)	-	-	110	-	-	-	181
11	November		-	-	73	-	-	-	-
12	December	77	-	-	58	-	-	-	134

Source:- Environment Protection Agency, Laboratories, Punjab

Table A-97: Tide Data Off Seashore Karachi

(Metres)

Month	1987			1988			1989		
	Av. high water	Av. low Water	Mean sea level	Av. high water	Av. low water	Mean sea level	Av. high water	Av. low water	Mean sea level
January	2.41	0.71	1.37	2.40	0.67	1.51	2.45	0.67	1.56
February	2.63	1.15	1.64	2.50	0.65	1.54	2.55	0.35	1.45
March	2.68	0.80	1.73	2.50	0.76	1.59	2.57	0.35	1.64
April	2.65	0.86	1.74	2.53	0.81	1.66	2.45	0.44	1.44
May	2.70	1.00	1.80	2.62	0.83	1.79	2.67	0.47	1.57
June	2.80	1.14	1.83	2.77	0.83	1.69	2.62	0.41	1.51
July	-	-	-	2.56	0.75	1.64	2.69	0.43	1.56
August	2.59	0.98	1.74	2.53	0.76	1.61	2.58	0.45	1.51
September	2.56	0.82	1.65	-	-	-	2.55	0.42	1.48
October	2.67	0.90	1.77	2.41	0.67	1.52	2.45	0.38	1.41
November	2.62	0.89	1.71	-	-	-	2.55	0.37	1.46
December	2.58	0.88	1.72	2.42	0.68	1.53	2.58	0.37	1.67

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Table A-97:Tide Data Off Seashore Karachi

(Metres)

Month	1990			1991			1992		
	Av. high water	Av. low water	Mean sea level	Av. high water	Av. low water	Mean sea level	Av. high water	Av. low water	Mean sea level
January	2.52	0.79	1.66	2.53	0.80	1.67	2.6	0.79	1.65
February	2.50	0.76	1.63	2.49	0.78	1.64	2.45	0.74	1.63
March	2.53	0.74	1.64	2.53	0.76	1.65	2.53	0.77	1.64
April	2.52	0.80	1.66	2.52	0.82	1.67	2.68	0.81	1.67
May	2.53	0.85	1.69	2.53	0.87	1.70	2.83	0.87	1.71
June	2.55	0.86	1.71	2.54	0.89	1.72	2.84	0.87	1.71
July	2.50	0.86	1.68	2.54	0.82	1.68	2.59	0.79	1.68
August	2.45	0.81	1.63	2.51	0.75	1.63	2.36	0.72	1.62
September	2.45	0.75	1.60	2.47	0.73	1.60	2.34	0.71	1.6
October	2.47	0.75	1.61	2.46	0.76	1.61	2.45	0.75	1.61
November	2.49	0.78	1.64	2.49	0.77	1.63	2.6	0.79	1.63
December	2.53	0.78	1.66	2.52	0.78	1.65	2.6	0.79	1.65

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Table A-97: Tide Data Off Seashore Karachi

(Metres)

Month	1993			1996			1997		
	Av. high water	Av. low water	Mean sea level	Av. high water	Av. low water	Mean sea level	Av. high water	Av. low water	Mean sea level
January	2.6	0.79	1.65	2.67	0.42	1.55	2.70	0.40	1.55
February	2.4	0.73	1.64	2.62	0.39	1.50	2.68	0.38	1.53
March	2.56	0.77	1.64	2.54	0.46	1.50	2.52	0.42	1.47
April	2.59	0.80	1.67	2.55	0.42	1.50	2.58	0.39	1.48
May	2.73	0.83	1.69	2.63	0.37	1.50	2.61	0.32	1.46
June	2.78	0.85	1.71	2.66	0.27	1.47	2.58	0.25	1.41
July	2.65	0.81	1.67	2.64	0.42	1.53	2.60	0.32	1.46
August	2.44	0.74	1.63	2.57	0.38	1.48	2.59	0.37	1.48
September	2.32	0.71	1.59	2.60	0.40	1.50	2.62	0.41	1.57
October	2.36	0.72	1.60	2.58	0.35	1.46	2.58	0.32	1.45
November	2.51	0.76	1.63	2.56	0.31	1.43	2.56	0.33	1.44
December	2.54	0.77	1.65	2.52	0.32	1.42	2.54	0.31	1.44

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Table A-97: Tide Data Off Seashore Karachi

(Metres)

Month	1998			1999			2000		
	Av. high water	Av. low water	Mean sea level	Av. high water	Av. low water	Mean sea level	Av. high water	Av. low water	Mean sea level
January	2.70	0.37	1.53	2.51	0.70	1.60	2.47	0.74	1.61
February	2.68	0.38	1.53	2.46	0.70	1.58	2.48	0.71	1.60
March	2.60	0.40	1.50	2.50	0.69	1.60	2.42	0.75	1.59
April	2.58	0.41	1.49	2.52	0.75	1.64	2.51	0.77	1.64
May	2.59	0.39	1.49	2.54	0.79	1.67	2.53	0.79	1.66
June	2.60	0.30	1.45	2.50	0.76	1.63	2.50	0.75	1.63
July	2.63	0.38	1.50	2.43	0.68	1.56	2.44	0.64	1.54
August	2.56	0.35	1.45	2.39	0.59	1.49	2.39	0.56	1.48
September	2.55	0.33	1.44	2.39	0.58	1.49	2.39	0.59	1.49
October	2.59	0.34	1.46	2.45	0.62	1.54	2.44	0.69	1.57
November	2.55	0.31	1.43	2.51	0.71	1.61	2.48	0.75	1.62
December	2.57	0.33	1.45	2.51	0.74	1.63	2.49	0.77	1.63

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Table A-97: Tide Data Off Seashore Karachi

(Metres)

Month	2001			2002			2003		
	Av. high water	Av. low water	Mean sea level	Av. high water	Av. low water	Mean sea level	Av. high water	Av. low water	Mean sea level
January	2.47	0.75	1.61	2.49	0.72	1.61	2.51	0.81	1.66
February	2.47	0.69	1.58	2.45	0.79	1.62	2.57	0.81	1.69
March	2.49	0.73	1.61	2.50	0.67	1.59	2.61	0.81	1.71
April	2.50	0.77	1.64	2.52	0.75	1.63	2.63	0.84	1.74
May	2.51	0.78	1.65	2.51	0.79	1.65	2.59	0.82	1.71
June	2.48	0.76	1.62	2.45	0.78	1.62	2.62	0.87	1.75
July	2.41	0.69	1.56	2.38	0.72	1.55	2.65	0.82	1.74
August	2.35	0.62	1.49	2.33	0.65	1.49	2.65	0.72	1.69
September	4.59	1.19	2.89	2.36	0.62	1.49	2.59	0.69	1.64
October	4.74	1.30	3.02	2.42	0.68	1.55	2.59	0.72	1.66
November	4.81	1.45	3.13	2.49	0.72	1.61	2.51	0.77	1.64
December	4.76	1.49	3.13	2.49	0.75	1.62	2.51	0.82	1.67

Source:- National Institute of Oceanography Karachi

Table A-98: Films Released by Language

(Number)

Year	Number of films released						
	Total	Urdu	Sindhi	Punjabi	Pushto	Sariaiki	Gujrati
1981	76	23	1	45	7	-	-
1982	70	26	-	26	18	-	-
1983	76	17	1	36	22	-	-
1984	67	21	3	43	-	-	-
1985	64	22	4	37	-	1	-
1986	75	27	5	43	-	-	-
1987	85	30	2	29	24	-	-
1988	89	21	4	33	31	-	-
1989	103	22	8	46	27	-	-
1990	84	21	4	36	23	-	-
1991	93	38(a)	-	26	29	-	-
1992	91	26(a)	4	39	22	-	-
1993	88	48(a)	3	14	23	-	-
1994	77	38(a)	1	15	23	1	-
1995	64	27(a)	-	14	23	-	-
1996	70	30(a)	2	12	26	-	-
1997	68	38(a)	1	9	20	-	-
1998	51	29 (a)	-	5	17	-	-
1999	51	28	-	6	17	-	-
2000	61	31	-	15	15	-	-
2001	49	27	-	19	3	-	-
2002	53	18	-	28	7	-	-
2003	43	15	-	17	11	-	-
2004	43	7	-	16	20	-	-

Source:- Pakistan Film Producer's Association

(a) It also includes the films produced in urdu & punjabi double version.

Table A-99: Documentary Films Produced/Released

Number

Year	Federal		Punjab		Sindh	
	No. of Films Produced	No. of Films Released	No. of Films Produced	No. of Films Released	No. of Films Produced	No. of Films Released
1991-92	9	9	-	-	3	3
1992-93	14	14	9	9	1	1
1993-94	12	12	42	42	1	1
1994-95	13	10	5	5	4	4
1995-96	16	16	4	4	5	5
1996-97	5	5	3	3	2	2
1997-98	8	4	3	3	1	1
1998-99	7	7	4	3	1	1
1999-00	7	7	6	5	-	-
2000-01	10	7	6	5	-	-
2001-02	6	6	4	4	-	-
2002-03	2	2	7	6	-	-
2003-04	1	1	6	6	-	-
Year	N.W.F.P.		Balochistan			
	No. of Films Produced	No. of Films Released	No. of Films Produced	No. of Films Released		
1991-92	-	-	-	-		
1992-93	-	-	-	-		
1993-94	1	1	-	-		
1994-95	1	1	-	-		
1995-96	-	-	-	-		
1996-97	-	-	-	-		
1997-98	-	-	-	-		
1998-99	-	-	-	-		
1999-00	-	-	-	-		
2000-01	-	-	-	-		
2001-02	-	-	-	-		
2002-03	-	-	-	-		
2003-04	-	-	-	-		

Source: i. Ministry of Information & Broadcasting (Central) Karachi
ii. Provincial Public Relation Departments

Table A-100: Dramas and Plays Produced/Released

Year	Number			
	On Television		On Radio	
	Produced	Telecasted	Produced	Broadcasted
1991	749	749	389	634
1992	826	835	398	648
1993	881	881	299	799
1994	634	634	211	623
1995	730	715	285	818
1996	759	736	289	1234
1997	839	833	298	671
1998	708	695	127	554
1999	614	565	173	456
2000	636	587	260	605
2001	688	486	137	363
2002	759	552	206	561
2003	561	521	666	826
2004	550	510	140	362

Source:- i) Pakistan Television Corporation Limited
 ii) Pakistan Broadcasting Corporation Limited

Table A-101: Cinemas and Seating Capacity therein by Province

(Number)

Years	PAKISTAN	BALUCHISTAN	N.W.F.P	PUNJAB	SINDH
Cinemas					
1991-92	571	16	37	348	170
1992-93	562	16	37	343	166
1993-94	567	16	37	347	167
1994-95	538	16	36	321	165
1995-96	535	16	36	318	165
1996-97	503	16	34	312	141
1997-98	493	16	34	306	137
1998-99	471	15	35	297	124
1999-00	458	16	36	292	114
2000-01	434	15	36	281	102
2001-02	414	14	36	273	91
2002-03	408	15	36	268	89
2003-04	376	14	34	246	82
Seating Capacity Of Cinemas					
1991-92	319,970	7,679	19,647	193,818	98,826
1992-93	314,425	7,679	19,647	194,507	92,592
1993-94	318,802	7,629	19,647	196,261	95,265
1994-95	308,092	7,629	20,747	188,234	91,482
1995-96	308,662	7,629	20,747	189,223	91,063
1996-97	300,100	7,648	20,262	184,353	87,837
1997-98	294,670	7,648	21,300	181,938	83,784
1998-99	282,000	7,141	19,236	176,782	78,841
1999-00	272,113	7,594	18,306	173,761	72,452
2000-01	257,834	8,701	17,988	164,219	66,926
2001-02	251,477	5,991	16,602	167,063	61,821
2002-03	240,800	5,993	16,557	159,091	59,159
2003-04	224,454	5,993	15,868	149,175	53,418

Source:- 1) Divisional Directorates of Excise & Taxation, Punjab, Sindh, NWFP & Balochistan
2) Cantonment Boards of the Punjab, Sindh, NWFP & Balochistan.

Note:- Federal Capital Area Islamabad is included in Punjab

Table A-102: Visitors, Type of Attraction, Total Expenditure and Income by Zoo

Year	No of visitors		Type of attractions		Total expenditure (per annum) Rs.	Total income (per annum) Rs.
	Adult	Minor	Animals	Birds		
Karachi Zoo						
1991-92	1,968,204	270,767	189	703	1,600,000	4,180,710
1992-93	2,372,103	507,725	190	719	3,910,625	4,241,641
1993-94	2,092,725	375,903	173	694	3,900,000	10,122,534
1994-95	1,774,902	307,904	171	603	5,000,000	10,052,298
1995-96	958,036	560,358	217	588	2,570,084	1,552,233
1996-97	1,882,867	400,000	273	441	11,025,549	6,536,983
1997-98	1,692,210	360,000	249	451	9,561,461	8,465,921
1998-99	1,180,000	500,000	319	453	7,106,058	13,137,189
1999-00	1,762,420	150,000	356	441	5,815,692	15,740,047
2000-01	1,300,000	925,000	413	468	9,095,941	16,869,243
2001-02	1,491,900	596,910	420	464	4,651,018	16,600,843
2002-03	1,071,000	900,000	389	468	5,427,761	15,955,988
2003-04	1,125,000	100,000	389	487	5,916,000	17,426,701
Hyderabad Zoo						
1991-92	98,228	230,000	140	189	1,446,880	164,114
1992-93	110,000	260,000	140	189	916,000	185,000
1993-94	56,451	131,718	140	189	1,597,000	564,508
1994-95	54,323	253,512	140	189	1,179,728	434,593
1995-96	100,000	400,000	71	287	1,200,000	720,000
1996-97	57,000	500,000	66	290	1,500,000	735,000
1997-98	59,000	525,000	28	190	2,500,000	715,000
1998-99	50,000	57,000	89	145	1,700,000	743,000
1999-00	51,000	58,000	103	189	2,400,000	749,000
2000-01	49,000	59,500	91	309	2,400,000	749,000
2001-02	200,000	100,000	151	269	2,800,000	1,000,000
2002-03	30,000	90,000	26	260	2,000,000	905,000
2003-04	75,000	50,000	53	175	1,500,000	810,000

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Table A-102: Visitors, Type of Attraction, Total Expenditure and Income by Zoo

Year	No of visitors		Type of attractions		Total expenditure (per annum) Rs.	Total income (per annum) Rs.
	Adult	Minor	Animals	Birds		
Bahawalpur Zoo						
1991-92	409,498	106,887	157	460	2,193,820	2,081,770
1992-93	382,110	102,180	161	431	2,622,010	1,959,760
1993-94	397,160	115,770	153	436	2,822,840	2,574,840
1994-95	406,925	103,607	151	364	2,750,000	2,646,520
1995-96	383,276	90,845	168	374	3,144,470	2,753,210
1996-97	333,542	86,442	171	360	3,249,990	2,591,870
1997-98	290,627	85,487	158	306	3,600,000	2,833,990
1998-99	264,543	76,766	183	333	3,499,930	2,783,660
1999-00	270,344	81,921	176	316	3,599,980	2,691,210
2000-01	436,021	102,179	188	406	4,816,020	4,806,350
2001-02	419,779	100,211	211	457	4,232,820	4,140,220
2002-03	416,420	97,699	208	497	3,805,170	4,503,720
2003-04	470,120	90,021	204	705	3,633,000	4,389,000
Lahore Zoo						
1991-92	1,315,793	501,073	231	661	7,706,200	8,199,190
1992-93	1,440,207	506,838	317	631	8,125,100	10,132,620
1993-94	1,513,487	530,666	484	524	8,953,500	10,672,920
1994-95	1,761,851	601,667	444	421	10,569,440	16,265,020
1995-96	1,681,865	584,153	441	450	13,641,380	18,426,680
1996-97	1,704,246	633,047	382	400	12,068,828	17,855,440
1997-98	1,581,826	590,054	400	446	13,268,400	24,101,820
1998-99	1,739,181	650,468	469	443	13,630,260	23,915,609
1999-00	1,885,542	658,449	469	955	13,857,588	25,280,938
2000-01	1,918,555	708,512	448	683	14,214,915	30,027,147
2001-02	*	*	447	716	6,412,531	33,151,297
2002-03	*	*	394	951	6,008,053	32,117,376
2003-04	2,034,611	834,552	329	1,277	6,892,308	40,535,656

Source:- Zoological Garden, Karachi, Hyderabad, Bahawalpur and Lahore

* Contract of gate entry ticket was leased out therefore number of visitors is not available on the record

Section B

Environmental Impacts of Socio-Economic Activities and Natural Events

As discussed in the preceding section that Pakistan's major threat to environment in near future would be the impact of rapid population growth which is directly affecting all sectors of the economy, some major problems may be food shortages, sub-division of landholding, deforestation, reduction in agricultural land due to expansion of cities i.e. urban areas, pressure on housing units, energy consumption, shortages of natural resources for the development of industrial sector and degradation of environment. This section briefly describes impacts of socio-economic activities and natural events on overall environment, i.e. human settlements, population growth and its pressure on resources.

B-I Human Settlements

According to 1981 Population Census, there were 415 urban localities with different population sizes varying from 25 thousand to more than 100 thousand and there were more than 45 thousands villages in the rural areas, where, about 70 percent of the population was living during 1981. The number of urban localities which were 238 in 1951 Census increased to 515 in 1998, indicating an increase of 116 percent during last 47 years. The urban population grew considerably higher (3.5%) as compared to rural areas (2.3%) during 1981-1998. If this trend of urbanization continued it is expected that the urban population would out strip rural population by 2015.

There were only ten cities in 1951 with population of 100 thousand or more, whereas, in 1981 the number of such cities increased to 31. Among these, eight cities had more than 500 thousand population and shared more than 50 percent of urban population. The urban growth is mostly concentrated in four cities. According to 1998 Population Census Karachi alone accounted for 21.7 percent of the total urban population, whereas, the remaining eleven cities shared 36 percent. The big cities are also facing problems of unregulated settlements i.e. Kachi Abadies around the cities. These Kachi Abadies do not have proper drainage and sanitation system, roads, water supplies and other facilities. In Karachi the share of Kachi Abadies is higher as compared to other cities. It is mainly due to more migration of population from different parts of the country for employment purposes. Despite high investment in urban areas of the country, there are shortages of basic human needs, specially in the Kachi Abadies.

Table B-I Number and Type of Urban Localities by Size and Urban Population: 1951-1998

Census Year/Urban Locality	Number of Localities by Size					Urban Population (000)
	Total	Less than 25000	25000 to 49999	50000 to 99999	One Lac and over	
1951	238	196	23	9	10	6,019
1961	337	280	31	14	12	9,655
1972	430	332	52	22	24	16,594
1981	415	276	73	35	31	23,841
1998	515	259	128	69	59	43036
CENSUS-1998						
Municipal area of Islamabad	1	–	–	–	1	529
Metropolitan Corporation	2	–	–	–	2	13,319
Municipal Corporations	13	–	–	–	11	13,756
Municipal Committees	154	12	51	53	38	19,799
Town Committees	307	231	69	6	1	5,961
Cantonments	40	16	8	10	6	2,986

Source: - Population Census Organization.

The following table indicates that Populations of big cities have increased tremendously during the intercensal period 1981-1998. An analysis of data also indicates that the growth was highest in Quetta (166%) during last 17 years, followed by Islamabad (159%), Rawalpindi (103%), Gujranwala (88%), Lahore (84%), Faisalabad (82%), Karachi (79%), Peshawar (74%), Multan (63%) and Hyderabad (55%).

The high growth in Quetta and Islamabad as compared to other cities is mainly due to the reason that Quetta being capital of sparsely populated and water starved province of Balochistan, stands out eminently in term of better living condition and employment opportunities in the province. Islamabad, being Federal Capital and most modern city with growing service opportunities, the preference to live therein is naturally preeminent.

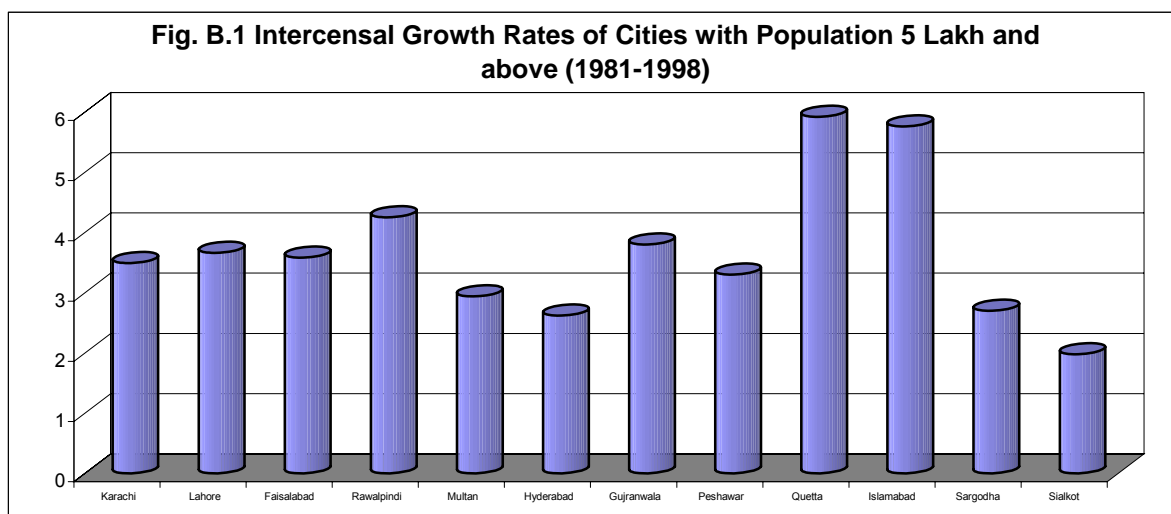
Tabel B-II: Cities With Population 5 Lakhs and above in 1998 Population Census

Name of Cities	Population 1981 Census	Population 1998 Census	Annual Growth Rate (1981-98)
Karachi **	5,208,132	9,339,023	3.49
Lahore (M.C&Cantt.)	2,952,689	5,443,495	3.66
Faisalabad (M.C)	1,104,209	2,008,861	3.58
Rawalpindi (M.C&Cantt.)	694,834	1,409,768	4.25
Multan (M.C&Cantt.)	732,070	1,197,384	2.94
Hyderabad (M.C&Cantt.)	751,529	1,166,894	2.62
Gujranwala (M.C&Cantt.)	600,993	1,132,509	3.80
Peshawar (M.C&Cantt.)	566,248	982,816	3.30
Quetta (M.C&Cantt.)	285,719	759,941	5.92
Islamabad *	204,364	529,180	5.76
Sargodha (M.C&Cantt.)	291,362	458,440	2.70
Sialkot (M.C&Cantt.)	302,009	421,502	1.98

Source: - Population Census Organization

* City means an urban locality or an agglomeration of more than one urban locality adjacent to each other except Islamabad and Rawalpindi, which are treated as independent cities.

** Karachi city comprises Karachi East, West, South, Central and Malir.



B-II: Population Growth and its Pressure on Resources

Pakistan has large population, modest resources and low technology. The available resources are either not fully developed nor properly being used. The first doubling of population took place in 21 years from 1951 to 1972 and during 1972 to 1981 the population increased by 29.0 percent and the increase was about 57 percent during 1981-98 .

At the time of independence (1947) the country was self sufficient in wheat which is the staple food. A deficiency in wheat was first registered in 1952-53. Pakistan is deficient in energy, despite of the fact that per capita energy consumption in Pakistan is about 10 times less than the average world consumption. Shortage of electricity causes reduction in industrial production, lack of water supply to farms due to closure of tube-wells and inconvenience to common men specially in the summer season.

B-II.i Water Supply and Sewerage

According to Pakistan Integrated Household Survey PIHS, 2001-02 about 60 percent of the urban population has access to the tap water, 29 percent are using ground water, whereas about 10 percent of the urban population do not have access to safe drinking water. In contrast to this only 11 percent of the rural population has access to tap water, 62 percent are using ground water and about 27 percent of the rural population do not have access to safe drinking water.

The quality of safe water or surface water mostly used by urban population is polluted in Pakistan except near the head works in the mountains. The surface water is harmful for human use unless it is treated or boiled. It is the major reason that people prefer ground water (PNCS, 1994). The sanitary/sewerage system for carrying away domestic waste water are limited to certain parts of the major cities, whereas majority of the population rely on septic tanks, soak pits discharges via open drain or directly on land or water ways. It is worth mentioning here that only Karachi and Islamabad uses sewerage treatment plants, whereas, all other sewerage systems in Pakistan are discharging raw and un-treated water directly in the nearest water course (PNCS, 1994).

B-II.ii Salinity and Water logging

The agricultural land particularly in Punjab and Sindh is riven with acute problems of salinity and water logging. This is the outcome of perennial canal irrigation system which was introduced to overcome aridity problem. As a consequence of seepage of water from the unlined canals and the percolation of water from irrigated fields, the water table began to rise. The water table depth raised from 152 cms to 305 cms during June, 2002 in 1401 thousand hectares to 3629 thousand hectares and the same increasing trend is observed during October, 2002 i.e from 2472 thousand hectares to 5217 thousand hectares. Sindh is the worst affected province (Table B-20).

The remedial measure were taken as a result of which the water table was lowered by pumping the water, However, this approach has limitation i.e. the ground water in few areas particularly in Sindh is saline and can not be used for irrigation, therefore, it could not be drained in the canals.

B-II.iii Water Pollution

Water pollution has three main sources: bacterial, organic liquids and solids from urban and rural domestic sewage; toxic metals, organic acids, and other less-toxic but still polluting substances from industrial discharges; and chemical pollution in the form of pesticide and fertilizer run-off from agricultural lands.

All these contaminate both surface and ground water supplies and render them unfit for other uses such as fisheries, recreation and becomes expensive to treat for industrial and municipal water supply uses. The costs of treatment places a heavy burden on municipal authorities and industries and are forced to rely on polluted sources.

B-III Wastewater Discharges

B-III.i Domestic and Human Waste Water Discharges

Solid and liquid excreta generated in human settlements along with kitchen and wash /waste water are the major sources of water pollution in Pakistan and the cause of widespread water-borne diseases. The seriousness of the situation is clear from a World Health Organization study: diseases of a gastro-intestinal nature account for 25-30% of the cases seen at public hospitals and dispensaries in Pakistan. Approximately 60% of infant deaths are due to infectious and parasitic diseases, most of them are water borne. Losses to the national economy, not to mention the human suffering, caused by water-borne diseases are high (PNCS, 1994).

As indicated, the source of most water-borne diseases is human excreta. Pakistan generates 34,370 tonnes of wet excreta per day, 12.5 million tonnes per year. Karachi alone discharges approximately 300 million gallons per day of sewage; Lahore, approximately 240 million gallons. The organic load discharged, measured in terms of biological oxygen demand, for all of Pakistan is 2,265 tonnes per day (PNCS, 1994).

The breakdown by source is 26, 370 tonnes excreta from rural areas a day and 8,000 tonnes from urban areas. An estimated 21,096 tonnes from the rural areas (80%) is deposited in fields. An estimated 4,160 tonnes of the urban excreta (52%) is disposed of into sewers, with the remainder being deposited on the roadside, into water-ways, or incorporated in solid waste (PNCS, 1994).

Major cities dispose off their largely untreated sewage into irrigation systems, where the waste water is reused, and into streams and rivers, without any consideration for the rivers assimilative capacity. Consequently, not only does serious bacterial contamination result, threatening human health, but the organic load of the sewage seriously depletes the dissolved oxygen content of the receiving waters, causing unaesthetic conditions and making them unfit for fish.

B-III.ii Industrial Waste Water Discharges

The major industries creating environmental hazards are the manufacture of chemical (including pesticides), textiles, pharmaceutical, cement, electrical and electronic equipment, glass and ceramics, and pulp and paper board, leather tanning, food process, and petroleum refining.

No systematic or national level survey has been conducted of the source, volumes, and characteristic of industrial pollution in Pakistan, although case studies, investigations of particular sources, and observations have shown the seriousness of industrial pollution in a number of locations. A preliminary study of hazardous chemical industries conducted in 1985 for the Environment and Urban Affairs Division surveyed 100 plants scattered throughout the country. Only three branches of multi-national companies, treated their wastes to commonly accepted standards, the remainder did nothing except dispose of wastes in their most convenient way.

For all practical purposes, industries do not control their waste effluents through process controls, waste recycling, or end-of-pipe treatment. In Kala Shah Kaku industrial area near Lahore, for example, various chemical industries, tanneries, textile plants, steel re-rolling mills, and other operations discharge effluents containing hydrochloric acid and high levels of organic matter directly into streams and canals. Biological oxygen demand levels of 193 to 833 milligrams per liter and mercury levels of 5.6 milligrams per liter have been measured. The proposed interim relaxed Government standards for these are 200 and 0.1, respectively. These discharges have rendered the nullah (drainage course water) unfit for irrigation use and livestock consumption, and have caused an annual reduction in the fish catch of 400 tonnes, valued of Rs.10 million.

In the vicinity of Karachi, industrial pollution discharges combined with mangrove destruction and over-fishing have resulted in a sharp decrease in shrimp production, which translates into lower foreign exchange earnings.

Two large industrial zones in Sindh Province - SITE (Sindh Industrial Trading Estate) and LITE (Landhi Industrial Trading Estate) - discharge large quantities of organic matter, heavy metals, oils and greases, and other materials into local rivers. In Korangi in Karachi, where LITE is located, 35 tonnes of suspended solids, 376 tonnes of dissolved solids, 2 tonnes of ammonia, and 1.4 tonnes of arsenic oxide, among other chemicals, are discharged into the city's already polluted harbour each day.

Leather tanning operations near Peshawar are polluting the Kabul River, threatening its use for domestic and irrigation purposes as well as its freshwater fishery. Over 235 industries in Faisalabad discharge high levels of solids, heavy metals, aromatic dyes, inorganic salts, and organic materials directly into the municipal sewers without any pretreatment, polluting near by agricultural land.

Another area of concern is the contamination of shallow groundwater in urban areas near industrial plants as industrial wastes are discharged directly into or onto the ground. Groundwater pollution is often permanent, in that hundreds or even thousands of years may be necessary for pollutants such as toxic metals from tanneries to be flushed out of a contaminated aquifer. Surface waters, on the other hand, can be rehabilitated if pollutant loadings are reduced or eliminated (PNCS, 94).

B-IV Air Pollution

The classic source of air pollution is the factory smoke stack. Such stationary, point-source emissions are highly visible and represent a significant threat to those living nearby. By volume, however, they represent less of a threat to the overall health of Pakistani than do the multiple mobile sources of the automobile and their vehicles. Nevertheless, the combined emissions of air pollutants from industry, power generation, transportation, domestic activities (particularly energy use), agriculture, and commercial institutions are growing rapidly.

Table B-III: Estimated Air Pollutants from Various Economic Sectors

(thousand tonnes)

Sector	1977-78			1987-88			1997-98		
	CO2	SO2	NOx	CO2	SO2	NOx	CO2	SO2	NOx
Industry	12308	19	N.A	26680	423	N.A	53429	982	N.A
Transport	7068	52	N.A	10254	57	N.A	18987	105	N.A
Power	3640	4	3	11216	95	N.A	53062	996	76
Domestic	16601	5	N.A	24054	16	N.A	39098	40	N.A
Agriculture	845	5	N.A	4490	28	N.A	6368	40	N.A
Commercial	1726	11	N.A	2587	13	N.A	4261	25	N.A

Source: NCS Sector Paper on Energy

N.A = Not applicable

Industry and power generation are becoming major sources of carbon dioxide and sulphur dioxide emissions. The rapid increase in thermal power generating capacity currently under way will result in substantial increase in emissions of these two gases and of nitrogen oxide from the burning of oil and coal in new generating stations. Pakistan's low thermal-value, high-sulphur coal reserves will cause a rapid increase in these emissions as they come into production to feed the thermal generating stations.

Similarly, use of natural gas, coal and oil used as fuel by industry is expected to cause a substantial increase in air pollution. The expected effects of these emissions, unless they are controlled at the source, include deterioration of soil quality in the vicinity of factories, potential damage to crops (particularly from sulphur dioxide and nitrogen oxides), and possibly human health effects. Many studies in a number of countries have quantitatively linked air pollution with respiratory disease, including lung cancer. (PNCS,94).

B-V. Agricultural Run-off

The use of fertilizers has grown 7.1% annually during the Sixth Five Year Plan. Annual expenditure on pesticides currently amounts to Rs.3.2 billion nationally. In 1986, 1.1 million tonnes of nitrogen and 93,000 tonnes of phosphate fertilizer were produced locally, and another 700,000 tonnes of fertilizer were imported. Pesticide imports have similarly grown rapidly, increasing from 7,083 tonnes in 1980/81 to 20,647 tonnes in 1986/87 - a growth rate of 192% over the six-years period.

Indiscriminate use of agricultural chemicals, mainly fertilizers and various pesticides including insecticides, fungicides, and herbicides are contributing to chemical pollution of the environment. Agricultural run-off from fields where these have been used incorrectly or inappropriately can raise the levels of these substances in waterways. The effects include excess nutrient loadings from fertilizer run-off and subsequent uncontrolled algal growth in water-ways, and pesticide contamination of waters, resulting in fish kills. Dead fish, apparently due to pesticides, have been reported on the banks of the Kabul river in certain seasons. Pesticides are of particular concern because of their bio-accumulation in fish and animal tissue and in the soil, and because of their persistence in the environment.

Other risks include contamination of shallow wells used for drinking-water supplies for villages and cities, and pesticide residues on cereal and vegetable crops where care has not been taken in their application. Such residues may be harmful to humans. At least one case of poisoning resulting in a number of death, involving the pesticide endrin in foodstuffs, has been reported in Pakistan.

Increasing use of nitrogenous fertilizers may also lead to excess nitrate levels in groundwater wells. High nitrate levels in drinking water are converted to more toxic nitrates in the stomach of adults and infants, and are known to cause blood disorders in infants. No studies to date have assessed groundwater contamination in Pakistan from pesticide or fertilizer use in agriculture (The Pakistan National Conservation Strategy, Page-79-83).

Table B-01: Area under Agricultural Crops and Fruits Indices (1991-92=100)

Year	Rice	Wheat	Bajra	Jowar	Maize	Barley	Gram	Masoor
1991-92	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1992-93	94.1	105.4	155.8	105.4	102.4	107.0	101.1	108.2
1993-94	104.3	102.0	96.8	95.3	103.7	101.1	104.8	87.7
1994-95	101.3	103.7	162.6	114.5	105.0	110.7	106.8	103.9
1995-96	103.1	106.3	130.1	109.2	110.8	115.2	112.2	111.6
1996-97	107.4	102.9	96.8	96.6	109.5	102.1	110.4	118.4
1997-98	110.5	106.1	147.1	102.0	110.0	109.2	110.6	110.4
1998-99	115.6	104.5	147.9	100.0	113.5	92.1	108.0	98.5
1999-00	120.0	107.4	100.1	93.4	113.5	83.0	97.5	93.5
2000-01	113.3	103.8	124.6	92.4	111.4	75.8	90.8	78.4
2001-02	100.8	102.3	133.3	93.4	111.1	74.2	93.7	76.3
2002-03	106.1	102.0	111.7	88.3	110.4	72.3	96.6	83.5
2003-04	117.3	104.3	172.4	102.6	111.8	68.2	98.5	87.9
Year	Mash	Mung	Other Pulses (a)	Rapeseed & mustard	Sesamum	Linseed	Groundnut	Cotton
1991-92	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1992-93	96.5	116.7	97.8	99.3	118.3	95.3	106.6	100.0
1993-94	81.2	133.5	79.7	93.7	105.2	86.9	103.5	98.9
1994-95	68.9	142.8	84.1	104.9	115.4	88.3	108.7	93.6
1995-96	73.3	158.3	84.1	111.6	128.8	94.9	115.1	105.7
1996-97	72.3	152.9	71.4	123.5	143.2	94.8	117.9	111.0
1997-98	61.7	155.3	70.3	118.5	138.3	91.4	121.4	104.4
1998-99	57.7	158.6	70.3	114.0	102.3	88.0	109.7	103.1
1999-00	54.7	161.1	57.7	114.2	103.2	82.3	104.0	105.2
2000-01	57.6	174.2	58.8	95.0	145.3	53.7	91.7	103.2
2001-02	68.9	190.1	56.0	93.9	195.1	70.8	111.8	109.9
2002-03	69.8	204.8	43.4	97.9	126.5	67.4	97.2	98.5
2003-04	61.3	203.5	58.2	97.7	86.0	69.3	115.4	105.4

Note:- (a) Includes " Moth and Arhar etc" Pulses.

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Table B-01: Area under Agricultural Crops and Fruits Indices (1991-92=100)

Year	Jute	Sunhemp	Sugar cane	Tobacco	Potato	Vegetables (b)	Garlic	Chillies
1991-92	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1992-93	7.4	94.4	98.7	108.2	100.5	103.8	104.1	53.9
1993-94	50.0	75.9	107.4	106.7	104.9	107.9	105.5	99.3
1994-95	48.9	72.2	112.6	88.1	104.9	114.1	116.4	102.6
1995-96	33.0	70.4	107.5	85.7	104.4	97.5	124.7	102.3
1996-97	33.0	63.0	107.6	91.1	113.5	100.2	116.4	103.4
1997-98	33.0	57.4	117.9	99.3	138.5	102.6	120.5	107.2
1998-99	21.3	51.9	128.9	106.5	144.8	104.2	126.0	105.2
1999-00	21.3	51.9	112.7	104.8	146.2	102.6	117.8	103.0
2000-01	21.3	57.4	107.2	84.8	134.3	103.0	108.2	100.2
2001-02	21.3	59.3	111.6	91.8	139.2	104.3	95.9	57.8
2002-03	21.3	44.4	122.7	86.6	153.2	104.5	95.9	66.9
2003-04	-	42.6	119.9	84.8	145.2	110.0	93.2	66.2
Year	Onion	Citrus Fruit	Banana	Mango	Apple	Guava	Grapes	Dates
1991-92	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1992-93	105.6	100.0	108.8	97.2	112.9	102.8	108.6	97.2
1993-94	109.8	105.0	110.6	98.6	142.1	107.7	231.4	172.6
1994-95	116.9	108.2	212.4	102.7	145.3	110.6	234.3	173.3
1995-96	121.7	109.9	218.6	104.1	150.4	112.4	240.0	174.3
1996-97	126.3	110.3	222.1	105.1	156.5	113.8	242.9	175.7
1997-98	127.2	111.3	230.1	107.9	160.4	115.4	248.6	177.1
1998-99	133.6	111.8	233.6	108.7	165.1	118.9	254.3	178.1
1999-00	171.6	112.2	247.8	109.4	186.0	122.0	297.1	181.4
2000-01	165.0	112.8	268.1	112.8	209.4	128.9	357.1	185.4
2001-02	162.2	110.2	276.1	115.1	174.8	130.7	362.9	185.1
2002-03	168.8	103.1	262.8	119.5	170.9	127.6	362.9	183.7
2003-04	170.3	100.2	279.6	119.9	398.6	123.2	365.7	176.4

Source:- i) Ministry of Food, Agriculture & Livestock ii) Federal Bureau of Statistics

Note:- (b) Excluding melons except cucumber since 1995-96.

**Table B-02: Production of Agricultural Crops and Fruits
Indices (1991-92=100)**

Year	Rice	Wheat	Bajra	Jowar	Maize	Barley	Gram	Masoor
1991-92	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1992-93	96.1	103.0	146.4	106.2	98.4	113.2	67.7	108.0
1993-94	123.2	97.0	99.1	94.6	100.8	104.1	80.1	96.2
1994-95	106.3	108.4	164.5	117.3	109.6	117.2	108.9	118.8
1995-96	122.3	107.8	116.4	113.5	125.0	124.7	132.5	130.3
1996-97	132.7	106.2	105.0	97.6	123.9	107.2	115.9	134.1
1997-98	133.6	119.2	152.3	103.0	126.1	124.4	149.6	142.1
1998-99	144.1	113.9	153.5	101.5	138.4	98.2	136.1	144.4
1999-00	159.0	134.4	112.2	98.2	137.3	84.0	110.1	136.0
2000-01	148.1	121.3	143.5	97.3	136.6	70.7	77.4	103.1
2001-02	119.7	116.2	156.0	98.7	138.3	71.3	70.6	100.4
2002-03	138.1	122.3	136.4	90.2	144.4	71.2	131.7	111.9
2003-04	149.5	142.3	197.3	106.1	157.7	69.8	119.2	119.2
Year	Mash	Mung	Other Pulse (a)	Rapeseed & mustard	Sesamum	Linseed	Ground nut	Cotton (000 bales)
1991-92	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1992-93	81.7	122.0	94.1	94.2	118.5	93.2	105.2	70.6
1993-94	77.1	136.1	77.6	89.8	112.5	88.6	99.8	62.7
1994-95	72.5	157.2	87.1	104.4	126.1	94.3	110.0	67.8
1995-96	76.5	178.0	90.6	115.8	137.6	104.5	117.4	82.6
1996-97	76.5	175.8	77.6	130.0	156.4	104.5	122.2	73.1
1997-98	69.5	174.7	78.8	132.7	148.1	102.3	117.0	71.6
1998-99	67.7	177.8	82.4	127.2	111.8	111.4	108.2	68.6
1999-00	63.9	186.2	68.2	135.3	123.3	102.3	103.1	87.7
2000-01	69.3	205.3	71.8	105.0	176.7	61.4	95.0	83.7
2001-02	74.4	226.7	65.9	100.7	242.5	68.2	105.1	82.8
2002-03	78.2	271.9	51.8	107.0	66.9	68.2	93.8	79.6
2003-04	66.3	276.6	67.1	108.4	86.1	70.5	119.4	78.4

Note:- (a) Includes " Moth and Arhar etc" Pulses
1 bale = 375 Lbs

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**Table B-02: Production of Agricultural Crops and Fruits
Indices (1991-92=100)**

Year	Jute	Sunhemp	Sugar cane	Tobacco	Potato	Vegetables * (b)	Garlic	Chilies
1991-92	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1992-93	7.0	97.1	97.9	104.4	108.5	104.9	105.8	52.9
1993-94	54.7	76.5	114.3	103.0	122.8	109.5	106.1	99.4
1994-95	53.5	76.5	121.4	83.1	128.5	116.8	122.8	66.7
1995-96	39.5	73.5	116.4	82.1	123.7	96.8	131.8	95.4
1996-97	39.5	64.7	108.1	94.1	112.1	99.4	121.6	98.5
1997-98	39.5	58.8	136.6	101.3	165.8	102.5	127.5	98.5
1998-99	34.9	55.9	142.0	111.8	210.6	104.2	132.1	96.0
1999-00	23.3	55.9	119.2	110.7	217.3	99.6	121.9	81.2
2000-01	0.0	61.8	112.2	87.5	193.7	99.5	102.1	122.7
2001-02	0.0	64.7	123.6	97.1	201.3	99.9	90.3	65.6
2002-03	0.0	50.0	133.9	90.6	226.4	100.2	92.2	69.5
2003-04	0.0	47.1	137.4	88.6	225.4	105.3	90.3	67.7
Year	Onion	Citrus fruits	Banana	Mango	Apple	Guava	Grapes	Dates
1991-92	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1992-93	105.5	102.2	117.6	100.8	114.8	102.9	105.9	94.0
1993-94	112.7	113.5	120.4	106.6	149.8	107.8	113.5	197.5
1994-95	125.2	118.6	179.9	112.3	180.5	112.7	120.8	181.5
1995-96	135.7	120.2	184.8	115.3	187.4	118.4	202.8	181.8
1996-97	139.8	122.9	188.2	116.2	192.5	120.0	208.7	182.5
1997-98	133.1	125.0	211.8	116.5	194.1	121.9	209.3	183.5
1998-99	140.7	114.2	214.0	116.4	199.6	125.5	213.5	246.4
1999-00	203.7	119.2	283.3	119.1	127.8	132.5	113.5	198.0
2000-01	193.3	116.4	315.4	125.7	148.6	140.8	143.9	209.1
2001-02	171.2	112.3	338.7	131.7	124.3	144.3	148.2	215.2
2002-03	176.5	104.4	323.3	131.4	106.8	142.5	146.2	213.4
2003-04	179.1	108.0	395.0	134.1	113.0	147.3	143.1	145.7

Source:- Ministry of Food, Agriculture & Livestock.

Note:- (b) Excluding melons except cucumber since 1995-96.

Table B-03: Quantity and Value of Export of Major Agricultural Commodities

(Quantity in '000' tonnes)

(Value in million Rs.)

Year	2000-01		2001-02		2002-03		2003-04	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
A. Primary Commodities								
Rice (all)	2294.3	3,0849.3	1,684.3	27,509.5	1,820.0	32,432.8	1,822.7	36,534.7
Rice Basmati	502.1	13,831.4	550.0	15,856.4	716.7	21,077.2	816.3	24,284.2
Rice other varieties	1,792.2	17,017.9	1,134.3	11,653.1	1,103.3	11,355.6	1,006.4	12,250.5
Fish	82.0	7,994.5	84.5	7,745.8	93.2	7,866.9	103.3	8,805.6
Fruit & Veg. Incl. Juice	415.3	6,071.9	426.8	6,491.9	458.1	6,696.0	527.2	7,714.9
Fruits	260.1	4,586.0	289.8	5,097.1	263.0	4,861.2	354.4	5,912.7
Vegetables	149.2	1,303.8	130.4	1,164.8	186.3	1,542.0	162.5	1,478.5
Fruits & Veg. Juice	6.0	182.1	6.6	230.0	8.8	292.8	10.3	323.7
Wheat	80.5	671.7	642.6	4,361.6	1,137.0	7,620.3	42.9	347.0
Wheat Flour	0.0	0.0	0.0	0.0	398.6	3,093.0	291.8	2,486.6
Spices (Incl.Chillies)	12.5	758.6	10.7	751.3	13.3	930.5	15.5	1,100.4
Oil seed, Nuts	22.8	708.5	48.5	1,260.9	14.5	425.1	19.4	645.6
Leguminous Veg.	41.9	865.4	27.9	621.4	110.0	2,313.0	102.1	1,923.7
Flowers	0.0	0.0	0.0	0.0	0.1	8.1	0.2	10.1
Raw hides and skin	0.4	13.4	0.6	24.0	0.2	9.5	0.7	49.0
Raw Wool & Animal Hair	1.5	78.5	1.7	83.7	2.8	131.8	2.4	121.4
Raw wool	0.5	37.3	1.1	57.9	1.5	77.6	1.5	81.3
Animal hair	1.0	41.2	0.6	25.8	1.3	54.2	0.9	40.1
Crude Animals material	30.5	922.5	21.7	810.5	17.0	790.2	7.6	889.9
Crude fertilizer	0.1	0.5	0.0	0.0	0.0	0.0	0.0	0.0
Molasses	1,190.0	2,458.6	1,742.7	4,218.5	1,272.6	2,653.0	1,457.3	2,690.0
Raw cotton	135.1	8,072.5	35.0	1,502.1	55.1	2,872.6	37.3	2,741.5
Cotton waste	95.2	2,279.5	95.3	2,186.6	93.5	2,110.6	95.3	2,196.0
Tobacco	-	586.6	-	286.4	-	362.3	-	767.1
UN-manufactured	4.8	557.7	1.8	186.5	4.1	287.9	7.3	615.6
Manufactured exel cigarette	1.2	22.7	1.4	53.7	1.4	28.8	1.0	27.1
Cigarettes (Million Nos.)	11.8	6.2	84.2	46.2	74.2	45.6	164.0	124.4
Sub-Total (A):		62,332.0		57,854.2		70,315.7		69,032.5

Contd....

Source:- Agricultural Statistics of Pakistan, 2003-04

Table B-03: Quantity and Value of Export of Major Agricultural Commodities

(Quantity in '000' tonnes)

(Value in million Rs.)

Year	2000-01		2001-02		2002-03		2003-04	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
B. Textile Manufactures								
Cotton yarn	545.1	62,914.3	540.0	57,134.6	519.3	54,314.0	499.1	64,851.0
Cotton Cloth (M.sq.M)	1,735.9	60,485.6	1,909.3	69,296.9	2,036.3	78,665.4	2,409.4	98,542.2
Cotton thread	0.2	60.5	0.1	30.6	0.1	27.9	0.1	17.1
Tents & other canvas goods	21.8	2,922.6	22.5	3,029.9	32.2	4,272.9	31.9	4,303.1
Bed wear	148.4	43,649.8	181.2	56,383.6	241.9	77,633.0	244.2	79,666.0
Towels	67.5	14,201.8	78.7	16,444.7	100.6	21,876.8	101.8	23,236.0
Textile madeups (excl. towels)	-	19,361.0	-	21,560.4	-	21,035.4	-	23,989.2
Sub-Total (B):	-	203,595.6	-	223,880.7	-	257,825.4	-	294,604.6
C. Other Manufactures								
Leather (M.sq.M)	17.5	13,722.6	17.3	14,739.6	15.3	13,732.9	16.0	14,491.4
Leather manut. Excl footwear	-	24,823.5	-	23,656.6	-	22,641.5	-	23,864.0
Carpets (M.sq.M)	6.4	17,020.0	5.1	15,275.6	4.3	12,910.7	4.1	13,324.2
Feeding stuff For animals	31.9	111.1	27.1	100.4	26.9	103.6	80.0	427.2
Fertilizers manufactures	69.2	438.0	50.5	375.4	67.8	515.6	45.8	552.9
Rubber Manufactures	-	70.2	-	128.1	-	125.7	-	154.3
Guar & guar products	22.1	1,204.6	23.5	1,008.4	25.5	1,389.4	24.5	1,161.9
Foot wears (Million pairs)	7.5	2,400.0	9.2	3,326.5	13.3	5,017.5	12.4	5,114.3
Sports goods	-	15,918.9	-	18,623.0	-	19,579.0	-	18,699.8
Furniture	-	261.1	-	370.7	-	513.2	-	504.8
Sub-Total (C):	-	75,970.0	-	77,604.3	-	76,529.1	-	78,384.8
Total (A+B+C)	-	341,897.6	-	359,339.2	-	404,670.2	-	442,021.9
Total Exports	-	539,070.1	-	560,946.7	-	652,293.8	-	709,036.1

Table B-04: Import of other Agricultural Commodities

(Quantity 000 Tonnes)

(Value in Million Rupees)

Item	2002-03		2003-04	
	Quantity	Value	Quantity	Value
Milk and cream	10.4	690.5	8.6	578.9
Wheat un-milled	147.9	1,698.9	108.0	1,355.1
Pulses	394.4	6,800.9	261.4	4,312.2
Dry fruits	84.9	1,510.1	66.1	1,055.3
Sugar refined	8.3	152.7	11.4	188.5
Tea	108.1	10,095.1	116.0	11,078.3
Spices	35.1	1,341.1	72.0	2,248.7
Milk food for babies inft. invld	2.4	640.1	2.4	646.5
Palm oil	1,210.9	31,532.6	1,280.0	35,294.4
Soyabean oil	82.7	2,755.9	80.8	2,622.8
Agriculre machinery & implements	0.0	2,153.1	0.0	2,169.3
Jute	89.2	1,226.9	129.4	1,778.9
Fertilizer manufactured	1,295.2	14,068.4	1,347.8	16,404.7
Insecticides	22.2	3,440.9	41.4	7,156.7
Feeding stuff for animals	7.1	227.1	111.8	1,872.6
Hides & skins & fur skin raw	11.8	912.2	16.7	1,228.3
Oil seeds & oleagionous fruits	269.3	4,705.2	183.6	3,508.0
Rubber crude incl. Synth/ reclaimed	63.8	2,869.0	76.6	3,928.5
Wood and crok	0.0	1,545.1	0.0	1,484.1
Pulp & waste paper	138.3	2,217.7	156.5	2,382.4
Fertilizer crude	300.9	849.8	374.9	1,208.0
Crude animal & vegetable materials	58.3	2,172.2	54.7	2,102.7
Animal oils and fats	101.7	2,333.1	139.8	3,627.6
Animal/veg/fat oil wax etc nes	128.9	2,658.0	123.9	2,778.8
Crok/wood mfg. (excl furniture)	30.3	688.6	48.6	980.5
Paper & paper board & manf. thereof	217.1	7,698.7	263.4	9,465.4
Foot wear (pair)	6,148.4	658.3	10.1	959.6

Source:- Agricultural Statistics of Pakistan-2003-04

Table B-05: Import of Edible Oil(Quantity in Tonnes)
(Value in 000 Rupees)

Year	Quantity			Value		
	Soyabean	Palm oil	Total	Soyabean	Palm oil	Total
1987-88	500.3	458.3	958.6	4,035.2	3,193.4	7,228.6
1988-89	383.7	475.0	858.7	4,439.8	3,962.4	8,402.2
1989-90	343.2	597.1	940.3	3,863.4	4,119.6	7,983.0
1990-91	271.7	687.9	959.6	3,760.7	5,259.6	9,020.3
1991-92	160.3	885.6	1,045.9	1,967.6	8,057.6	10,025.2
1992-93	291.7	1,039.2	1,330.9	3,446.6	11,739.1	15,185.7
1993-94	151.9	979.5	1,131.4	2,406.9	12,291.6	14,698.5
1994-95	240.2	1,154.3	1,394.5	5,138.8	25,642.0	30,780.8
1995-96	158.4	984.4	1,142.8	3,897.0	24,777.7	28,674.7
1996-97	198.8	858.0	1056.8	4670.0	19236.0	23906.0
1997-98	144.5	1034.1	1178.6	4281.7	29022.7	33304.4
1998-99	363.7	961.2	1324.9	11232.2	29303.5	40535.7
1999-00	202.4	848.5	1050.9	4573.3	16828.6	21401.9
2000-01	128.4	1015.1	1143.5	2555.4	16489.4	19044.8
2001-02	34.3	1162.5	1196.8	787.0	23247.3	24034.3
2002-03	82.7	1210.9	1293.6	2755.9	31532.6	39288.5
2003-04	80.8	1280.0	1360.8	2622.8	35294.4	37917.2

Source:- Agricultural Statistics of Pakistan-2003-04

Table B-06: Import of Milk and Milk Products(Quantity in Tonnes)
(Value in 000 Rupees)

Items	2000-01		2001-02		2002-03		2003-04	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Milk and Milk Products - Total	-	706,305	-	513,924	-	778,062	-	682,162
Milk contents fat <=1 %	-	-	-	-	-	-	62	3,296
Milk contents fat <= 1.5 %	-	-	-	-	-	-	-	-
Cream contents fat > 6 %	-	-	-	-	-	-	-	-
Milk solid contents fat <=1 % to 6%	1,306	104,440	837	71,431	11	852	-	-
Milk in powder fat >=1.5 % to 6%	5,795	485,127	3,135	301,191	6,165	405,006	2603	224,045
Milk powder 1.5% fat 6%	62	6,017	25	4,264	1,927	164,541	493	51,434
Milk not solid or sweet	30	313	16	1,308	172	8,340	940	87,503
Other milk in powder >1.5% fat	67	6,133	31	3,434	317	32,664	470	49,581
Milk pres..conc/ sweeten	177	8,176	325	19,253	-	-	-	-
Other milk cream solid sweetened	2	1,108	3	1,836	215	12,717	114	6,329
Yougurt, sweetened	-	-	15	892	14	748	60	2,563
Yougurt not sweetened	8	418	0.3	28	-	-	-	-
Butter milk curdled	-	-	-	-	31	3282	83	5716
milk ferment	-	-	-	-	-	-	-	-

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Table B-06: Import of Milk and Milk Products(Quantity in Tonnes)
(Value in 000 Rupees)

Items	2000-01		2001-02		2002-03		2003-04	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Cream, fermented	-	-	-	5,872	-	-	-	-
Ice ream EDB ice with/no coco	88	6,569	43	5,132	-	-	-	-
Other products consist natural milk	-	-	-	-	7	1421	15	713
Whey preserved & powder	296	13,627	423	19,969	1513	58,216	3,616	133,484
Other fats driven from milk	-	-	-	-	45	3,588	28	2,823
Products of natural milk	24	1,246	16	670	52	5,009	-	-
Butter canned	72	9,364	65	8,882	-	-	-	-
Butter fresh	190	20,989	35	4,236	61	8,163	77	9,295
Butter oil (ghee)	-	-	-	-	31	3,282	83	5,716
Grated or Powder cheese	6	1,395	10	2,311	23	4,479	9	1,932
Process cheese not grated	33	6,474	78	15,318	63	11,424	109	17,966
Other cheese	-	-	-	-	309	47,279	469	69,531
Fresh cheese	58	11,030	64	12,745	28	5,148	43	6,353
Curd	98	816	154	1,217	76	688	43	390
Other cheese& curd	171	23,063	209	33,838	1	221	23	3,492
Dairy products	-	-	-	-	28	994	-	-

Source:- Agricultural Statistics of Pakistan-2003-04

Table B-07: Import of Fertilizers

Year	Quantity (000 Nutrient Tonnes)				Value
	N	P	K	Total	(Million Rs.)
1982-83	131.0	247.6	21.5	400.1	2291.5
1983-84	75.3	184.3	27.2	286.8	1403.3
1984-85	86.9	233.7	21.3	341.9	1393.8
1985-86	83.9	206.7	40.4	331.0	1759.0
1986-87	135.3	340.8	46.3	522.4	2484.6
1987-88	200.6	264.0	57.0	521.6	3955.5
1988-89	134.3	318.0	9.3	461.6	2910.6
1989-90	298.2	298.0	41.7	637.9	4447.1
1990-91	365.0	264.0	56.0	685.0	6613.4
1991-92	360.0	257.0	15.0	632.0	5895.5
1992-93	393.0	357.2	8.9	759.1	6190.3
1993-94	313.0	547.0	43.0	903.0	8,839.9
1994-95	73.0	186.0	2.0	261.0	2,911.7
1995-96	248.8	280.6	51.6	581.0	9,427.0
1996-97	472.8	381.0	24.3	878.1	14948.0
1997-98	286.9	415.7	11.1	713.7	9079.0
1998-99	421.8	425.0	37.2	884.8	13311.0
1999-00	233.0	416.0	13.8	662.8	10227.0
2000-01	194.0	369.1	16.5	579.6	9842.0
2001-02	178.5	429.5	17.7	625.7	10904.0
2002-03	215.7	542.4	7.9	766.0	14068.0
2003-04	204.2	553.5	6.4	764.1	16405.0

Source:- Agricultural Statistics of Pakistan-2003-04

Table B-08: Import of Wood and Wood Products(Quantity in Tonnes)
(Value in Million Rupees)

Items	2000-01		2001-02		2002-03		2003-04	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
(a) Timber round and Sawn	-	539.7	-	718.3	-	1,537.6	-	2,965.1
Saw logs and vincer logs conifer. (cm)	-	-	-	-	15,205	74.7	52,798	290.4
Saw logs and vincer logs non-conifer.(cm)	15,295	315.0	88,466	397.8	104,734	562.5	121,331	614.7
Railway sleepers (cm)	-	-	-	-	-	-	9412	42.9
Timber sawn, Plained conifer(cm)	263	0.8	230	0.7	334	1.5	28	0.2
Timber sawn, Plained non-conifer	54,644	205.3	-	311.3	122,133	857.1	63,773	392.0
Pulpwood including broadleaved	-	-	-	-	-	-	-	1484.1
Poles, pilings, posts and other recind wood (pit poups)	6,345	12.8	1,790	50.1	5,323	30.5	20,221	123.0
Wood simply shaped, Venus, Plywood, reconstituted	23,520	4.2	64,273	3.4	704	11.3	915	17.8
(b) Wood and Wood manufactures	1,195	79.4	1,742	116.0	-	215.4	-	297.0
Veneer sheets MT	471	31.5	1,040	79.7	2,017	167.4	2,741	193.8
Plywood MT	300	11.6	278	10.2	775	28.5	1,308	37.9
Improved or reconstituted MT	298	22.6	199	10.2	213	6.2	1,784	44.8
Manufactures of wood not-elsewhere specified MT	126	14.3	225	15.9	153	13.3	211	20.5

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Table B-08: Import of Wood and Wood Products(Quantity in Tonnes)
(Value in Million Rupees)

Items	2000-01		2001-02		2002-03		2003-04	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
(c) Pulp & Paper Board	255,290	9,061.6	342,043	10,290.0	-	11,832.7	-	14,153.2
Wood pulp MT	94,937	1,677.1	124,881	1,892.9	214,632	2,217.7	156,452	2,382.4
Kraft paper and Paper bond MT	18,270	646.0	21,644	736.5	29,151	982.6	35,115	1,188.1
Fiber bond including building board. MT	34	0.8	39.0	1.8	206.0	6.0	292	9.0
News print paper MT	59,484	2,260.8	70,793	2,368.6	76,333	2,087.1	87,369	2,484.4
Other paper & writing paper MT	14,436	650.8	22,322	944.6	25,526	1,011.4	32,978	1,335.6
Other print paper & paper board MT	56,299	2,497.0	69,775	2,985.8	89,815	4,107.7	111,773	5,033.2
Article made of paper and paper board. MT	11,830	1,329.1	12,564	1,359.7	12,940	1,420.2	16,754	1,720.5
(d) Miscellaneous items	5,985	74.7	7,411.0	87.0	-	130.3	-	161.2
Resin MT	68	0.7	4	1.2	1,056	43.2	1,816	88.1
Cork raw and Waste MT	26	1.0	646	2.4	39	1.5	94	3.5
Cork manufactures MT	191	9.9	210	10.7	192	8.1	256	10.0
Bamboos MT	5,688	53.2	5,890	62.4	6,645	68.8	4,748	47.9
Cane & ratans wood waste MT	612	9.9	661	11.3	519	8.7	656	11.7
Grand total (A+B+C+D)	-	9755.4	-	11211.4	-	13716.0	-	17576.5

Source:- Agricultural Statistics of Pakistan-2003-04

Table B-09: Export of Crude Oil and Petroleum Products

Unit: Qty. in Tonnes
Qty. in TOE
(Value in Million US \$)

Products	Year						
	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04
Crude Oil	227480	434035	355881	433425	238606	240444	11000
	(23.63)	(30.33)	(54.96)	(86.13)	(37.00)	(45.79)	-
Energy Products NAPHTHA	73094	74644	126485	302947	392411	630421	608929
	78094	79750	135137	323669	419252	673542	650580
	(11.53)	(9.80)	(28.06)	(77.36)	(78.06)	(159.02)	(113.07)
Motor Spirit	-	-	-	50522	186041	643	20726
	-	-	-	53978	198766	687	22144
	-	-	-	(13.21)	(36.89)	(0.26)	(7.79)
HSD	-	-	-	-	-	1138	74936
	-	-	-	-	-	1196	78780
	-	-	-	-	-	(0.30)	(25.73)
Kerosene	-	-	-	-	-	31	1275
	-	-	-	-	-	32	131
	-	-	-	-	-	(0.01)	(0.43)
JP	-	-	-	-	-	2942	160103
	-	-	-	-	-	3035	165162
	-	-	-	-	-	(0.96)	(56.76)
ASPHALT	-	9341	-	-	-	-	25727
	-	1.01	-	-	-	-	(6.97)
LUBES	-	-	-	5552	-	-	402
	-	-	-	1.78	-	-	(0.39)

Source:- Pakistan Energy Year Book-2004, Published by Hydrocarbon Development Institute Of Pakistan.

Table B-10: Import of Petroleum Products

(Unit:Qty. in Tonnes)

(Qty. in TOE)

(Value in Million US \$)

Products	Year						
	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04
100/LL	2,447	1,103	-	-	-	-	-
	2,550	1,149	-	-	-	-	-
	(1.10)	(0.47)	-	-	-	-	-
Kerosene	42,858	114,416	202,008	11,851	-	-	-
	44,212	118,032	208,391	12,225	-	-	-
	(6.69)	(14.54)	(43.76)	(3.47)	-	-	-
HSD	4,924,932	5,302,174	5,422,648	4,720,567	4,404,876	4,103,623	4,504,053
	5,177,581	5,574,176	5,700,830	4,962,732	4,630,846	4,314,139	4,735,111
	(702.95)	(569.70)	(1,015.34)	(1,136.96)	(852.01)	(936.28)	(1192.02)
High Sulphur Furnace Oil	5,845,639	5,303,305	5,677,480	4,727,355	3,959,351	4,067,964	665,592
	5,691,899	5,163,828	5,528,162	4,603,026	3,855,220	3,960,977	648,087
	(536.54)	(431.77)	(826.23)	(720.13)	(557.15)	(707.71)	(125.51)
Low Sulphur Furnace Oil*	-	-	473,604	561,262	658,299	265,474	-
	-	-	461,148	546,501	640,986	258,492	-
	-	-	(80.01)	(99.99)	(108.00)	(51.74)	-
Motor Spirit	148,036	99,164	45410	-	-	-	-
	158,162	105,947	48516	-	-	-	-
	(27.08)	(14.35)	(9.98)	-	-	-	-
MTBE	99,872	105,803	57,171	7,871	-	-	-
	81,356	86,187	46,571	6,412	-	-	-
	(25.12)	(23.03)	(17.55)	(3.21)	-	-	-
Total:	11,063,784	10,925,965	11,878,321	10,028,906	9,022,526	8,437,061	5,169,645
	11,155,759	11,049,319	11,993,619	10,130,896	9,127,052	8,533,607	5,383,198
	(1,299.47)	(1,053.86)	(1,992.87)	1,963.76	1,517.16	(1,695.73)	(1,317.53)
Annual growth rate of Qty	6.40%	-1.25%	8.72%	-15.57%	-10.03%	-6.49%	-38.73%

Source:- Pakistan Energy Year Book, 2004 Published by
Hydrocarbon Development Institute Of Pakistan

* For Convenience calculations, the conversion factors for HSFO \$ LSFO has been assumed as same

Table B-11: Import of Crude Oil

(Unit: Qty. in Tonnes)

(Qty. in TOE)

(Value in Million US \$)

Refinery	Year						
	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04
Bosicor Refinery	-	-	-	-	-	-	211,333
	-	-	-	-	-	-	220,167
	-	-	-	-	-	-	(50.19)
Pakistan Refinery	1,616,326	369,830	-	1,364,788	551,011	1,020,558	781,385
	1,670,958	382,330	-	1,410,918	569,635	1,055,053	807,796
	(185.42)	(31.41)	-	(265.40)	(92.89)	(201.61)	(178.81)
National Refinery	2,447,115	4,106,244	4,445,406	3,528,507	3,546,444	3,240,942	2,472,785
	2,529,827	4,245,035	4,595,661	3,647,771	3,666,314	3,350,486	2,556,365
	(286.15)	(382.59)	(790.22)	(683.80)	(599.17)	(636.79)	(559.41)
PARCO	-	-	-	2,142,432	2,977,854	2,881,473	4,369,758
	-	-	-	2,214,846	3,078,505	2,978,867	4,517,456
	-	-	-	(412.90)	(498.91)	(562.09)	(1,012.63)
Total:	4,063,441	4,476,074	4,445,406	7,035,727	7,075,309	7,142,973	7,835,261
	4,200,785	4,627,365	4,595,661	7,273,535	7,314,454	7,384,405	8,101,783
	(471.57)	(414.01)	(790.22)	(1,362.10)	(1,190.97)	(1,400.49)	(1,801.04)
Annual growth rate	5.95%	10.15%	-0.69%	58.27%	0.56%	0.96%	9.69%

Source:- Pakistan Energy Year Book, 2004 Published by Hydrocarbon Development Institute Of Pakistan

Table B-12: Import of Coal

Unit → Year ↓	Tonnes	TOE	Annual growth rate
1990-91	971,436	639,108	-11.92%
1991-92	1,069,000	703,295	10.04%
1992-93	993,900	653,887	-7.03%
1993-94	1,094,000	719,743	10.07%
1994-95	1,095,905	720,996	0.17%
1995-96	1,080,000	710,532	-1.45%
1996-97	840,000	552,636	-22.22%
1997-98	960,000	631,584	14.29%
1998-99	909,649	598,458	-5.24%
1999-00	956,669	629,393	5.17%
2000-01	950,000	625,005	-0.70%
2001-02	1,080,584	710,916	13.75%
2002-03	1,578,169	1,038,277	46.05%
2003-04	2,789,238	1,835,040	76.74%
ACGR	25.1%	-	-

Source:- Pakistan Energy Year Book, 2004 Published by Hydrocarbon Development Institute of Pakistan

Note: - Mostly used as coke in steel industry. Since 2001-02 also being used in cement industry.

Table B-13: Revenue Earned by Forest Department

(Million Rupees)

Year	Total	Balochistan	NWFP	Punjab	Sindh	North Areas
1991-92	603.991	4.211	360.475	188.449	50.856	N.A
1992-93	399.260	3.980	81.630	217.450	54.600	41.600
1993-94	711.920	5.300	408.930	243.340	42.530	11.820
1994-95	550.440	5.530	214.540	272.210	48.330	9.830
1995-96	405.160	5.540	44.300	299.180	46.040	10.100
1996-97	730.871	6.286	355.285	297.157	34.143	38.000
1997-98	614.890	7.000	261.330	304.280	37.450	4.830
1998-99	754.332	7.000	285.009	402.760	43.384	16.179
1999-00	705.192	31.224	258.214	344.507	52.722	18.525
2000-01	769.661	33.024	247.925	413.549	58.931	16.232
2001-02	1132.083	33.250	318.312	535.070	65.261	180.190
2002-03	357.930	8.988	348.353	450.500	0.589	7.000
2003-04	1012.335	24.000	352.335	515.000	36.000	85.000

Source:- Agriculture Statistics of Pakistan-2003-04, M/O Food, Agriculture & Livestock (Economic Wing)

Table B-14: Solid Waste Generation Estimates, 2002

City	Generation Rate		Waste Generated	
	Kg/c/day	Kg/h/day	Tons/day	Tons/year
Gujranwala*	0.469	3.424	824.0	300,760
Faisalabad	0.5	3.50	4775.3	1,743,000
Lahore	0.55	3.85	3850.0	1,405,250
Bahawalpur	0.150	2.625	63.25	23,269
Karachi*	0.613	4.201	6,450.0	235,4250
Hyderabad	0.663	3.941	500.0	182,500
Peshawar	0.5 (For 1.0 Million op)	-	500	182,500
Bannu	0.445	3.00	38.00	13,870
Quetta	1.00	2.50	750	273,750
Sibi	0.570	2.15	37	13,505
Total	-	-	17787.55	6492,654

Source:- Tehsil Municipal Administration of each districts

* Data is repeated

Table B-15: Physical Composition of Waste, 2002

Cites/ → Waste ↓	Gujranwala*	Faisalabad	Lahore	Bahawalpur	Hyderabad
Plastic & Rubber	5.00	4.80	5.63	2.85	3.20
Metals	0.30	0.20	0.32	0.20	0.50
Paper	2.50	2.10	2.70	2.50	3.40
Cardboard	1.80	1.60		1.00	1.50
Rags	3.20	5.20	7.45	2.00	4.30
Glass	1.50	1.30	0.70	2.15	3.40
Board Papers	3.20	2.90		0.75	2.00
Food Waste	14.70	17.20	30.72	0.50	22.00
Animal Waste	1.00	0.80	3.38	20.00	6.00
Leaves Grass etc.	12.80	15.00	20.02	17.00	13.50
Wood	0.80	0.70	1.24	2.50	2.25
Fines	47.50	43.00		38.00	30.00
Stones	5.70	4.60	27.83	10.55	3.50
Cites/ → Waste ↓	Karachi*	Peshawar	Bannu	Quetta	Sibi
Plastic & Rubber	3.60	3.70	7.80	9.00	8.00
Metals	0.75	0.30	0.90	1.20	0.70
Paper	2.40	2.10	4.00	1.20	1.00
Cardboard	1.50	1.90	2.00	1.30	1.40
Rags	4.70	4.30	2.90	5.10	5.30
Glass	1.60	1.30	1.60	1.50	1.30
Board Papers	2.00	1.70	0.30	2.00	1.00
Food Waste	20.00	13.80	5.80	14.30	9.32
Animal Waste	5.80	7.50	2.80	3.00	4.00
Leaves Grass etc.	13.50	13.50	14.75	10.20	14.50
Wood	2.25	0.60	0.60	2.00	1.00
Fines	38.90	42.00	45.80	44.00	25.50
Stones	3.00	7.30	4.50	7.80	7.70

Source:- Tehsil Municipal Administration of each district

* Data is repeated

Table B-16: Waste Generation Rate and Amount

City	Generation rate (Kg/Capita/Day)	Waste Generation (Tons/Day)
Gujranwala*	0.469	824.0
Faisalabad	0.500	457.0
Lahore	0.550	3,850.0
Bahawalpur	0.150	63.3
Karachi*	0.613	6,450.0
Hyderabad	0.563	500.0
Peshawar	0.489	809.3
Bannu	0.439	36.0
Quetta	1.000	750.0
Sibbi	0.570	37.0
Total:		13,776.6

Source:- Tehsil Municipal Administration of each districts

* Data is repeated

Table B-17: Rivers, Dams, Reservoirs, Lakes and Drains Water Quality Data 2004 (Physical and Aesthetic)

S No.	S.Code	Location	Source	Colour	E.C.	Odour	pH	Taste	Turbidity
1	ISL-28	Simly Dam	Dam	Muddy	326	Object.	8.0	Object.	43
2	CHENAB	Chenab River	River	Muddy	227	Unobjec.	7.9	Unobjec.	6
3	JHELUM	JhelumRiver	River	Colour-less	203	Unobjec.	7.8	Unobjec.	105
4	MANGLA	Mangla River	River	Colour-less	185	Unobjec.	8.4	Unobjec.	3
5	RR	Ravi River	River	Colour-less	292	Unobjec.	7.4	Unobjec.	47
6	BRB	BRB Lahore Branch Chowk Mughal-pura	Canal	Colour-less	307	Unobjec.	7.3	Unobjec.	36
7	KAR-HUB	Hub Dam	Dam	Colour-less	1210	Unobjec.	7.4	Unobjec.	0.5
8	Manchar	8 km West from Indus High Way	Lake	Yellow	15570	Object.	7.5	Object.	29
9	RBOD	Between Sehwar and Bhan Saeeda-bad	Drain	H.Yellow	138000	Unobjec.	8.3	Object.	45
10	LBOD	Shadighar Badin-Khoski Rd 35 KM	Drain	Yellow	7930	Unobjec.	7.5	Objec.	73
11	Hamal	10 km West from Warah Distt. Larkana	Lake	Yellow	15100	Object.	7.4	Object.	20
12	MAN-10	Swat River	River	Muddy	81	Unobjec.	7.1	Object.	46
13	MAR-13	Kabul River	River	Muddy	226	Object.	8.1	Object.	1050
14	Chash	Chashma Resercoir	Reser voir	S.Muddy	368	Unobjec.	8.4	Unobjec.	9

Source:- Pakistan Council of Research in Water Resources (PCRER)

Table B-18: Quality of 20 Sub Soil Water Samples of District Bahawalpur For the Period of 22-05-02 to 31-05-02

S.No	Parameter	WHO Guideline	Maximum	Minimum	Average	Exceeding WHO Guideline	%age Exceeding
1	PH	-	8.04	6.89	7.520	-	-
2	Odour	Unobject-ionable	-	-	-	0	0.00
3	Colour (TCU)	15/Clear	-	-	-	0	0.00
4	Taste	Unobject-ionable	-	-	-	5	25.00
5	Conductivity (us/cm)	-	3610.00	320.00	1382.000	-	-
6	Turbidity (NTU)	5	33.00	0.00	5.200	5	25.00
7	TDS (mg/l)	1000	2490.00	188.00	935.650	7	35.00
8	TSS (mg/l)	-	40.00	0.00	8.800	-	-
9	Calcium (mg/l)	-	276.00	24.00	72.800	-	-
10	Magnesium (mg/l)	-	200.00	5.00	64.100	-	-
11	Hardness (as CaCo3)(mg/l)	-	1080.00	140.00	442.500	-	-
12	Chloride (mg/l)	250	630.00	15.00	172.250	5	25.00
13	Sulfate (mg/l)	250	590.00	19.00	182.650	5	25.00
14	Sulphide (mg/l)	-	<0.05	<0.05	<0.05	-	-
15	Total Iron (mg/l)	0.3	0.77	0.05	0.188	1	5.00
16	Nitrite (mg/l)	3	0.01	0.00	0.007	0	0.00
17	Nitrate (mg/l)	50	30.12	10.63	20.274	0	0.00
18	TOC (mg/l)	-	850.00	70.00	275.500	-	-
19	Fluoride (mg/l)	1.5	1.03	0.12	0.392	0	0.00
20	Cyanide (mg/l)	0.07	0.05	0.01	0.024	0	0.00
21	Arsenic (5samples) (mg/l)	0.01	0.05	0.00	0.010	1	20.00
22	Cadmium (ug/l)	3	2.10	0.00	0.415	0	0.00
23	Mercury (ug/l)	1	2.10	0.00	0.349	2	10.00
24	Lead (ug/l)	10	18.00	0.00	6.800	3	15.00
25	Boron (mg/l)	0.5	0.91	0.00	0.271	1	5.00
26	Chromium (mg/l)	0.05	<0.05	<0.05	<0.05	-	-
27	Nickel (mg/l)	0.02	0.01	0.00	0.003	0	0.00
28	Selenium (mg/l)	0.01	0.05	0.00	0.009	5	25.00
29	Zinc (mg/l)	3	0.08	0.02	0.045	0	0.00
30	Total Coliform Bacteria	Must not be detectable in any 100 ml sample	-	-	-	9	45.00

Contd...

**Table B-18: Quality of 20 Sub Soil Water Samples of District D.G Khan
For the Period of 21-05-02 to 29-05-02**

S.No	Parameter	WHO Guideline	Maximum	Minimum	Average	Exceeding WHO Guideline	%age Exceeding
1	PH	-	8.14	7.17	7.702	-	-
2	Odour	Unobject- ionable	-	-	-	1	5.00
3	Colour (TCU)	15/Clear	-	-	-	0	0.00
4	Taste	Unobject- ionable	-	-	-	7	35.00
5	Conductivity (us/cm)	-	5000.00	240.00	1370.000	-	-
6	Turbidity (NTU)	5	0.00	0.00	0.000	0	0.00
7	TDS (mg/l)	1000	4530.00	180.00	1075.750	7	35.00
8	TSS (mg/l)	-	0.00	0.00	0.000	-	-
9	Calcium (mg/l)	-	244.00	40.00	90.000	-	-
10	Magnesium (mg/l)	-	330.00	3.00	62.250	-	-
11	Hardness (as CaCo3)(mg/l)	-	1900.00	130.00	478.000	-	-
12	Chloride (mg/l)	250	435.00	11.00	88.600	2	10.00
13	Sulfate (mg/l)	250	1500.00	20.00	313.550	7	35.00
14	Sulphide (mg/l)	-	<0.05	<0.05	<0.05	-	-
15	Total Iron (mg/l)	0.3	0.09	0.02	0.037	0	0.00
16	Nitrite (mg/l)	3	0.50	0.00	0.029	0	0.00
17	Nitrate (mg/l)	50	0.34	0.12	0.231	0	0.00
18	TOC (mg/l)	-	660.00	300.00	551.100	-	-
19	Fluoride (mg/l)	1.5	0.73	0.13	0.311	0	0.00
20	Cyanide (mg/l)	0.07	0.05	0.00	0.022	0	0.00
21	Arsenic (5samples) (mg/l)	0.01	0.00	0.00	0.000	0	0.00
22	Cadmium (ug/l)	3	4.80	0.00	0.580	1	5.00
23	Mercury (ug/l)	1	1.23	0.00	0.330	1	5.00
24	Lead (ug/l)	10	11.20	0.70	4.155	2	10.00
25	Boron (mg/l)	0.5	0.97	0.00	0.507	9	45.00
26	Chromium (mg/l)	0.05	<0.05	<0.05	<0.05	-	-
27	Nickel (mg/l)	0.02	0.01	0.00	0.002	0	0.00
28	Selenium (mg/l)	0.01	0.15	0.00	0.017	7	35.00
29	Zinc (mg/l)	3	0.14	0.01	0.078	0	0.00
30	Total Coliform Bacteria	Must not be detectable in any 100 ml sample	-	-	-	19	95.00

Contd...

Table B-18: Quality of 20 Sub Soil Water Samples of District Faisalabad For the Period of 22-05-02 to 29-05-02

S.No	Parameter	WHO Guideline	Maximum	Minimum	Average	Exceeding WHO Guideline	%age Exceeding
1	PH	-	8.04	6.64	7.496	-	-
2	Odour	Unobject-ionable	-	-	-	0	0.00
3	Colour (TCU)	15/Clear	-	-	-	1	5.00
4	Taste	Unobject-ionable	-	-	-	9	45.00
5	Conductivity (us/cm)	-	6960.00	230.00	2180.500	-	-
6	Turbidity (NTU)	5	7.00	0.00	0.350	1	5.00
7	TDS (mg/l)	1000	4200.00	220.00	1436.000	7	35.00
8	TSS (mg/l)	-	12.00	0.00	0.600	-	-
9	Calcium (mg/l)	-	112.00	24.00	53.200	-	-
10	Magnesium (mg/l)	-	233.00	5.00	58.500	-	-
11	Hardness (as CaCo3)(mg/l)	-	1010.00	130.00	366.000	-	-
12	Chloride (mg/l)	250	1175.00	20.00	351.750	8	40.00
13	Sulfate (mg/l)	250	890.00	28.00	369.550	9	45.00
14	Sulphide (mg/l)	-	<0.05	<0.05	<0.05	-	-
15	Total Iron (mg/l)	0.3	0.23	0.02	0.084	0	0.00
16	Nitrite (mg/l)	3	0.01	0.00	0.005	0	0.00
17	Nitrate (mg/l)	50	1.77	0.32	1.257	0	0.00
18	TOC (mg/l)	-	428.00	80.00	182.200	-	-
19	Fluoride (mg/l)	1.5	1.48	0.06	0.541	0	0.00
20	Cyanide (mg/l)	0.07	0.04	0.01	0.020	0	0.00
21	Arsenic (5samples) (mg/l)	0.01	0.00	0.00	0.000	0	0.00
22	Cadmium (ug/l)	3	5.60	0.00	2.435	8	40.00
23	Mercury (ug/l)	1	0.88	0.00	0.246	0	0.00
24	Lead (ug/l)	10	10.20	0.00	3.355	1	5.00
25	Boron (mg/l)	0.5	0.77	0.00	0.238	4	20.00
26	Chromium (mg/l)	0.05	<0.05	<0.05	<0.05	-	-
27	Nickel (mg/l)	0.02	0.00	0.00	0.002	0	0.00
28	Selenium (mg/l)	0.01	0.07	0.00	0.009	4	20.00
29	Zinc (mg/l)	3	0.33	0.22	0.271	0	0.00
30	Total Coliform Bacteria	Must not be detectable in any 100 ml sample	-	-	-	7	35.00

Contd...

Table B-18: Quality of 20 Sub Soil Water Samples of District Gujranwala For the Period of 19-05-02 to 29-05-02

S.No	Parameter	WHO Guideline	Maximum	Minimum	Average	Exceeding WHO Guideline	%age Exceeding
1	PH	-	7.84	6.93	7.363	-	-
2	Odour	Unobject-ionable	-	-	-	0	0.00
3	Colour (TCU)	15/Clear	-	-	-	0	0.00
4	Taste	Unobject-ionable	-	-	-	3	15.00
5	Conductivity (us/cm)	-	2430.00	280.00	997.900	-	-
6	Turbidity (NTU)	5	0.00	0.00	0.000	0	0.00
7	TDS (mg/l)	1000	1800.00	180.00	683.000	3	15.00
8	TSS (mg/l)	-	0.00	0.00	0.000	-	-
9	Calcium (mg/l)	-	56.00	16.00	39.700	-	-
10	Magnesium (mg/l)	-	100.00	3.00	29.800	-	-
11	Hardness (as CaCo3)(mg/l)	-	450.00	50.00	217.600	-	-
12	Chloride (mg/l)	250	565.00	10.00	128.800	3	15.00
13	Sulfate (mg/l)	250	670.00	30.00	153.900	3	15.00
14	Sulphide (mg/l)	-	<0.05	<0.05	<0.05	-	-
15	Total Iron (mg/l)	0.3	1.10	0.02	0.117	1	5.00
16	Nitrite (mg/l)	3	0.29	0.00	0.034	0	0.00
17	Nitrate (mg/l)	50	23.04	10.63	17.892	0	0.00
18	TOC (mg/l)	-	530.00	116.00	269.000	-	-
19	Fluoride (mg/l)	1.5	1.07	0.05	0.464	0	0.00
20	Cyanide (mg/l)	0.07	0.05	0.01	0.020	0	0.00
21	Arsenic (5samples) (mg/l)	0.01	0.00	0.00	0.000	0	0.00
22	Cadmium (ug/l)	3	6.00	0.00	1.615	5	25.00
23	Mercury (ug/l)	1	1.00	0.00	0.304	0	0.00
24	Lead (ug/l)	10	21.30	0.00	4.820	3	15.00
25	Boron (mg/l)	0.5	0.86	0.00	0.430	6	30.00
26	Chromium (mg/l)	0.05	<0.05	<0.05	<0.05	-	-
27	Nickel (mg/l)	0.02	0.01	0.00	0.003	0	0.00
28	Selenium (mg/l)	0.01	1.36	0.00	0.142	11	55.00
29	Zinc (mg/l)	3	0.14	0.02	0.780	0	0.00
30	Total Coliform Bacteria	Must not be detectable in any 100 ml sample	-	-	-	7	35.00

Contd...

Table B-18: Quality of 20 Sub Soil Water Samples of District Gujrat For the Period of 24-05-02 to 04-06-02

S.No	Parameter	WHO Guideline	Maximum	Minimum	Average	Exceeding WHO Guideline	%age Exceeding
1	PH	-	8.25	7.14	7.882	-	-
2	Odour	Unobject-ionable	-	-	-	0	0.00
3	Colour (TCU)	15/Clear	-	-	-	1	5.00
4	Taste	Unobject-ionable	-	-	-	1	5.00
5	Conductivity (us/cm)	-	1340.00	340.00	543.000	-	-
6	Turbidity (NTU)	5	47.00	0.00	2.550	1	5.00
7	TDS (mg/l)	1000	850.00	230.00	351.750	0	0.00
8	TSS (mg/l)	-	40.00	0.00	2.350	-	-
9	Calcium (mg/l)	-	76.00	24.00	39.600	-	-
10	Magnesium (mg/l)	-	80.00	3.00	12.800	-	-
11	Hardness (as CaCo3)(mg/l)	-	280.00	80.00	135.000	-	-
12	Chloride (mg/l)	250	100.00	15.00	31.000	0	0.00
13	Sulfate (mg/l)	250	190.00	25.00	58.400	0	0.00
14	Sulphide (mg/l)	-	<0.05	<0.05	<0.05	-	-
15	Total Iron (mg/l)	0.3	0.09	0.02	0.043	0	0.00
16	Nitrite (mg/l)	3	0.01	0.00	0.005	0	0.00
17	Nitrate (mg/l)	50	0.58	0.14	0.399	0	0.00
18	TOC (mg/l)	-	590.00	119.00	391.950	-	-
19	Fluoride (mg/l)	1.5	0.50	0.21	0.357	0	0.00
20	Cyanide (mg/l)	0.07	0.04	0.01	0.020	0	0.00
21	Arsenic (5samples) (mg/l)	0.01	0.00	0.00	0.000	0	0.00
22	Cadmium (ug/l)	3	2.20	0.00	0.480	0	0.00
23	Mercury (ug/l)	1	1.20	0.00	0.403	3	15.00
24	Lead (ug/l)	10	15.00	0.00	5.420	3	15.00
25	Boron (mg/l)	0.5	0.63	0.00	0.261	5	25.00
26	Chromium (mg/l)	0.05	<0.05	<0.05	<0.05	-	-
27	Nickel (mg/l)	0.02	0.01	0.00	0.003	0	0.00
28	Selenium (mg/l)	0.01	0.03	0.00	0.004	1	5.00
29	Zinc (mg/l)	3	0.07	0.01	0.030	0	0.00
30	Total Coliform Bacteria	Must not be detectable in any 100 ml sample	-	-	-	13	65.00

Contd...

Table B-18: Quality of 20 Sub Soil Water Samples of District Jhang For the Period of 22-05-02 to 30-05-02

S.No	Parameter	WHO Guideline	Maximum	Minimum	Average	Exceeding WHO Guideline	%age Exceeding
1	PH	-	8.10	6.96	7.555	-	-
2	Odour	Unobject-ionable	-	-	-	1	5.00
3	Colour (TCU)	15/Clear	-	-	-	1	5.00
4	Taste	Unobject-ionable	-	-	-	7	35.00
5	Conductivity (us/cm)	-	4480.00	460.00	1414.500	-	-
6	Turbidity (NTU)	5	24.00	0.00	2.200	2	10.00
7	TDS (mg/l)	1000	2700.00	250.00	977.500	7	35.00
8	TSS (mg/l)	-	28.00	0.00	3.100	-	-
9	Calcium (mg/l)	-	240.00	24.00	69.600	-	-
10	Magnesium (mg/l)	-	150.00	3.00	41.400	-	-
11	Hardness (as CaCo3)(mg/l)	-	880.00	120.00	338.500	-	-
12	Chloride (mg/l)	250	910.00	24.00	239.050	6	30.00
13	Sulfate (mg/l)	250	930.00	40.00	288.250	7	35.00
14	Sulphide (mg/l)	-	<0.05	<0.05	<0.05	-	-
15	Total Iron (mg/l)	0.3	0.05	0.02	0.029	0	0.00
16	Nitrite (mg/l)	3	0.03	0.00	0.010	0	0.00
17	Nitrate (mg/l)	50	28.35	15.95	22.947	0	0.00
18	TOC (mg/l)	-	660.00	110.00	331.200	-	-
19	Fluoride (mg/l)	1.5	1.27	0.04	0.316	0	0.00
20	Cyanide (mg/l)	0.07	0.07	0.01	0.024	0	0.00
21	Arsenic (5samples) (mg/l)	0.01	0.00	0.00	0.000	0	0.00
22	Cadmium (ug/l)	3	2.80	0.00	1.155	0	0.00
23	Mercury (ug/l)	1	1.19	0.00	0.447	3	15.00
24	Lead (ug/l)	10	21.10	0.10	8.165	5	25.00
25	Boron (mg/l)	0.5	0.85	0.00	0.280	4	20.00
26	Chromium (mg/l)	0.05	<0.05	<0.05	<0.05	-	-
27	Nickel (mg/l)	0.02	0.01	0.00	0.003	0	0.00
28	Selenium (mg/l)	0.01	0.11	0.00	0.010	3	15.00
29	Zinc (mg/l)	3	0.07	0.01	0.043	0	0.00
30	Total Coliform Bacteria	Must not be detectable in any 100 ml sample	-	-	-	18	90.00

Contd...

Table B-18: Quality of 20 Sub Soil Water Samples of District Kasur For the Period of 20-05-02 to 29-05-02

S.No	Parameter	WHO Guideline	Maximum	Minimum	Average	Exceeding WHO Guideline	%age Exceeding
1	PH	-	8.86	6.98	7.885	-	-
2	Odour	Unobject-ionable	-	-	-	1	5.00
3	Colour (TCU)	15/Clear	-	-	-	2	10.00
4	Taste	Unobject-ionable	-	-	-	8	40.00
5	Conductivity (us/cm)	-	4780.00	438.00	1978.000	-	-
6	Turbidity (NTU)	5	0.00	0.00	0.000	0	0.00
7	TDS (mg/l)	1000	3200.00	260.00	1162.000	8	40.00
8	TSS (mg/l)	-	0.00	0.00	0.000	-	-
9	Calcium (mg/l)	-	112.00	12.00	42.000	-	-
10	Magnesium (mg/l)	-	118.00	2.00	24.400	-	-
11	Hardness (as CaCo3)(mg/l)	-	750.00	42.00	201.600	-	-
12	Chloride (mg/l)	250	710.00	20.00	212.200	7	35.00
13	Sulfate (mg/l)	250	690.00	40.00	279.750	9	45.00
14	Sulphide (mg/l)	-	<0.05	<0.05	<0.05	-	-
15	Total Iron (mg/l)	0.3	0.55	0.02	0.102	2	10.00
16	Nitrite (mg/l)	3	0.02	0.00	0.007	0	0.00
17	Nitrate (mg/l)	50	0.26	0.14	0.197	0	0.00
18	TOC (mg/l)	-	605.00	47.00	293.050	-	-
19	Fluoride (mg/l)	1.5	11.60	0.13	2.478	8	40.00
20	Cyanide (mg/l)	0.07	0.05	0.01	0.023	0	0.00
21	Arsenic (5samples) (mg/l)	0.01	0.00	0.00	0.000	0	0.00
22	Cadmium (ug/l)	3	4.20	0.00	0.745	2	10.00
23	Mercury (ug/l)	1	0.77	0.00	0.289	0	0.00
24	Lead (ug/l)	10	21.20	0.00	5.620	4	20.00
25	Boron (mg/l)	0.5	0.80	0.00	0.279	5	25.00
26	Chromium (mg/l)	0.05	<0.05	<0.05	<0.05	-	-
27	Nickel (mg/l)	0.02	0.01	0.00	0.003	0	0.00
28	Selenium (mg/l)	0.01	0.17	0.00	0.020	7	35.00
29	Zinc (mg/l)	3	0.11	0.02	0.064	0	0.00
30	Total Coliform Bacteria	Must not be detectable in any 100 ml sample	-	-	-	17	85.00

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Table B-18: Quality of 20 Sub Soil Water Samples of District Lahore For the Period of 21-05-02 to 31-05-02

S.No	Parameter	WHO Guideline	Maximum	Minimum	Average	Exceedin WHO Guideline	%age Exceeding
1	PH	-	8.02	7.22	7.738	-	-
2	Odour	Unobject-ionable	-	-	-	0	0.00
3	Colour (TCU)	15/Clear	-	-	-	0	0.00
4	Taste	Unobject-ionable	-	-	-	0	0.00
5	Conductivity (us/cm)	-	1650.00	280.00	637.500	-	-
6	Turbidity (NTU)	5	14.00	0.00	0.700	1	5.00
7	TDS (mg/l)	1000	880.00	180.00	421.000	0	0.00
8	TSS (mg/l)	-	20.00	0.00	1.000	-	-
9	Calcium (mg/l)	-	92.00	20.00	49.200	-	-
10	Magnesium (mg/l)	-	83.00	2.00	15.500	-	-
11	Hardness (as CaCo3)(mg/l)	-	480.00	100.00	188.500	-	-
12	Chloride (mg/l)	250	130.00	10.00	46.650	0	0.00
13	Sulfate (mg/l)	250	200.00	20.00	69.400	0	0.00
14	Sulphide (mg/l)	-	<0.05	<0.05	<0.05	-	-
15	Total Iron (mg/l)	0.3	0.04	0.01	0.022	0	0.00
16	Nitrite (mg/l)	3	0.02	0.00	0.004	0	0.00
17	Nitrate (mg/l)	50	1.11	0.71	0.933	0	0.00
18	TOC (mg/l)	-	601.00	80.00	285.950	-	-
19	Fluoride (mg/l)	1.5	8.19	0.09	0.766	2	10.00
20	Cyanide (mg/l)	0.07	0.03	0.01	0.014	0	0.00
21	Arsenic (5samples) (mg/l)	0.01	0.00	0.00	0.000	0	0.00
22	Cadmium (ug/l)	3	6.00	0.00	1.245	3	15.00
23	Mercury (ug/l)	1	0.95	0.00	0.312	0	0.00
24	Lead (ug/l)	10	13.70	0.20	3.935	2	10.00
25	Boron (mg/l)	0.5	0.96	0.00	0.353	3	15.00
26	Chromium (mg/l)	0.05	<0.05	<0.05	<0.05	-	-
27	Nickel (mg/l)	0.02	0.01	0.00	0.001	0	0.00
28	Selenium (mg/l)	0.01	0.03	0.00	0.003	2	10.00
29	Zinc (mg/l)	3	0.05	0.02	0.030	0	0.00
30	Total Coliform Bacteria	Must not be detectable in any 100 ml sample	-	-	-	15	75.00

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Table B-18: Quality of 20 Sub Soil Water Samples of District Multan For the Period of 22-05-02 to 30-06-02

S.No	Parameter	WHO Guideline	Maximum	Minimum	Average	Exceeding WHO Guideline	%age Exceeding
1	PH	-	7.80	6.89	7.322	-	-
2	Odour	Unobject-ionable	-	-	-	2	10.00
3	Colour (TCU)	15/Clear	-	-	-	4	20.00
4	Taste	Unobject-ionable	-	-	-	1	5.00
5	Conductivity (us/cm)	-	1720.00	420.00	932.000	-	-
6	Turbidity (NTU)	5	46.00	0.00	6.750	6	30.00
7	TDS (mg/l)	1000	1400.00	245.00	614.250	1	5.00
8	TSS (mg/l)	-	65.00	0.00	10.750	-	-
9	Calcium (mg/l)	-	132.00	16.00	69.500	-	-
10	Magnesium (mg/l)	-	68.00	3.00	28.200	-	-
11	Hardness (as CaCo3)(mg/l)	-	580.00	70.00	284.500	-	-
12	Chloride (mg/l)	250	295.00	25.00	77.750	1	5.00
13	Sulfate (mg/l)	250	450.00	25.00	154.700	1	5.00
14	Sulphide (mg/l)	-	<0.05	<0.05	<0.05	-	-
15	Total Iron (mg/l)	0.3	1.15	0.02	0.205	4	20.00
16	Nitrite (mg/l)	3	3.25	0.00	0.168	1	5.00
17	Nitrate (mg/l)	50	0.62	0.01	0.410	0	0.00
18	TOC (mg/l)	-	547.00	117.00	315.750	-	-
19	Fluoride (mg/l)	1.5	0.98	0.04	0.260	0	0.00
20	Cyanide (mg/l)	0.07	0.05	0.01	0.020	0	0.00
21	Arsenic (5samples) (mg/l)	0.01	0.05	0.00	0.010	1	20.00
22	Cadmium (ug/l)	3	5.50	0.00	1.085	4	20.00
23	Mercury (ug/l)	1	1.11	0.00	0.414	1	5.00
24	Lead (ug/l)	10	18.70	0.00	5.410	1	5.00
25	Boron (mg/l)	0.5	0.60	0.00	0.186	1	5.00
26	Chromium (mg/l)	0.05	<0.05	<0.05	<0.05	-	-
27	Nickel (mg/l)	0.02	0.01	0.00	0.002	0	0.00
28	Selenium (mg/l)	0.01	0.16	0.00	0.014	4	20.00
29	Zinc (mg/l)	3	0.35	0.02	0.281	0	0.00
30	Total Coliform Bacteria	Must not be detectable in any 100 ml sample	-	-	-	14	70.00

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Table B-18: Quality of 20 Sub Soil Water Samples of District Rawalpindi For the Period of 30-05-02 to 13-06-02

S.No	Parameter	WHO Guideline	Maximum	Minimum	Average	Exceeding WHO Guideline	%age Exceeding
1	PH	-	7.59	6.51	7.188	-	-
2	Odour	Unobject-ionable	-	-	-	0	0.00
3	Colour (TCU)	15/Clear	-	-	-	2	10.00
4	Taste	Unobject-ionable	-	-	-	0	0.00
5	Conductivity (us/cm)	-	1440.00	260.00	531.950	-	-
6	Turbidity (NTU)	5	100.00	0.00	6.200	2	10.00
7	TDS (mg/l)	1000	870.00	145.00	334.250	0	0.00
8	TSS (mg/l)	-	90.00	0.00	7.800	-	-
9	Calcium (mg/l)	-	100.00	20.00	40.950	-	-
10	Magnesium (mg/l)	-	113.00	5.00	29.950	-	-
11	Hardness (as CaCo3)(mg/l)	-	700.00	100.00	222.000	-	-
12	Chloride (mg/l)	250	95.00	15.00	41.000	0	0.00
13	Sulfate (mg/l)	250	235.00	20.00	60.750	0	0.00
14	Sulphide (mg/l)	-	<0.05	<0.05	<0.05	-	-
15	Total Iron (mg/l)	0.3	0.25	0.02	0.056	0	0.00
16	Nitrite (mg/l)	3	0.03	0.00	0.008	0	0.00
17	Nitrate (mg/l)	50	0.84	0.39	0.618	0	0.00
18	TOC (mg/l)	-	1342.00	122.00	324.050	-	-
19	Fluoride (mg/l)	1.5	0.44	0.07	0.245	0	0.00
20	Cyanide (mg/l)	0.07	0.05	0.01	0.027	0	0.00
21	Arsenic (5samples) (mg/l)	0.01	0.00	0.00	0.000	0	0.00
22	Cadmium (ug/l)	3	1.00	0.00	0.050	0	0.00
23	Mercury (ug/l)	1	1.00	0.00	0.316	0	0.00
24	Lead (ug/l)	10	21.00	0.00	5.495	2	10.00
25	Boron (mg/l)	0.5	0.42	0.00	0.127	0	0.00
26	Chromium (mg/l)	0.05	<0.05	<0.05	<0.05	-	-
27	Nickel (mg/l)	0.02	0.01	0.00	0.002	0	0.00
28	Selenium (mg/l)	0.01	0.85	0.00	0.049	5	0.25
29	Zinc (mg/l)	3	0.07	0.01	0.042	0	0.00
30	Total Coliform Bacteria	Must not be detectable in any 100 ml sample	-	-	-	14	70.00

Contd...

Table B-18: Quality of 20 Sub Soil Water Samples of District Sahiwal For the Period of 21-05-02 to 30-05-02

S.No	Parameter	WHO Guideline	Maximum	Minimum	Average	Exceeding WHO Guideline	%age Exceeding
1	PH	-	8.49	7.32	7.827	-	-
2	Odour	Unobject-ionable	-	-	-	1	5.00
3	Colour (TCU)	15/Clear	-	-	-	0	0.00
4	Taste	Unobject-ionable	-	-	-	6	30.00
5	Conductivity (us/cm)	-	3460.00	460.00	1642.500	-	-
6	Turbidity (NTU)	5	7.00	0.00	1.100	1	5.00
7	TDS (mg/l)	1000	2100.00	310.00	1028.250	8	40.00
8	TSS (mg/l)	-	12.00	0.00	2.200	-	-
9	Calcium (mg/l)	-	228.00	16.00	72.600	-	-
10	Magnesium (mg/l)	-	165.00	3.00	38.550	-	-
11	Hardness (as CaCo3)(mg/l)	-	1200.00	50.00	334.500	-	-
12	Chloride (mg/l)	250	265.00	20.00	116.400	1	5.00
13	Sulfate (mg/l)	250	664.00	78.00	316.350	8	40.00
14	Sulphide (mg/l)	-	<0.05	<0.05	<0.05	-	-
15	Total Iron (mg/l)	0.3	0.09	0.02	0.034	0	0.00
16	Nitrite (mg/l)	3	0.05	0.00	0.011	0	0.00
17	Nitrate (mg/l)	50	0.79	0.42	0.585	0	0.00
18	TOC (mg/l)	-	503.00	145.00	307.200	-	-
19	Fluoride (mg/l)	1.5	6.24	0.02	1.599	8	40.00
20	Cyanide (mg/l)	0.07	0.04	0.01	0.019	0	0.00
21	Arsenic (5samples) (mg/l)	0.01	0.00	0.00	0.000	0	0.00
22	Cadmium (ug/l)	3	5.80	0.00	1.660	1	5.00
23	Mercury (ug/l)	1	1.00	0.00	0.307	0	0.00
24	Lead (ug/l)	10	10.50	0.00	4.155	1	5.00
25	Boron (mg/l)	0.5	0.84	0.00	0.235	2	10.00
26	Chromium (mg/l)	0.05	<0.05	<0.05	<0.05	-	-
27	Nickel (mg/l)	0.02	0.01	0.00	0.004	0	0.00
28	Selenium (mg/l)	0.01	0.01	0.00	0.004	2	10.00
29	Zinc (mg/l)	3	0.05	0.01	0.029	0	0.00
30	Total Coliform Bacteria	Must not be detectable in any 100 ml sample	-	-	-	17	85.00

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Table B-18: Quality of 20 Sub Soil Water Samples of District Sargodha For the Period of 21-05-02 to 30-05-02

S.No	Parameter	WHO Guideline	Maximum	Minimum	Average	Exceeding WHO Guideline	%age Exceeding
1	PH	-	8.21	7.25	7.757	-	-
2	Odour	Unobject-ionable	-	-	-	1	5.00
3	Colour (TCU)	15/Clear	-	-	-	0	0.00
4	Taste	Unobject-ionable	-	-	-	8	40.00
5	Conductivity (us/cm)	-	6120.00	220.00	1894.000	-	-
6	Turbidity (NTU)	5	100.00	0.00	15490.350	1	5.00
7	TDS (mg/l)	1000	3200.00	140.00	935.650	9	45.00
8	TSS (mg/l)	-	80.00	0.00	8.800	-	-
9	Calcium (mg/l)	-	160.00	16.00	72.800	-	-
10	Magnesium (mg/l)	-	188.00	3.00	64.100	-	-
11	Hardness (as CaCo3)(mg/l)	-	1150.00	50.00	442.500	-	-
12	Chloride (mg/l)	250	1740.00	20.00	172.250	8	40.00
13	Sulfate (mg/l)	250	700.00	25.00	182.650	9	45.00
14	Sulphide (mg/l)	-	<0.05	<0.05	<0.05	-	-
15	Total Iron (mg/l)	0.3	0.05	0.02	0.188	0	0.00
16	Nitrite (mg/l)	3	0.01	0.00	0.007	0	0.00
17	Nitrate (mg/l)	50	1.06	0.62	20.274	0	0.00
18	TOC (mg/l)	-	652.00	94.00	275.500	-	-
19	Fluoride (mg/l)	1.5	5.00	0.06	0.392	5	25.00
20	Cyanide (mg/l)	0.07	0.05	0.01	0.024	0	0.00
21	Arsenic (5samples) (mg/l)	0.01	0.05	0.00	0.010	1	20.00
22	Cadmium (ug/l)	3	5.60	0.00	0.415	5	25.00
23	Mercury (ug/l)	1	2.00	0.00	0.349	1	5.00
24	Lead (ug/l)	10	12.00	0.00	6.800	2	10.00
25	Boron (mg/l)	0.5	0.94	0.00	0.271	8	40.00
26	Chromium (mg/l)	0.05	<0.05	<0.05	<0.05	-	-
27	Nickel (mg/l)	0.02	0.01	0.00	0.003	0	0.00
28	Selenium (mg/l)	0.01	0.24	0.00	0.009	8	40.00
29	Zinc (mg/l)	3	0.06	0.01	0.045	0	0.00
30	Total Coliform Bacteria	Must not be detectable in any 100 ml sample	-	-	-	9	45.00

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Table B-18: Quality of 20 Sub Soil Water Samples of District Sheikhpura For the Period of 20-05-02 to 30-05-02

S.No	Parameter	WHO Guideline	Maximum	Minimum	Average	Exceeding WHO Guideline	%age Exceeding
1	PH	-	8.11	7.15	7.716	-	-
2	Odour	Unobject-ionable	-	-	-	1	5.00
3	Colour (TCU)	15/Clear	-	-	-	0	0.00
4	Taste	Unobject-ionable	-	-	-	2	10.00
5	Conductivity (us/cm)	-	3960.00	320.00	1251.250	-	-
6	Turbidity (NTU)	5	33.00	0.00	5.200	4	20.00
7	TDS (mg/l)	1000	2600.00	280.00	935.650	2	10.00
8	TSS (mg/l)	-	35.00	0.00	8.800	-	-
9	Calcium (mg/l)	-	88.00	12.00	72.800	-	-
10	Magnesium (mg/l)	-	85.00	3.00	64.100	-	-
11	Hardness (as CaCo3)(mg/l)	-	450.00	50.00	442.500	-	-
12	Chloride (mg/l)	250	475.00	25.00	172.250	4	20.00
13	Sulfate (mg/l)	250	800.00	55.00	182.650	2	10.00
14	Sulphide (mg/l)	-	<0.05	<0.05	<0.05	-	-
15	Total Iron (mg/l)	0.3	0.07	0.02	0.188	0	0.00
16	Nitrite (mg/l)	3	0.34	0.00	0.007	0	0.00
17	Nitrate (mg/l)	50	0.05	0.01	20.274	0	0.00
18	TOC (mg/l)	-	605.00	119.00	275.500	-	-
19	Fluoride (mg/l)	1.5	4.92	0.08	0.392	3	15.00
20	Cyanide (mg/l)	0.07	0.04	0.01	0.024	0	0.00
21	Arsenic (5samples) (mg/l)	0.01	0.00	0.00	0.003	0	0.00
22	Cadmium (ug/l)	3	6.50	0.00	0.415	4	20.00
23	Mercury (ug/l)	1	1.33	0.00	0.349	2	10.00
24	Lead (ug/l)	10	4.30	0.10	6.800	0	0.00
25	Boron (mg/l)	0.5	1.00	0.00	0.271	8	40.00
26	Chromium (mg/l)	0.05	<0.05	<0.05	<0.05	-	-
27	Nickel (mg/l)	0.02	0.01	0.00	0.003	0	0.00
28	Selenium (mg/l)	0.01	0.04	0.00	0.009	9	45.00
29	Zinc (mg/l)	3	0.12	0.05	0.045	0	0.00
30	Total Coliform Bacteria	Must not be detectable in any 100 ml sample	-	-	-	15	75.00

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Table B-18: Quality of 20 Sub Soil Water Samples of District Sialkot For the Period of 22-05-02 to 06-06-02

S.No	Parameter	WHO Guideline	Maximum	Minimum	Average	Exceeding WHO Guideline	%age Exceeding
1	PH	-	7.95	6.88	7.287	-	-
2	Odour	Unobject-ionable	-	-	-	0	0.00
3	Colour (TCU)	15/Clear	-	-	-	1	5.00
4	Taste	Unobject-ionable	-	-	-	0	0.00
5	Conductivity (us/cm)	-	1090.00	280.00	655.000	-	-
6	Turbidity (NTU)	5	8.00	0.00	0.550	1	5.00
7	TDS (mg/l)	1000	850.00	200.00	447.000	0	0.00
8	TSS (mg/l)	-	15.00	0.00	1.350	-	-
9	Calcium (mg/l)	-	100.00	24.00	55.450	-	-
10	Magnesium (mg/l)	-	53.00	3.00	28.100	-	-
11	Hardness (as CaCo3)(mg/l)	-	420.00	90.00	250.000	-	-
12	Chloride (mg/l)	250	175.00	20.00	75.500	0	0.00
13	Sulfate (mg/l)	250	230.00	25.00	100.100	0	0.00
14	Sulphide (mg/l)	-	<0.05	<0.05	<0.05	-	-
15	Total Iron (mg/l)	0.3	0.39	0.02	0.057	1	5.00
16	Nitrite (mg/l)	3	0.01	0.00	0.005	0	0.00
17	Nitrate (mg/l)	50	0.62	0.39	0.517	0	0.00
18	TOC (mg/l)	-	572.00	94.00	315.550	-	-
19	Fluoride (mg/l)	1.5	2.22	0.10	0.430	2	10.00
20	Cyanide (mg/l)	0.07	0.04	0.00	0.013	0	0.00
21	Arsenic (5samples) (mg/l)	0.01	0.00	0.00	0.003	0	0.00
22	Cadmium (ug/l)	3	3.00	0.00	0.690	0	0.00
23	Mercury (ug/l)	1	1.36	0.00	0.219	1	5.00
24	Lead (ug/l)	10	17.60	0.40	6.340	4	20.00
25	Boron (mg/l)	0.5	0.84	0.00	0.231	2	10.00
26	Chromium (mg/l)	0.05	<0.05	<0.05	<0.05	-	-
27	Nickel (mg/l)	0.02	0.01	0.00	0.002	0	0.00
28	Selenium (mg/l)	0.01	0.02	0.00	0.002	1	5.00
29	Zinc (mg/l)	3	0.07	0.01	0.029	0	0.00
30	Total Coliform Bacteria	Must not be detectable in any 100 ml sample	-	-	-	6	30.00

Source:- Environment Protection Agency Laboratories, Govt. of Punjab, Lahore

Table B-19: WHO Installed the Water Delivery System By Province

PROVINCE	WATER DELIVERY SYSTEM 2001-02 PIHS					
	Piped Water	Hand Pump	Motor Pump	Open well	Closed Well	TOTAL
Punjab						
Local Government	96	0	2	2	13	20
Non-Government	2	8	4	51	7	7
Household it self	2	90	93	45	80	72
Don't know	0	1	1	2	0	1
Total	100	100	100	100	100	100
Sindh						
Local Government	96	1	4	7	0	33
Non-Government	2	24	23	78	100	22
Household it self	2	76	73	15	0	0
Don't know	0	0	0	0	0	0
Total	100	100	100	100	100	100
N.W.F.P						
Local Government	86	4	10	3	0	46
Non-Government	11	12	17	22	11	14
Household it self	4	84	73	74	84	39
Don't know	0	0	0	1	5	0
Total	100	100	100	100	100	100
Balochistan						
Local Government	93	15	1	2	0	36
Non-Government	2	17	66	30	31	25
Household it self	5	68	32	67	64	39
Don't know	0	0	1	1	5	1
Total	100	100	100	100	100	100
Pakistan						
Local Government	94	1	3	4	8	26
Non-Government	3	12	8	46	25	12
Household it self	3	86	88	49	65	61
Don't know	0	1	1	1	1	1
Total	100	100	100	100	100	100

Source:- PIHS, Federal Bureau of Statistics

- Notes:-**
1. Households having the type of water delivery system indicated, expressed as a percentage of the total number of house
 2. Local Government includes Public Health Engineering department ,LG&RDD Municipality/ District/ Municipality/ District/Union Council etc; "Non Govt" includes community NGO, private etc
 3. Categories: Tap water consist of both tap water inside and out side house "Hand pump/ M.pump" includes hand pump both inside and out side, motor pump and tube well outside the house ;"Dug well" includes well open and well closed both inside and out side the house; 'River/Cannal/Stream "includes cannal, river, spring, stream, pond and other includes public standpipe (supplied by tanker), water seller and other
 4. **Totals for columns may not add up to 100 because of rounding**

Table B-20: Extent of Water logging and Salinity

(000 Hectare)

Year/ Month	Province				
	Total	Balochistan	NWFP	Punjab	Sindh
0 to 5 Feet or 152 Cm Water Table Depth					
1995 June	2056	87	37	476	1456
1995 October	4986	137	63	903	3883
1996 June	1743	46	36	441	1220
1996 October	4992	138	63	1082	3709
1997 June	2874	154	31	525	2164
1997 October	5230	174	59	1280	3717
1998 June	2458	92	30	594	1742
1998 October	4944	175	62	911	3796
1999 June	2935	79	32	619	2205
1999 October	4430	175	57	402	3796
2000 June	544	0	32	228	284
2000 October	3215	95	51	280	2789
2001 June	174	-	15	114	45
2001 October	2854	95	20	211	2528
2002 June	1401	*	19	114	1268
2002 October	2472	399	25	184	1864
0 to 10 Feet or 305 Cm Water Table Depth					
1995 June	8212	210	200	2821	4981
1995 October	9244	260	215	3567	5202
1996 June	8430	198	194	2924	5114
1996 October	9554	230	214	3958	5152
1997 June	8404	249	193	3097	4865
1997 October	9780	249	213	4424	4894
1998 June	8561	221	182	3167	4991
1998 October	9121	241	203	3479	5198
1999 June	7968	206	184	2512	5066
1999 October	8388	241	206	2743	5198
2000 June	6536	95	183	1719	4539
2000 October	6778	95	203	1856	4624
2001 June	4079	*	136	1062	2881
2001 October	5939	95	152	1294	4398
2002 June	3629	*	150	878	2601
2002 October	5217	399	165	1186	3467

Source:- Scraps Monitoring, WAPDA, Lahore

* Not Observed

Table B-21: Summary of Different Types of Pollutants on the Coast of Pakistan

Area	Oil Sliks	Tar on Beaches	Tar Balls	Industrial Waste	Domestic Wastes	Heavy Metal Sediment	Thermal Pollution
Jiwani	++	-	++	-	-	-	-
Gwadar							
East Bay	++	+	++	-	+	-	-
West Bay	++	-	+++	-	-	-	-
Pasni	+	-	+++	-	+	-	-
Ormara	+	-	+	-	-	-	-
Sonmiani Bay	+	-	-	-	+	-	-
Gadani	++	++	++	+	+	++	+
Cape Monze	-	-	+	-	-	-	-
Paradise Point	-	-	++	+	+	-	++
Buleji	-	-	+	-	-	-	-
Hawksbay	-	-	++	-	+	-	-
Sandspit	-	-	++	-	+	-	-
Manora Island (Open Seaside)	-	-	+	+	+	+	-
Manora Channel	++++	+++	++	++++	++++	++++	+
Clifton	++	-	+	+	+	+	-
Korangji Creek	+	-	+	++	++	++	+
Port Qasim	++	+	+	++	+	+++	+++
Indus Delta	-	-	-	-	+	++	-

Source:- Environment and Urban Affairs Division Islamabad.

Note: - + Low ++ Medium
 +++ High ++++ Highest

Table B-22: Major Natural Disasters in Pakistan (Since 1991)

Year	Type of Disaster	Persons Died	Population Affected	Houses Destroyed/ Damaged	Cattle Head Lost
	1	2	3	4	5
1991	Earthquake (6.8 at Richter scale)	181	-	84,980	5,302
1992	Flood	1,332	7,625,354	954,420	161,687
1993	Flood	26	264,505	1,825	81
1994	Flood	489	1,023,714	592,320	26,490
1995	Flood	614	2,282,551	206,156	28,598
1996	Flood	281	1,442,361	75,013	12,068
1997	Earthquake (6.2 at Richter scale)	47	38,000	3,746	3,699
1997	Flood	502	2,133,404	163,800	10,060
1998	Flood	47	202,397	22,558	4,304
1999	Cyclone	191	597,482	138,429	28,096
2000	Drought	181	3,280,000	-	1,790,000
2001	Rains/Flood	217	250,000	3,210	1,165
2002	Earthquake (5.8 at richter scale)	29	30,000	2,730	1,505
2003	Flood	273	1,316,246	280,136	29,297
2004	Earthquake	19	-	8,584	83

Source:- Cabinet Division

Table B-23: Damages/Losses Caused by Major Earthquakes

Particulars	Statistical Information
Earthquake-1991	
Date of Occurrence	1st February, 1991
Area affected	Malakand and Hazara Division.
Number of Persons Killed	181
Number of Persons injured	741
Number of Persons permanently disabled	NA
Number of Houses demolished	5170
Number of Houses damaged	79810
Number of Cattle head lost	5302
Other damages	NA
Magnitude	6.8 at Richter Scale
Earthquake-1997	
Date of Occurrence	28th February, 1997
Area affected	Quetta & Sibi Division
Number of Persons Killed	47
Number of Persons injured	170
Number of Persons permanently disabled	NA
Number of Houses demolished	886
Number of Houses damaged	8235
Number of Cattle head lost	1799
Other damages	NA
Magnitude	6 at Richter Scale
Earthquake-2001	
Date of Occurrence	26th January, 2001
Area affected	Hyderabad, Badin, Thatta, Mirpurkhas & Tharpurker
Number of Persons Killed	12
Number of Persons injured	115
Number of Persons permanently disabled	NA
Number of Houses demolished	NA
Number of Houses damaged	449791
Number of Cattle head lost	NA
Other damages	NA
Magnitude	NA

Source:- Cabinet Division

NA = Not Available

This compendium was in final when the most catastrophic earthquake in the history of Pakistan rocked the northern NWFP and AJK on October 8th, 2005. The estimates of concomitant human and material is yet to be assessed.

Table B-24: Losses/Damages Due to Drought Occurred in May, 2000

Particulars	Balochistan	Sindh	NWFP	Punjab
Districts/Areas				
Total	26	21	24	35
Affected	23	5	5	9
Population				
Total	6.54Million	31Million	-	-
Affected	1.91Million(32%)	1.37	-	633379 Families
Dead	54	127	-	-
Livestock				
Total	26.04Million	23.8 Million	-	-
Affected	7.91 Million	5.6 Million	6.014 Million	1.59 Million
Perished	1.76 Million	0.03 Million	-	-
Crop Affected	1973169 Acres	1168374 Acres	4185501 Acres	7671200 Acres

Source:- Cabinet Division

Section C

Responses to Environmental Impacts

This Section presents a sort of empirical information regarding climate in Pakistan i.e temperature, rainfall, clouds, wind pressure and related phenomena.

C-I Climate

The major area of the country is dominated by dry climate and small areas in south experience tropical climate. The following factors characterize the climate of Pakistan:-

1. The subtropical location of Pakistan extends approximately from $23\frac{1}{2}^{\circ}$ N to 37° N latitudes. This tends to keep the temperature high, particularly in summer.
2. The oceanic influence of the Arabian Sea keeps down the temperature contrast between summer and winter at the coasts.
3. The continental effect emphasise the differences in temperature between summer and winter in the interior of the country.
4. The higher altitudes in the west and north keep down the temperature throughout the year. In the extreme north because of great heights, the mountain tops record freezing temperature all the year round. The hills and mountains also attract more rain than the plains do.
5. The monsoon winds which come in July and continue to blow upto September bring rainfall. Pakistan receives only the tail-end of the monsoons, therefore the monsoon season is neither as prolonged nor as wet as that in India.
6. The Western Depressions originating from the Mediterranean region and entering Pakistan from the west bring rainfall alongwith cyclones in winter. These cyclones make a long land journey before coming to Pakistan and are thus robbed of most of their moisture by the time they reach Pakistan.
7. Thunderstorms cause some amount of rainfall particularly in the north.
8. A temperature inversion layer at a low elevation of approximately 1,500 meters (5,000 feet) in the southern part of Pakistan during the summer season does not allow the moisture-laden air to rise and condensation to take place. (Khan, 1991).

C-II Temperature

Pakistan has all the four seasons and the temperature varies from one season to another as well as from region to region. The temperature variation can be arranged in the following categories:

Hot:	32° C or more	(90° F or more)
Warm:	21° C to 32° C	(70° F to 89° F)
Mild:	10° C to 21° C	(50° F to 69° F)
Cold:	0° C to 10° C	(32° F to 49° F)
Cold below:	0° C	(32° F)

The country can be divided into the following temperature zones:-

1. Hot summer and mild winter: The temperature of the hottest month 32° C or more and winter

temperature between 10⁰ C to 21⁰ C.

2. Warmer summer and mild winter: Summer temperature between 21⁰ C and 32⁰ C, and winter temperature between 10⁰ C and 21⁰ C.
3. Warm summer and cool winter: Summer between 21⁰ C and 32⁰ C and coolest month temperature between 0⁰ C and 10⁰ C.
4. Mild summer and cool/cold winter: Summer temperature between 10⁰ C and 21⁰ C and the coolest month (January) temperature less than 0⁰ C in some areas and between 0⁰ C and 10⁰ C in other areas.

In Pakistan, May and June are the hottest months in summer season. Jacobabad and Nawab Shah experience the hottest season in the country during May and June (Table C-06). The monthly average normal temperature rises to 43.5⁰ C and 43.1⁰ C in Nawab Shah and Jacobabad respectively in May whereas, it 43.2⁰ C and 44.3⁰ C in Nawab Shah and Jacobabad in June. However, a highest maximum temperature of 52.8⁰ C was recorded at Jacobabad in June 1919. (Statistical Year Book of Pakistan,1995 pp 670)

Similarly December and January are the coldest months of the winter season. Table C-06 indicates that Quetta (Samungli) experiences the coldest season among the selected centres in the country during the months of December and January. The monthly average (Mean of minimum) Normal Temperature of Quetta falls to -3.4⁰ C in January. However, a lowest minimum temperature of -21.7⁰ C was recorded at Kalat in February, 1930. (Statistical Year Book of Pakistan,1995 pp 670)

The data on temperature at selected centres for various cities indicates that there is no significant change in the last 18 years in the country. A slight fluctuation of temperature is observed in the country from one year to another as depicted by Table C-02.

C-III Rain Fall

The major part of Pakistan experiences dry climate. Humid conditions prevail in a small area in the north. The whole of Sindh, most part of Balochistan and major part of Punjab, south of Sahiwal and the central part of northern areas receive less than 250 mm/10 inches of rainfall in a year. Three large areas i.e. i) Northern Sindh and Southern Punjab ii) North Western Balochistan and iii) the central part of the Northern areas have to contend with an annual rainfall of less than 125 mm. On the North of Sahiwal the rain fall steadily increases and aridity starts to diminish. However, the true humid condition appear after rain fall increase to 750 mm/30 inches on the plains and 625 mm/25 inches on the highlands.

There are two sources of rainfall in Pakistan, the Monsoons and the Western Depressions. The monsoons rainfall takes place from July to September. The Western Depressions bring rainfall primarily from December to March. In the intervening periods October-November and April-June a small quantity of rainfall comes form thunderstorms (Kureshi,1991).

A highest maximum rainfall i.e. 1698 mm was recorded at Rawalpindi during the year 1994 (Table C-03). The analysis of data in respect of monthly normal rainfall of some selected cities indicate that Rawalpindi /Islamabad receives maximum rainfall (309.9 mm) among 18 selected cities in the month of August during the monsoon season. Similarly in winter, Rawalpindi/Islamabad receives highest normal rain in the month of December i.e. 37.3 mm among these cities (Table C-08).

C-IV Pressure and Winds

In summer, the land becomes heated and a low pressure area is created in south-western Pakistan. In the month of July, atmospheric pressure is lowest in the vicinity of Multan and rises north-ward and southward. This low pressure area attracts winds from the Indian Ocean. Some cyclonic storms migrate to this low area all the way across northern Indian ocean from the Bay of Bengal, although their moisture content decreases as they move westward, it is these storms which bring most of Pakistan's rainfall. Winds sucked in from the Arabian Sea bring less moisture because these air streams have originated over Arabia, and have lower moisture content. Nevertheless, they do produce some rain in the western mountains.

In winter, the temperatures over the land are relatively low, and high pressure areas are established particularly in the month of December and January. The pressure generally decreases from north to south. Thus, while the prevailing direction of the winter monsoons over the sub-continent as a whole is north-east to south-west, over Pakistan it is almost from north to south. Since these winds blow from the land towards the sea, they are generally dry. (Kureshi, 1991).

An analysis of tables C-04, C-05, C-09, C-10 and C-11 in respect of Air, Vapour and Normal Pressures as well as the wind velocity is summarized below:-

- A lowest air pressure (825.8 mbs) at mean station level was recorded in 2000 at Parachinar, which is the lowest air pressure among 15 selected centres (Table C-04).
- A highest air pressure (1007.8 mbs) at mean station level was recorded in 1997 at Chhor, which is the highest air pressure among 15 selected centres (Table C-04).
- A lowest vapour pressure (5.8 mbs) was recorded in 1989 at Dalbadin, which is the lowest vapour pressure among 15 selected centres (Table C-05).
- A highest vapour pressure (25.4 mbs) was recorded in 1988 at Jiwani, which is the highest vapour pressure among 15 selected centres (Table C-05).
- A lowest normal pressure (831.2 mbs) at station level (12) was recorded during the month of July at Quetta (Samungli), which is the lowest normal pressure (Table C-09).
- A highest normal pressure (1015.0 mbs) at station level (03) was recorded during the month of December at Karachi (Airport), which is the highest normal pressure (Table C-09).
- A maximum normal of wind speed (50 KTS) was recorded at Quetta Samungli during the month of July. (Table C-11).

**Table C-01: Sunshine Hours at Selected Centres
(Percentage of long term average)**

Year	Karachi (Airport) (22)	Lahore (214)	Peshawar (359)	Quetta (1589)	Jacobabad (56)
1986	64.7	70.5	66.8	...	70.8
1987	66.6	68.5	...	79.0	...
1988	61.9	67.8	61.3	81.3	...
1989	62.8	69.3	62.3	71.3	...
1990	62.2	67.4	...	71.8	...
1991	...	67.6	59.7	...	...
1992	...	...	...	...	...
1993	...	...	...	...	...
1994	...	...	...	...	72.3
1995	61.0	...	...	...	73.9
1996	...	...	...	...	...
1997	58.0	...	...	...	...
1998	66.1	65.5	66.9	...	...
1999	64.8	67.6	63.0	74.6	76.8
2000	64.2	65.6	61.2	77.2	76.1
2001	66.1	67.1	65.4	75.2	67.5
2002	...	66.8	61.1	72.8	61.8

Source:- Pakistan Meteorological Department.

Note:- Figures in parenthesis indicate the heights above sea level in meters.

**Table C-02: Temperature at Selected Centres
(Mean of Maximum)**

(Centigrade)

Year/ Station	Karachi (Airport) (21)	Nawab- Shah (37)	Hyde- rabad (40)	Jacob- abad (55)	Lahore (213)	Multan (122)	Rawal- pindi (507)	Jhelum (232)	Sarg- odha (187)
1986	31.8	35.5	34.5	33.4	30.7	32.1	28.1	29.6	30.8
1987	32.6	36.6	35.9	34.7	31.9	33.0	29.7	30.9	32.2
1988	32.9	36.0	35.6	35.0	31.9	33.4	29.5	31.4	31.9
1989	32.0	34.8	33.4	33.6	31.1	32.1	28.8	30.7	31.2
1990	31.8	35.2	33.5	34.5	30.6	32.5	28.4	30.4	31.2
1991	32.1	35.1	33.7	34.4	30.5	32.0	27.6	29.9	30.9
1992	31.8	34.7	33.4	34.1	30.7	31.6	27.6	29.5	...
1993	33.1	36.1	34.5	35.1	31.6	32.9	29.1	31.2	31.9
1994	32.4	35.0	33.5	33.8	30.9	32.2	28.2	30.5	31.1
1995	32.4	35.2	33.8	33.7	30.0	32.2	28.2	30.0	31.2
1996	32.0	35.6	33.8	34.1	30.4	32.6	28.8	30.1	31.0
1997	31.3	34.4	32.8	32.6	28.6	30.9	27.1	28.8	29.5
1998	32.7	36.0	34.2	34.5	30.6	32.7	28.9	30.6	31.6
1999	32.3	36.0	33.3	34.6	31.2	33.2	29.8	31.4	32.8
2000	32.3	36.7	34.4	35.2	30.9	33.3	29.8	31.2	32.2
2001	32.6	36.8	34.6	35.1	30.7	32.8	30.2	31.6	31.6
2002	32.2	37.4	35.0	35.2	31.1	33.5	31.1	31.8	32.3

Contd...

**Table C-02 Temperature at Selected Centres
(Mean of Maximum)**

(Centigrade)

Year/ Station	Faisal- Abad (183)	Baha- Walpur (116)	Peshawar (359)	D.I.Khan (173)	Quetta (1600)	Zhob (Fort Sandeman) (1405)	Dalban- Din (848)	Khuzdar (1231)	Panjgur (980)
1986	30.3	32.2	29.4	31.0	24.0	25.4	31.1	28.5	29.3
1987	31.5	33.1	30.5	32.2	25.7	27.1	32.2	29.9	30.5
1988	31.8	...	30.4	32.5	26.0	26.7	32.8	29.6	30.4
1989	30.7	32.1	29.7	31.2	24.0	25.1	31.3	27.7	29.5
1990	30.9	32.7	29.8	31.5	25.1	...	32.0	29.4	...
1991	30.5	32.6	29.0	31.0	24.1	25.6	31.1	29.0	29.6
1992	30.3	32.1	29.0	30.5	24.1	25.6	31.0	28.2	29.1
1993	31.5	33.7	30.5	32.1	25.1	...	31.9	29.8	30.5
1994	31.1	32.7	29.4	31.2	24.7	...	31.8	28.2	29.9
1995	31.0	32.5	29.9	31.3	24.4	27.0	31.3	28.1	29.5
1996	30.9	32.8	30.4	31.9	24.8	28.2	31.1	29.1	29.7
1997	29.3	31.6	28.8	30.3	24.1	26.7	31.0	27.8	29.0
1998	31.1	33.1	30.1	32.0	26.0	...	32.7	29.8	30.6
1999	31.9	33.7	31.2	32.3	25.8	...	32.3	30.1	30.8
2000	31.9	33.7	29.1	32.5	26.2	27.9	32.9	...	31.3
2001	31.3	33.7	30.2	32.2	26.4	28.0	33.8	...	30.1
2002	32.0	34.5	29.6	32.7	25.9	27.6	33.4	30.1	31.3

Contd...

**Table C-02: Temperature at Selected Centres
(Mean of Minimum)**

(Centigrade)

Year/ Station	Karachi (Airport) (21)	Nawab- Shah (37)	Hyde- rabad (40)	Jacob- Abad (55)	Lahore (213)	Multan (122)	Rawal- Pindi (507)	Jhelum (232)	Sarg- Odha (187)
1986	19.8	17.2	20.9	19.3	17.7	17.6	13.7	16.1	16.5
1987	20.4	17.8	21.6	19.5	18.4	18.3	14.2	16.5	17.6
1988	21.4	...	22.1	20.2	18.9	18.9	14.9	17.3	18.2
1989	20.2	...	20.6	19.3	17.7	17.4	14.2	16.2	16.9
1990	19.9	18.8	21.2	19.9	18.4	19.0	15.1	17.2	18.0
1991	20.2	17.6	20.8	19.4	17.7	18.2	14.2	16.4	17.5
1992	20.8	18.2	20.9	20.1	18.5	18.1	14.6	16.6	...
1993	21.4	18.5	20.6	20.0	18.8	18.5	14.4	16.5	17.6
1994	19.9	18.2	20.8	20.4	18.9	18.3	14.7	17.1	17.7
1995	20.9	18.2	21.0	20.6	18.7	18.0	14.2	16.6	17.4
1996	20.6	17.4	21.3	19.5	18.5	17.8	13.8	16.7	17.4
1997	21.1	...	20.9	19.9	18.6	17.8	14.3	16.7	17.3
1998	21.9	18.4	21.7	20.5	19.3	18.6	14.8	17.1	17.7
1999	21.9	18.0	21.6	20.5	19.7	18.9	15.5	17.8	18.4
2000	21.9	17.9	21.1	19.9	19.4	18.6	15.5	17.4	18.1
2001	22.2	18.6	20.8	20.2	19.5	18.8	15.4	16.9	18.0
2002	21.4	18.7	21.1	20.6	20.1	19.0	15.5	17.8	18.1

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**Table C-02: Temperature at Selected Centres
(Mean of Minimum)**

(Centigrade)

Year/ Station	Faisal- Abad (183)	Baha- Walpur (116)	Peshawar (359)	D.I.Khan (173)	Quetta (1600)	Zhob (Fort Sandeman) (1405)	Dalban- Din (848)	Khuzdar (1231)	Panjgur (980)
1986	16.5	17.5	15.5	15.7	7.4	10.8	14.1	14.1	14.0
1987	17.0	18.4	15.8	17.2	7.7	11.9	14.4	15.1	14.5
1988	17.5	...	16.6	17.8	9.2	13.0	15.3	15.5	15.0
1989	16.5	17.7	15.5	16.7	7.7	9.2	13.9	14.4	13.8
1990	17.4	18.8	16.5	18.0	8.9	...	15.1	15.7	...
1991	17.0	18.2	15.4	17.4	8.6	12.6	14.4	15.5	14.7
1992	17.0	...	15.6	...	8.1	11.2	12.9	14.5	15.3
1993	17.2	18.0	15.7	17.2	8.1	...	13.9	15.6	15.6
1994	17.3	17.6	15.5	17.3	8.7	...	14.7	14.8	15.6
1995	16.8	17.4	15.0	17.1	8.1	11.6	...	12.7	15.6
1996	16.6	16.8	15.7	16.6	7.4	10.6	...	13.8	14.7
1997	16.6	17.7	15.5	15.6	8.7	11.0	14.3	10.7	14.4
1998	17.3	18.2	15.9	16.0	8.4	13.2	15.6	...	15.4
1999	18.0	18.0	16.8	18.0	9.4	13.7	15.4	...	15.6
2000	17.6	18.7	17.1	18.1	8.3	13.4	12.4	16.0	15.7
2001	17.9	18.0	17.3	18.3	9.7	12.8	...	15.9	15.9
2002	18.2	19.0	17.5	17.2	9.1	...	...	16.1	15.8

Source:- Pakistan Meteorological Department

Note:- Figures in parenthesis indicate the heights above sea level in meters.

Table C-03: Rainfall at Selected Centres

(Millimeter)

Year/ Station	Karachi (Airport) (21)	Nawab- Shah (37)	Hyde- Rabid (40)	Jacob- Abad (55)	Lahore (213)	Multan (122)	Rawal- Pindi (507)	Jhelum (232)	Sarg- Odha (187)
1986	92	149	178	84	612	219	937	932	326
1987	0	...	16	38	491	108	796	653	305
1988	160	...	265	335	815	125	1,269	994	398
1989	185	131	201	188	616	217	1,044	668	547
1990	137	175	171	116	955	171	1,530	1,192	402
1991	25	53	9	21	520	130	1,194	986	382
1992	273	393	427	251	629	513	1,262	1,134	...
1993	36	50	61	38	375	301	830	762	303
1994	482	552	487	366	542	303	1,698	1,000	360
1995	260	213	96	95	826	265	1,615	1,158	319
1996	99	5	16	96	1,189	212	1,376	989	447
1997	150	107	57	272	1,233	264	1,414	1,336	629
1998	82	61	49	39	493	136	1,412	961	411
1999	15	21	79	89	474	177	1,012	628	373
2000	47	46	55	19	557	83	999	840	452
2001	100	57	171	18	536	298	1178	747	612
2002	56	4	9	17	334	101	931	533	530

Contd...

Table C-03: Rainfall at Selected Centres

Year Station	(Millimeter)								
	Faisal- Abad (1 83)	Baha- Walpur (116)	Pesha- War (369)	D.I.Khan (173)	Quetta (1600)	Zhob(Fort Sandeman) (1405)	Dalban- Din (848)	Khuzdar (1231)	Panjgur (980)
1986	344	207	416	335	244	179	61	239	116
1987	363	107	343	159	156	264	106	...	80
1988	328	132	367	190	259	287	35	324	147
1989	291	296	252	329	243	327	58	320	23
1990	424	108	454	344	313	460	159	206	...
1991	261	56	384	287	429	468	119	230	79
1992	371	...	580	...	410	358	104	445	137
1993	271	137	466	249	233	217	70	159	28
1994	191	246	642	437	305	392	88	595	102
1995	172	203	618	412	334	279	154	578	112
1996	346	97	667	230	134	330	123	262	83
1997	807	304	474	278	309	495	121	357	304
1998	332	159	573	253	187	253	75	221	82
1999	188	121	418	182	106	200	75	170	64
2000	212	79	40	256	165	163	4	133	22
2001	372	182	263	327	94	118	32	165	34
2002	274	42	388	148	179	277	7	52	43

Source:- Pakistan Meteorological Department

Note:- Figures in parenthesis indicate the heights above sea level in meters.

Table C-04: Air Pressure at Selected Centres

(mbs)

Year Station	Karachi (Airport)		Hyderabad		Jacobabad	
	Mean Station Level Pressure	Mean Sea Level Pressure	Mean Station Level Pressure	Mean Sea Level Pressure	Mean Station Level Pressure	Mean Sea Level Pressure
1986	1,006.1	1,008.8	1,005.5	1,007.7	1,000.6	1,006.9
1987	1,006.6	1,009.2	1,004.6	1,008.1	1,000.9	1,007.2
1988	1,005.0	1,007.7	1,003.3	1,006.7	999.5	1,005.8
1989	1,006.1	1,008.4	1,002.7	1,007.5	1,000.6	1,007.1
1990	1,005.5	1,008.1	1,002.1	1,006.9	1,000.0	1,006.4
1991	1,006.0	1,008.6	1,002.7	1,005.9	1,000.8	1,007.1
1992	1,006.6	1,009.3	1,003.1	1,008.1	1,001.5	1,007.2
1993	1,006.2	1,008.7	1,002.1	1,007.4	1,001.1	1,007.0
1994	1,005.7	1,008.3	1,002.5	1,007.4	1,001.1	1,007.0
1995	1,006.0	1,008.6	1,002.4	1,007.3	1,000.8	1,007.1
1996	1,005.7	1,008.6	1,002.1	1,007.0	1,000.4	1,006.7
1997	1,006.7	1,009.4	1,003.1	1,008.0	1,001.6	1,008.0
1998	1,006.0	1,008.6	1,002.1	1,007.0	1,000.9	1,007.3
1999	1,005.6	1,008.0	1,001.5	1,006.3	999.9	1,006.2
2000	1,005.0	1,007.7	1,001.3	1,006.2	999.4	1,005.7
2001	1,005.4	1,007.7	1,001.8	1,006.7	999.7	1,006.4
2002	1,006.0	1,008.7	1,002.2	1,007.1	1,000.4	1,006.7

Contd...

Table C-04: Air Pressure at Selected Centres

(mbs)

Year Station	Dalbadin		Jiwani		Panjgur	
	Mean Station Level Pressure	Mean Sea Level Pressure	Mean Station Level Pressure	Mean Sea Level Pressure	Mean Station Level Pressure	Mean Sea Level Pressure
1986	915.0	1,480.0	1,002.3	1,008.7	901.5	1,485.4
1987	915.8	1,492.1	1,002.8	1,009.3	-	-
1988	914.4	1,480.2	1,001.5	1,007.8	901.1	1,485.0
1989	915.2	1,484.6	1,002.4	1,008.8	901.9	1,489.7
1990	915.0	1,485.6	1,001.7	1,008.1	-	-
1991	915.3	1,507.1	-	-	902.1	1,491.8
1992	915.5	1,487.4	1,002.7	1,009.1	902.4	1,494.3
1993	915.9	1,493.5	1,002.3	1,008.7	902.8	1,498.4
1994	914.8	1,483.2	1,001.8	1,008.1	902.3	1,494.9
1995	915.0	1,485.2	1,002.0	1,008.4	902.7	1,497.4
1996	915.4	1,485.7	1,001.9	1,008.4	902.9	1,499.7
1997	915.0	1,482.3	1,002.6	1,008.9	902.7	1,496.9
1998	915.4	1,492.7	1,002.0	1,008.3	903.0	1,501.9
1999	914.6	1,486.3	1,001.4	1,007.8	900.3	1,477.9
2000	914.2	1,477.7	1,000.9	1,007.3	899.9	1,472.8
2001	914.6	1,484.0	1,001.3	1,007.8	898.4	1,477.7
2002	915.1	1,486.9	1,002.0	1,008.4	900.7	1,479.7

Contd...

Table C-04: Air Pressure at Selected Centres

(mbs)

Year Station	Peshawar		Parachinar		Jhelum	
	Mean Station Level Pressure	Mean Sea Level Pressure	Mean Station Level Pressure	Mean Sea Level Pressure	Mean Station Level Pressure	Mean Sea Level Pressure
1986	967.3	1,007.8	825.9	1,480.0	981.4	1,008.0
1987	967.7	1,008.2	827.5	1,490.8	981.7	1,008.2
1988	966.5	1,006.8	826.0	1,479.3	980.4	1,006.9
1989	967.2	1,007.6	826.4	1,485.4	981.0	1,007.6
1990	966.8	1,007.1	827.1	1,492.0	980.7	1,007.2
1991	967.6	1,008.1	826.7	1,483.9	981.2	1,007.8
1992	968.0	1,008.5	826.1	1,482.1	981.6	1,008.3
1993	967.4	1,007.9	826.1	1,481.2	980.9	1,007.4
1994	967.5	1,008.0	826.4	1,484.4	980.8	1,007.3
1995	967.5	1,008.1	826.4	1,485.1	976.8	1,007.5
1996	966.9	1,007.4	826.2	1,482.6	980.6	1,007.2
1997	967.9	1,008.5	826.7	1,488.9	981.9	1,008.5
1998	967.9	1,008.0	827.1	1,491.2	981.2	1,007.3
1999	966.4	1,006.6	826.0	1,481.6	979.8	1,006.2
2000	965.9	1,006.2	825.8	1,477.4	979.6	1,006.0
2001	966.4	1,006.7	826.5	1,483.9	980.4	1,006.9
2002	966.9	1,007.3	826.9	1,488.5	980.6	1,007.1

Contd...

Table C-04: Air Pressure at Selected Centres

(mbs)

Year Station	D.I.Khan		Lahore		Quetta	
	Mean Station Level Pressure	Mean Sea Level Pressure	Mean Station Level Pressure	Mean Sea Level Pressure	Mean Station Level Pressure	Mean Sea Level Pressure
1986	987.6	1,007.1	983.4	1,007.8	838.0	1,466.8
1987	988.0	1,007.5	983.8	1,007.9	840.8	1,495.0
1988	986.7	1,006.2	982.5	1,006.7	840.0	1,487.2
1989	987.6	1,007.2	983.2	1,007.5	839.8	1,485.5
1990	987.1	1,006.7	982.9	1,007.1	839.6	1,482.0
1991	987.7	1,007.3	983.5	1,007.8	840.2	1,488.1
1992	988.3	1,007.8	984.0	1,008.3	840.5	1,492.1
1993	987.5	1,007.0	983.3	1,007.6	840.2	1,488.2
1994	987.6	1,007.2	983.3	1,007.6	838.4	1,469.8
1995	987.8	1,007.4	984.2	1,007.6	838.7	1,471.6
1996	987.4	1,006.9	982.9	1,007.1	838.6	1,474.5
1997	988.7	1,008.3	984.1	1,008.5	838.5	1,472.3
1998	987.8	1,007.4	983.2	1,007.6	839.0	1,477.0
1999	986.6	1,006.1	982.1	1,006.4	838.4	1,469.6
2000	986.4	1,005.8	981.8	1,006.0	838.0	1,465.5
2001	987.1	1,006.6	982.6	1,006.8	838.5	1,470.6
2002	987.4	1,006.9	982.8	1,007.0	838.7	1,473.6

Contd...

Table C-04: Air Pressure at Selected Centres

(mbs)

Year Station	Chhor		Zhob		Multan	
	Mean Station Level Pressure	Mean Sea Level Pressure	Mean Station Level Pressure	Mean Sea Level Pressure	Mean Station Level Pressure	Mean Sea Level Pressure
1986	1,006.5	1,007.1	855.7	1,465.7	993.6	1,007.7
1987	1,007.0	1,007.7	856.6	1,474.9	993.9	1,007.9
1988	1,005.6	1,006.4	855.3	1,455.1	992.5	1,006.5
1989	1,006.7	1,007.2	856.1	1,462.8	993.4	1,007.5
1990	1,006.5	1,007.1	855.2	1,462.2	992.9	1,006.9
1991	1,007.0	1,007.6	856.9	1,466.8	993.5	1,007.6
1992	1,007.3	1,008.0	856.5	1,471.3	994.3	1,008.4
1993	1,006.9	1,007.6	856.3	1,468.6	993.6	1,007.7
1994	1,006.8	1,007.4	856.2	1,466.5	993.7	1,007.9
1995	1,007.0	1,007.7	856.1	1,464.3	993.7	1,007.8
1996	1,006.7	1,007.4	855.8	1,460.8	993.3	1,007.4
1997	1,007.8	1,008.5	856.3	1,467.3	995.6	1,008.7
1998	1,006.7	1,007.3	856.5	1,468.8	993.8	1,007.8
1999	1,005.8	1,006.4	855.6	1,459.2	992.5	1,006.5
2000	1,005.6	1,006.3	854.6	1,454.6	992.1	1,006.0
2001	1,006.2	1,006.8	855.6	1,460.8	992.9	1,006.9
2002	1,006.7	1,007.3	856.0	1,461.0	993.2	1,007.2

Source:- Pakistan Meteorological Department.

Note:- Figures in parenthesis indicate the heights above sea level in meters.

Table C-05: Vapour Pressure at Selected Centers

(mbs)

Year/Station	Peshawar (359)	Parachinar (1725)	Jhelum (234)	Zhob (1407)	D.I.Khan (174)	Lahore (214)	Quetta (1589)	Multan (123)
1986	15.7	9.1	18.0	8.0	17.6	18.1	7.6	17.8
1987	15.2	8.7	17.6	8.2	17.3	18.2	7.3	18.2
1988	16.3	9.0	18.0	9.1	18.1	18.7	9.2	18.7
1989	14.6	7.9	16.7	7.0	16.6	17.6	8.3	17.4
1990	17.1	9.5	18.6	8.8	18.6	19.2	8.4	18.9
1991	16.0	9.2	17.9	10.5	18.1	18.4	8.6	18.2
1992	16.2	9.0	...	10.6	18.5	18.6	8.7	19.0
1993	15.9	9.0	17.6	...	17.9	18.4	7.8	18.8
1994	16.8	10.1	17.7	11.0	18.4	18.5	9.6	19.2
1995	16.1	9.3	17.5	10.6	18.1	18.8	9.7	18.9
1996	16.4	9.3	17.7	10.5	17.9	18.5	9.1	18.4
1997	16.9	10.1	18.2	11.6	18.6	18.8	9.6	18.9
1998	17.3	9.6	18.7	-	18.4	19.5	8.7	19.3
1999	16.9	9.7	17.9	10.1	18.5	18.9	7.9	19.0
2000	16.5	9.8	18.2	10.0	18.8	18.8	6.7	18.3
2001	16.5	9.9	18.0	10.3	19.5	19.6	7.8	19.6
2002	16.2	9.3	17.4	9.7	18.7	18.7	7.7	18.4

Contd...

Table C-05: Vapour Pressure at Selected Centers

(mbs)

Year/Station	Dalbadin (850)	Jacobabad (56)	Panjgur (981)	Jiwani (56)	Hyderabad (30)	Chhor (6)	Karachi (Airport) (22)
1986	7	17.7	13.3	22.7	19.7	17.9	21.0
1987	7.4	18.4	14.1	23.5	20.5	18.4	21.7
1988	6.4	18.6	12.4	25.4	21.5	20.1	22.1
1989	5.8	17.8	10.8	23.1	19.3	18.9	21.7
1990	8.3	20.2	...	23.2	21.0	20.7	22.7
1991	8.0	17.6	12.2	...	19.6	18.8	20.9
1992	7.7	18.8	13.4	23.5	20.1	19.7	22.1
1993	7.9	19.4	12.0	22.6	20.8	19.4	21.5
1994	9.9	20.1	13.3	24.0	21.3	19.6	22.1
1995	7.0	20.2	12.9	23.1	21.1	19.5	21.7
1996	7.0	18.3	11.8	22.5	19.5	19.0	21.1
1997	8.0	19.2	13.0	23.5	20.7	19.5	21.7
1998	8.4	20.0	12.1	24.2	20.8	20.5	22.5
1999	7.6	19.7	11.3	23.4	20.6	20.7	22.1
2000	6.6	19.5	11.9	23.7	20.0	20.0	22.1
2001	6.5	20.8	11.2	24.0	19.9	19.8	22.2
2002	6.4	19.5	11.2	23.3	20.0	19.4	21.9

Source:- Meteorological Department**Note:-** Figures in parenthesis indicate the heights above sea level in meters.

Table C-06: Monthly Average Normal Temperature at Selected Centres, 1961-90

(Degrees in Centigrade)

Month/Station	Karachi (21)	Nawab Shah (37)	Hyder- Abad (40)	Jacob- Abad (55)	Lahore (213)	Multan (122)	Islama- Bad (507)	Jhelum (232)	Sargo- Dha (187)
Mean of Maximum									
January	25.8	24.3	25.0	22.6	19.3	21.0	17.7	19.7	20.2
February	27.7	27.1	28.1	25.2	21.7	23.2	19.1	21.6	22.4
March	31.5	33.3	33.9	31.3	26.7	28.5	23.9	26.6	27.4
April	34.3	39.3	38.9	38.0	33.5	35.5	30.1	33.0	33.9
May	35.2	43.5	41.6	43.1	38.3	40.4	35.3	38.1	39.0
June	34.8	43.2	40.2	44.3	40.1	42.3	38.7	40.5	41.7
July	33.1	40.4	37.4	40.6	35.7	39.2	35.0	35.9	37.8
August	31.7	38.6	36.3	38.2	34.5	38.0	33.4	34.4	36.3
September	32.6	38.4	36.8	37.0	34.6	37.2	33.5	35.0	36.3
October	34.7	37.1	37.2	35.3	32.3	34.6	30.9	33.1	33.6
November	31.9	31.6	31.9	30.1	26.8	28.5	25.4	27.6	27.8
December	27.4	25.5	26.3	24.1	21.0	22.7	19.7	21.5	22.0
Mean of Minimum									
January	10.4	5.9	11.1	7.7	5.2	4.5	2.6	5.0	3.6
February	12.7	8.7	13.6	10.5	8.3	7.6	5.1	7.7	6.8
March	17.6	14.2	18.5	16.3	13.4	13.5	9.9	12.5	12.4
April	22.3	19.7	23.0	22.3	19.0	19.5	15.0	17.7	17.9
May	25.9	24.6	26.2	26.7	23.4	24.4	19.7	22.0	22.5
June	27.9	27.7	28.1	29.4	26.9	28.6	23.7	25.8	26.7
July	27.4	27.6	27.8	29.2	26.5	28.7	24.3	25.8	27.2
August	26.1	26.3	26.7	28.3	26.1	28.0	23.5	25.3	26.4
September	25.2	23.8	25.3	25.9	23.8	24.9	20.6	23.0	23.7
October	21.0	18.2	22.3	20.3	17.7	18.2	13.9	16.6	16.9
November	15.9	12.2	17.3	14.1	10.9	10.9	7.5	9.9	9.9
December	11.6	7.4	12.5	8.7	6.0	5.5	3.4	5.7	4.8

Contd...

Table C-06: Monthly Average Normal Temperature at Selected Centres, 1961-90

(Degrees in Centigrade)

Month/Station	Faisal- abad (183)	Bahawal- pur (116)	Pesha- war (359)	D.I. Khan (173)	Quetta (Sammu- ngali) (1600)	Zhob (Fort Sande- man) (1405)	Khuz- dar (1231)	Panj- gur (980)	Dalban- din (848)
Mean of Maximum									
January	19.4	21.6	18.3	20.3	10.8	12.8	17.0	17.4	17.4
February	21.9	24.1	19.5	22.1	12.9	14.4	18.6	19.8	20.0
March	26.7	29.5	23.7	26.9	18.7	20.3	23.6	25.6	26.2
April	33.5	36.1	30.0	33.5	24.8	26.7	29.9	31.2	32.5
May	38.4	40.8	35.9	38.7	30.4	32.2	34.8	36.3	38.1
June	40.5	42.2	40.4	41.5	35.3	36.8	38.0	39.4	42.2
July	37.1	39.5	37.7	38.5	35.9	35.9	36.4	38.8	42.5
August	36.1	38.3	35.7	37.4	34.8	35.3	35.5	38.1	41.2
September	35.7	37.1	35.0	36.7	31.4	32.9	34.0	35.4	37.7
October	33.0	34.9	31.2	33.4	25.5	27.9	29.9	30.7	32.1
November	27.2	29.3	25.6	27.7	19.2	21.4	24.9	24.8	25.4
December	21.4	23.5	20.1	21.9	13.3	15.6	19.2	19.5	19.5
Mean of Minimum									
January	4.1	5.5	4.0	4.2	-3.4	-0.9	3.2	3.7	1.3
February	7.1	8.6	6.3	7.3	-0.9	1.8	5.2	5.7	4.6
March	12.3	13.9	11.2	12.9	3.4	7.4	10.8	10.9	9.9
April	18.0	19.6	16.4	18.5	8.3	13.2	16.5	16.1	15.8
May	22.7	24.5	21.3	23.1	11.5	17.8	21.2	20.7	20.3
June	26.9	28.4	25.7	26.8	15.9	22.7	24.5	24.0	23.9
July	27.1	28.5	26.6	26.9	19.9	23.2	24.1	24.7	25.9
August	26.6	27.9	25.7	26.4	17.9	22.5	23.2	23.3	23.7
September	23.7	24.8	22.7	23.8	10.9	19.0	20.1	19.0	17.7
October	17.0	18.3	16.1	17.3	3.8	11.9	14.1	13.6	11.5
November	10.1	11.7	9.6	10.5	-0.9	5.8	8.6	8.4	5.7
December	5.1	6.6	4.9	5.3	-3.2	0.0	4.6	4.6	2.3

Source:- Pakistan Meteorological Department

- Note:-
- This table is prepared on the basis of 30 years data.
 - Figures in parenthesis indicate the heights above sea level in meters.

Table C-07: Normals of Maximum and Minimum Temperatures, 1961 – 90 Islamabad (Chaklala)

LAT.33 37' N

LONG 73 06' E

Height of ground (at Stevenson Screen) amsl = 1663 ft. (507 m)

Height of ssagl = 1.2 m

Month	Maximum Temperature (Degrees Centigrade)										
	Mean			Extremes							
	Daily Max	Monthly		Highest Recorded						Lowest	
		High Max	Low Max	1931-60		1961-90		to 1990		1961-90	
				Value	Date	Value	Date	Value	Date	Value	Date
January	17.7	22.4	11.2	22.0	17/1955	26.1	15/1965	26.1	15/1965	6.7	22/1964
February	19.1	24.7	11.6	28.0	27/1955	30.0	28/1985	30.0	28/1985	5.0	21/1984
March	23.9	30.3	15.3	32.0	28/1958	34.0	03/1977	34.0	03/1977	9.4	06/1982
April	30.1	36.6	21.0	40.0	25/1958	40.6	05/1970	40.6	05/1970	13.9	16/1983
May	35.3	40.9	25.9	44.0	25/1954	45.6	31/1988	45.6	31/1988	18.3	23/1965
June	38.7	43.5	31.8	45.0	04/1960	46.0	17/1975	46.0	17/1975	27.8	24/1971
July	35.0	40.9	28.1	44.0	08/1957	44.4	05/1987	44.4	05/1987	23.9	30/1971
August	33.4	37.6	27.2	40.0	06/1957	42.0	11/1987	42.0	11/1987	23.0	03/1976
September	33.5	36.4	27.6	38.0	07/1958	38.1	05/1982	38.1	05/1982	24.0	19/1981
October	30.9	34.4	24.1	36.0	02/1960	36.7	01/1968	36.7	01/1968	14.4	31/1961
November	25.4	29.4	18.9	30.0	01/1956	32.2	01/1965	32.2	01/1965	13.9	02/1968
December	19.7	24.0	13.0	25.0	01/1955	27.2	05/1984	27.2	05/1984	9.3	27/1985
Year	28.6	33.4	21.3	45.0	4/6/60	46.0	17/6/75	46.0	17/6/75	5.0	21/2/84
Begin	1961	1961	1961	-	-	1961	-	1961	-	1961	-
No. of years	30	30	30	7	-	30	-	37	-	30	-

Contd...

**Table C-07: Normals of Maximum and Minimum Temperatures, 1961 – 90
Islamabad (Chaklala)**

LAT. 33° 37' N

LONG 73° 06' E

Height of ground (at Stevenson Screen) amsl = 1663 ft. (507 m)

Height of ssagl = 1.2 m

Month	Minimum Temperature (Degrees Centigrade)										
	Mean			Extremes							
	Daily Min.	Monthly		Highest		Lowest Recorded					
		High Min.	Low Min.	1961 - 90		1931-60		1961 - 90		to 1990	
				Value	Date	Value	Date	Value	Date	Value	Date
January	2.6	7.8	-0.7	11.0	10/1977	-4.0	02/1955	-3.9	17/1967	-4.0	02/1955
February	5.1	10.4	0.9	13.0	28/1978	-1.0	13/1955	-2.0	08/1978	-2.0	08/1978
March	9.9	15.5	4.6	18.9	31/1964	4.0	04/1958	-0.3	17/1967	-0.3	17/1967
April	15.0	21.0	9.7	24.1	29/1987	7.0	10/1960	6.1	02/1968	6.1	02/1968
May	19.7	25.7	14.4	29.4	31/1988	12.0	07/1960	11.0	04/1977	11.0	04/1977
June	23.7	29.7	18.6	32.8	30/1964	16.0	01/1958	15.0	02/1979	15.0	02/1979
July	24.3	29.4	20.1	32.2	08/1968	19.0	02/1955	17.8	05/1966	17.8	05/1966
August	23.5	27.5	19.5	30.6	25/1971	18.0	26/1954	17.0	03/1976	17.0	03/1976
September	20.6	24.6	15.9	26.9	07/1987	16.0	30/1951	13.3	30/1982	13.3	30/1982
October	13.9	18.8	9.5	21.1	10/1987	8.0	25/1957	5.7	31/1984	5.7	31/1984
November	7.5	13.1	2.9	16.7	02/1989	1.0	30/1960	-0.6	28/1970	-0.6	28/1970
December	3.4	8.4	-0.2	13.3	11/1986	-3.0	31/1954	-2.8	25/1984	-3.0	31/1954
Year	14.1	19.3	9.6	32.8	30/6/64	-4.0	2/1/55	-3.9	17/1/67	-4.0	2/1/55
Begin	1961	1961	1961	1961	-	-	-	1961	-	-	-
No. of years	30	30	30	30	-	7	-	30	-	37	-

Contd...

Table C-07: Normals of Maximum and Minimum Temperatures, 1961 – 90 Karachi (Airport)

LAT.24 54' N

LONG 67 08' E

Height of ground (at Stevenson Screen) amsl = 0069 ft. (021 m)

Height of ssagl = 1.2 m

Month	Maximum Temperature (Degrees Centigrade)										
	Mean			Extremes							
	Daily Max	Monthly		Highest Recorded						Lowest	
		High Max	Low Max	1931-60		1961-90		to 1990		1961-90	
				Value	Date	Value	Date	Value	Date	Value	Date
January	25.8	29.1	21.6	32.0	31/1952	32.8	16/1965	32.8	16/1965	17.0	15/1976
February	27.7	32.0	23.0	35.0	29/1960	34.5	26/1985	35.0	29/1960	16.7	03/1972
March	31.5	36.1	26.2	39.0	24/1955	39.0	26/1977	39.0	26/1977	19.0	15/1981
April	34.3	40.1	29.8	44.0	16/1947	43.0	26/1979	44.0	16/1947	24.4	12/1965
May	35.2	41.5	32.3	48.0	09/1938	46.0	22/1981	48.0	09/1938	31.0	07/1976
June	34.8	40.1	32.6	47.0	23/1953	47.0	18/1979	47.0	18/1979	28.9	13/1964
July	33.1	37.5	29.7	42.0	03/1958	41.1	09/1962	42.0	03/1958	26.1	16/1968
August	31.7	35.5	29.0	39.0	04/1957	41.7	09/1964	41.7	09/1964	26.0	19/1981
September	32.6	37.4	29.7	43.0	30/1951	42.2	10/1962	43.0	30/1951	27.8	10/1970
October	34.7	39.3	31.1	43.0	01/1951	41.1	06/1965	43.0	01/1951	29.0	31/1980
November	31.9	35.6	28.0	38.0	03/1941	38.5	01/1986	38.5	01/1986	23.3	26/1963
December	27.4	31.0	22.5	33.0	12/1953	33.9	08/1963	33.9	08/1963	16.1	01/1967
Year	31.7	36.3	28.0	48.0	9/5/38	47.0	18/6/79	48.0	9/5/38	16.1	1/12/67
Begin	1961	1961	1961	-	-	1961	-	-	-	1961	-
No .of years	30	30	30	27	-	30	-	-	-	30	-

Contd...

**Table C-07: Normals of Maximum and Minimum Temperatures, 1961 – 90
Karachi (Airport)**

LAT.24 54' N

LONG 67 08' E

Height of ground (at Stevenson Screen) amsl = 0069 ft. (021 m)

Height of ssagl = 1.2 m

Month	Minimum Temperature (Degrees Centigrade)										
	Mean			Extremes							
	Daily Min.	Monthly		Highest		Lowest Recorded					
		High Min.	Low Min.	1961 - 90		1931-60		1961 - 90		to 1990	
				Value	Date	Value	Date	Value	Date	Value	Date
January	10.4	15.3	6.1	21.0	04/1981	0.0	21/1934	2.8	13/1967	0.0	21/1934
February	12.7	18.4	7.7	22.2	27/1988	3.0	11/1950	3.8	22/1984	3.0	11/1950
March	17.6	22.5	12.2	24.0	28/1974	9.0	02/1939	7.0	09/1979	7.0	09/1979
April	22.3	25.9	17.7	27.2	13/1973	13.0	05/1940	12.2	29/1967	12.2	29/1967
May	25.9	28.2	22.2	29.4	20/1986	18.0	09/1960	17.7	04/1989	17.7	04/1989
June	27.9	29.4	25.6	31.0	23/1980	22.0	03/1940	22.8	02/1969	22.0	03/1940
July	27.4	29.0	25.0	30.0	01/1988	22.0	22/1938	22.3	25/1989	22.0	22/1938
August	26.1	27.6	23.9	29.4	08/1964	23.0	12/1933	20.0	07/1984	20.0	07/1984
September	25.2	27.1	22.7	30.8	20/1988	18.0	30/1950	19.6	24/1982	18.0	30/1950
October	21.0	25.8	16.1	29.0	16/1980	10.0	30/1949	11.7	30/1984	10.0	30/1949
November	15.9	20.5	11.2	25.0	10/1978	6.0	29/1938	7.4	30/1986	6.0	29/1938
December	11.6	16.2	6.8	21.1	01/1982	2.0	30/1932	1.3	14/1986	1.3	14/1986
Year	20.3	23.8	16.4	31.0	23/6/80	0.0	21/1/34	1.3	14/12/86	0.0	21/1/34
Begin	1961	1961	1961	1961	-	-	-	1961	-	-	-
No. of years	30	30	30	30	-	27	-	30	-	57	-

Contd...

**Table C-07: Normals of Maximum and Minimum Temperatures, 1961 –90
Lahore**

LAT.31 33' N

LONG 74 20' E

Height of ground (at Stevenson Screen) amsl = 699 ft. (213 m)

Height of ssagl = 1.21 m

Month	Maximum Temperature (Degrees Centigrade)										
	Mean			Extremes							
	Daily Max	Monthly		Highest Recorded						Lowest	
		High Max	Low Max	1931-60		1961-90		to 1990		1961-90	
				Value	Date	Value	Date	Value	Date	Value	Date
January	19.8	23.5	14.1	28	23/1952	26.7	15/1965	28	23/1952	10	28/1968
February	22.0	26.9	16.3	33	27/1953	30	28/1985	33	27/1953	12.2	07/1961
March	27.1	32.6	20.3	38	26/1941	37.2	29/1972	41	25/1892	15.5	03/1982
April	33.9	40.2	26.1	46	29/1941	44	29/1979	46	29/1941	16	16/1983
May	38.6	43.7	31.3	48	30/1944	47.4	31/1988	48	30/1944	22.2	17/1973
June	40.4	45.2	32.2	47	08/1960	47.2	08/1972	48	08/1929	27	30/1977
July	36.1	41.8	28.4	46	03/1948	45	09/1979	48	06/1901	22.8	31/1961
August	35.0	38.7	29.1	43	02/1947	41	11/1987	44	08/1911	24	01/1976
September	35.0	38.1	29.1	42	16/1932	40.6	09/1965	43	04/1905	23.3	27/1962
October	32.9	36.3	27.5	41	07/1931	38.9	01/1961	41	07/1931	19.4	27/1967
November	27.4	31.1	22.3	35	05/1943	34.4	01/1965	35	05/1943	17.8	25/1972
December	21.6	25.5	16.0	28	03/1944	28.1	01/1987	31	01/1899	7.8	28/1973
Year	30.8	35.3	24.4	48	30/5/44	47.4	31/5/88	48	30/5/44	7.8	28/12/73
Begin	1961	1961	1961	-	-	1961	-	-	-	1961	-
No. of years	30	30	30	30	-	30	-	110 *	-	30	-

Note:- Indicates that data of extreme maximum temperature has been observed for previous 110 years up to 1990 (i.e 1880-1990).

Contd...

**Table C-07: Normals of Maximum and Minimum Temperatures, 1961 -90
Lahore**

LAT.31 33' N

LONG 74 20' E

Height of ground (at Stevenson Screen) amsl = 699 ft. (213 m)

Height of ssagl = 1.21 m

Month	Minimum Temperature (Degrees Centigrade)										
	Mean			Extremes							
	Daily Min.	Monthly		Highest		Lowest Recorded					
		High Min.	Low Min.	1961 – 90		1931-60		1961 - 90		to 1990	
			Value	Date	Value	Date	Value	Date	Value	Date	
January	5.9	10.2	2.6	13.3	08/1964	-2.0	17/1935	-1.1	13/1967	-2.0	17/1935
February	8.9	13.5	4.6	16.1	24/1973	0.0	02/1934	1.0	08/1974	-1.0	02/1905
March	14.0	19.3	9.0	22.8	29/1972	3.0	05/1945	5.0	09/1979	3.0	05/1945
April	19.6	24.9	14.0	28.6	30/1988	10.0	01/1940	10.6	06/1967	8.0	02/1903
May	23.7	28.9	18.7	33.0	25/1978	15.0	11/1955	14.0	14/1977	14.0	14/1977
June	27.4	31.6	21.7	33.9	19/1972	18.0	07/1952	18.0	18/1977	18.0	18/1977
July	26.9	30.9	22.0	33.0	08/1979	21.0	09/1934	20.0	04/1974	20.0	04/1974
August	26.4	29.5	22.5	31.1	04/1972	19.0	27/1932	19.0	10/1980	19.0	10/1980
September	24.4	27.7	20.4	30.5	04/1987	17.0	30/1943	16.7	23/1972	16.7	23/1972
October	18.2	22.6	14.0	26.0	04/1975	8.0	31/1949	10.6	31/1964	8.0	31/1949
November	11.6	16.0	7.2	21.0	03/1977	2.0	24/1949	1.7	30/1962	1.7	30/1962
December	6.8	11.5	3.4	14.5	16/1985	-1.0	27/1950	0.6	14/1964	-2.0	23/1910
Year	17.8	22.2	13.3	33.9	19/6/72	-2.0	17/1/35	-1.1	13/1/67	-2.0	17/1/35
Begin	1961	1961	1961	1961	-	-	-	1961	-	-	-
No.of years	30	30	30	30	-	30	-	30	-	80 *	-

Note:- Indicates that data of extreme minimum temperature has been observed for previous 80 years up to 1990 (i.e 1910-1990).

Contd...

Table C-07: Normals of Maximum and Minimum Temperatures, 1961- 90 Peshawar

LAT.34 01' N

LONG 71 35' E

Height of ground (at Stevenson Screen) amsl = 1178 ft. (359 m)

Height of ssagl = 1.1 m

Month	Maximum Temperature (Degrees Centigrade)										
	Mean			Extremes							
	Daily Max	Monthly		Highest Recorded						Lowest	
		High Max	Low Max	1931-60		1961-90		to 1990		1961-90	
				Value	Date	Value	Date	Value	Date	Value	Date
January	18.3	23.3	11.6	24	21/1946	26.5	24/1990	26.5	24/1990	8.3	21/1962
February	19.5	24.9	12.0	30	28/1953	30.0	26/1978	30.0	26/1978	8.3	15/1972
March	23.7	30.3	15.2	34	31/1931	36.0	26/1974	37.0	26/1892	10.5	05/1982
April	30.0	37.1	20.4	42	29/1941	41.0	26/1979	42.0	29/1941	14.8	13/1983
May	35.9	42.1	26.5	48	31/1941	47.2	31/1984	48.0	31/1941	17.2	23/1965
June	40.4	45.4	33.2	48	09/1947	48.0	20/1986	49.0	17/1914	28.2	18/1982
July	37.7	43.2	29.9	46	06/1947	46.1	01/1964	50.0	5/1920	26	06/1978
August	35.7	39.9	29.0	43	03/1947	46.0	12/1987	48.0	09/1915	23	03/1976
September	35.0	38.3	29.5	41	04/1940	42.0	25/1976	43.0	02/1920	22.8	20/1972
October	31.2	35.7	24.4	38	05/1951	38.3	05/1971	38.3	05/1971	16	18/1990
November	25.6	30.4	18.5	33	02/1933	35.0	03/1979	35.0	03/1979	12	27/1986
December	20.1	25.3	12.6	28	04/1932	29.0	03/1979	29.0	03/1979	8.9	28/1967
Year	29.4	34.7	21.9	48	9/6/47	48.0	20/6/86	50.0	15/7/20	8.3	15/2/72
Begin	1961	1961	1961	-	-	1961	-	-	-	1961	-
No.of years	30	30	30	30	-	30	-	110 *	-	30	-

Note:- Indicates that data of extreme maximum temperature has been observed for previous 110 years up to 1990 (i.e 1880-1990).

Contd...

**Table C-07: Normals of Maximum and Minimum Temperatures, 1961- 90
Peshawar**

0
LAT.34 01' N

0
LONG 71 35' E

Height of ground (at Stevenson Screen) amsl = 1178 ft. (359 m)

Height of ssagl = 1.1 m

Month	Minimum Temperature (Degrees Centigrade)										
	Mean			Extremes							
	Daily Min.	Monthly		Highest		Lowest Recorded					
		High Min.	Low Min.	1961 - 90		1931-60		1961 - 90		to 1990	
				Value	Date	Value	Date	Value	Date	Value	Date
January	4.0	8.4	0.7	11.5	02/1988	-3.0	22/1934	-3.9	07/1970	-3.9	07/1970
February	6.3	10.9	2.0	13.3	06/1966	-1.0	12/1950	-1.0	08/1978	-2.0	03/1905
March	11.2	16.1	6.2	19.0	30/1977	2.0	05/1945	2.8	06/1961	-1.0	01/1905
April	16.4	22.1	10.6	25.0	22/1974	7.0	09/1936	6.7	02/1968	5.0	8/1918
May	21.3	27.2	15.9	32.8	30/1962	12.0	07/1960	13.3	01/1969	11.0	2/1881
June	25.7	30.6	20.8	34.4	21/1969	13.0	08/1949	17.0	13/1981	13.0	08/1949
July	26.6	30.6	21.9	32.0	08/1976	21.0	10/1955	18.3	23/1968	18.3	23/1968
August	25.7	29.1	21.9	30.8	01/1983	19.0	27/1954	20.0	30/1988	19.0	27/1954
September	22.7	26.5	17.9	28.5	03/1987	14.0	29/1940	13.3	28/1982	13.3	28/1982
October	16.1	20.6	12.1	23.0	01/1978	8.0	29/1949	9.4	28/1972	6.0	30/1916
November	9.6	14.0	5.0	17.0	01/1979	1.0	24/1949	2.0	28/1975	0.0	30/1912
December	4.9	9.2	1.6	13.0	18/1989	-2.0	13/1937	-1.3	25/1984	-2.0	13/1937
Year	15.9	20.4	11.4	34.4	21/6/69	-3.0	22/1/34	-3.9	7/1/70	-3.9	7/1/70
Begin	1961	1961	1961	1961	-	-	-	1961	-	-	-
No.of years	30	30	30	30	-	30	-	30	-	110 *	-

Note: - Indicates that data of extreme minimum temperature has been observed for previous 110 years up to 1990 (i.e 1880-1990).

Contd...

Table C-07: Normals of Maximum and Minimum Temperatures, 1961 – 90 Quetta (Samungli)

LAT.30 15' N

LONG 66 52' E

Height of ground (at Stevenson Screen) amsl = 5250 m ft. (1.42 m)

Height of ssagl = 1.42 m

Month	Maximum Temperature (Degrees Centigrade)										
	Mean			Extremes							
	Daily Max	Monthly		Highest Recorded						Lowest	
		High Max	Low Max	1931-60		1961-90		to 1990		1961-90	
	Value			Date	Value	Date	Value	Date	Value	Date	
January	10.8	18.0	3.1	20.0	19/1949	23.6	28/1987	23.6	28/1987	-5.0	22/1964
February	12.9	20.2	4.2	27.0	26/1953	26.3	27/1985	27.0	26/1953	-5.6	04/1967
March	18.7	25.5	9.1	28.0	22/1953	29.5	15/1990	29.5	15/1990	0.0	07/1979
April	24.8	31.2	16.2	35.0	24/1958	35.0	27/1979	35.0	27/1979	8.9	01/1967
May	30.4	35.7	23.8	38.0	31/1956	39.4	30/1971	39.4	30/1971	17.1	02/1989
June	35.3	38.8	30.3	41.0	28/1946	41.3	20/1986	41.3	20/1986	21.7	01/1966
July	35.9	39.3	31.0	40.0	04/1953	41.1	08/1969	41.1	08/1969	21.0	12/1978
August	34.8	38.0	30.9	40.0	02/1946	40.6	09/1970	40.6	09/1970	21.6	10/1986
September	31.4	34.7	26.4	37.0	01/1960	38.3	01/1970	38.3	01/1970	20.0	21/1972
October	25.5	30.3	19.4	33.0	08/1951	33.0	08/1980	33.0	08/1980	12.2	25/1967
November	19.2	24.9	12.8	26.0	11/1951	28.9	15/1988	28.9	15/1988	7.8	30/1962
December	13.3	20.0	4.2	23.0	03/1954	25.0	14/1970	25.0	14/1970	-4.4	30/1990
Year	24.4	29.7	17.6	41.0	28/6/46	41.3	20/6/86	41.3	20/6/86	-5.6	4/2/67
Begin	1961	1961	1961	-	-	1961	-	-	-	1961	-
No.of years	30	30	30	15	-	30	--	45 *	-	30	-

Note:- Indicates that data of extreme maximum temperature has been observed for previous 45 years up to 1990 (i.e 1945 - 1990).

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Table C-07: Normals of Maximum and Minimum Temperatures, 1961 – 90 Quetta (Samungli)

LAT.30 15' N

LONG 66 52' E

Height of ground (at Stevenson Screen) amsl = 5250 m ft. (1.42 m)

Height of ssagl = 1.42 m

Month	Minimum Temperature (Degrees Centigrade)										
	Mean			Extremes							
	Daily Min.	Monthly		Highest		Lowest Recorded					
		High Min.	Low Min.	1961 - 90		1931-60		1961 - 90		to 1990	
			Value	Date	Value	Date	Value	Date	Value	Date	
January	-3.4	4.1	-9.6	8.0	09/1977	-13.0	03/1949	-18.3	08/1970	-18.3	08/1970
February	-0.9	6.5	-7.8	11.0	27/1980	-14.0	02/1951	-16.7	01/1970	-16.7	01/1970
March	3.4	10.7	-3.8	16.0	26/1988	-6.0	07/1952	-8.3	12/1973	-8.3	12/1973
April	8.3	14.8	1.5	18.9	10/1964	-2.0	03/1956	-3.9	02/1965	-3.9	02/1965
May	11.5	17.9	5.5	21.7	27/1987	1.0	07/1960	-0.3	03/1989	-0.3	03/1989
June	15.9	21.8	9.8	25.7	22/1986	5.0	18/1951	6.0	14/1979	5.0	18/1951
July	19.9	24.0	14.5	25.6	20/1965	9.0	07/1955	10.6	11/1970	9.0	07/1955
August	17.9	22.7	12.0	25.4	02/1982	3.0	23/1949	3.9	29/1972	3.0	23/1949
September	10.9	17.7	4.3	22.2	02/1983	1.0	30/1950	-0.6	30/1962	-0.6	30/1962
October	3.8	10.4	-1.9	15.6	01/1987	-8.0	29/1949	-6.7	27/1964	-8.0	29/1949
November	-0.9	6.5	-6.5	12.8	02/1990	-11.0	12/1958	-13.3	30/1962	-13.3	30/1962
December	-3.2	4.5	-9.7	10.0	09/1968	-17.0	21/1950	-16.7	12/1964	-17.0	21/1950
Year	6.9	13.5	0.7	25.7	22/6/86	-17.0	21/12/50	-18.3	8/1/70	-18.3	8/1/70
Begin	1961	1961	1961	1961	-	-	-	1961	-	-	-
No.of years	30	30	30	30	-	15	-	30	-	45	-

Source:- Pakistan Meteorological Department

Note:- amsl = Above mean sea level. ssagl = Stevenson screen above ground level.

**Table C-08: Monthly Normals of Rainfall at Selected Centres,
1961 – 90**

(mm)

Month / Station	Karachi (Airport) (21)	Nawab-Shah (37)	Hyder-Abad (40)	Jacob-Abad (55)	Lahore (213)	Multan (122)	Islama-Bad (507)	Jhel-Um (232)	Sargo-Dha (187)
January	6.0	1.6	1.2	3.1	21.1	7.2	56.1	33.8	13.0
February	9.8	1.9	3.9	7.1	29.0	9.5	73.5	50.0	23.1
March	11.8	3.1	5.1	10.3	43.1	19.5	89.8	60.5	35.1
April	4.4	3.1	5.8	2.0	19.4	12.9	61.8	36.6	29.5
May	0.0	1.4	3.5	1.7	23.7	9.8	39.2	31.8	21.1
June	5.5	8.3	13.9	4.7	32.9	12.3	62.2	51.9	23.2
July	85.5	51.8	56.7	36.8	217.8	61.3	267.0	237.3	108.2
August	67.4	45.4	60.8	26.3	173.5	32.6	309.9	221.2	129.1
September	19.9	10.4	21.4	11.2	66.2	10.8	98.2	77.7	26.3
October	1.0	2.9	1.5	2.3	17.0	1.7	29.3	12.2	7.7
November	1.8	1.5	2.1	1.2	4.7	2.3	17.8	9.9	5.8
December	4.4	2.7	2.0	3.7	15.5	6.9	37.3	30.4	12.8

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**Table C-08: Monthly Normals of Rainfall at Selected Centres,
1961 – 90**

(mm)

Month / Station	Faisa-Labad (183)	Baha-Walpur (116)	Pesha-War (359)	D.I. Khan (173)	Quetta (Samungali) (1600)	Zhob (Fort Sandeman) (1405)	Dalban-Din (848)	Khuz-Dar (1231)	Panjgur (980)
January	11.5	6.0	26.0	10.0	56.7	18.3	16.1	18.3	16.3
February	20.1	11.5	42.7	17.5	49.0	26.2	18.1	24.3	16.2
March	25.7	9.4	78.4	34.8	55.0	48.1	18.6	28.7	15.6
April	16.9	7.2	48.9	21.7	28.3	29.9	7.8	11.5	7.4
May	16.2	6.1	27.0	17.2	6.0	14.5	2.2	14.4	3.1
June	27.9	16.9	7.7	14.4	1.1	10.5	0.8	11.9	3.3
July	115.0	52.6	42.3	60.8	12.7	48.5	3.9	44.7	25.0
August	89.8	43.2	67.7	57.5	12.1	58.9	0.9	56.9	9.2
September	28.7	12.1	17.9	17.6	0.3	10.5	0.4	6.4	1.5
October	3.8	0.6	9.7	4.8	3.9	2.9	1.5	4.2	0.8
November	3.0	4.0	12.3	2.1	5.3	3.7	2.5	5.6	0.8
December	8.6	3.0	23.3	10.4	30.5	13.0	7.9	17.2	9.5

Source:- Pakistan Meteorological Department

Note:- i). This table is prepared on the basis of 30 years data.

ii). Figures in parenthesis indicate the heights above sea level in meters.

Table C-09: Normals of Pressure, Temperature, Humidity and Vapour Pressure Islamabad (Chaklala), 1961 –90

LAT:33 37'N LONG:73 06'E

Height of barometer cistern amsl = 1667 ft.(0508 m)

Month	Pressure (mb or gpm)						Temperature (degree centigrade)					
	Station Level			Reduced to Mean Sea Level/GPM			Dry bulb			Wet bulb		
	00	03	12	00	03	12	00	03	12	00	03	12
	1	2	3	4	5	6	7	8	9	10	11	12
January	957.5	958.5	957.1	1018.6	1019.7	1016.0	4.2	4.1	14.9	3.3	3.1	9.0
February	955.7	956.8	955.3	1016.1	1017.2	1013.4	6.8	7.1	17.1	5.7	5.9	10.5
March	953.5	954.7	952.9	1012.7	1013.7	1009.8	11.2	12.9	22.1	9.5	10.7	13.9
April	950.2	951.4	949.4	1008.3	1008.9	1005.0	16.2	19.9	28.4	13.4	15.4	17.4
May	946.3	947.5	945.3	1003.4	1003.6	999.6	20.7	26.1	33.7	15.7	18.2	19.4
June	941.9	943.2	940.2	997.7	998.1	993.6	24.7	29.7	37.3	19.2	21.3	22.5
July	941.8	942.9	940.2	997.5	998.2	994.3	25.6	27.8	33.5	22.9	23.8	25.1
August	943.6	944.7	942.3	999.6	1000.4	996.8	24.7	26.3	31.8	23.2	23.9	25.5
September	947.7	949.0	946.5	1004.6	1005.4	1001.5	21.5	24.1	31.4	19.8	21.0	22.9
October	953.2	954.6	952.3	1011.7	1012.6	1008.2	14.9	17.6	27.7	13.2	14.7	18.1
November	956.8	958.1	956.1	1016.8	1017.9	1013.5	8.8	10.0	21.2	7.5	8.3	13.5
December	958.1	959.2	957.6	1019.0	1020.2	1016.2	5.0	5.0	16.3	4.1	4.0	10.3
Year	950.5	951.7	949.6	1008.8	1009.7	1005.6	15.4	17.5	26.3	13.1	14.2	17.3
Begin	1961	1961	1961	1961	1961	1961	1961	1961	1961	1961	1961	1961
No. of Years	30	30	30	30	30	30	30	30	30	30	30	30
Month	Temperature (degree centigrade)					Relative Humidity (%)			Vapour Pressure(mb)			
	Dew point			Mean Temp.	Mean daily Range							
	00	03	12									
	13	14	15	16	17	18	19	20	21	22	23	
January	1.9	1.9	1.8	10.1	15.1	85	85	42	7.1	7.0	7.1	
February	4.3	4.3	3.1	12.1	14.0	84	83	41	8.4	8.4	7.9	
March	7.9	8.5	6.3	16.9	14.0	80	75	38	10.7	11.2	9.8	
April	-	-	-	22.6	15.0	72	61	31	13.3	14.1	11.8	
May	12.0	12.9	9.3	27.5	15.6	58	45	23	14.3	15.0	12.0	
June	15.9	16.5	13.7	31.2	15.0	59	46	26	18.4	19.1	16.6	
July	21.6	21.9	21.3	29.7	10.7	79	71	50	26.0	26.5	25.6	
August	22.5	22.9	22.8	28.5	9.9	88	81	59	27.4	27.8	27.5	
September	18.9	19.4	18.6	27.0	12.9	85	75	47	22.0	22.7	21.9	
October	11.8	12.6	11.3	22.4	17.0	82	73	37	13.9	14.7	13.6	
November	6.1	6.5	6.4	16.5	17.9	83	80	40	9.5	9.8	9.9	
December	2.9	2.7	3.7	11.6	16.3	86	85	45	7.5	7.5	8.1	
Year	11.4	11.9	10.6	21.3	14.5	79	72	40	14.9	15.3	14.3	
Begin	1961	1961	1961	1961	1961	1961	1961	1961	1961	1961	1961	
No. of Years	30	30	30	30	30	30	30	30	30	30	30	

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Table C-09: Normals of Pressure, Temperature, Humidity and Vapour Pressure Karachi (Airport), 1961 – 90

LAT.24 54'N LONG:67 08'E Height of barometer cistern amsl = 0073 ft.(0022 m)

Month	Pressure (mb or gpm)						Temperature (degree centigrade)					
	Station Level			Reduced to Mean Sea Level/GMP			Dry bulb			Wet bulb		
	00	03	12	00	03	12	00	03	12	00	03	12
	1	2	3	4	5	6	7	8	9	10	11	12
January	1013.2	1014.9	1012.2	1016.0	1017.7	1014.9	12.4	12.3	24.1	9.5	9.2	15.5
February	1011.2	1012.8	1010.2	1013.8	1015.5	1012.8	14.9	15.0	25.5	12.3	12.0	16.8
March	1008.1	1009.6	1007.2	1010.7	1012.6	1009.8	19.4	20.3	28.9	17.0	17.3	20.4
April	1004.6	1006.2	1003.8	1007.2	1008.7	1006.3	23.5	25.5	31.3	21.5	22.3	23.2
May	1001.0	1002.5	1000.1	1003.4	1004.9	1002.5	26.6	28.6	32.4	24.7	25.2	25.9
June	996.6	997.8	995.4	999.1	1000.3	997.9	28.5	30.1	32.6	26.3	26.7	27.2
July	995.4	996.5	994.7	997.9	999.0	997.1	28.1	29.1	31.0	26.2	26.5	26.8
August	997.4	998.5	996.8	999.9	1001.1	999.2	27.0	27.7	29.8	25.1	25.4	25.9
September	1002.1	1003.3	1001.3	1004.6	1006.0	1003.8	26.1	27.1	30.3	24.2	24.6	25.3
October	1007.3	1008.7	1006.3	1010.0	1011.4	1008.8	22.4	24.0	31.6	20.2	20.7	23.0
November	1011.2	1012.8	1010.1	1014.0	1015.6	1012.7	17.4	18.6	28.9	14.3	14.8	19.7
December	1013.4	1015.0	1012.3	1016.2	1017.9	1014.9	13.3	13.7	25.1	10.3	10.3	16.5
Year	1005.1	1006.6	1004.2	1007.7	1009.2	1006.7	21.6	22.7	29.3	19.3	19.6	22.2
Begin	1961	1961	1961	1961	1961	1961	1961	1961	1961	1961	1961	1961
No. of Years	30	30	30	30	30	30	30	30	30	30	30	30
Month	Temperature (degree centigrade)					Relative Humidity (%)			Vapour Pressure (mb)			
	Dew point			Mean Temp.	Mean daily Range							
	00	03	12									
	13	14	15	16	17	00	03	12	00	03	12	
	18	19	20	21	22	23						
January	5.7	5.2	6.8	18.1	15.5	66	64	36	9.6	9.3	10.7	
February	9.2	8.6	9.1	20.2	15	71	68	39	13.0	11.7	12.4	
March	15.0	14.7	14.0	24.5	13.9	78	73	44	17.5	17.3	17.2	
April	20.3	20.5	18.3	28.3	12	83	76	49	23.9	24.5	21.9	
May	23.6	23.5	22.7	30.5	9.4	84	75	60	29.6	29.3	28.0	
June	25.2	25.2	25.0	31.4	7	83	76	65	32.6	32.1	31.9	
July	25.3	25.3	25.0	30.3	5.8	85	80	71	32.4	32.3	31.9	
August	24.3	24.4	24.2	28.9	5.6	86	82	73	30.3	30.4	30.1	
September	23.3	23.4	22.8	28.9	7.3	85	81	66	28.5	28.8	27.6	
October	18.4	18.4	17.7	27.9	13.6	80	74	48	22.0	22.0	21.3	
November	11.3	11.1	12.4	23.9	16	70	65	40	14.0	14.0	15.5	
December	6.6	6.3	8.4	19.5	15.8	66	62	38	10.1	10.0	11.7	
Year	17.3	17.2	17.2	26	11.4	78	73	52	22.0	21.8	21.7	
Begin	1961	1961	1961	1961	1961	1961	1961	1961	1961	1961	1961	
No. of Years	30	30	30	30	30	30	30	30	30	30	30	

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Table C-09: Normals of Pressure, Temperature, Humidity and Vapour Pressure Lahore, 1961 – 90

LAT.31 33'N LONG:74 20'E Height of barometer cistern amsl =0702 ft.(0214 m)

Month	Pressure (mb or gpm)						Temperature (degree centigrade)					
	Station Level			Reduced to Mean Sea Level/GPM			Dry bulb			Wet bulb		
	00	03	12	00	03	12	00	03	12	00	03	12
	1	2	3	4	5	6	7	8	9	10	11	12
January	991.1	992.4	990.8	1017.1	1018.4	1015.8	7.5	7.7	17.6	6.5	6.4	11.9
February	988.9	990.3	988.5	1014.6	1016.0	1013.3	10.4	11.1	20.4	8.8	9.0	13.4
March	986.0	987.5	985.5	1011.2	1012.5	1009.7	15.1	17.2	25.6	12.8	13.6	16.8
April	981.9	983.4	981.0	1006.5	1007.7	1004.6	20.5	24.3	32.5	16.3	17.7	19.9
May	977.5	979.0	976.3	1001.6	1002.8	999.4	24.5	29.2	37.3	18.6	20.4	22.0
June	973.0	974.5	971.2	996.7	998.0	994.1	28.2	31.6	39.2	22.6	23.9	25.1
July	973.0	974.3	971.6	996.8	998.1	994.8	27.9	29.6	34.4	25.3	25.7	26.9
August	975.0	976.3	973.8	998.8	1000.0	997.2	27.3	29.0	33.1	25.6	26.0	27.0
September	979.5	981.0	978.4	1003.6	1005.0	1001.9	25.1	27.5	33.2	23.0	23.6	24.9
October	985.4	987.0	984.7	1010.2	1011.6	1008.5	19.1	22.1	30.4	17.0	18.2	21.1
November	989.6	991.2	989.0	1015.1	1016.6	1013.5	12.7	14.6	24.0	11.4	12.4	17.0
December	991.5	993.0	991.1	1017.5	1018.9	1016.1	8.2	8.7	18.5	7.3	7.5	13.3
Year	982.7	984.2	981.8	1007.5	1008.8	1005.7	18.9	21.0	28.9	16.3	17.0	19.9
Begin	1961	1961	1961	1961	1961	1961	1961	1961	1961	1961	1961	1961
No. of Years	30	30	30	30	30	30	30	30	30	30	30	30
Month	Temperature (degree centigrade)						Relative Humidity (%)			Vapour Pressure (mb)		
	Dew point			Mean Temp.	Mean daily Range							
	00	03	12			00	03	12	00	03	12	
	13	14	15	16	17	18	19	20	21	22	23	
January	5.3	4.9	5.6	12.8	13.9	86	83	46	8.9	8.8	9.4	
February	6.9	6.6	5.9	15.4	13.2	80	75	41	10.0	9.9	9.7	
March	10.6	10.4	9.3	20.5	13.1	76	65	37	12.9	12.8	12.1	
April	13.0	12.8	10.4	26.8	14.3	63	49	27	15.1	14.9	13.0	
May	14.4	14.4	11.3	31.2	14.9	54	42	22	16.7	16.7	14.0	
June	19.5	19.7	17.2	33.9	13.1	60	50	29	23.0	23.3	20.5	
July	24.1	24.0	23.5	31.5	9.2	80	72	54	30.0	30.0	29.5	
August	24.8	24.7	24.3	30.7	8.6	86	77	60	31.4	31.2	30.6	
September	21.8	21.6	20.6	29.7	10.6	82	70	49	26.4	25.9	24.6	
October	15.6	15.5	15.0	25.6	14.7	80	66	40	17.7	17.7	17.4	
November	10.1	10.3	11.6	19.5	15.8	85	76	47	12.5	12.7	13.9	
December	6.2	6.1	8.2	14.2	14.8	87	84	52	9.5	9.4	11.1	
Year	14.4	14.3	13.6	24.3	13.0	77	68	42	17.8	17.8	17.1	
Begin	1961	1961	1961	1961	1961	1961	1961	1961	1961	1961	1961	
No. of Years	30	30	30	30	30	30	30	30	30	30	30	

Contd...

Table C-09: Normals of Pressure, Temperature, Humidity and Vapour Pressure Peshawar, 1961 - 90

LAT:34 01'N LONG:71 35'E Height of barometer cistern amsl = 1180 ft.(0360 m)

Month	Pressure (mb or gpm)						Temperature (degree centigrade)					
	Station Level			Reduced to Mean Sea Level/GPM			Dry bulb			Wet bulb		
	00	03	12	00	03	12	00	03	12	00	03	12
	1	2	3	4	5	6	7	8	9	10	11	12
January	975.2	976.3	974.6	1018.5	1019.7	1016.4	5.7	5.4	16.2	4.0	3.7	10.4
February	973.4	974.6	972.7	1016.1	1017.4	1014.2	8.1	8.0	17.9	6.4	6.2	11.4
March	970.8	972.1	969.9	1012.9	1014.2	1010.6	12.5	13.4	22.3	10.6	11.1	15.0
April	967.3	968.6	966.0	1008.5	1009.5	1005.7	17.4	20.2	28.2	14.6	16.3	18.8
May	962.7	964.1	961.2	1003.1	1003.9	999.7	22.2	26.9	34.3	16.9	19.5	21.2
June	957.1	958.7	955.0	996.6	997.6	992.8	26.6	30.7	38.7	20.1	22.3	24.0
July	956.7	958.1	954.6	996.0	997.3	992.8	27.6	29.4	36.1	23.7	24.5	26.3
August	958.7	960.1	956.9	998.2	999.5	995.3	26.7	27.9	34.1	24.2	24.6	26.7
September	963.4	964.9	961.8	1003.5	1004.9	1000.6	23.7	25.1	32.8	20.8	21.5	24.1
October	969.7	971.2	968.4	1011.1	1012.4	1008.1	17.2	18.3	28.4	14.3	14.9	20.0
November	973.9	975.3	972.9	1016.4	1017.8	1013.8	10.8	10.9	21.3	8.6	8.5	15.3
December	975.7	976.9	975.0	1018.8	1020.1	1016.8	6.4	6.3	16.4	4.9	4.6	11.5
Year	967.1	968.4	965.7	1008.3	1009.5	1005.6	17.1	18.5	27.2	14.1	14.8	18.7
Begin	1961	1961	1961	1961	1961	1961	1961	1961	1961	1961	1961	1961
No. of Years	30	30	30	30	30	30	30	30	30	30	30	30
Month	Temperature (degree centigrade)						Relative Humidity (%)			Vapour Pressure (mb)		
	Dew point.			Mean daily Range	Mean daily Range		00	03	12	00	03	12
	00	03	12				00	03	12	00	03	12
	13	14	15	16	17		18	19	20	21	22	23
January		1.4	0.9	3.2	11.2	14.3	75	74	44	6.9	6.7	8.0
February		4.0	3.6	3.4	12.9	13.1	76	75	40	8.3	8.0	8.3
March		8.4	8.7	8.2	17.4	12.6	78	74	42	11.3	11.4	11.2
April		12.3	13.3	11.7	23.2	13.6	73	66	38	14.4	15.5	14.2
May		12.8	14.2	11.9	28.6	14.6	57	48	27	15.1	16.7	14.6
June		15.5	17.2	15.1	33.1	14.7	52	46	26	18.2	20.2	18.3
July		21.6	22.1	21.4	32.2	11.1	71	66	44	26.2	26.9	26.2
August		22.9	23.1	23.3	30.7	10.0	80	76	54	28.0	28.4	28.7
September		19.0	19.3	19.5	28.9	12.3	76	71	46	22.3	22.7	23.1
October		11.7	11.9	14.2	23.7	15.1	71	67	43	14.0	14.2	16.6
November		5.8	5.5	10.1	17.6	16.1	72	70	50	9.5	9.3	12.7
December		2.6	2.0	6.1	12.5	15.2	77	75	52	7.4	7.2	9.7
Year		11.5	11.8	12.3	22.7	13.6	71	67	42	15.1	15.6	16.0
Begin		1961	1961	1961	1961	1961	1961	1961	1961	1961	1961	1961
No. of Years		30	30	30	30	30	30	30	30	30	30	30

Contd...

Table C-09: Normals of Pressure, Temperature, Humidity and Vapour Pressure Quetta (Samungli), 1961 - 90

LAT:30 15'N LONG:66 53'E Height of barometer cistern amsl = 5253 ft.(1601 m)

Month	Pressure (mb or gpm)						Temperature (degree centigrade)					
	Station Level			Reduced to Mean Sea Level/GPM			Dry bulb			Wet bulb		
	00	03	12	00	03	12	00	03	12	00	03	12
	1	2	3	4	5	6	7	8	9	10	11	12
January	842.4	843.3	841.6	1516.1	1526.1	1505.4	-1.2	-1.5	9.3	-2.2	-2.5	4.6
February	841.1	842.0	840.3	1505.5	1512.3	1495.8	1.2	1.2	11.5	-0.1	-0.1	6.3
March	840.7	841.7	839.7	1497.3	1507.2	1484.8	5.5	6.8	17.1	3.6	4.6	10.1
April	839.7	840.8	838.6	1485.5	1496.0	1471.2	10.0	13.4	23.3	7.1	9.5	13.7
May	838.0	839.1	837.0	1467.6	1477.6	1450.6	13.2	19.4	29.1	9.0	12.6	16.3
June	834.5	835.4	833.2	1430.4	1437.2	1407.1	17.4	23.7	34.0	11.8	15.4	18.2
July	832.8	834.0	831.2	1410.0	1418.8	1385.4	21.3	24.8	34.3	16.5	18.4	19.4
August	834.4	835.2	832.7	1426.5	1434.9	1403.2	19.5	22.4	33.0	15.0	16.6	18.2
September	838.4	839.5	836.9	1472.2	1480.1	1451.1	12.8	16.2	29.7	8.9	10.6	15.8
October	842.9	844.0	841.7	1519.5	1530.0	1502.6	5.9	9.0	23.7	2.7	4.4	12.1
November	844.4	845.5	843.2	1535.2	1544.7	1519.8	1.1	2.3	17.2	-0.9	-0.2	8.5
December	843.5	844.5	842.7	1526.9	1536.4	1516.4	-1.1	-1.1	11.5	-2.3	-2.5	5.7
Year	839.4	840.4	838.2	1482.7	1491.8	1466.1	8.8	11.4	22.8	5.7	7.2	12.4
Begin	1961	1961	1961	1961	1961	1961	1961	1961	1961	1961	1961	1961
No. of Years	30	30	30	30	30	30	30	30	30	30	30	30
Month	Temperature (degree centigrade)					Relative Humidity (%)			Vapour Pressure (mb)			
	Dew point			Mean Temp.	Mean daily Range	00	03	12	00	03	12	
	00	03	12									
	13	14	15	16	17	18	19	20	21	22	23	
January	-4.0	-4.2	-2.1	3.7	14.1	81	82	50	4.5	4.5	5.4	
February	-2.1	-2.0	-0.3	6	13.8	80	80	50	5.3	5.3	6.2	
March	1.1	1.7	2.8	11.1	15.2	75	71	43	6.7	6.9	8	
April	4.2	5.7	5.2	16.6	16.5	69	62	35	8.3	9.2	9.6	
May	4.8	6.8	6.1	21	18.9	59	46	27	8.7	10.3	10.5	
June	6.9	9.1	6.2	25.6	19.4	52	41	21	10.3	12.2	10.8	
July	13.1	14.5	9.5	27.9	16	61	55	26	15.6	17.1	13	
August	11.7	12.7	7.7	26.4	17	63	56	24	14.3	15.3	11.4	
September	4.9	5.3	4.0	21.1	20.5	60	50	22	8.9	9.3	9	
October	-1.9	-1.8	-0.1	14.6	21.6	58	49	24	5.4	5.6	6.7	
November	-4.3	-4.3	-2.4	9.2	20.1	67	62	29	4.5	4.4	5.8	
December	-4.6	-4.9	-2.2	5.1	16.5	77	76	43	4.2	4.2	5.4	
Year	2.5	3.2	2.9	15.7	17.5	67	61	33	8.1	8.7	8.5	
Begin	1961	1961	1961	1961	1961	1961	1961	1961	1961	1961	1961	
No. of Years	30	30	30	30	30	30	30	30	30	30	30	

Source:- Pakistan Meteorological Department

**Table C-10: Mean Monthly Wind Velocities at Selected Centres,
1961 - 90**

(knots)

Period	Name of Station							
	Badin	Hyder- abad	Jacob- abad	Jhelum	Khanpur	Karachi (Airport)	Lahore	Faisal- abad
January	4.3	2.7	2.8	1.5	2.1	3	2.2	1.4
February	4.5	2.7	3.8	1.9	2.9	3.7	3	1.9
March	5.4	3.3	5.1	2.3	3.5	5	3.5	2.2
April	7.5	4.6	5.6	2.5	3.4	6.3	3.9	2.3
May	10.5	6.8	6.3	2.7	3.6	8.2	4.2	2.6
June	10.8	8.6	7.4	2.8	4.9	8.7	4.6	2.8
July	10.7	8.4	7.9	2.4	5	9.1	4.8	2.9
August	10.1	7.4	6.8	1.9	4.1	8.6	3.6	2.5
September	7.7	5.8	5	1.5	3.1	7.1	2.8	2.1
October	4.7	2.9	3.4	1.3	2.4	4	2.2	1.5
November	3.8	2.3	2.5	1	1.8	2.7	1.6	2.1
December	4	2.7	2.3	1.2	1.9	2.8	1.7	1.1

Contd...

**Table C-10: Mean Monthly Wind Velocities at Selected Centres,
1961 – 90**

(knots)

Period	Name of Station							
	Multan	Peshawer	Quetta	Sialkot	Dalbandin	Jiwani	Punjgur	Chhor
January	1.2	1.7	3.7	-	3.7	5.3	5.8	3.2
February	1.9	2	4.4	-	4.3	5.9	5.9	3.5
March	2.6	2.4	4.9	-	4.7	7.3	5.9	4.3
April	2.6	2.4	4.9	-	4.7	8.1	6.0	6.2
May	2.7	3	5.2	-	4.5	8	6.3	10.0
June	4.1	3	5.1	-	4.5	8	6.7	12.1
July	3.6	3.1	6	1.9	4.7	8.2	5.9	10.8
August	3.3	2.7	5	-	4.2	7.7	-	9.2
September	2.9	2.1	3.7	-	3.5	6.1	-	7.3
October	1.6	1.5	3.4	-	3.5	5.3	-	3.9
November	1	1.4	2.8	-	3.2	4.8	-	2.9
December	1	1.4	3.1	-	3.3	4.8	-	2.9

Contd...

**Table C-10: Mean Monthly Wind Velocities at Selected Centres,
1961 - 90**

(knots)

Period	Name of Station						
	Padidan	Islama- bad	Murree	Sargo- dha	D.I.Khan	Kohat	Para- chinar
January	2.4	1.7	...	2.5	2.1	4.4	3.3
February	2.6	2.4	...	3.1	2.5	5	3.3
March	3.2	2.7	...	3.7	2.7	5.3	3.8
April	3.7	2.5	...	4.1	3.1	5.7	4.4
May	4.3	2.7	...	4.3	3.5	5.9	4.5
June	6.3	2.5	...	4.7	3.5	5.2	4.8
July	6.2	2.4	...	4.9	3.9	4.4	4.3
August	5.2	1.7	...	4.1	3.4	3.8	4.4
September	3.7	1.3	...	3.3	2.6	4.1	4.3
October	2.2	1.1	...	2.6	2.0	4.8	3.9
November	1.8	1.0	...	2.2	1.5	4.6	5.3
December	2.0	1.3	...	2.3	1.6	4.1	3.2

Source:- Pakistan Meteorological Department.

Note:- This table is prepared on the basis of 30 years data.

**Table C-11: Normals of Wind Speed and Direction, 1961 – 90
Islamabad (Chaklala)**

LAT.33 37'N LONG: 73 06'E Height of anemometer above ground = 43ft.(13m)

Month	Wind Frequency (Percent)								
	Speed in Knot Ranges								
	Calm	1 to 3	4 to 6	7 to 10	11 to 16	17 to 21	22 to 27	28 to 33	> 33
	1	2	3	4	5	6	7	8	9
January	72	13	7	7	1.0	0.0	0.0	0.0	0.0
February	63	14	9	11	3.0	-1.0	-1.0	0.0	0.0
March	57	15	11	12	5.0	1.0	-3.0	0.0	0.0
April	59	15	11	11	3.0	1.0	0.0	0.0	-1.0
May	54	14	12	14	4.0	1.0	-4.0	-1.0	-1.0
June	49	18	12	18	3.0	-4.0	-1.0	0.0	-1.0
July	59	18	12	10	1.0	-4.0	-1.0	-1.0	0.0
August	71	17	6	5	1.0	0.0	-1.0	0.0	0.0
September	78	13	4	3	1.0	-1.0	-1.0	0.0	0.0
October	87	6	4	2	1.0	-4.0	-1.0	0.0	0.0
November	86	8	3	3	-4.0	0.0	0.0	0.0	0.0
December	83	9	5	3	0.0	0.0	0.0	0.0	0.0
Year	68	13	8	8	2.0	0.3	0.1	0.0	0.0
Begin					1976				
No. of years					3				

Contd...

**Table C-11 Normals of Wind Speed and Direction, 1961 – 90
Islamabad (Chaklala)**

LAT.33 37'N LONG: 73 06'E Height of anemometer above ground = 43ft.(13m).

Month	Wind Frequency (Percent)									
	Direction from								Speed (Knots)	
	N	NE	E	SE	S	SW	W	NW	00 GMT	03 GMT
	10	11	12	13	14	15	16	17	18	19
January	0	2	2	1	1	3	12	6	0.4	0.3
									0.6	0.6
February	2	2	3	1	2	5	12	11	0.5	0.3
									1.0	0.8
March	2	3	5	2	1	5	10	14	0.9	0.8
									1.6	1.1
April	2	4	5	2	2	4	10	11	1.7	0.8
									1.9	1.6
May	3	5	6	4	4	5	9	10	1.1	1.4
									1.7	1.8
June	2	3	5	13	11	5	6	6	1.3	1.5
									1.7	2.4
July	1	2	5	16	11	5	2	0	1.3	1.7
									2.1	2.2
August	0	1	5	8	5	5	3	1	1.6	0.7
									1.8	1.5
September	0	2	2	4	5	4	4	2	0.3	0.3
									1.1	0.9
October	1	1	1	0	1	1	4	2	0.6	0.2
									0.7	0.6
November	1	1	1	0	0	1	6	3	0.1	0.1
									0.5	0.4
December	1	1	1	0	1	2	6	5	0.1	0.1
									0.6	0.5
Year	1	2	3	4	4	4	7	6	0.8	0.7
									1.3	1.2
Begin				1976					1961	1961
No. of years				3					30	30

Contd...

**Table C-11 Normals of Wind Speed and Direction, 1961 – 90
Islamabad (Chaklala)**

LAT.33 37'N LONG: 73 06'E Height of anemometer above ground = 43ft.(13m).

Month	Mean Wind at Synoptic Hour								
	Speed (Knots)						Direction (degrees & 8 points)		
	06 GMT	09 GMT	12 GMT	15 GMT	18 GMT	21 GMT	00 GMT	03 GMT	06 GMT
	20	21	22	23	24	25	26	27	28
January	1.2	3.6	3.6	1.0	0.5	0.2	17	170	253
			4.2				N	VRB	W
February	2.2	5.2	5.8	2.2	1.4	0.8	73	81	258
			5.7				VRB	E	W
March	2.9	6.1	6.0	2.6	1.3	1.3	328	22	309
			5.8				NW	N	NW
April	2.7	4.5	3.9	2.6	1.4	1.7	3	318	282
			5.7				N	NW	W
May	3.8	5.2	5.6	3.5	2.0	1.9	8	41	296
			6.4				N	VRB	NW
June	4.0	4.6	5.6	3.4	2.3	1.6	107	129	173
			5.4				E	SE	S
July	2.8	3.8	3.3	1.8	1.4	1.6	143	124	151
			4.8				SE	SE	SE
August	1.7	2.4	2.3	1.1	0.5	0.8	72	107	146
			3.4				VRB	E	SE
September	1.6	2.9	1.9	0.9	0.5	0.4	79	294	198
			2.8				E	VRB	S
October	0.5	2.2	1.3	0.4	0.4	0.4	37	90	155
			2.4				NE	E	SE
November	0.6	2.2	1.2	0.2	0.2	0.4	81	250	3
			2.2				E	VRB	N
December	0.7	2.2	2.0	0.5	0.2	0.1	338	225	276
			2.7				NW	SW	W
Year	2.1	3.7	3.5	1.7	1.0	0.9	61	97	217
			4.3				NE	E	SW
Begin			1976						
			1961						
			3						
No. of years			30						

Contd...

**Table C-11: Normals of Wind Speed and Direction, 1961 – 90
Islamabad (Chaklala)**

LAT.33 37'N LONG: 73 06'E Height of anemometer above ground = 43ft.(13m).

Month	Mean Wind at Synoptic Hour					MEAN WIND			Max. Wind Speed (Kts)
	Direction (degrees & 8 points)					Speed (KTS)	Direction Deg & 8Pt	Steadiness (Percent)	
	09 GMT	12 GMT	15 GMT	18 GMT	21 GMT				
	29	30	31	32	33	34	35	36		37
January	279	284	293	281	4	1.4	283	49	12
	W	W	NW	W	N	1.7	W		
February	286	289	299	326	337	2.3	290	59	22
	W	W	NW	VRB	NW	2.4	W		
March	293	296	317	17	329	2.7	306	48	25
	NW	NW	NW	N	NW	2.7	NW		
April	282	307	314	49	309	2.4	304	36	35
	W	NW	NW	VRB	Nw	2.5	NW		
May	268	273	38	22	31	3.1	321	18	40
	W	W	VRB	N	NE	2.7	VRB		
June	219	174	128	144	109	3.0	159	32	39
	SW	S	SE	SE	E	2.5	S		
July	164	164	157	122	125	2.2	150	67	28
	S	S	SE	SE	SE	2.4	SE		
August	172	162	176	114	113	1.4	148	40	26
	S	S	VRB	SE	SE	1.7	SE		
September	263	210	143	117	64	1.1	191	20	22
	VRB	SW	VRB	SE	NE	1.3	VRB		
October	260	282	283	28	27	0.8	303	22	24
	W	W	W	NE	NE	1.1	VRB		
November	283	280	293	2	173	0.6	292	49	12
	W	W	W	N	VRB	1.0	W		
December	290	292	323	329	90	0.7	296	56	10
	W	W	NW	NW	E	1.3	NW		
Year	265	266	303	73	49	1.8	266	41	40
	W	W	NW	E	NE	2.0	W		
Begin	1976					1976	1976	1976	1976
						1961			
	3					3	3	3	3
No. of years						30			

Contd...

**Table C-11: Normals of Wind Speed and Direction, 1961 – 90
Karachi (Airport)**

LAT.24 45'N LONG: 67 08'E Height of anemometer above ground = 23ft.(7m).

Month	Wind Frequency (Percent)								
	Speed in Knot Ranges								
	Calm	1 to 3	4 to 6	7 to 10	11 to 16	17 to 21	22 to 27	28 to 33	> 33
	1	2	3	4	5	6	7	8	9
January	49	26	10	13	2	.1	0	0	0
February	46	21	13	17	3	1	0	0	0
March	39	17	12	26	5	.2	.1	0	0
April	20	14	14	42	8	1	0	0	0
May	8	8	10	43	29	2	0	.1	0
June	6	8	12	54	19	1	0	0	0
July	6	8	15	53	17	1	0	0	0
August	6	5	11	57	21	.1	0	0	0
September	7	15	17	50	12	.2	0	0	0
October	40	22	15	23	1	0	0	0	0
November	47	24	12	14	3	0	0	0	0
December	55	23	9	10	3	.1	0	0	0
Year	27	16	13	33	10	1	0	0	0
Begin					1975				
No. of years					4				

Contd...

**Table C-11: Normals of Wind Speed and Direction, 1961 – 90
Karachi (Airport)**

LAT.24 45'N LONG: 67 08'E Height of anemometer above ground = 23ft.(7m).

Month	Wind Frequency (Percent)									
	Direction from								Speed (Knots)	
	N	NE	E	SE	S	SW	W	NW	00 GMT	03 GMT
	10	11	12	13	14	15	16	17	18	19
January	3	20	8	2	0	8	6	5	1.1	1.0
									1.4	1.3
February	3	14	6	1	2	11	11	5	1.3	1.3
									1.6	1.3
March	2	4	2	2	1	14	30	6	1.3	1.3
									1.8	1.8
April	1	1	1	1	0	23	49	6	2.7	4.6
									2.2	3.5
May	1	0	0	0	0	30	57	4	5.6	7.5
									4.5	6.3
June	0	0	2	2	1	38	48	2	6.3	7.1
									6.3	7.1
July	0	2	1	1	0	33	52	4	5.9	6.8
									6.6	7.0
August	1	2	1	1	0	18	67	4	7.0	7.8
									6.6	6.9
September	1	4	3	1	0	17	65	3	5.4	6.1
									4.9	5.7
October	2	2	1	0	0	17	34	4	0.8	1.6
									1.1	1.5
November	4	21	6	2	1	9	9	2	1.2	1.4
									0.8	0.9
December	3	18	7	1	1	9	3	3	0.7	1.0
									1.2	1.2
Year	2	7	3	1	1	19	36	4	3.3	4.0
									3.2	3.7
Begin				1975					1961	1961
No. of years				4					30	30

Contd...

**Table C-11: Normals of Wind Speed and Direction, 1961 – 90
Karachi (Airport)**

LAT. 24° 45' N LONG. 67° 08' E Height of anemometer above ground = 23ft. (7m).

Month	Mean Wind at Synoptic Hour								
	Speed (Knots)						Direction (degrees & 8 points)		
	06 GMT	09 GMT	12 GMT	15 GMT	18 GMT	21 GMT	00 GMT	03 GMT	06 GMT
	20	21	22	23	24	25	26	27	28
January	4.4	4.7	5.1	1.6	1.6	0.8	36	33	48
			5.1				NE	NE	NE
February	4.9	5.4	5.9	2.9	1.8	1.0	3	22	37
			6.3				N	N	NE
March	4.8	7.3	8.1	4.4	2.5	1.6	283	297	292
			7.9				W	NW	W
April	6.8	9.5	9.5	6.5	4.9	2.9	274	279	268
			8.4				W	W	W
May	9.9	11.9	11.4	9.4	7.0	6.1	267	270	260
			10.3				W	W	W
June	9.1	10.5	10.4	8.0	7.6	6.6	264	267	250
			10.5				W	W	W
July	8.6	9.3	9.5	8.2	7.4	6.5	263	265	261
			10.2				W	W	W
August	8.9	9.8	9.9	8.9	7.3	7.0	268	272	267
			9.3				W	W	W
September	8.3	9.1	8.9	6.9	5.8	5.1	273	277	266
			8.6				W	W	W
October	4.1	6.3	6.7	3.4	1.7	1.2	281	277	275
			6.2				W	W	W
November	4.6	5.1	5.2	1.9	1.3	1.0	27	34	40
			4.8				NE	NE	NE
December	4.2	4.3	4.5	1.4	0.9	0.5	36	34	50
			4.6				NE	NE	NE
Year	6.6	7.8	7.9	5.3	4.1	3.4	273	277	274
			7.7				W	W	W
Begin			1975						
			1961						
			4						
No. of years			30						

Contd...

**Table C-11 Normals of Wind Speed and Direction, 1961 – 90
Karachi (Airport)**

LAT.24 45'N LONG: 67 08'E Height of anemometer above ground = 23ft.(7m).

Month	Mean Wind at Synoptic Hour					MEAN WIND			Max. Wind Speed (Kts)
	Direction (degrees & 8 points)					Speed (KTS)	Direction Deg & 8Pt	Steadiness (Percent)	
	09 GMT	12 GMT	15 GMT	18 GMT	21 GMT				
	29	30	31	32	33	34	35	36		37
January	54	243	357	24	19	2.5	36	31	17
	NE	VRB	VRB	NE	N	3.0	NE		
February	325	249	275	302	299	3.1	320	19	21
	VRB	W	W	NW	NW	3.7	VRB		
March	252	252	259	270	268	3.9	263	72	26
	W	W	W	W	W	5.0	W		
April	248	247	255	266	266	5.9	259	87	19
	W	SW	W	W	W	6.3	W		
May	250	245	253	259	261	8.6	256	91	28
	W	SW	W	W	W	8.2	W		
June	242	237	246	249	251	8.2	249	84	19
	SW	SW	SW	W	W	8.7	W		
July	254	245	247	257	258	7.8	255	85	17
	W	SW	SW	W	W	9.1	W		
August	258	252	262	263	266	8.3	263	88	17
	W	W	W	W	W	8.6	W		
September	260	254	262	268	273	6.9	265	82	17
	W	W	W	W	W	7.1	W		
October	256	247	252	263	271	3.2	259	81	14
	W	SW	W	W	W	4.0	W		
November	52	242	348	39	46	2.7	34	31	16
	VRB	VRB	VRB	NE	NE	2.7	NE		
December	53	215	56	34	34	2.2	47	38	17
	VRB	VRB	NE	NE	NE	2.8	NE		
Year	253	247	256	264	265	5.3	261	66	28
	W	SW	W	W	W	5.8	W		
Begin	1975					1975	1975	1975	1975
						1961			
	4					4	4	4	4
No. of years						30			

Contd...

**Table C-11 Normals of Wind Speed and Direction, 1961 - 90
Lahore**

LAT.31 33'N LONG: 74 20'E Height of anemometer above ground = 37ft.(11m).

Month	Wind Frequency (Percent)								> 33
	Speed in Knot Ranges								
	Calm	1 to 3	4 to 6	7 to 10	11 to 16	17 to 21	22 to 27	28 to 33	
	1	2	3	4	5	6	7	8		9
January	72	25	3	0.4	0	0	0	0	0
February	60	33	7	1	0	0	0	0	0
March	55	35	7	2	1	0.1	0	0	0
April	48	40	9	3	1	0.1	0	0	0
May	51	39	7	3	1	0	0	0	0
June	40	45	12	4	0.4	0	0	0	0
July	43	46	9	2	0.4	0	0.1	0	0
August	52	42	5	1	0.4	0	0	0	0
September	65	30	5	0.3	0.1	0.1	0	0	0
October	75	22	1	1	0	1	0	0	0
November	79	19	1	1	0.1	0	0	0	0
December	83	16	1	0	0	0	0	0	0
Year	60	33	6	1	0.3	0.1	0	0	0
Begin					1976				
No. of years					3				

Contd...

**Table C-11: Normals of Wind Speed and Direction, 1961 – 90
Lahore**

LAT.31 33'N LONG: 74 20'E Height of anemometer above ground = 37ft.(11m).

Month	Wind Frequency (Percent)									
	Direction from								Speed (Knots)	
	N	NE	E	SE	S	SW	W	NW	00 GMT	03 GMT
	10	11	12	13	14	15	16	17	18	19
January	1	2	2	3	0	1	6	12	0.3	0.2
									0.4	0.4
February	3	6	3	2	1	2	5	18	0.7	0.5
									0.9	0.9
March	3	9	3	3	1	1	6	19	0.8	1.0
									1.2	1.3
April	3	11	4	5	2	2	8	17	1.2	1.6
									1.6	1.8'
May	3	8	5	8	2	6	8	10	1.1	1.5
									1.5	1.9
June	1	9	9	19	4	7	7	4	1.6	2.0
									1.7	2.6
July	0	7	16	24	3	3	3	2	1.3	2.0
									1.7	2.4
August	2	10	12	16	3	2	2	2	1.3	1.5'
									1.2	1.9
September	2	6	3	8	3	3	6	4	0.6	0.8
									0.8	1.2
October	3	3	4	4	1	1	3	6	0.7	0.7
									0.6	1.0
November	4	4	1	2	0	0	2	8	0.3	0.4
									0.3	0.4
December	2	3	1	1	0	0	3	6	0.2	0.3'
									0.3	0.4
Year	2	7	5	8	2	2	5	9	0.9	1.0
									1.0	1.3
Begin				1976					1961	1961
				3						
No. of years									30	30

Contd...

**Table C-11: Normals of Wind Speed and Direction, 1961 – 90
Lahore**

LAT.31 33'N LONG: 74 20'E Height of anemometer above ground = 37ft.(11m).

Month	Mean Wind at Synoptic Hour								
	Speed (Knots)						Direction (degrees & 8 points)		
	06 GMT	09 GMT	12 GMT	15 GMT	18 GMT	21 GMT	00 GMT	03 GMT	06 GMT
	20	21	22	23	24	25	26	27	28
January	1.5	1.9	1.1	0.4	0.3	0.3	341	164	305
			1.4				N	VRB	NW
February	1.9	2.3	2.0	0.8	0.8	0.6	15	43	318
			2.6				N	NE	NW
March	2.2	2.6	2.4	0.8	1.0	0.8	344	343	336
			3.1				N	N	NW
April	2.3	2.4	2.6	1.1	1.2	1.3	7	356	350
			3.1				N	N	N
May	2.5	2.2	1.8	0.9	1.4	1.3	30	92	281
			2.8				NE	VRB	VRB
June	2.7	2.3	2.2	1.5	2.0	1.6	110	112	133
			2.7				E	E	SE
July	2.4	2.1	2.1	1.3	1.7	1.5	121	109	119
			2.5				SE	E	SE
August	2.0	1.9	1.5	0.7	1.2	1.0	107	109	90
			2.1				E	E	E
September	1.6	1.8	1.5	0.5	0.8	0.4	105	95	147
			1.7				E	E	VRB
October	1.5	1.3	0.4	0.3	0.5	0.3	36	65	271
			0.8				NE	NE	VRB
November	1.2	1.4	0.4	0.3	0.3	0.2	57	32	347
			0.4				NE	NE	N
December	0.8	1.3	0.3	0.2	0.2	0.1	10	14	322
			0.6				N	N	NW
Year	1.9	2.0	1.5	0.7	1.0	0.8	73	78	34
			2.0				E	E	NE
Begin			1976						
			1961						
			3						
No. of years			30						

Contd...

**Table C-11: Normals of Wind Speed and Direction, 1961 – 90
Lahore**

LAT.31 33'N LONG: 74 20'E Height of anemometer above ground = 37ft.(11m).

Month	Mean Wind at Synoptic Hour					MEAN WIND			Max. Wind Speed (Kts)
	Direction (degrees & 8 points)					Speed (KTS)	Direction Deg & 8Pt	Steadiness (Percent)	
	09 GMT	12 GMT	15 GMT	18 GMT	21 GMT				
	29	30	31	32	33	34	35	36		37
January	302	299	29	22	67	0.8	310	41	9
	NW	NW	NE	N	NE	1.3	NW		
February	308	320	348	4	359	1.2	330	48	9
	NW	NW	N	N	N	2.0	NW		
March	319	323	34	56	357	1.4	339	43	20
	NW	NW	NE	NE	N	2.4	N		
April	312	315	7	13	352	1.7	343	37	18
	NW	NW	N	N	N	2.6	N		
May	276	284	246	43	7	1.6	332	15	14
	W	W	VRB	NE	N	2.6	VRB		
June	160	169	107	125	120	2.0	124	39	12
	S	VRB	E	SE	SE	2.8	SE		
July	119	102	101	116	114	1.8	113	63	22
	SE	E	E	SE	SE	2.8	SE		
August	95	105	109	110	115	1.4	104	53	16
	E	E	E	E	SE	2.2	E		
September	300	336	64	138	120	1.0	98	10	18
	VRB	VRB	NE	VRB	SE	1.7	VRB		
October	322	329	333	18	52	0.7	359	27	20
	NW	NW	NW	N	NE	1.3	N		
November	323	11	353	352	324	0.6	348	55	11
	NW	N	N	N	NW	0.9	N		
December	322	347	30	17	360	0.4	338	50	5
	NW	N	NE	N	N	1.0	N		
Year	315	326	62	76	74	1.2	39	40	22
	NW	NW	NE	E	E	2.0	NE		
Begin	1976					1976	1976	1976	1976
						1961			
	3					3	3	3	3
No. of years						30			

Contd...

**Table C-11: Normals of Wind Speed and Direction, 1961 – 90
Peshawar**

LAT.34 01'N LONG: 71 35'E Height of anemometer above ground = 41ft.(12m).

Month	Wind Frequency (Percent)								
	Speed in Knot Ranges								
	Calm	1 to 3	4 to 6	7 to 10	11 to 16	17 to 21	22 to 27	28 to 33	> 33
	1	2	3	4	5	6	7	8	9
January	52	41	4	3	-1.0	-1.0	0	0	0
February	40	49	6	4	1	-4.0	0	0	0
March	36	49	6	6	2	1	-1.0	0	0
April	36	45	9	8	1	-3.0	0	0	0
May	34	42	12	9	2	1	-1.0	-1.0	0
June	25	44	13	13	3	1	-1.0	-1.0	-1.0
July	17	52	15	15	1	-3.0	-3.0	0	0
August	20	54	13	12	1	-3.0	-1.0	0	-1.0
September	35	53	6	5	-1.0	-1.0	0	0	0
October	57	39	2	1	-4.0	0	0	0	0
November	59	38	2	1	-1.0	-1.0	0	0	0
December	69	30	1	1	0	0	0	0	0
Year	40	45	7	7	1	-4.0	-1.0	0	0
Begin					1976				
					3				
No. of years									

Contd...

**Table C-11: Normals of Wind Speed and Direction, 1961 – 90
Peshawar**

LAT.34 01'N LONG: 71 35'E Height of anemometer above ground = 41ft.(12m).

Month	Wind Frequency (Percent)									
	Direction from								Speed (Knots)	
	N	NE	E	SE	S	SW	W	NW	00 GMT	03 GMT
	10	11	12	13	14	15	16	17	18	19
January	6	3	3	8	18	1	1	7	1.4	1.4
									1.5	1.3
February	8	5	2	6	22	4	2	11	2.0	1.5
									1.7	1.5
March	11	5	2	7	22	4	3	12	1.8	1.7
									2.0	1.5
April	11	8	3	7	20	5	3	8	2.0	1.6
									1.9	1.3
May	11	12	5	8	11	4	3	11	1.8	1.9
									1.8	1.7
June	19	16	6	7	7	3	3	13	2.4	3.0
									2.0	2.4
July	26	16	3	6	5	1	1	26	2.9	2.9
									2.5	2.8
August	25	18	2	5	4	1	3	21	2.8	2.9
									2.2	2.5
September	20	12	4	4	3	1	3	17	1.5	2.0
									1.6	1.7
October	12	8	3	3	8	1	2	6	0.9	0.8
									1.2	0.8
November	8	5	2	4	17	1	1	4	1.2	1.1
									1.5	0.9
December	4	3	1	3	17	2	1	1	0.9	0.7
									1.4	1.2
Year	13	9	3	6	13	2	2	11	1.8	1.8
									1.8	1.6
Begin				1976					1961	1961
				3						
No. of years									28	28

Contd...

**Table C-11: Normals of Wind Speed and Direction, 1961 – 90
Peshawar**

LAT.34 01'N LONG: 71 35'E Height of anemometer above ground = 41ft.(12m)

Month	Mean Wind at Synoptic Hour								
	Speed (Knots)						Direction (degrees & 8 points)		
	06 GMT	09 GMT	12 GMT	15 GMT	18 GMT	21 GMT	00 GMT	03 GMT	06 GMT
	20	21	22	23	24	25	26	27	28
January	1.5	2.9	1.7	0.9	1.5	1.2	169	176	107
			1.4				S	S	VRB
February	2.5	4.2	3.0	1.5	1.5	1.3	189	195	351
			2.7				S	S	N
March	2.8	4.6	3.8	1.9	2.2	2.1	200	208	350
			3.2				S	SW	N
April	2.7	3.9	3.3	2.0	2.4	2.2	181	204	7
			3.7				S	SW	N
May	4.1	4.9	4.9	2.0	1.9	1.9	207	290	12
			4.6				SW	VRB	N
June	4.1	5.3	6.6	3.3	2.7	2.3	323	341	28
			5.4				NW	N	NE
July	3.5	5.2	5.3	3.5	2.9	2.7	335	344	10
			5.1				NW	N	N
August	3.3	4.2	4.9	2.9	2.5	2.9	340	345	13
			4.4				N	N	N
September	2.5	3.2	4.1	1.7	1.7	1.5	321	337	21
			3.6				NW	NW	N
October	1.7	2.4	1.6	1.0	1.0	1.2	210	239	17
			1.6				SW	VRB	N
November	1.3	2.0	1.0	1.0	0.8	1.1	185	185	63
			0.7				S	S	VRB
December	1.0	1.0	0.4	0.8	0.7	0.9	183	180	120
			0.7				S	S	VRB
Year	2.6	3.7	3.4	1.9	1.8	1.8	245	306	15
			3.1				SW	NW	N
Begin			1976						
			1961						
			3						
No. of years			28						

Contd...

**Table C-11: Normals of Wind Speed and Direction, 1961 – 90
Peshawar**

LAT.34 01'N LONG: 71 35'E Height of anemometer above ground = 41ft.(12m).

Month	Mean Wind at Synoptic Hour					MEAN WIND			Max. Wind Speed (Kts)
	Direction (degrees & 8 points)					Speed (KTS)	Direction Deg & 8Pt	Steadiness (Percent)	
	09 GMT	12 GMT	15 GMT	18 GMT	21 GMT				
	29	30	31	32	33	34	35	36		37
January	358	349	195	174	178	1.6	170	14	17
	N	N	VRB	S	S	1.7	VRB		
February	341	345	219	192	176	2.2	278	13	21
	N	N	SW	S	S	2.0	VRB		
March	343	328	213	275	183	2.6	292	17	24
	N	NW	SW	W	S	2.4	VRB		
April	11	306	220	209	203	2.5	238	7	21
	N	VRB	VRB	SW	SW	2.4	VRB		
May	22	14	5	304	216	2.9	355	17	30
	N	VRB	VRB	NW	SW	3.0	VRB		
June	27	53	141	309	322	3.7	14	34	35
	NE	VRB	VRB	VRB	NW	3.0	N		
July	23	24	13	345	332	3.6	1	51	26
	NE	NE	N	N	NW	3.1	N		
August	27	40	349	330	352	3.3	5	54	35
	NE	NE	N	NW	N	2.7	N		
September	47	36	1	331	317	2.3	5	50	20
	NE	NE	N	NW	NW	2.1	N		
October	49	32	352	315	238	1.3	18	25	16
	NE	NE	N	NW	VRB	1.5	N		
November	27	352	156	199	195	1.2	151	12	17
	NE	N	SE	S	VRB	1.4	VRB		
December	34	215	163	182	183	0.9	174	38	10
	VRB	VRB	S	S	S	1.4	S		
Year	17	20	341	288	263	2.3	360	28	35
	N	N	N	W	W	2.2	N		
Begin	1976					1976	1976	1976	1976
						1961			
	3					3	3	3	3
No. of years						28			

Contd....

**Table C-11: Normals of Wind Speed and Direction, 1961 - 90
Quetta (Samungli)**

LAT.30 15'N LONG: 66 53'E Height of anemometer above ground = 27ft.(2m).

Month	Wind Frequency (Percent)								
	Speed in Knot Ranges								
	Calm	1 to 3	4 to 6	7 to 10	11 to 16	17 to 21	22 to 27	28 to 33	> 33
	1	2	3	4	5	6	7	8	9
January	49	20	12	13	5	1	-2.0	0	0
February	51	12	13	16	6	2	-4.0	0	0
March	46	13	12	18	7	2	-3.0	0	-1.0
April	44	15	14	20	6	1	1	0	0
May	51	12	10	17	8	2	1	0	0
June	37	19	14	20	8	3	0	0	0
July	24	22	16	26	10	2	-1.0	0	-1.0
August	37	21	17	19	4	1	-1.0	0	0
September	50	18	16	14	2	-4.0	-1.0	0	0
October	55	21	12	10	1	-2.0	0	0	0
November	54	18	12	12	3	-2.0	-1.0	0	0
December	61	16	11	8	3	1	0	0	0
Year	47	17	13	16	5	1	-2.0	0	0
Begin					1975				
No. of years					4				

Contd...

**Table C-11: Normals of Wind Speed and Direction, 1961 – 90
Quetta (Samungli)**

LAT.30 15'N LONG: 66 53'E Height of anemometer above ground = 27ft.(2m)

Month	Wind Frequency (Percent)									
	Direction from								Speed (Knots)	
	N	NE	E	SE	S	SW	W	NW	00 GMT	03 GMT
	10	11	12	13	14	15	16	17	18	19
January	3	1	3	14	3	3	9	15	1.7	2.0
									3.0	2.7
February	3	0	4	12	4	4	8	15	2.3	1.9
									3.3	2.9
March	1	0	2	13	4	6	10	16	2.1	2.0
									3.5	3.4
April	0	2	1	16	3	6	12	15	1.3	1.8
									2.8	2.4
May	2	1	2	3	1	5	14	22	0.7	0.9
									2.6	2.6
June	1	1	1	19	5	3	14	19	2.4	2.4
									3.8	2.7
July	2	1	3	34	12	4	10	10	3.9	3.6
									5.6	3.9
August	2	1	2	22	7	4	12	14	2.3	2.4
									4.2	2.9
September	3	0	2	13	2	3	11	17	1.2	1.0
									2.5	1.4
October	2	0	2	7	1	3	6	23	0.6	0.7
									1.7	1.1
November	2	0	1	8	2	3	6	23	0.7	0.9
									1.5	1.1
December	3	0	1	9	2	3	6	15	0.8	1.1
									2.5	2.2
Year	2	1	2	14	4	4	10	17	1.7	1.7
									3.1	2.4
Begin				1975					1961	1961
				4						
No. of years									30	30

Contd...

**Table C-11: Normals of Wind Speed and Direction, 1961 – 90
Quetta (Samungli)**

LAT.30 15'N LONG: 66 53'E Height of anemometer above ground = 27ft.(2m).

Month	Mean Wind at Synoptic Hour								
	Speed (Knots)						Direction (degrees & 8 points)		
	06 GMT	09 GMT	12 GMT	15 GMT	18 GMT	21 GMT	00 GMT	03 GMT	06 GMT
	20	21	22	23	24	25	26	27	28
January	3.0	5.3	5.3	2.5	2.7	1.6	178	159	180
			6.8				S	S	S
February	3.5	5.7	6.3	3.2	3.0	2.2	171	138	213
			8.2				S	SE	SW
March	4.5	7.2	7.7	3.2	2.7	2.1	174	164	265
			10.0				S	S	W
April	4.4	7.8	8.0	3.1	2.8	2.6	147	144	257
			10.3				SE	SE	W
May	5.4	9.1	9.9	2.5	1.1	0.7	161	224	289
			12.1				S	VRB	W
June	4.3	6.7	8.1	4.6	3.8	2.4	138	140	283
			10.7				SE	SE	W
July	4.0	5.5	6.9	5.6	7.9	5.2	138	133	196
			10.0				SE	SE	S
August	3.5	6.0	6.3	2.9	3.8	3.0	136	'137	244
			9.3				SE	SE	SW
September	2.7	5.4	6.2	2.6	2.2	1.3	128	128	301
			8.3				SE	SE	NW
October	2.4	5.7	5.6	1.3	0.8	0.5	142	136	306
			8.5				SE	SE	NW
November	2.8	5.8	5.9	1.6	1.5	0.8	152	149	310
			7.2				SE	SE	NW
December	1.9	4.3	4.8	1.9	1.6	0.9	123	142	260
			5.8				SE	SE	W
Year	3.5	6.2	6.8	2.9	2.8	1.9	144	141	273
			8.9				SE	SE	W
Begin			1975						
			1961						
			4						
No. of year			30						

Contd...

**Table C-11: Normals of Wind Speed and Direction, 1961 – 90
Quetta (Samungli)**

LAT.30 15'N LONG: 66 53'E Height of anemometer above ground = 27ft.(2m)

Month	Mean Wind at Synoptic Hour					MEAN WIND			Max. Wind Speed (Kts)
	Direction (degrees & 8 points)					Speed (KTS)	Direction Deg & 8Pt	Steadiness (Percent)	
	09 GMT	12 GMT	15 GMT	18 GMT	21 GMT				
	29	30	31	32	33	34	35	36		37
January	276	304	201	182	193	3.0	242	20	23
	W	NW	VRB	S	S	3.7	VRB		
February	269	274	209	153	152	3.5	214	23	24
	W	W	SW	SE	SE	4.4	VRB		
March	283	275	210	146	163	3.9	246	32	35
	W	W	SW	SE	S	4.9	SW		
April	268	262	175	175	163	4.0	232	28	27
	W	W	S	S	S	4.9	SW		
May	297	300	292	275	165	3.8	294	70	26
	NW	NW	W	W	S	5.2	NW		
June	294	296	194	151	147	4.4	228	21	21
	NW	NW	S	SE	SE	5.1	VRB		
July	239	251	166	152	154	5.3	161	51	50
	SW	W	S	SE	SE	6.0	S		
August	285	264	189	158	156	3.8	190	33	23
	W	W	S	S	SE	5.0	S		
September	303	297	196	155	135	2.8	268	22	22
	NW	NW	S	SE	SE	3.7	VRB		
October	308	305	239	136	149	2.2	302	57	17
	NW	NW	SW	SE	SE	3.4	NW		
November	300	301	259	157	158	2.5	292	43	25
	NW	NW	VRB	SE	S	2.8	W		
December	296	302	166	147	147	2.2	273	24	21
	NW	NW	S	SE	SE	3.1	VRB		
Year	289	290	197	156	155	3.4	244	35	50
	W	W	S	SE	SE	4.4	SW		
Begin	1975					1975	1975	1975	1975
	4					4	4	4	4
No. of years						30			

Source:- Pakistan Meteorological Department

**Table C-12: Normals of cloud and precipitation, 1961-90
Islamabad (Chaklala)**

o
LAT:33 37'N

o
Long :73 06'E

Month	Cloud Amount (Oktas)						Precipitation (mm)		
	All clouds			Low clouds			Mean monthly total		
	00	03	12	00	03	12	03-12	12-03	03-03
	1	2	3	4	5	6	7	8	9
January	2.5	3.5	3.9	0.6	0.8	1.1	21.8	34.2	56.1
February	3.1	3.9	4.3	0.9	1.1	1.6	30.2	43.3	73.5
March	3.3	4.1	4.7	1.0	1.3	1.8	35.5	54.3	89.8
April	3.2	3.6	4.5	0.9	0.9	1.5	21.9	40.0	61.8
May	2.8	2.4	3.7	0.9	0.7	1.6	10.4	28.8	39.2
June	2.3	2.3	2.5	1.0	0.9	1.4	10.1	52.1	62.2
July	4.5	4.3	3.8	2.5	2.3	2.5	58.2	208.8	267.0
August	4.6	4.5	3.8	2.6	2.6	2.4	79.7	230.2	309.9
September	2.0	2.4	2.1	1.0	1.2	1.4	28.8	69.3	98.2
October	0.9	1.2	1.7	0.3	0.4	0.7	7.6	22.2	29.3
November	1.2	2.0	2.2	0.3	0.4	0.5	7.6	10.8	17.8
December	2.3	3.3	3.5	0.6	0.7	0.8	12.6	24.7	37.3
Year *	2.7	3.1	3.4	1.1	1.1	1.4	324.3	818.8	1142.1
Beginning year	1961	1961	1961	1961	1961	1961	1961	1961	1961
No. of years	30	30	30	30	30	30	30	30	30

* Yearly averages, totals and extremes as applicable

Contd...

**Table C-12 Normals of cloud and precipitation, 1961-90
Islamabad (Chaklala)**

○
LAT:33 37'N

○
Long :73 06'E

Month	Precipitation (mm)								
	Mean No. of rainy days	Extreme							
		Wettest						Driest	
		1931-60		1961-90		to 1990		1931-60	
		Amt	Year	Amt	Year	Amt	Year	Amt	Year
10	11	12	13	14	15	16	17	18	
January	3.2	166.9	1954	159.8	1981	166.9	1954	9.1	1958
February	5.0	130.6	1954	208.4	1976	208.4	1976	0.0	+
March	5.8	95.0	1958	224.0	1981	224.0	1981	44.7	1959
April	4.3	102.1	1957	264.9	1983	264.9	1983	10.9	1954
May	3.1	74.4	1959	115.3	1965	115.3	1965	0.0	+
June	3.9	118.1	1956	239.0	1971	239.0	1971	7.4	1960
July	10.0	336.3	1959	618.1	1977	618.1	1977	33.0	1957
August	10.3	329.9	1956	641.4	1982	641.4	1982	188.2	1958
September	5.3	268.2	1959	279.1	1961	279.1	1961	27.2	1957
October	2.1	95.3	1957	95.8	1969	95.8	1969	6.6	1958
November	1.5	91.2	1959	83.0	1982	91.2	1959	0.0	+
December	2.5	115.3	1958	177.9	1990	177.9	1990	1.3	1954
Year *	57.0	1366.5	1959	1735.1	1981	1735.1	1981	754.4	1955
Beginning year	1961			1961					
No. of years	30	7		30		37		7	

* Yearly averages, totals and extremes as applicable.

Contd...

**Table C-12: Normals of cloud and precipitation, 1961-90
Islamabad (Chaklala)**

o
LAT:33 37'N

o
Long :73 06'E

Month	Precipitation (mm)									
	Extreme									
	Driest				Heaviest falls in 24 hours					
	1961-90		to 1990		1931-60		1961-90		to 1990	
	Amt	Year	Amt	Year	Amt	Year	Amt	Year	Amt	Year
	19	20	21	22	23	24	25	26	27	28
January	0.0	(4)	0.0	+	43.4	20/1960	62.5	25/1970	62.5	25/1970
February	4.5	1985	0.0	+	65.8	29/1956	78.7	20/1979	78.7	20/1979
March	11.2	1971	11.2	1971	33.5	12/1958	63.5	11/1988	63.5	11/1988
April	6.9	1988	6.9	1988	25.4	19/1960	84.8	01/1965	84.8	01/1965
May	3.0	1976	0.0	+	29.2	13/1957	65.5	05/1981	65.5	05/1981
June	8.1	1985	7.4	1960	45.0	04/1956	113.1	30/1978	113.1	30/1978
July	40.6	1972	33.0	1957	140.2	04/1959	153.1	14/1985	153.1	14/1985
August	81.5	1972	81.5	1972	76.2	28/1959	181.3	10/1982	181.3	10/1982
September	1.3	1987	1.3	1987	90.7	14/1956	120.0	03/1976	120.0	03/1976
October	0.0	(5)	0.0	+	63.5	20/1958	55.9	28/1969	63.5	20/1958
November	0.0	(6)	0.0	+	53.6	07/1959	79.7	16/1982	79.7	16/1982
December	0.0	(3)	0.0	+	58.9	14/1958	50.8	10/1972	58.9	14/1958
Year *	708.6	1964	708.6	1964	140.2	4/7/59	181.3	10/8/82	181.3	10/8/82
Beginning year	1961						1961			
No. of years	30		37		7		30		37	

* Yearly averages, totals and extremes as applicable.

Contd...

**Table C-12: Normals of cloud and precipitation, 1961 – 91
Karachi (Airport)**

0
LAT:24 54'N

0
Long :67 08'E

Month	Cloud Amount (Oktas)						Precipitation (mm)		
	All clouds			Low clouds			Mean monthly total		
	00	03	12	00	03	12	03-12	12-03	03-03
	1	2	3	4	5	6	7	8	9
January	1.0	1.7	1.8	0.3	0.3	0.5	1.1	4.8	6.0
February	1.1	1.9	2.0	0.5	0.6	0.5	5.0	4.8	9.8
March	1.2	2.1	2.0	0.6	0.7	0.4	5.4	6.4	11.7
April	1.5	2.4	1.9	0.9	0.9	0.4	1.8	2.6	4.4
May	2.5	3.2	1.5	2.3	2.7	1.1	0.0	0.0	0.0
June	4.0	4.9	3.5	3.5	3.9	3.0	1.0	4.5	5.5
July	5.7	6.4	5.7	4.2	4.3	4.4	44.8	37.7	85.5
August	6.0	6.5	5.7	4.7	4.6	4.2	29.8	37.4	67.4
September	3.8	4.3	3.3	3.2	3.3	2.6	9.4	10.7	19.9
October	1.0	1.2	0.7	0.9	0.9	0.5	0.2	0.8	1.0
November	0.6	1.0	1.2	0.3	0.3	0.3	0.5	1.3	1.8
December	0.8	1.6	1.7	0.3	0.3	0.3	1.6	2.8	4.4
Year *	2.4	3.1	2.6	1.8	1.9	1.5	100.6	113.8	217.3
Beginning year	1961	1961	1961	1961	1961	1961	1961	1961	1961
No. of years	30	30	30	30	30	30	30	30	30

* Yearly averages, totals and extremes as applicable

Contd...

**Table C-12: Normals of cloud and precipitation, 1961 - 91
Karachi (Airport)**

o
LAT:24 54'N

o
Long :67 08'E

Month	Precipitation (mm)								
	Mean No. of rainy days	Extreme							
		Wettest						Driest	
		1931-60		1961-90		to 1990		1931-60	
		Amt	Year	Amt	Year	Amt	Year	Amt	Year
10	11	12	13	14	15	16	17	18	
January	0.5	53.3	1940	66.8	1976	66.8	1976	0.0	+
February	0.6	64.3	1944	96.0	1979	96.0	1979	0.0	+
March	0.4	35.1	1952	130.0	1967	130.0	1967	0.0	+
April	0.3	52.8	1935	47.6	1985	52.8	1935	0.0	+
May	0.0	33.3	1933	0.0	-	33.3	1933	0.0	+
June	0.7	58.9	1936	43.2	1980	58.9	1936	0.0	+
July	2.6	355.3	1933	429.3	1967	429.3	1967	0.0	+
August	2.5	359.4	1944	262.5	1979	359.4	1944	0.0	+
September	0.7	315.7	1959	166.4	1961	315.7	1959	0.0	+
October	0.1	98.0	1956	23.8	1980	98.0	1956	0.0	+
November	0.2	83.1	1959	30.2	1963	83.1	1959	0.0	+
December	0.7	52.1	1958	63.6	1980	63.6	1980	0.0	+
Year *	9.4	745.5	1944	713.0	1967	745.5	1944	17.5	1931
Beginning year	1961			1961					
No. of years	30	30		30		60		30	

* Yearly averages, totals and extremes as applicable

Contd...

**Table C-12 Normals of cloud and precipitation, 1961 – 91
Karachi (Airport)**

0 0
LAT:24 54'N Long :67 08'E

Month	Precipitation (mm)									
	Extreme									
	Driest				Heaviest falls in 24 hours					
	1961-90		to 1990		1931-60		1961-90		to 1990	
	Amt	Year	Amt	Year	Amt	Year	Amt	Year	Amt	Year
	19	20	21	22	23	24	25	26	27	28
January	0.0	(14)	0.0	+	26.7	17/1940	43.6	14/1976	43.6	14/1976
February	0.0	(13)	0.0	+	57.1	23/1944	94.0	19/1979	94.0	19/1979
March	0.0	(20)	0.0	+	35.1	11/1948	62.0	15/1967	62.0	15/1967
April	0.0	(22)	0.0	+	25.9	17/1945	37.0	02/1985	37.0	02/1985
May	0.0	(30)	0.0	+	25.4	19/1933	TR	30/1987	25.4	19/1933
June	0.0	(15)	0.0	+	50.0	26/1936	37.9	24/1980	50.0	26/1936
July	0.0	(5)	0.0	+	119.9	22/1933	207.0	1/1977	207.0	01/1977
August	0.0	(4)	0.0	+	152.4	02/1944	166.0	07/1979	166.0	07/1979
September	0.0	(18)	0.0	+	111.8	06/1959	101.3	13/1962	111.8	06/1959
October	0.0	(26)	0.0	+	55.6	01/1956	23.8	29/1980	55.6	01/1956
November	0.0	(23)	0.0	+	55.6	02/1959	30.2	25/1963	55.6	02/1959
December	0.0	(16)	0.0	+	38.1	02/1958	43.8	22/1980	43.8	22/1980
Year *	0.0	1987	0.0	1987	152.4	2/8/44	207.0	1/7/77	207.0	1/7/77
Beginning year	1961						1961			
No. of years	30		60		30		30		60	

* Yearly averages, totals and extremes as applicable

Contd...

**Table C-12 Normals of cloud and precipitation, 1961 – 90
Lahore**

o
LAT:31 33'N

o
Long :74 22'E

Month	Cloud Amount (Oktas)						Precipitation (mm)		
	All clouds			Low clouds			Mean monthly total		
	00	03	12	00	03	12	03-12	12-03	03-03
	1	2	3	4	5	6	7	8	9
January	1.9	2.8	3.1	0.7	0.8	1.0	4.6	18.4	23.0
February	2.2	3.0	3.4	0.9	1.0	1.2	9.7	18.9	28.6
March	2.1	3.1	3.4	0.7	0.9	1.1	15.0	26.2	41.2
April	2.3	2.6	2.8	0.8	0.7	0.9	8.0	11.7	19.7
May	2.0	1.8	1.7	0.8	0.6	0.6	5.3	17.0	22.4
June	2.2	1.9	1.5	0.9	0.7	0.7	10.7	25.6	36.3
July	4.3	4.1	4.0	2.0	2.0	2.4	85.3	116.7	202.1
August	3.9	3.8	4.4	2.0	1.8	2.5	89.3	74.6	163.9
September	1.5	1.7	2.1	0.9	0.8	1.3	34.3	26.8	61.1
October	0.5	0.7	0.8	0.3	0.3	0.3	2.4	10.0	12.4
November	0.7	1.1	1.3	0.2	0.3	0.3	1.5	2.7	4.2
December	1.5	2.3	2.6	0.5	0.6	0.7	4.6	9.4	13.9
Year *	2.1	2.4	2.6	0.9	0.9	1.1	270.8	357.9	628.8
Beginning year	1961	1961	1961	1961	1961	1961	1961	1961	1961
No. of years	30	30	30	30	30	30	30	30	30

* Yearly averages, totals and extremes as applicable.

Contd...

**Table C-12 Normals of cloud and precipitation, 1961 – 90
Lahore**

0
LAT:31 33'N

0
Long :74 22'E

Month	Precipitation (mm)								
	Mean No. of rainy days	Extreme							
		Wettest						Driest	
		1931-60		1961-90		to 1990		1931-60	
		Amt	Year	Amt	Year	Amt	Year	Amt	Year
10	11	12	13	14	15	16	17	18	
January	2.0	94.7	1957	121.2	1981	121.2	1981	0.3	1937
February	2.6	111.0	1937	117.5	1990	117.5	1990	0.0	+
March	3.0	81.3	1950	166.7	1978	166.7	1978	0.0	+
April	1.9	75.9	1935	141.0	1983	141.0	1983	0.0	+
May	1.8	28.4	1942	108.8	1983	111.3	1885	0.0	+
June	2.4	152.7	1936	99.6	1975	191.5	1894	0.0	+
July	7.5	284.0	1948	477.9	1981	477.9	1981	4.8	1947
August	6.9	291.8	1959	511.7	1976	523.0	1908	0.0	1937
September	3.2	525.5	1954	184.5	1990	525.5	1954	0.0	+
October	0.9	79.8	1955	155.0	1985	155.0	1985	0.0	+
November	0.5	33.3	1951	25.2	1981	38.6	1928	0.0	+
December	1.2	71.4	1958	111.8	1967	111.8	1967	0.0	+
Year *	33.9	871.5	1958	1117.5	1976	1117.5	1976	277.1	1938
Beginning year	1961			1961					
No. of years	30	30		30		110		30	

* Yearly averages, totals and extremes as applicable.

Contd...

**Table C-12: Normals of cloud and precipitation, 1961 – 90
Lahore**

0
LAT:31 33'N

0
Long :74 22'E

Month	Precipitation (mm)									
	Extreme									
	Driest				Heaviest falls in 24 hours					
	1961-90		to 1990		1931-60		1961-90		to 1990	
	Amt	Year	Amt	Year	Amt	Year	Amt	Year	Amt	Year
	19	20	21	22	23	24	25	26	27	28
January	0.0	(4)	0.0	+	74.7	29/1935	55.2	3/1981	74.7	29/1935
February	0.0	1977	0.0	1977	52.6	16/1935	83.0	25/1990	83.0	25/1990
March	3.0	1974	0.0	+	31.2	06/1942	95.0	2/1978	95.0	02/1978
April	0.0	(3)	0.0	+	41.7	08/1935	67.1	16/1983	67.1	16/1983
May	0.0	(3)	0.0	+	18.8	26/1932	70.4	23/1983	76.2	27/1983
June	0.0	1962	0.0	1962	67.3	30/1936	76.0	26/1980	125.5	18/1994
July	42.2	1970	4.8	1947	135.9	12/1953	207.6	31/1980	210.1	28/1924
August	38.1	1987	0.0	1937	121.4	15/1959	211.1	01/1976	211.1	01/1976
September	0.0	1982	0.0	1982	228.1	24/1954	78.0	24/1985	228.1	24/1954
October	0.0	(9)	0.0	+	34.0	12/1956	117.4	9/1985	117.4	09/1985
November	0.0	(15)	0.0	+	57.9	25/1957	21.2	16/1982	57.9	25/1957
December	0.0	(9)	0.0	+	24.9	22/1958	60.5	27/1967	60.5	27/1967
Year *	297.5	1963	157.7	1899	228.1	24/9/54	211.1	1/8/76	228.1	24/8/54
Beginning year	1961						1961			
No. of years	30		110		30		30		110	

* Yearly averages, totals and extremes as applicable.

Contd...

**Table C-12: Normals of cloud and precipitation, 1961-90
Peshawar**

LAT:34 01'N

Long :71 35'E

Month	Cloud Amount(Oktas)						Precipitation (mm)		
	All clouds			Low clouds			Mean monthly total		
	00	03	12	00	03	12	03-12	12-03	03-03
	1	2	3	4	5	6	7	8	9
January	2.6	3.4	3.6	0.5	0.8	0.9	9.4	16.6	26.0
February	3.0	3.7	4.2	0.8	1.1	1.4	18.2	24.5	42.7
March	3.3	4.1	4.8	1.1	1.3	1.9	29.2	49.2	78.4
April	3.2	3.4	4.9	0.8	0.9	1.9	13.9	35.0	48.9
May	2.3	2.0	3.9	0.7	0.5	1.6	9.8	17.2	27.0
June	1.6	1.4	2.8	0.5	0.4	1.3	2.1	5.6	7.7
July	3.5	3.3	3.5	1.6	1.6	2.0	15.0	27.4	42.3
August	3.5	3.6	3.7	1.5	1.9	2.1	28.5	39.2	67.7
September	1.4	1.5	2.6	0.5	0.7	1.3	6.0	11.9	17.9
October	0.7	1.1	2.1	0.2	0.3	0.7	2.7	6.9	9.7
November	1.1	1.9	2.3	0.2	0.3	0.5	4.8	7.5	12.3
December	2.1	3.2	3.4	0.4	0.6	0.8	9.1	14.1	23.3
Year *	2.4	2.7	3.5	0.7	0.9	1.4	148.6	255.2	403.8
Beginning year	1961	1961	1961	1961	1961	1961	1961	1961	1961
No. of years	30	30	30	30	30	30	30	30	30

* Yearly averages, totals and extremes as applicable.

Contd...

**Table C-12: Normals of cloud and precipitation, 1961-90
Peshawar**

0
LAT:34 01'N

0
Long :71 35'E

Month	Precipitation (mm)								
	Mean No. of rainy days	Extreme							
		Wettest						Driest	
		1931-60		1961-90		to 1990		1931-60	
		Amt	Year	Amt	Year	Amt	Year	Amt	Year
10	11	12	13	14	15	16	17	18	
January	2.1	133.6	1942	89.7	1961	133.6	1942	0.8	1956
February	3.5	129.8	1936	82.9	1979	129.8	1936	0.0	+
March	5.7	197.1	1939	222.6	1978	222.6	1978	16.3	1942
April	3.8	130.6	1957	179.1	1983	186.7	1885	0.0	+
May	2.5	59.2	1931	119.6	1965	131.1	1901	0.0	+
June	0.8	46.0	1956	32.8	1980	97.8	1881	0.0	+
July	2.4	212.9	1956	208.3	1977	212.9	1956	0.3	1952
August	3.3	185.7	1944	280.2	1976	450.9	1892	0.0	+
September	1.5	75.4	1959	62.5	1973	120.1	1908	0.5	1939
October	0.8	70.6	1957	52.2	1990	70.6	1957	0.0	+
November	1.2	111.5	1959	64.1	1986	111.5	1959	0.0	+
December	1.8	97.5	1958	145.3	1967	145.3	1967	0.0	+
Year *	29.5	678.9	1959	710.2	1983	710.2	1983	173.7	1952
Beginning year	1961			1961					
No. of years	30	30		30		110		30	

* Yearly averages, totals and extremes as applicable.

Contd...

**Table C-12: Normals of cloud and precipitation, 1961-90
Peshawar**

0
LAT:34 01'N

0
Long :71 35'E

Month	Precipitation (mm)									
	Extreme									
	Driest				Heaviest falls in 24 hours					
	1961-90		to 1990		1931-60		1961-90		to 1990	
	Amt	Year	Amt	Year	Amt	Year	Amt	Year	Amt	Year
	19	20	21	22	23	24	25	26	27	28
January	0.0	(5)	0.0	+	84.1	08/1942	54.4	14/1979	84.1	08/1942
February	5.6	1985	0.0	+	61.2	27/1944	45.5	3/1980	61.2	27/1944
March	0.0	1977	0.0	1977	50.3	26/1934	135.1	25/1967	135.1	25/1967
April	8.4	1980	0.0	+	54.4	02/1950	84.6	28/1971	84.6	28/1971
May	0.3	1970	0.0	+	24.6	31/1931	54.1	22/1965	97.8	05/1901
June	0.0	(6)	0.0	+	29.7	19/1956	20.3	13/1980	67.3	11/1881
July	1.3	1963	0.0	+	76.2	17/1956	113.5	17/1977	113.5	17/1977
August	0.0	1987	0.0	1987	72.9	07/1945	102.0	02/1976	150.9	04/1892
September	0.0	(3)	0.0	+	44.5	16/1959	50.8	01/1970	51.3	02/1924
October	0.0	(6)	0.0	+	37.1	22/1957	33.2	17/1990	37.1	22/1957
November	0.0	(10)	0.0		50.5	01/1936	47.5	26/1986	50.5	01/1936
December	0.0	(5)	0.0		41.4	13/1958	76.5	27/1967	76.5	27/1967
Year *	190.2	1974	104.6	1902	84.1	8/1/42	135.1	25/3/67	150.9	4/8/1892
Beginning year	1961						1961			
No. of years	30		110		30		30		110	

* Yearly averages, totals and extremes as applicable

Contd...

**Table C-12: Normals of cloud and precipitation, 1961 – 90
Quetta (Samungli)**

0
LAT:30 15'N

0
Long :66 53'E

Month	Cloud Amount (Oktas)						Precipitation (mm)		
	All clouds			Low clouds			Mean monthly total		
	00	03	12	00	03	12	03-12	12-03	03-03
	1	2	3	4	5	6	7	8	9
January	2.3	3.0	3.5	1.3	1.5	2.0	20.9	35.9	56.7
February	2.6	3.3	4.0	1.3	1.7	2.4	17.7	31.3	49.0
March	2.5	3.3	4.3	1.2	1.4	2.6	16.3	38.8	55.0
April	2.1	2.7	4.0	0.8	0.8	2.3	8.5	18.7	28.3
May	1.0	1.2	2.4	0.4	0.3	1.7	1.7	4.3	6.0
June	0.6	0.5	1.4	0.2	0.1	1.1	0.5	0.6	1.1
July	1.4	1.4	2.7	0.5	0.3	2.0	5.1	7.6	12.7
August	1.0	1.3	2.1	0.3	0.3	1.5	4.0	8.5	12.1
September	0.3	0.3	0.8	0.1	0.1	0.6	0.0	0.3	0.3
October	0.3	0.5	0.9	0.1	0.1	0.6	1.8	2.1	3.9
November	0.8	1.4	1.7	0.3	0.4	0.7	2.9	2.4	5.3
December	1.8	2.6	3.0	0.8	1.0	1.4	12.7	17.8	30.5
Year *	1.4	1.8	2.6	0.6	0.7	1.6	92.0	168.1	260.8
Beginning year	1961	1961	1961	1961	1961	1961	1961	1961	1961
No. of years	30	30	30	30	30	30	30	30	30

* Yearly averages, totals and extremes as applicable.

Contd...

**Table C-12: Normals of cloud and precipitation, 1961 – 90
Quetta (Samungli)**

0
LAT:30 15'N

0
Long :66 53'E

Month	Precipitation (mm)								
	Mean No. of rainy days	Extreme							
		Wettest						Driest	
		1931-60		1961-90		to 1990		1931-60	
		Amt	Year	Amt	Year	Amt	Year	Amt	Year
10	11	12	13	14	15	16	17	18	
January	4.1	101.1	1957	178.0	1982	178.0	1982	0.0	+
February	4.4	140.0	1954	189.2	1982	189.2	1982	0.0	+
March	5.1	90.9	1951	232.4	1982	232.4	1982	0.0	+
April	2.2	43.2	1957	148.0	1983	148.0	1983	0.0	+
May	0.6	32.8	1951	39.9	1963	39.9	1963	0.0	+
June	0.3	10.9	1956	19.2	1977	19.2	1977	0.0	+
July	1.1	163.6	1956	121.8	1978	163.6	1956	0.0	+
August	0.9	30.2	1946	173.0	1983	173.0	1983	0.0	+
September	-0.04	7.9	1959	7.6	1970	7.9	1959	0.0	+
October	0.4	8.1	1951	68.8	1982	68.8	1982	0.0	+
November	0.5	39.4	1959	25.2	1965	39.4	1959	0.0	+
December	2.7	59.2	1957	162.0	1982	162.0	1982	0.0	+
Year *	22.5	344.9	1956	949.8	1982	949.8	1982	122.7	1949
Beginning year	1961			1961					
No. of years	30	15		30		45		15	

* Yearly averages, totals and extremes as applicable.

Contd...

**Table C-12: Normals of cloud and precipitation, 1961 – 90
Quetta (Samungli)**

o
LAT:30 15'N

o
Long :66 53'E

Month	Precipitation (mm)									
	Extreme									
	Driest				Heaviest falls in 24 hours					
	1961-90		to 1990		1931-60		1961-90		to 1990	
	Amt	Year	Amt	Year	Amt	Year	Amt	Year	Amt	Year
	19	20	21	22	23	24	25	26	27	28
January	0.0	1963	0.0	1963	40.1	28/1950	69.0	30/1982	69.0	30/1982
February	0.0	1985	0.0	1985	38.1	18/1959	49.0	03/1986	49.0	03/1986
March	0.0	1974	0.0	1974	37.1	09/1949	75.0	31/1985	75.0	31/1985
April	0.0	(4)	0.0	+	18.8	17/1960	49.0	12/1983	49.0	12/1983
May	0.0	(13)	0.0	+	13.7	08/1951	18.0	03/1969	18.0	03/1969
June	0.0	(25)	0.0	+	6.3	26/1956	7.0	24/1977	7.0	24/1977
July	0.0	(11)	0.0	+	29.2	19/1956	42.0	06/1978	42.0	06/1978
August	0.0	(17)	0.0	+	18.3	09/1946	102.0	03/1983	102.0	03/1983
September	0.0	(28)	0.0	+	5.3	17/1959	7.6	10/1970	7.6	10/1970
October	0.0	(26)	0.0	+	8.1	28/1951	30.0	19/1982	30.0	19/1982
November	0.0	(18)	0.0	+	18.8	20/1957	20.8	19/1977	20.8	19/1977
December	0.0	1987	0.0	1987	42.2	21/1958	70.0	09/1982	70.0	09/1982
Year *	62.2	1971	62.2	1971	42.2	21/12/58	102.0	3/8/83	102.0	3/8/83
Beginning year	1961						1961			
No. of years	30		45		15		30		45	

Source:- Pakistan Meteorological Department

* Yearly averages, totals and extremes as applicable

Table C-13: Area of Crops Covered by Ground Plant Protection Measures in Pakistan

Area '000 hectares

Year	Cropped area	Area sprayed		Spray hectare
		Actual	Percent	
1990-91	21,820	3,772	17	8,197
1991-92	21,720	4,251	20	8,937
1992-93	22,440	NA	NA	NA
1993-94	21,870	NA	NA	NA
1994-95	22,140	6,774	31	NA
1995-96	22,550	7,167	32	NA
1998-99	22,960	7,477	33	16,201
1999-00	22,740	8,654	38	16,198

Source:- Provincial Agriculture Department.

Note:- Data for the year 1992-93 and onward has not been collected due to ban on ground spray.

Table C-14 Area Covered by Aerial Plant Protection Operation in Pakistan

Area '000 hectares

Year	Cropped area	Area Sprayed	% Area Sprayed	Spray hectare
1990-91	21,820	94	0.40	110
1991-92	21,720	217	1.00	231
1992-93	22,440	355	1.60	376
1993-94	21,870	12	0.10	36
1994-95	22,140	89	0.40	89
1995-96	*	*	*	*
1996-97	22,730	22	0.10	62
1997-98	23,040	47	0.20	79
1998-99	22,860	32	3.30	49
1999-00	22,740	32	0.10	49
2000-01	22,040	45	0.20	22

Source:- Department of Plant Protection.

* No aerial spray operation on crops was conducted.

Table C-15: Area Irrigated by Different Sources

(Million Hectares)

Year	Total	Canals		Tube-wells	Wells	Canal Tube-wells	Canal Wells	Tanks	Others
		Government	Private						
1987-88	15.68	7.32	0.41	2.30	0.16	5.23	0.07	(*)	0.19
1988-89	16.64	7.44	0.42	2.46	0.16	5.53	0.08	(*)	0.55
1989-90	16.89	7.31	0.43	2.57	0.16	5.72	0.08	(*)	0.62
1990-91	16.75	7.47	0.42	2.56	0.13	5.87	0.08	(*)	0.22
1991-92	16.85	7.42	0.43	2.59	0.16	5.93	0.11	(*)	0.21
1992-93	17.33	7.47	0.44	2.67	0.18	6.23	0.10	(*)	0.24
1993-94	17.13	7.25	0.48	2.78	0.14	6.22	0.09	(*)	0.17
1994-95	17.20	7.06	0.45	2.83	0.17	6.41	0.10	(*)	0.18
1995-96	17.58	7.15	0.45	2.89	0.18	6.58	0.11	(*)	0.22
1996-97	17.83	7.35	0.46	2.90	0.18	6.61	0.11	(*)	0.22
1997-98	18.00	7.31	0.48	3.00	0.16	6.74	0.13	(*)	0.18
1998-99	17.95	7.20	0.47	2.98	0.17	6.88	0.09	(*)	0.16
1999-00	18.11	7.10	0.46	3.11	0.18	6.99	0.09	(*)	0.18
2000-01	17.82	6.55	0.43	3.19	0.16	7.22	0.10	(*)	0.17
2001-02	18.04	6.38	0.43	3.45	0.20	7.24	0.16	(*)	0.18
2002-03	18.22	6.62	0.44	3.37	0.21	7.21	0.17	(*)	0.2
2003-04	18.78	6.78	0.44	3.48	0.22	7.50	0.15	(*)	0.2

Source:- Agriculture Statistics of Pakistan**Note:-** (*) Nominal

Table C-16: Thur and Sem Statement (Division & District wise) of the Punjab For The Year 2001-02

Division/District	Gross Area	Thur Khona (Area)	Thur Punjsala (Area)	Thur Nau (Area)	Thur Juzvi (Area)	Thur Tirk (Area)
PUNJAB	23219343	570431	252826	159630	1902292	6299
Bahawalpur Division	4480117	149688	17592	40594	487762	-
R.Y.Khan	1781069	96823	1666	24997	184782	-
Bahawalpur	1157780	20403	1257	1917	36582	-
Bahawalnagar	1541268	32462	14669	13680	266398	-
Multan Division	3958188	110970	9429	10878	384207	12
Multan	892164	28617	2940	1215	115522	7
Lodhran	427950	32622	227	487	29996	-
Vehari	1065958	15103	1855	4181	54791	-
Sahiwal	639368	15298	1739	1660	52211	-
Khanewal	932748	19324	2668	3335	131687	5
D.G.Khan Division	2740732	126410	31810	18401	180578	1000
D.G.Khan	372492	9139	22689	2599	26363	40
Muzaffar Garh	1173294	94802	7695	14784	112540	960
Rajanpur	586068	21957	1426	901	40050	-
Layyah	608878	512	-	117	1625	-
Lahore Division	3956156	70706	89725	29403	225473	1625
Lahore	292692	5939	1003	1086	2471	245
Kasur	694032	21083	19505	7176	61495	339
okara	1085799	8581	12341	5133	70135	412
Pakpattan	581563	802	751	1626	21717	-
Sheikhupura	1302070	34301	56125	14382	69655	629
Gujranwala Division	1942748	22177	52535	13588	81633	317
Narowal	49168	-	-	-	-	-
Sialkot	122181	-	-	-	-	-
Gujranwala	1029277	16284	46409	12170	58213	-
Gujrat	136941	903	305	610	9414	306
Hafizabad	150010	3983	5817	36	5983	11
Mandi Bahuddin	455171	1007	4	772	8023	-
Faisalabad Division	3300565	66179	43067	36678	432569	3095
Faisalabad	1344990	21873	20848	17393	161100	1839
T.T.Singh	762230	7174	13371	6158	66845	778
Jhang	1193345	37132	8848	13127	204624	478
Sargodha Division	2799854	23731	8644	10080	110067	250
Sargodha	1228491	23731	8644	10080	104449	86
Khushab	447409	-	-	-	1903	164
Mianwali	345855	-	-	-	-	-
Bhakkar	778099	-	-	-	3715	-
Rawalpindi Division	40983	570	24	8	3	-
Rawalpindi	7724	-	-	-	-	-
Islamabad	718	-	-	-	-	-
Jhelum	8214	570	24	8	3	-
Attack	13251	-	-	-	-	-
Chakwal	11076	-	-	-	-	-

Contd...

Table C-16: Thur and Sem Statement (Division & District wise) of the Punjab For The Year 2001-02

Division/District	Thur Recl (Area)	Total Thur (Area)	%age of thur	Sem	%age of Sem
Punjab		2891478	12.45	51294	0.22
Bahawalpur Division	-	695636	15.52	19427	0.43
R.Y.Khan	-	308268	17.30	-	-
Bahawalpur	-	60159	5.19	-	-
Bahawalnagar	-	327209	21.22	19427	1.26
Multan Division	-	515496	13.02	1296	0.03
Multan	-	148301	16.62	-	-
Ladhran	-	63338	14.8	-	-
Vehari	-	75930	7.12	-	-
Sahiwal	-	70908	11.09	-	-
Khanewal	-	157019	16.83	1296	0.13
D.G.Khan Division	-	358199	13.06	3244	0.11
D.G.Khan	-	60830	16.33	267	0.07
Muzaffar Garh	-	230781	19.66	2880	0.24
Rajanpur	-	64334	10.97	-	-
Layyah	-	2254	0.37	97	0.01
Lahore Division	-	416932	10.53	3849	0.09
Lahore	-	10744	3.67	468	0.15
Kasur	-	109598	15.79	510	0.07
okara	-	96602	8.89	2847	0.26
Pakpattan	-	24896	4.28	-	-
Sheikhupura	-	175092	13.44	24	0.00
Gujranwala Division	-	170250	8.76	2425	0.12
Narowal	-	-	-	-	-
Sialkot	-	-	-	-	-
Gujranwala	-	133076	12.92	408	0.03
Gujrat	-	11538	8.42	215	0.15
Hafizabad	-	15830	10.55	-	-
Mandi Bahuddin	-	9806	2.15	1802	0.39
Faisalabad Division	-	581588	17.12	11398	0.34
Faisalabad	-	223053	16.58	4365	0.32
T.T.Singh	-	94326	12.37	2441	0.32
Jhang	-	264209	22.14	4592	0.38
Sargodha Division	-	152772	5.45	9655	0.34
Sargodha	-	146990	11.96	7135	0.58
Khushab	-	2067	0.46	2520	0.56
Mianwali	-	-	-	-	-
Bhakkar	-	3715	0.47	-	-
Rawalpindi Division	-	605	1.47	-	-
Rawalpindi	-	-	-	-	-
Islamabad	-	-	-	-	-
Jhelum	-	605	7.36	-	-
Attack	-	-	-	-	-
Chakwal	-	-	-	-	-

Source:- Directorate of Land Reclamation Punjab Irrigation & Power Department, Lahore

Table C-17: District Wise Detail of Industrial and Municipalities Discharge of the Punjab

District	No. of Industries	Effluent from industries (Cusecs)	Effluent from municipalities (Cusecs)	Total effluent (Cusecs)	Treated	Un- treated
Faisalabad	123	70	145	215	1	122
Lahore	151	120	3126	3246	2	149
Hafizabad	2	0.5	15.0	15.5	-	2
Gujranwala	55	37.0	63.0	100	-	66
Saikat	39	24.67	3.0	27.67	-	39
Kasur	23	21.41	43.0	64.41	-	23
Sheikhupura	100	70.0	80.0	150	1	99
Mandi Bahauddin	11	7.05	30.0	37.05	-	11
Gujrant	4	1	39.0	40	-	4
Sargodha	26	8.5	71.0	85.50	-	26
Jhang	9	5.55	6.5	12.05	-	9
Khanewal	4	7.0	2.4	9.4	1	38
Multan	9	5.0	2,048	209.8	-	9
Lodhran	1	-	-	-	-	1
Bahawalpur	4	N.D	7.0	7.0	-	4
Bahawalnagar	2	N.D	N.D	N.T	-	2
Rahim Yar Khan	4	9.0	-	9.0	-	4
D.G,Khan	2	-	60	60	-	2
Muzaffarghar	7	25.0	8.0	33.0	3	4
Sahiwal	2	N.D	N.D	N.D	N.D	N.D
T.T.Singh	1	3.0	-	3.0	-	1
Total	-	414.68	3903.70	4324.38	-	-

Source:- Directorate Land Reclamation Punjab Irrigation and Power Department

Table C-18: River Flow Availability (Kharif and Rabi)

(Million Acre Feet)

Year	Kharif				Rabi			
	Jehlum at Mangla	Chenab at Marala	Indus at * Kalabagh	Total	Jehlum at Mangla	Chenab at Marala	Indus at Kalabagh	Total
1987-88	21.38	20.41	70.00	111.79	6.45	4.80	18.03	29.28
1988-89	19.74	27.46	89.36	136.56	4.24	5.23	15.37	24.84
1989-90	18.01	19.74	64.26	102.01	6.70	5.67	16.94	29.31
1990-91	19.71	23.42	87.85	130.78	7.69	6.56	20.89	35.14
1991-92	25.13	23.26	93.14	141.53	5.98	5.55	19.04	30.57
1992-93	25.18	22.60	90.84	138.62	6.82	5.18	19.06	31.06
1993-94	18.69	19.53	66.45	104.67	4.01	3.45	15.33	22.49
1994-95	20.82	24.55	92.65	138.02	5.67	5.65	16.47	27.79
1995-96	21.91	26.40	81.49	129.80	6.17	5.47	17.33	28.97
1996-97	24.93	27.48	85.08	137.49	4.11	4.41	15.23	23.75
1997-98	16.96	21.74	71.45	110.15	7.06	6.55	18.48	32.09
1998-99	18.10	23.16	83.71	124.97	3.61	4.78	16.18	24.57
1999-00	11.23	18.70	77.51	107.44	3.19	4.35	14.57	22.11
2000-01	10.27	17.20	58.85	86.32	2.28	2.73	11.55	16.56
2001-02	8.23	16.00	55.65	79.88	3.66	2.90	10.73	17.29
2002-03	12.30	18.02	64.64	94.96	5.10	5.47	12.49	23.06
2003-04	17.67	21.50	76.61	115.78	5.00	4.36	12.79	22.15
Year	Total (Kharif & Rabi)							
	Jehlum at Mangla	Chenab at Marala	Indus at Kalabagh	Total				
1987-88	27.83	25.21	88.03	141.07				
1988-89	23.98	32.69	104.73	161.40				
1989-90	24.71	25.41	81.20	131.32				
1990-91	27.40	29.98	108.74	166.12				
1991-92	31.11	28.81	112.18	172.10				
1992-93	32.00	27.78	109.90	169.68				
1993-94	22.70	22.98	81.79	127.47				
1994-95	26.49	30.20	109.12	165.81				
1995-96	28.08	31.87	98.82	158.77				
1996-97	29.04	31.89	100.31	161.24				
1997-98	24.02	28.29	89.93	142.24				
1998-99	21.71	27.94	99.89	149.54				
1999-00	14.42	23.05	92.08	129.55				
2000-01	12.55	19.93	70.40	102.88				
2001-02	11.89	18.90	66.38	97.17				
2002-03	17.40	23.49	77.13	118.02				
2003-04	22.67	25.86	89.40	137.93				

Source:- Water and Power Development Authority (WAPDA).

* Un-regulated

Table C-19: Summary of Protected Areas in Pakistan (based on NCCW data) 2004

Region/Province	National Parks	Wildlife Sanctuaries	Game Reserves	Not Classified	Total PAs	Total Area Conserved (ha)
Azad Jammu Kashmir	2	0	7	0	9	6518700
Balochistan	2	13	6	3	24	1506843
Punjab	2	40	21	0	63	1737625
NWFP	5	3	36	58	102	817706
Sindh	1	33	13	3	50	1755600
Federal Territory	1	1	1	0	3	94186
Northern Areas	4	6	9	9	28	2182830
Totals	17	96	93	73	279	14613490

Source:- Ministry of Environment, Local Government and Rural Development.

Note:- NCCW = National Council for Conservation of Wildlife

PA = Protected Area

Table C-20: Forest Area (2003-04)

(000 ha)

Forest Type	Punjab	NWFP	Sindh	Baloch-istan	Azad Kashmir	Northern Areas	Total
Coniferous Forests	49	1,073	-	116	407	285	1,930
Irrigated Plantations	150	-	95	6	-	-	259
Rive rain Forests	58	-	272	2	-	-	332
Scrub Forests	316	63	1	598	9	652	1639
Coastal Forests	-	-	281	231	-	-	512
Linear Plantations	16	2	1	1	-	1	21
Mazri	-	24	-	-	-	-	24
Total	589	1162	650	954	416	946	4717
Range Land	2679	150	437	371	151	2104	5892
Grand Total	3268	1312	1087	1325	567	3050	10609

Source:- Agricultural Statistics of Pakistan-2003-04

Table C-21: Sectoral Share of Forestry in Agriculture and GDP

Year	Value added at constant factor cost of 1980-81 (Million Rupees)			Percentage share of Forestry	
	GDP	Agriculture	Forestry	In Agriculture	In GDP
1987-88	385,416	99,108	1,218	1.23	0.32
1988-89	403,404	105,917	1,257	1.19	0.31
1989-90	421,322	109,127	1,379	1.26	0.33
1990-91	444,144	114,542	1,446	1.26	0.32
1991-92	477,761	125,425	1,139	0.91	0.24
1992-93	487,782	118,795	1,132	0.95	0.23
1993-94	509,091	125,005	1,192	0.95	0.23
1994-95	534,861	133,215	1,211	0.91	0.23
1995-96	570,157	148,832	909	0.61	0.16
1996-97	579,865	149,016	1,004	0.67	0.17
1997-98	600,125	155,748	771	0.50	0.13
1998-99	625,233	158,783	771	0.46	0.12
1999-00	3,529,345	923,609	23,447	2.54	0.7
2000-01	3,594,124	903,499	25,571	2.83	0.7
2001-02	3,705,718	904,433	24,436	2.70	0.7
2002-03(R)	3,895,252	941,275	27,149	2.88	0.7
2003-04 (P)	4,144,319	965,372	27,926	2.90	0.7

Source:- Federal Bureau of Statistics

Note:- The figures in shaded area are in accordance with the new base (1999-00) of National Accounts of Pakistan

(R)=Revised

(P)=Provisional

Table C-22: Area of Forests and Range Lands under the Control of Forest Department- by Legal Category in 2003-04

(000 Hectares)

Category	Total	Balochistan	NWFP	Punjab	Sindh	Northern Areas	AJK
1	2	3	4	5	6	7	8
Total	10609	1325	1312	3268	1087	3050	567
State	1,322	707	-	-	48	-	567
Reserved	645	-	106	311	228	-	-
Protected	4,443	378	467	2,736	795	67	-
Unclassed	114	-	-	103	11	-	-
Resumed	47	-	33	9	5	-	-
Guzara	316	-	248	68	-	-	-
Communal	2983	-	-	-	-	2,983	-
Section 38	46	1	26	19	-	-	-
Chose Act	1	-	-	1	-	-	-
Miscellaneous	692	239	432	21	-	-	-

Source:- Agricultural Statistics of Pakistan-2003-04, M/O Food, Agriculture & Livestock (Economic Wing)

Table C-23: Forest Area under the Control of Forest Departments by Types of Vegetation in 2003-04

(000 Hectares)

Category	Total	Balochistan	NWFP	Punjab	Sindh	Northern Areas	AJK
1	2	3	4	5	6	7	8
Total	4717	954	1162	589	650	946	416
Coniferous	1930	116	1073	49	-	285	407
Irrigated-plantation	259	6	-	150	95	8	-
Riverain	332	2	-	58	272	-	-
Scrub	1639	598	63	316	1	652	9
Coastal	512	231	-	-	281	-	-
Linear Plantation	21	1	2	16	1	1	-
Mazri	24	-	24	-	-	-	-

Source:- Agriculture Statistics of Pakistan-2003-04, M/O Food, Agriculture & Livestock (Economic Wing)

Table C-24: Area Afforested

(000 Hectares)

Year	Total	Balochistan	NWFP	Punjab	Sindh
1985-86	26.9	0.1	18.6	6.3	1.9
1986-87	15.9	0.1	12.2	1.2	2.4
1987-88	17.9	0.1	13.2	1.8	2.8
1988-89	33.8	-	23.1	7.9	2.8
1989-90	35.8	-	18.7	13.6	3.5
1990-91	22.1	-	13.9	4.5	3.7
1991-92	29.4	-	19.7	5.8	3.9
1992-93	34.9	1.2	28.4	3.7	1.6
1993-94	13.1	-	9.9	2.5	0.7
1994-95	14.7	1.8	9.8	1.5	1.6
1995-96	19.1	0.9	13.6	2.7	1.9
1996-97	19.9	-	15.1	1.9	2.9
1997-98	21.4	1.0	14.7	2.9	2.8
1998-99	21.1	0.5	15.0	5.3	0.3
1999-00	25.6	0.3	16.8	8.3	0.2
2000-01	25.8	0.4	17.5	6.9	1.0
2001-02	25.3	0.5	16.8	7.0	1.0
2002-03	23.0	0.4	14.3	7.5	0.8
2003-04	26.8	0.3	19.5	6.4	0.6

Source:- Agriculture Statistics of Pakistan-2003-04, M/O Food, Agriculture & Livestock (Economic Wing)

Table C-25: Area Regenerated

(000 Hectares)

Year	Total	Balochistan	NWFP	Punjab	Sind
1985-86	27.1	-	3.0	1.8	22.3
1986-87	30.8	0.1	-	3.6	27.1
1987-88	17.4	-	3.1	3.3	11.0
1988-89	20.5	-	7.4	2.1	11.0
1989-90	16.0	-	3.2	1.6	11.2
1990-91	19.3	-	4.4	3.4	11.5
1991-92	16.2	-	2.9	1.3	12.0
1992-93	36.2	-	6.3	4.6	25.3
1993-94	27.2	-	1.9	2.3	24.9
1994-95	31.9	0.2	2.0	4.2	25.6
1995-96	32.1	-	2.5	4.5	25.6
1996-97	18.7	0.1	1.9	3.6	12.5
1997-98	16.5	0.1	2.0	3.0	11.5
1998-99	17.0	-	2.7	3.0	12.0
1999-00	14.0	-	3.7	2.0	9.3
2000-01	14.2	0.1	4.0	4.8	5.6
2001-02	13.3	0.2	2.7	4.1	5.0
2002-03	8.3	-	2.7	0.9	4.7
2003-04	8.0	-	3.4	0.7	3.9

Source:- Agriculture Statistics of Pakistan-2003-04, M/O Food, Agriculture & Livestock (Economic Wing)

Table- C-26: Quality of Ground Water at Various Locations of Islamabad, 2004(Physical and Aesthetic Examination)

S. No.	S. Code	Location	Source	Colour	E.C.	Odour	pH	Taste	Turbidity	WT (ft.)
1	SL-01	T. Well No.193, F-6 NEFDEC Cinema	T. Well	C. Less	488	Unobjec.	7.9	Unobjec.	0.7	32
2	ISL-02	Quaid-e-Azam Univ. (Simly dam)	W. Supply	C. Less	320	Unobjec.	8.2	Unobjec.	1	-
3	ISL-03	Noorpur Shahan (Simly dam)	W. Supply	C. Less	328	Unobjec.	8.3	Unobjec.	0.7	-
4	ISL-04	T. Well No.37, G-5	T. Well	C. Less	673	Unobjec.	7.1	Unobjec.	0.2	-
5	ISL-05	IMCG, F-7/4 Boring	Bore	C. Less	842	Unobjec.	7.5	Unobjec.	6.4	46
6	ISL-06	T. Well Polyclinic Hostel	T. Well	C. Less	671	Unobjec.	7	Unobjec.	0.3	-
7	ISL-07	T. Well No.61, G-7/3-2	T. Well	C. Less	650	Unobjec.	7.4	Unobjec.	1.2	93
8	ISL-08	T. Well PIMS Near Storage	T. Well	C. Less	668	Unobjec.	7.4	Unobjec.	0.3	-
9	ISL-09	T. Well-36, F-8, Ali Medical Centre	T. Well	C. Less	646	Unobjec.	7.1	Unobjec.	1.1	-
10	ISL-10	T. Well-2, E-8, GE Navy, MES off.	T. Well	C. Less	585	Unobjec.	7.2	Unobjec.	0.1	83
11	ISL-11	T. Well-200, F-9, Fatima Jinnah Park	T. Well	C. Less	679	Unobjec.	7.6	Unobjec.	0.2	118
12	ISL-12	T. Well-105, F-10/2	T. Well	C. Less	770	Unobjec.	7.3	Unobjec.	0.2	-
13	ISL-13	T. Well-41, G-9/3	T. Well	C. Less	681	Unobjec.	7.3	Unobjec.	0.3	87
14	ISL-14	T. Well-100, G-11/2	T. Well	C. Less	588	Unobjec.	7.9	Unobjec.	0.5	107
15	ISL-15	T. Well-103, F-11/3	T. Well	C. Less	708	Unobjec.	7.3	Unobjec.	0.3	-
16	ISL-16	T. Well-194, Lunda Mustan, H-11	T. Well	C. Less	706	Unobjec.	8.2	Unobjec.	0.4	51
17	ISL-17	T. Well-151, G-10/2	T. Well	C. Less	836	Unobjec.	7.4	Unobjec.	0.3	-
18	ISL-18	T. Well-10/48, PCSIR Lab H-9	T. Well	C. Less	715	Unobjec.	7.1	Unobjec.	0.5	121
19	ISL-19	National Inst. Of Science & Tech. Edu.	T. Well	C. Less	712	Unobjec.	7.2	Unobjec.	0.4	-
20	ISL-20	T. Well-118, I-8/2, Deep turbine	T. Well	C. Less	698	Unobjec.	7.9	Unobjec.	0.4	-
21	ISL-21	T. Well-139, I-9/4, Pindora	T. Well	C. Less	810	Unobjec.	7.1	Unobjec.	0.5	122
22	ISL-22	T. Well-137, I-10/4	T. Well	C. Less	728	Unobjec.	7.4	Unobjec.	0.7	-
23	ISL-23	7 MGR, F-5/2	Reservoir	C. Less	316	Unobjec.	8.1	Unobjec.	0.1	-
24	ISL-24	Tap water, MoST, D Block	Tap	C. Less	335	Unobjec.	7.8	Unobjec.	0.6	-
25	ISL-25	Tap water, H-2, St.15, F-6/3	Tap	C. Less	336	Unobjec.	7.9	Unobjec.	0.3	-
26	ISL-26	H-63, Gomal Rd., E-7	Cistern	C. Less	326	Unobjec.	8	Unobjec.	0.6	-
27	ISL-27	H-16, St. 83, G-6/4	Tap	C. Less	352	Unobjec.	7.6	Unobjec.	1.4	-
				Min.	316		7.00		0.10	
				Max.	842		8.30		6.40	

Source:- Pakistan Council of Research in Water Resources (PCRWR).

Table C-27: Quality of Ground Water at Various Locations of Islamabad 2004(Chemical & Inorganic Constituents Analysis)

Location	Alkal.	As.	HCO ₃	Cl	Hard	Ca	CO ₃	Cr.	F
	mg/l	ppb	mg/l	mg/l	mg/l	mg/l	mg/l	ppb	mg/l
	1	2	3	4	5	6	7	8	9
T. Well No.193, F-6 NEFDEC Cinema	3.8	BDL	190	10	260	72	0	0	0.36
Quaid-e-Azam Univ. (Simly dam)	2.3	BDL	115	5	140	38	0	0	0.25
Noorpur Shahan (Simly dam)	2.3	BDL	115	5	145	40	0	0	0.29
T. Well No.37, G-5	5.6	BDL	280	10	340	100	0	0	0.24
IMCG, F-7/4 Boring	7.5	BDL	375	10	400	104	0	0	0.15
T. Well Polyclinic Hostel	5.6	BDL	280	12	340	108	0	1	0.32
T. Well No.61, G-7/3-2	5.6	BDL	280	6	360	91	0	25	0.59
T. Well PIMS Near Storage	6	BDL	300	5	320	84	0	2	0.3
T. Well-36, F-8, Ali Medical Centre	6	BDL	300	3	320	76	0	25	0.4
T. Well-2, E-8, GE Navy, MES off.	5	BDL	250	3	330	84	0	25	0.36
T. Well-200, F-9, Fatima Jinnah Park	6.2	BDL	310	3	310	70	0	25	0.49
T. Well-105, F-10/2	6.2	BDL	310	10	360	80	0	0	0.32
T. Well-41, G-9/3	6	BDL	300	7	320	67	0	2	0.63
T. Well-100, G-11/2	6	BDL	300	16	130	32	0	35	0.53
T. Well-103, F-11/3	6.6	BDL	330	11	340	82	0	1	0.37
T. Well-194, Lunda Mustan, H-11	6.4	BDL	320	5	310	80	0	1	0.5
T. Well-151, G-10/2	6.8	BDL	340	25	360	92	0	15	0.54
T. Well-10/48, PCSIR Lab H-9	6.6	BDL	330	6	340	75	0	4	0.6
National Inst. Of Science & Tech. Edu.	6.5	BDL	325	9	370	56	0	5	0.37
T. Well-118, I-8/2, Deep turbine	6.5	BDL	325	8	340	90	0	15	0.3
T. Well-139, I-9/4, Pindora	7.4	BDL	370	10	380	100	0	36	0.4
T. Well-137, I-10/4	7	BDL	350	10	340	80	0	45	0.38
7 MGR, F-5/2	2.6	BDL	120	4	140	36	0	15	0.39
Tap water, MoST, D Block	2.3	BDL	115	4	155	40	0	35	0.33
Tap water, H-2, St.15, F-6/3	2.3	BDL	115	5	140	36	0	1	0.38
H-63, Gomal Rd., E-7	2.2	BDL	110	4	140	36	0	2	0.33
H-16, St. 83, G-6/4	2.5	BDL	125	5	155	40	0	7	0.49
Min.	2.20	0	110	3	130	32	0	0	0.15
Max.	7.50	0	375	25	400	108	0	45	0.63

Contd...

Table C-27: Quality of Ground Water at Various Locations of Islamabad 2004 (Chemical & Inorganic Constituents Analysis)

Location	Fe mg/l	Mg mg/l	Nit (N) mg/l	K mg/l	PO ₄ mg/l	Na mg/l	SO ₄ Mg/l	TDS mg/l
	10	11	12	13	14	15	16	17
T. Well No.193, F-6 NEFDEC Cinema	0.07	19.44	0	0.8	0.04	21	30	342
Quaid-e-Azam Univ. (Simly dam)	0.07	11	1.4	2.5	0.01	16	15	198
Noorpur Shahan (Simly dam)	0.04	11	2.02	2.9	0	16	20	203
T. Well No.37, G-5	0.1	21.87	2.11	0.7	0.26	23	35	471
IMCG, F-7/4 Boring	1.53	35	2.82	1.8	0.13	30	32	589
T. Well Polyclinic Hostel	0.08	17.01	1.29	0.7	0	20	32	470
T. Well No.61, G-7/3-2	0.13	32	1.64	1.4	0.03	12	30	455
T. Well PIMS Near Storage	0.06	26.73	1.64	1.4	0	13	28	468
T. Well-36, F-8, Ali Medical Centre	0.1	31.59	1.03	1.2	0.16	22	30	452
T. Well-2, E-8, GE Navy, MES off.	0.24	29.16	0.79	0.8	0.02	8	28	410
T. Well-200, F-9, Fatima Jinnah Park	0.09	32	1.01	1.7	0.07	34	20	475
T. Well-105, F-10/2	0.08	38	1.26	1	0.11	30	66	539
T. Well-41, G-9/3	0.13	37	1.32	1.5	0.6	36	30	477
T. Well-100, G-11/2	0.09	12.15	1.87	1.3	0.06	23	25	417
T. Well-103, F-11/3	0.08	28	2.12	1.5	0.04	22	38	496
T. Well-194, Lunda Mustan, H-11	0.24	26.73	0.78	1.4	0	34	5	495
T. Well-151, G-10/2	0.1	31.59	2.54	1.4	0.01	40	54	585
T. Well-10/48, PCSIR Lab H-9	0.09	26.73	1.46	1.2	0.08	30	24	501
National Inst. Of Science & Tech. Edu.	0.06	55.89	1.36	1.4	0.03	26	23	498
T. Well-118, I-8/2, Deep turbine	0.04	28	1.45	1.4	0.07	24	20	489
T. Well-139, I-9/4, Pindora	0.05	31.59	1.24	1.4	0	27	24	567
T. Well-137, I-10/4	0.05	31	1.69	1.4	0.01	30	26	510
7 MGR, F-5/2	0.03	12	0.09	3	0.05	12	10	196
Tap water, MoST, D Block	0.06	13	0.18	2	0.05	12	16	208
Tap water, H-2, St.15, F-6/3	0.1	12	0.24	3	0.05	12	20	208
H-63, Gomal Rd., E-7	0.07	12	0.24	3	0.43	12	20	202
H-16, St. 83, G-6/4	0.14	13	0.21	3	0.12	12	20	218
Min.	0.03	11	0.00	1	0.00	8	5	196
Max.	1.53	56	2.82	3	0.60	40	68	589

Source:- Pakistan Council of Research in Water Resources (PCRWR).

Table C-28 Quality of Ground Water at Various Locations at Rawalpindi, 2004(Physical and Aesthetic Examination)

S. No..	S. Code	Location	Source	Colour	E.C.	Odour	PH	Taste	Turbidity	WT (ft.)
1	RAW-01	T. Well-30, Muslim Town Haji Chowk	T. Well	C. Less	568	Unobjec.	7.3	Unobjec.	0.2	135
2	RAW-02	T. Well-4, PAF Base, Minhas Camp	T. Well	C. Less	792	Unobjec.	7.2	Unobjec.	0.2	-
3	RAW-03	T. Well-148 Banni Thana	T. Well	C. Less	722	Unobjec.	7.2	Unobjec.	3.3	147
4	RAW-04	Chitti Tanki, Saidpur Rd.	W. Sply.	S. Turbid	337	Unobjec.	8.3	Unobjec.	36	-
5	RAW-05	T. Well-17 Dk. Kala Khan	T. Well	C. Less	576	Unobjec.	7.3	Unobjec.	0.9	-
6	RAW-06	T. Well-42 Football Grd. Westridge	T. Well	C. Less	1033	Unobjec.	8.1	Unobjec.	0.4	-
7	RAW-07	T. Well-25, Military Hospital	T. Well	C. Less	1011	Unobjec.	7.2	Unobjec.	0.2	180
8	RAW-08	T. Well-7 Hockey Stadium, Sadder	T. Well	C. Less	900	Unobjec.	7.3	Unobjec.	0.3	171
9	RAW-09	Rajgan Masjid, Dhamial Rd.	Bore	C. Less	1489	Unobjec.	7.9	Unobjec.	0.2	-
10	RAW-10	T. Well-53, Afshan Colony, Qasim Rd.	T. Well	C. Less	749	Unobjec.	7.3	Unobjec.	0.2	165
11	RAW-11	T. Well-41 Dheri Hasanabad	T. Well	C. Less	903	Unobjec.	7	Unobjec.	0.2	-
12	RAW-12	T. Well-67 Civil Line Club, Jhanda	T. Well	C. Less	849	Unobjec.	7.9	Unobjec.	0.7	136
13	RAW-13	T. Well Chaklala Railway Station	T. Well	Muddy	767	Unobjec.	7.3	Unobjec.	250	-
14	RAW-14	T. Well Swan Nullah Near High Court	T. Well	C. Less	717	Unobjec.	7.2	Unobjec.	0.3	33
15	RAW-15	Bahria Town, Phase-II, St.49	T. Well	C. Less	774	Unobjec.	7.3	Unobjec.	8	108
				Min.	337		7.00		0.20	
				Max.	1489		8.30		250.00	

Source :- Pakistan Council of Research in Water Resources (PCRWR)

Table C-29: Quality of Ground Water at Various Location of Rawalpindi, 2004 (Chemical & Inorganic Constituents Analysis)

Cal & Organic Location	Alkal.	As.	HCO ₃	Cl	Hard	Ca	CO ₃	Cr.	F
	mg/l	ppb	mg/l	mg/l	mg/l	mg/l	mg/l	ppb	mg/l
	1	2	3	4	5	6	7	8	9
T. Well-30, Muslim Town Haji Chowk	5.5	BDL	275	5	260	68	0	0	0.65
T. Well-4, PAF Base, Minhas Camp	7.7	BDL	385	7	330	68	0	0	0.33
T. Well-148 Banni Thana	6.8	BDL	340	7	320	80	0	0	0.26
Chitti Tanki, Saidpur Rd.	2.3	BDL	115	5	150	36	0	0	0.48
T. Well-17 Dk. Kala Khan	6	BDL	300	6	260	70	0	0	0.47
T. Well-42 Football Grd. Westridge	8	BDL	400	50	400	98	0	0	0.58
T. Well-25, Military Hospital	8	BDL	400	35.46	360	90	0	0	0.37
T. Well-7 Hockey Stadium, Saddar	7.5	BDL	375	32	540	96	0	0	0.35
Rajgan Masjid, Dhamial Rd.	9.4	BDL	470	163	300	106	0	0	0.4
T. Well-53, Afshan Colony, Qasim Rd.	6.4	BDL	320	24.82	280	70	0	20	0.22
T. Well-41 Dheri Hasanabad	7.4	BDL	370	32	360	98	0	0	0.53
T. Well-67 Civil Line Club, Jhanda	6.9	BDL	345	32	390	98	0	0	0.48
T. Well Chaklala Railway Station	7.1	BDL	355	6	330	73	0	0	0.44
T. Well Swan Nullah Near High Court	6	BDL	300	31	260	70	0	0	0.22
Bahria Town, Phase-II, St.49	7	BDL	350	10	340	80	0	0	0.21
Min.	2.30	0	115	5	150	36	0	0	0.21
Max.	9.40	0	470	163	540	106	0	20	0.65

Contd...

Table C-29: Quality of Ground Water at Various Location of Rawalpindi, 2004(Chemical & Inorganic Constituents Analysis)

Location	Fe mg/l	Mg mg/l	Nit (N) mg/l	K mg/l	PO ₄ mg/l	Na mg/l	SO ₄ mg/l	TDS mg/l
	10	11	12	13	14	15	16	17
T. Well-30, Muslim Town Haji Chowk	0.05	21	0.53	1.5	0	13	16	398
T. Well-4, PAF Base, Minhas Camp	0.06	38.4	1.15	2	0.01	40	14	554
T. Well-148 Banni Thana	0.07	28.8	1.57	1.3	0	28	15	505
Chitti Tanki, Saidpur Rd.	0.73	14.4	1.01	3.3	0	11	17	209
T. Well-17 Dk. Kala Khan	0.07	20	1.22	1.4	0	22	7	403
T. Well-42 Football Grd. Westridge	0.08	37.2	4.07	1.6	0.08	78	53	723
T. Well-25, Military Hospital	0.05	32	3.79	1.5	0.22	73	60	708
T. Well-7 Hockey Stadium, Sadder	0.07	31.2	3.79	1.4	0.01	52	40	630
Rajgan Masjid, Dhamial Rd.	0.08	66	4.41	1.8	0.12	130	80	1042
T. Well-53, Afshan Colony, Qasim Rd.	0.03	25	2.37	1.4	0.09	60	22	524
T. Well-41 Dheri Hasanabad	0.08	27.6	2.82	1.5	0.2	54	47	632
T. Well-67 Civil Line Club, Jhanda	0.04	34.8	3.51	1.4	0.4	48	30	594
T. Well Chaklala Railway Station	0.15	35	1.3	1.9	0.02	34	30	537
T. Well Swan Nullah Near High Court	0.15	20	2.02	3.6	0	50	24	502
Bahria Town, Phase-II, St.49	0.09	33.6	2.61	1.8	0.06	32	33	542
Min.	0.03	14	0.53	1.30	0.00	11	7	209
Max.	0.73	66	4.41	3.60	0.40	130	80	1042

Source :- Pakistan Council of Research in Water Resources (PCRWR)

Table C-30: Quality of Ground Water at Various Locations of Faisalabad during Oct, 2002 (Physical and Biological Parameters)

Location	Colour	Taste	Smell	Temperature Centigrade	Oxygen Contents mg/l	Conductivity Second	Turbidity NTU	Coliform Per 100ml
1. Well-field area near River Chenab Faisalabad Sample No.1	Col	Good	Odl	-	-	-	-	0
2. Well-field area near River Chenab Faisalabad Sample No.2	Col	Good	Odl	-	-	-	-	0
3. Well-field area near River Chenab Faisalabad Sample No.3	Col	Good	Odl	-	-	-	-	0
4. Well-field area near River Chenab Faisalabad Sample No.4	Col	Good	Odl	-	-	-	-	0
5. Well-field area near River Chenab Faisalabad Sample No.5	-	-	-	-	-	-	-	0
6. Well-field area near River Chenab Faisalabad Sample No.6	Col	Good	Odl	-	-	-	-	0

Source:- Faisalabad Development Authority Note: Col = Colourless Odl = Odorless

Table C-31: Quality of Ground Water at Various Locations of Faisalabad during Nov. 2003 (Chemical Parameters)

Location	T.D.S (mg/l)	Calcium (mg/l)	Magnesium (mg/l)	Carbonates (mg/l)	Bicarbonates (mg/l)	Chloride (mg/l)
1. Well-field area near River Chenab Faisalabad Sample No.1	404	54	15	NIL	200	52
2. Well-field area near River Chenab Faisalabad Sample No.2	426	53	19	NIL	202	50
3. Well-field area near River Chenab Faisalabad	568	56	21	NIL	218	90
4. Well-field area near River Chenab Faisalabad Sample No.4	376	48	40	NIL	198	50
5. Well-field area near River Chenab Faisalabad Sample No.5	380	44	25	NIL	206	58
6. Madina Town T/W 4.	758	54	-	NIL	300	188
Mansoor Abad T/W 4.	1132	50	-	NIL	400	266

Source:- Faisalabad Development Authority

**Table C-32: List of Ozone Depleting Substance Phase out Projects
Approved by the Multilateral Fund (MLF)**

Name of Project	Sector	Date of Approval	Total Cost US \$	ODS to be Phase Out (MT)	Implementing Agency
Mater Group of Industries	Foam	July 1995	1,247,300	205.50	The World Bank/IBRD
Razi Sons, Karachi	Foam	Nov 1995	508,100	60.00	The World Bank/IBRD
Domestic Appliances Ltd . Karachi	Refrigeration	May 1996	257,650	22.00	The World Bank/IBRD
Thermoware Industries Umbrella Project	Foam	Nov 1997	1,600,000	239.60	The World Bank/IBRD
Diamond Group of Industries	Foam	Nov 1997	563,339	64.10	The World Bank/IBRD
Synthetic Products Enterprise (Pvt.) Ltd.	Foam	Nov 1997	160,625	13.60	The World Bank/IBRD
Cool Industries (Pvt.) Ltd.	Refrigeration	Nov 1997	841,750	117.60	The World Bank/IBRD
Singer Pakistan Ltd.	Refrigeration	Nov 1997	205,893	17.80	The World Bank/IBRD
Kold Kraft Ltd.	Refrigeration	Nov 1997	175,000	11.50	The World Bank/IBRD
Thermoware Industries Terminal Umbrella Project	Foam	July 1998	718,900	105.65	The World Bank/IBRD
Dawlance Private Limited	Refrigeration	July 1998	477,894	37.90	The World Bank/IBRD
United Refrigeration Industries Ltd.	Refrigeration	July 1998	457,815	96.00	The World Bank/IBRD
Shadman Electronic Industries Private Ltd.	Refrigeration	July 1998	236,936	17.00	The World Bank/IBRD
Refrigerators Manufacturing Company Pakistan Ltd. (Philips)	Refrigeration	Nov 1998	127,804	32.31	The World Bank/IBRD

Contd...

**Table C-32: List of Ozone Depleting Substance Phase out Projects
Approved by the Multilateral Fund (MLF)**

Name of Project	Sector	Date of Approval	Total Cost US \$	ODS to be Phase Out (MT)	Implementing Agency
United Foam Industries (Unifoam)	Foam	Nov 1998	178,200	28.60	The World Bank/IBRD
Saleem Automotive Industries Ltd.	Foam	Nov 1998	33,875	2.50	The World Bank/IBRD
Jaguar Industries, Karachi	Foam	Nov 1999	279,280	40.00	The World Bank/IBRD
Mumtaz Engineering Co., Lahore	Refrigeration	Dec 2000	204,736	14.00	The World Bank/IBRD
Pakistan Air Conditioning Engineering Co., Lahore	Refrigeration	Dec 2000	176,681	21.00	The World Bank/IBRD
Pak. Elektron Ltd.(PEL), Lahore	Refrigeration	Nov 1995	1,210,295	68.00	UNIDO
Raiz Electric Co. Ltd. Lahore	Refrigeration	Nov 1995	822,987	48.20	UNIDO
Treet Corporation Lahore	Solvent	May 1997	510,162	50.67	UNIDO
Treet Corporation Hyderabad	Solvent	May 1997	321,172	23.61	UNIDO
Hirra Farooq's (Pvt) Ltd.	Refrigeration	Nov 1997	521,580	31.20	UNIDO
Ideal Appliances (Pvt) Ltd., Hattar	Solvent	Dec 2001	173,101	13.05	UNIDO
Himont Chemicals (Pvt)Ltd. Lahore	Solvent	Dec 2001	485,701	80.00	UNIDO
Riaz Electric Ltd.	Solvent	July 2002	122,078	10.02	UNIDO
Total			12,618,854	1,146.66	

Source:- Ozone Cell, Ministry of Environment

Note: - UNIDO = United Nations Industrial Development Organization

IBRD = International Bank for Reconstruction and Development

**Table C-33: List of Published Families as a
Flora of Pakistan National Herbarium Programme**

No.	Family	No.	Family
188	Acanthaceae	84.	Commelinaceae
92.	Aceraceae	126.	Convolvulaceae
151.	Adoxaceae	43.	Coriariaceae
156.	Agavaceae	88.	Cornaceae
41.	Aizoaceae	22.	Corylaceae
50.	Alangiaceae	154.	Cucurbitaceae
68.	Alismataceae	184.	Cupressaceae
83.	Alliaceae	189.	Cuscutaceae
71.	Amaranthaceae	178.	Cyadaceae
134.	Amaryllidaceae	208	Cynomoriaceae
152.	Anacardiaceae	206	Cyperaceae
167.	Annonaceae	37.	Datiseaceae
148.	Apocynaceae	42.	Dilleniaceae
124.	Aquifoliaceae	53.	Dioseoreaceae
120.	Araceae	94.	Dipsacaceae
86.	Araliaceae	150	Ebenaceae
181.	Arancariaceae	85	Elaeagnaceae
110.	Aristolochiaceae	19.	Elatinaceae
150.	Aselepiadaceae	186.	Ephedraceae
207	Asteraceae	5.	Ericaceae
11.	Averrhoacea	142.	Eriocaulaceae
49.	Avicenniaceae	172.	Euphorbiaceae
135.	Balanophoraceae	104.	Fagaceae
133.	Balsaminaceae	1.	Flacourtiaceae
161.	Basellaceae	7.	Frankeniaceae
95.	Betulaceae	73.	Fumariaceae
96.	Begoniaceae	197.	Gentianaceae
87.	Berberidaceae	149.	Geraniaceae
131.	Bignoniaceae	180.	Ginkgoaceae
119	Bombacaceae	30.	Goodeniaceae
191	Boraginaceae	27.	Grossulariaceae
55.	Brassicaceae	32.	Guttiferae
56.	Buddlejaceae	165	Haemodoraceae
26.	Burseraceae	113.	Haloragidaceae
69.	Butomaceae	2.	Hamamelidaceae
65.	Buxaceae	82.	Hippoeastanaceae
54.	Caesalpiniaceae	31.	Hippuridaceae
201	Callitricaceae	16.	Hydrangiaceae
155.	Campanulaceae	169.	Hydrocharitaceae
44.	Cannabinaceae	127.	Hydrophyllaceae
145.	Cannaceae	47.	Illecebraceae
34.	Capparidaceae	202	Iridaceae
174.	Capprifoliaceae	9.	Iteaceae
117.	Cariaceae	14.	Juglandaceae
175.	Caryophyllaceae	138.	Juncaceae
199	Casuarinaceae	48.	Juncaginaceae
109.	Celastraceae	192.	Labiatae
70.	Ceratophyllaceae	60.	Lardizablaceae
204	Chenopodiaceae	118.	Lauraceae
112.	Cistaceae	160.	Lecythidaceae
125.	Colehiaceae	173.	Lemnaceae
122.	Combretaceae	196.	Lntibulariaceae

Contd...

**Table C-33: List of Published Families as a
Flora of Pakistan National Herbarium Programme**

No.	Family	No.	Family
58.	Leonticeae	79.	Potamogetonaceae
21.	Linaceae	157.	Primulaceae
35.	Loranthaceae	72.	Proteaceae
78.	Lythraceae	102.	Punicaceae
64.	Magnoliaceae	128.	Pyrolaceae
45.	Malpighiaceae	193.	Ranunculaceae
130.	Malvaceae	90.	Resedaceae
13.	Martyniaceae	140.	Rhamnaceae
17.	Meliaceae	158.	Rhizophoraceae
74.	Menispermaceae	190.	Rubiaceae
111.	Menyanthaceae	80.	Ruppiaceae
36.	Mimosaceae	106.	Ruscaceae
40.	Molluginaceae	132.	Rutaceae
6.	Monotropaceae	91.	Sabiaceae
		203	Salicaceae
171.	Moraceae	29.	Salvadoraceae
67.	Moringaceae	159.	Santalaceae
144.	Musaceae	39.	Sapindaceae
89.	Myrsinaceae	163.	Sapotaceae
176.	Najadaceae	108.	Saxifragaceae
94	Nelumbonaceae	162.	Simarubaceae
115.	Nyctaginaceae	107.	Smilacaceae
195.	Nymphaeaceae	168.	Solanaceae
136.	Olacaceae	103.	Sonneratiaceae
59.	Oleaceae	200	Sparganiaceae
		25.	Sphenocleaceae
139.	Onagraceae	24.	Staphyleaceae
164.	Orehidaceae	99.	Sterculiaceae
98.	Orobanchaceae	63.	Symplocaceae
4.	Oxalidaceae	141.	Tamaricaceae
153.	Palmae	185.	Taxaceae
187.	Pandanaceae	183.	Taxodiaceae
61.	Papaveraceae	12.	Thymelaeaceae
100.	Papilionaceae	75.	Tiliaceae
31.	Parnassiaceae	97.	Trapaceae
66.	Passifloraceae	105.	Trilliaceae
33.	Pedaliaceae	177	Typhaceae
46.	Phrymataceae	170.	Ulmaceae
3.	Pinaceae	20.	Umbelliferae
182.	Pinaceae	137.	Urticaceae
93.	Pittosporaceae	10.	Vahliaceae
62.	Plantaginaceae	101.	Valerianaceae
23.	Platanaceae	77.	Verbenaceae
28.	Plumbaginaceae	166.	Violaceae
143.	Poaceae	147.	Vitaceae
57.	Podophyllaceae	179.	Zamiaceae
8.	Polemoniaceae	18	Znnichelliaceae
52.	Polygalaceae	146	Zingiberaceae
205	Polygonaceae	76.	Zygophyllaceae
114.	Pontederiaceae		
		Total Nos: 208	
51.	Portulacaceae		

Source:- Pakistan Agriculture Research Council (PARC)

Section D

Inventories, Stocks and Background Conditions

This section presents historical background and development in education and health sectors. In addition to the literacy levels, educational infrastructure by type, enrollment at various stages, availability of teachers, student - teacher ratios, it also highlights availability of health facilities to the population in terms of doctors, nurses, midwives, hospitals, dispensaries, hospitals beds, family planning statistics, immunization coverage, etc.

D-I Education

Education is the major cause and consequence of economic and social development and considered as the investment in human capital which is premier factor for building the nation. Government of Pakistan has been making strenuous efforts to improve the literacy rate and to provide education to all school-going children at all levels.

D-I.i Literacy

Literacy rate is one of the basic indicators of socio-economic development. An analysis of data for the period 1961-1998 indicates a moderate increase in literacy rates. The literacy rate among the population 10 years and above was 16.7% according to 1961 Population Census which increased to 43.9 as per 1998 Census. According to Labour Force Survey literacy rate was 46.5% in 1999-00, improved to 51.64 % in 2003-04. Comparison across rural and urban areas show that literacy was 36.1% in rural areas for both sexes in 1999-00, increased to 41.6% in 2003-04. In urban areas literacy was 67.4% for both sexes in 1999-00, slightly increased to 69.7% in 2003-04. Improvement in female literacy is relatively higher than that of men's and also more for rural areas as compared to urban areas.

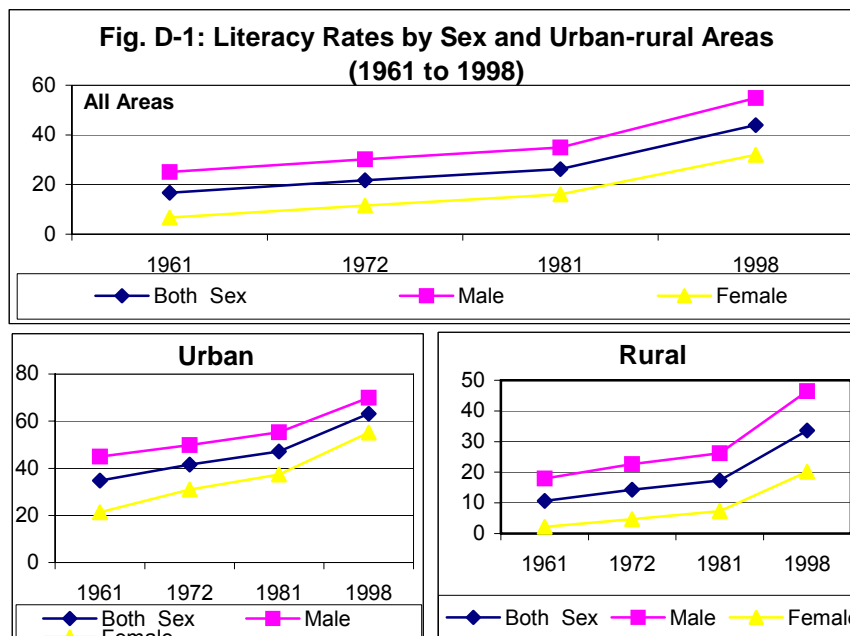


Fig D.1 presents trends of literacy rates during 1961-98. The sex wise analysis indicates that male literacy rate was 25.1 percent in 1961 which increased to 54.8 percent in 1998. For females, it was 6.7 percent in 1961 and increased to 32.0 percent in 1998. The urban-

rural analysis indicates that the literacy rate was 34.8 percent in 1961 in urban areas, increased to 63.1 percent in 1998. As regards the literacy level among the population 10 years and above in rural areas, it was 10.6 percent in 1961, increased to 33.6 percent in 1998. The sex wise analysis by urban-rural areas also indicates similar pattern during the period 1961-98. However, there is a crucial need to augment the education facilities in both urban and rural areas by public and private sectors to improve the present situation. With the present policies and priorities to universalize primary education, it is expected that the literacy rate will improve more rapidly with the passage of

time. As for literacy by province, literacy rate was higher in Punjab as compared to other provinces. It was 16.1 percent in 1961 and had increased to 46.6 percent in 1998.

Table D-I Literacy Rates (10 Years & above) by Province, Sex and Area

Year/Area	Total			Urban			Rural		
	Both Sex	Male	Female	Both Sex	Male	Female	Both Sex	Male	Female
PAKISTAN									
1961	16.7	25.1	6.7	34.8	44.9	21.3	10.6	18.0	2.2
1972	21.7	30.2	11.6	41.5	49.9	30.9	14.3	22.6	4.7
1981	26.2	35.0	16.0	47.1	55.3	37.3	17.3	26.2	7.3
1998	43.9	54.8	32.0	63.1	70.0	55.2	33.6	46.4	20.1
PUNJAB									
1961	16.1	29.1	6.2	34.6	45.5	20.4	10.9	18.3	2.5
1972	20.7	36.8	10.7	38.9	47.8	28.0	14.7	22.9	5.2
1981	27.4	52.0	16.8	46.7	55.2	36.7	20.0	29.9	21.0
1998	46.6	57.2	35.1	64.5	70.9	57.2	38.0	50.4	24.8
SINDH									
1961	21.0	29.0	10.6	36.1	44.3	25.0	11.5	19.0	2.2
1972	30.2	39.1	19.2	47.4	54.5	38.4	17.6	27.5	5.8
1981	31.4	39.7	21.6	50.8	57.8	42.2	15.6	24.5	5.2
1998	45.3	54.5	34.8	63.7	69.8	56.7	25.7	37.9	12.2
NWFP									
1961	13.8	23.2	3.4	30.9	43.4	13.3	9.7	17.6	1.4
1972	14.5	23.1	4.7	33.7	44.7	19.9	11.0	19.0	2.2
1981	16.7	25.8	6.5	35.8	47.0	21.9	13.2	21.7	3.8
1998	35.4	51.4	18.8	54.3	67.5	39.1	31.3	47.7	14.7
BALUCHISTAN									
1961	9.8	15.2	2.9	34.8	46.1	16.2	4.0	7.0	0.3
1972	10.1	14.8	4.2	32.2	42.4	19.2	5.6	9.2	1.3
1981	10.3	15.2	4.3	32.2	42.4	18.5	6.2	9.8	1.7
1998	24.8	34.0	14.1	46.9	58.1	33.1	17.5	25.8	7.9

Source: 1. Population Census Organization. 2. Federal Bureau of Statistics (PIHS. Round 2.)

D-I.ii Enrollment

a. Primary Schools

At the time of independence, the primary level enrollment (class I-V) was 0.770 million which increased to 19.781 million in 2003-04 (Table D-05). It indicates more than 25 times increase in 56 years. The annual average growth rate of primary level enrollment during the period 1947-48 to 2002-03 is 5.8 percent which is almost double of the population growth rate during this period

The table below gives a comparison of primary school age population i.e. 5-9 years with primary level enrollment during 1951-1998 indicates that the enrollment rate in 1951 was 20 percent of the population aged 5-9 years and increased to 84.4 percent in 1998. It means that about 15 percent of population in the relevant age bracket have still not been enrolled in schools. However, it reveals significant improvement in the parents attitude towards education.

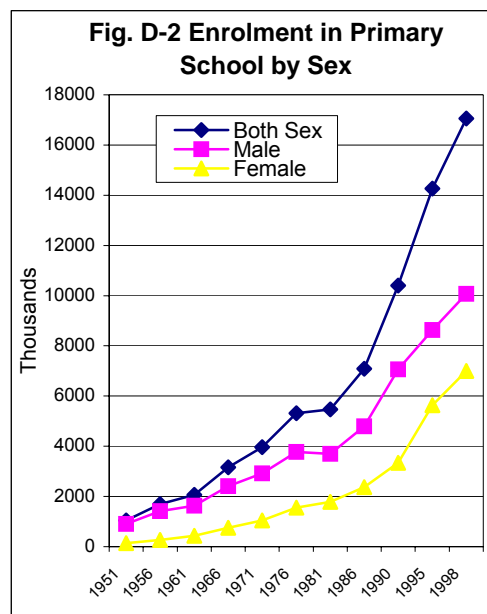
Table D-II: Population Aged (5-9 Years) and Primary School Enrollment
(000 Nos.)

Years	Population 5-9 Years of age			Number of Student Enrolled			Population 5-9 Years not Enrolled		
	Both Sex	Male	Female	Both Sex	Male	Female	Both Sex	Male	Female
1951	5225	2799	2426	1050	910	140	4175	1889	2286
1956	5815	3109	2706	1690	1420	270	4125	1689	2436
1961	6472	3454	3018	2060	1630	430	4412	1824	2588
1966	7976	4223	3753	3160	2410	750	4816	1813	3003
1971	9853	5174	4679	3960	2920	1040	5893	2254	3639
1976	11639	6069	5570	5319	3770	1549	6320	2299	4021
1981	13434	6962	6472	5474	3692	1782	7960	3270	4690
1986	15510	7988	7522	7094	4794	2365	8416	3259	5157
1990	18301	9431	8870	10400	7058	3342	7901	2373	5528
1995	21168	10909	10259	14264	8626	5638	6904	2283	4621
1998	20215	10571	9644	17063	10066	6997	3152	505	2647

Source:- Federal Bureau of Statistics

Sex wise comparison indicates high participation rate of male population as compared to females. The male enrollment rate of school age population (5-9 years) was 32.5 percent in 1951 increased to 95.2 percent in 1998. As regards females, it was only 5.8 percent in 1951 and increased to about 72.6 percent in 1998, which indicates that male - female gap in enrollment at primary level has significantly decreased. It also shows positive behavioral change towards female education.

Despite improvement in enrollment rate of primary school population (5-9 years), it is worth mentioning here that the absolute number of children who were not enrolled in the educational system has also increased over time. In 1951 about 4.175 million children aged 5-9 years had no access to primary education or had not been enrolled. This number kept on increasing till it peaked in 1986 (8.416 million). However, it decreased to 3.152 million in 1998 which is encouraging. As per gender break up, 2.286 million female children were not enrolled to educational system in 1951 as compared to 1.889 million male children (5-9 years). The female non-enrolled climaxed to 5.528 million in the 1990. It climbed down 2.647 million female children aged (5-9) years in 1998.



The gap is widening between the population enrolled into primary schools and those not in schools which is visible from Fig D.2. The pace of enrollment is not according to the growth of population aged 5-9 years. This situation is alarming and needs priority attention. Firstly it is needed to make primary school accessible to each and every village and secondly, to motivate parents to enroll their children in the schools.

Primary school enrollment indicates sharp increase for both sexes since 1984-85. A comparison of data on number of primary schools and population aged 5-9 years as given in table below, indicates that in 1950-51, one primary school was available for 555 children whereas, one primary school was available for 129 children in 1997-98.

Table D-III: Relationship of Primary Schools and Population Aged (5-9 Years)

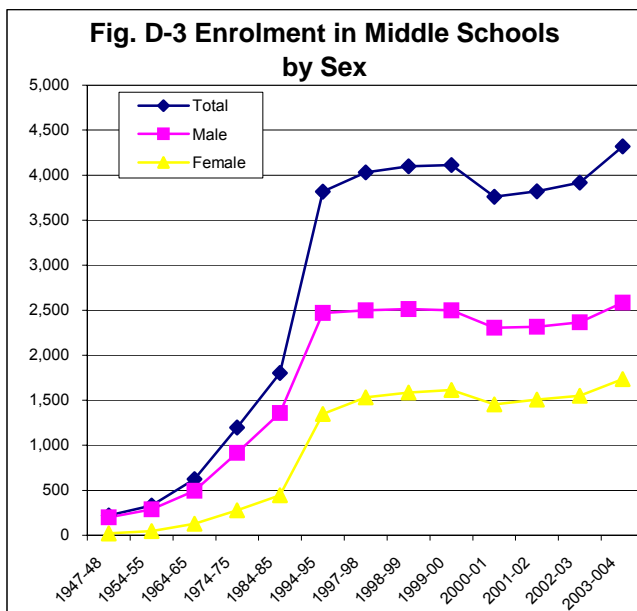
Year	Number of Primary Schools	Population 5-9 Years (000)	Population/School
1950-51	9411	5225	555
1960-61	20909	6472	310
1970-71	45854	9853	215
1980-81	59169	13434	227
1990-91	114142	18301	160
1997-98	156318	20215	129

Source:- 1. Central Bureau of Education. 2. Federal Bureau of Statistics.

b. Middle Schools

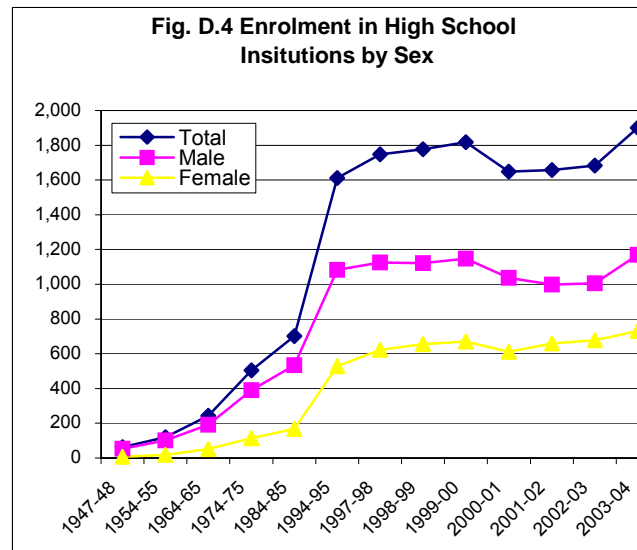
The middle level enrollment (i.e. class VI-VIII) was only 221 thousand in 1947-48, which increased to 4,321 thousand during the year 2003-04, showing about 20 times increase during 56 years (Table D-05). The average annual growth rate during this period is 5.3 percent which is slightly lower as compared to growth in primary schools enrollment.

Fig D-3 depicts that sex wise enrollment at the middle level remained divergent during the period 1947-48 to 1984-85. Then it started to converge till 1994-95. It began to diverge again till 1998-99. Post 2000-01 period also reflects the onset of divergence. The male enrollment to the middle schools increased at an annual growth rate of 4.6 percent during 1947 to 2003. As regard females, it is 7.9 percent which indicates behavioral change in favour of female education. However, still there is need to motivate parents to put their daughters into middle stage education. Fig D.3 also indicates sharp increase in middle level enrollment since 1984-85 for both sexes.



c. High and Secondary Vocational Institutions

Enrollment for high school or secondary level school comprises of IXth and Xth classes or equivalent vocational classes. An analysis of data indicates that high school enrollment increased at an average annual rate 6.1 percent during 1947-48 to 2002-03. About 62 thousand students were enrolled in high school level classes in 1947-48. 1,901 thousand during the year 2003-04 (Table D-05). The sex wise analysis of data indicates that male - female gap kept on diverging during first three decades i.e. up to 1974-75. However, the post 1975 period presents mixed scenario. Indications of secular convergence are also visible (Fig D-4). During the year 1947-48 the female enrollment at High School level was only 14.8 percent of the male enrollments i.e. only 8 thousand female students were enrolled at high school level as compared to 54 thousand male students. The male-female gap declined during 2003-04 and female enrollment for high school level is 62.6 percent of the male enrollment. The enrollment to the high and secondary level education also increased rapidly during 1984-85 to 2003-04. Fig. D.4..



d. Arts and Science Colleges

The arts and science colleges include enrollment of class XI and XII (Intermediate) and BA/B.Sc students. There were 43 thousand students enrolled in arts and science colleges during 1954-55. The enrollment for this category of educational institutions increased 21 times to 905 thousand during last 49 years. It reveals upward trend for seeking higher education among the youths (Table D-05).

The sex wise analysis of enrollment data indicates that 37 thousands boys students were enrolled at intermediate and degree level in 1954-55. Only 6 thousand girls were enrolled in arts and science colleges and their enrollment increased to 442 thousand in 2003-04. The sex wise analysis therefore reflects positive attitude towards female education for higher levels.

e. Professional Colleges

The professional colleges includes Agriculture, Medical, Engineering, Law, Commerce, Tibb and Homeopathic. Table D-05 indicates that at the time of independence, 4,368 students were enrolled in the above categories of professional colleges. It increased to 164 thousands in 2002-03 at an average annual growth rate of 6.7 percent during 1947-2003. Sex wise analysis of data reveals that 4,041 male students were enrolled in professional colleges in 1947-48 and increased to 122 thousands in 2002-03. As compared to this only 327 female students were enrolled in 1947-48 and their share was 7.5 percent of the total enrollment in 1947-48, which rose to 25 percent of the total enrollment in 2002-03. This is still on the lower side and indicates that most of the female students drop out after BA/B.Sc. or either join universities for Post-graduate studies. It may also be due to the reason that there are very few professional colleges specifically available for female which concentrate in big cities, where as most of the female students living in places other than big cities do not want to live in the hostels or not allowed to leave their homes for various socio-economic and cultural reasons.

f. Universities

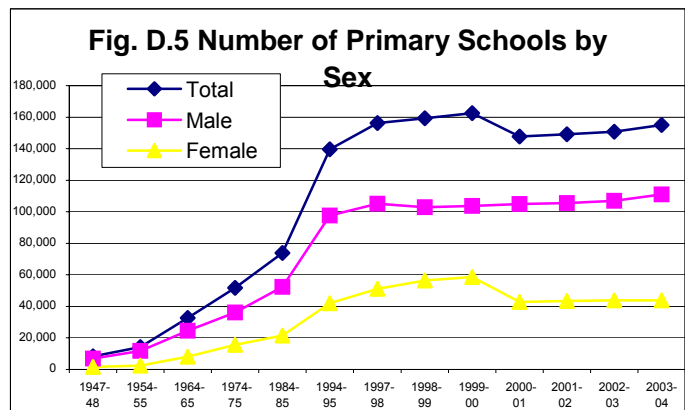
There were 644 students enrolled in 2 Universities existed in the country at the time of independence. These includes degree and post graduate level enrollments for various subjects. The enrollments in 2003-04 was estimated at about 218.3 thousand in 51 universities in the country (Table D-05). The enrollment in universities increased at an annual growth rate of 10.5 percent, the highest among all level of education. It indicates university education is more facilitated /subsidized as compared to primary/secondary education. Since university graduate tend to emigrate due to limited opening in the country , the bias in favour of university education is likely to work at the cross purpose of increasing the literacy.

D-I.iii Educational Infrastructure

a. Primary Level Schools

At the time of independence (1947-48) there were 8,413 primary schools in the country. The number of primary schools increased to 154,970 during 2003-04. The average annual growth rate in primary schools is 5.2 percent as against 5.8 percent annual growth rate of enrollment to the primary schools during the same period. One primary school was available for about 4 thousand population in 1947-48 while one primary school was available for less than one thousand population in 2003-04. Fig. D.5 depict availability of primary school by sex during 2003-04.

Sex wise analysis indicates that 6,864 primary schools were available for boys in 1947-48 as compared to 1,549 schools for females. A comparison of enrollments at primary level with primary schools during 1947-48 reveals that one primary school was available for 96 boys as



against one school for 71 girls. The number of male primary schools increased to 111 thousand in 2003-04, whereas, the female primary schools to 44 thousands. On the basis of enrollment in 2003-04, there was one primary school for 104 male students as against one primary school for 186 female students .

There were about 18 thousand primary school teachers available for 8,413 primary schools in 1947-48 i.e. two teachers per school and one teacher for 43 students. The number of teachers increase to 432.2 thousands in 2003-04, however, the ratio of teachers per school almost remained the same as was in 1947-48 i.e. two teachers per school, while number of students per teacher also remained the same as in 1947-48.

Sex wise analysis indicates that about 15 thousands male primary school teachers were available in 1947-48 and their number has increased to 432.2 thousands in 2003-04 (Table D-05). On the average, about two male teachers for one boys school were available in 1947-48, as compared to only 1.5 female teachers for one girls primary school. The average number of female teachers per girl's school increased from 1.5 teacher in 1947-48 to 4.4 teacher per school in 2003-04, whereas for boy's schools the ratio has remained almost the same. However students teacher ratio has decreased for female student i.e. one female primary school teacher for 46 girls students was available in 1947-48 which decreased to 42 students per female teacher in 2003-04 (Table D-05).

b. Middle Schools

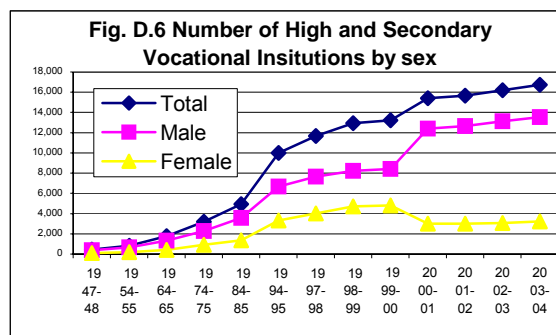
There were about 2,190 middle schools available at the time of independence (1947-48). The number of middle schools increased 13 times to 28,727 schools in 2003-04 (Table D-05), during 56 years. As per school and enrollment at middle level, one school was available for about 100 students in 1947-48 as compared to one school for 150 students in 2003-04, i.e 1.5 times increase in the number of middle level students per school. It indicates more pressure on existing middle level schools in the country. On the average 5.5 teachers were available for one middle school in 1947-48, which increased to 8.3 teachers per school in 2003-04. The students - teacher ratio which was about 18 students per teacher in 1947-48 remained the same 18 students per teacher in 2003.04

Sex wise analysis of data (Table D-05) for middle level schools indicates that 2,037 boys middle schools for boys were available in 1947-48 which increased to 22,160 in 2003-04, as against 153 middle schools for girls were available in 1947-48 and their number increased to 6,567 in 2003-04. The middle schools for boys has increased at an average annual growth rate of 4.3 percent, whereas, the middle schools for girls has registered an annual growth rate of 6.7 percent during the last 56 years. The middle schools for girls were only 7.5% of the existing middle schools for boys in 1947-48, which increased to 29.6 percent in 2003-04. A very significant change at the middle level schools has been observed in male-female infrastructure. It indicates more emphasis on education for females at middle level in the country, which is very encouraging.

Only 800 female teachers were available during 1947-48, which increased to 146.6 thousands in 2003-04. The data on students - teachers ratio of middle level indicate that one teacher was available for 18 students in 1947-48, remained the same for 2003-04. The ratio was higher for male students as compared to female students in 2003-04, which was lower in 1947-48 (Table D-05).

c. High and Secondary Vocational Institutions

At the time of independence (1947-48), 454 high/secondary schools were available in the country, which increased to 16,742 schools in 2003-04, at an average annual growth rate of 7.3 percent. The existing number of high schools when compared with the population of age group 10-14 years, reveals that population per school which was 9 thousands in 1947-48 declined to about 558 per high school during the same period.



Sex wise analysis of data indicates that 372 high schools were available for males in 1947-48 which increased to 13529 schools in 2003-04. As compared to this

82 high schools for female in 1947-48 3,213 were available in 2003-04. (Fig. D.6). The female high schools as percentage of total high schools in 1947-48. (18%) fared marginally better (19%) in 2003-04. A comparison of high school enrollment indicates that on the average one high school was available for 137 students in 1947-48 which decreased to 113 students per high school in 2002-03.

Sex wise analysis indicates that one high school was available for 145 male students in 1947-48 as against one school for 98 female students, whereas, in 2003-04 i.e. one high school was available for 86 male student as compared to one high school for 228 girls showing more female enrollment in the high schools.

About 17 teachers per school were available in 2003-04 whereas sex wise analysis indicates that 11 teachers for one high school for boys and about 42 teachers for one high school for girls were available during the same period (Table D-05).

d. Arts and Science Colleges

There were 40 arts and science colleges in 1947-48 which increased to 1066 colleges in 2003-04, registering 27 times increase in the number of colleges during 56 years. Sex wise analysis indicates that 35 arts and science colleges for boys were available in 1947-48 which increased to 608 colleges in 2003-04, whereas, only 5 female colleges were available in 1947-48 and their number increased to 458 in 2003-04 the colleges for girls were only 12.5 percent of the total colleges in 1947-48 which has increased to 43 percent of the total existing arts and science colleges in the 2003-04 (Table D-05).

The data reveal that female educational infrastructure as well as enrollment have been on rise, which indicate improvement in the status of women. A comparison of enrollment with number of colleges indicates that one college was available for 350 students in 1947-48, which has increased to 848 students per college in 2003-04. Sex wise analysis of the data reveals that one college for female students was available for 200 girls in 1947-48, which raised to 973 girls per college in 2003-04. Similarly one college was available for 371 male students in 1947-48, which increased to 761 male students per college in 2003-04. It shows an upward trend for seeking higher education, for both sexes.

e. Professional Colleges

There were 24 professional colleges (Agriculture, Medical, Engineering, Law, Tibb, Commerce and Homeopathic) in the country in 1954-55, which increased to 382 in 2002-03. Sex wise analysis indicates that there were no professional college available for females upto 1954-55 and all the 24 colleges were for males but female could get admission in male colleges. There were 9,800 teachers for 382 professional colleges in the country in 2002-03 i.e. 26 teachers per college. Out of the total teachers about 2,100 were female teachers and 7,700 male teachers in 2002-03 i.e. only 21 percent were female teachers at professional colleges. There were 17 student per teacher in 2002-03.

f. Universities

There were only 2 universities in the country at the time of independence, which increased to 51 universities in 2003-04. There were about 1,300 teachers for 6 universities available in 1964-65 i.e. 217 teachers per university which has increased to about 11,400 teachers in 2003-04 i.e. on the average 223 teacher per university. The students teacher ratio was 10 students per teacher in 1964-65 which increased to 19 students per teacher in 2003-04.

D-II Health

D-II.i Historical Background

Similar to other social sectors, the country inherited very limited resources both in terms of infrastructure as well as manpower in the health sector at the time of its creation. Though a lot of health facilities dot the country's expanse, health related indicators have not improved much. Among the reasons the seminal one is that health sector could not claim a high priority in development plans. This can be judged from the fact that the total expenditure on health & nutrition during 2000-2001 was Rs.24,281 million (0.7 % of GNP), out of which Rs 5,944

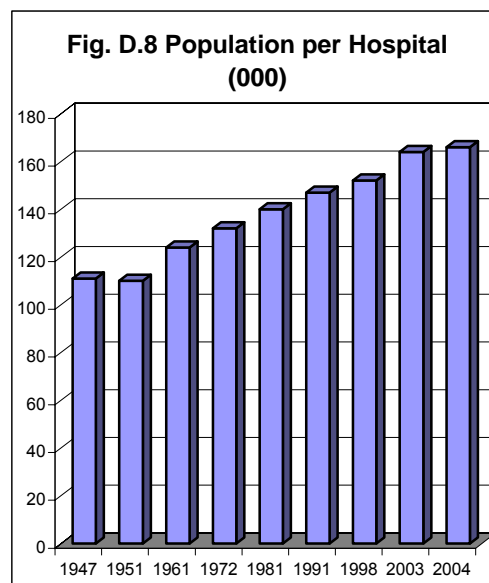
million (24.5%) only were allocated for development expenditure. However, new National Health Policy 2001 has adopted a focused approach by identifying ten key strategies of health care as under:-

1. Reduction of widespread prevalence of communicable diseases (i.e EPI cluster of childhood diseases, T.B Malaria, Hepatitis B+HIV – AIDS);
2. Addressing inadequacies in primary secondary health care services;
3. Elimination of professional and managerial deficiencies in District Health System;
4. Promoting greater gender equity;
5. Bridging basic nutrition gaps in the target population i.e children, women and vulnerable population groups;
6. Correcting urban bias in health sector;
7. Introducing required regulation in private medical sector.
8. Creating mass awareness in public health matters;
9. Effecting Improvements in the Drug Sector with a view to ensuring the availability, affordability and quality of drugs in the country;
10. Capacity building for Health Policy Monitoring. (Ministry of Health 2000-2001).

D-II.ii Health Infrastructure

a. Hospitals

At the time of independence there were 292 hospitals in the country i.e. one hospital was available for about 111 thousand population. The number of hospital tripled in 56 years to become 916 in 2004 (Table D-11). The annual average growth rate of hospitals was 2.0 percent, which is below to the annual population growth rate in the country during last 57 years. It reveals that the pace of development in the health sector remains low as compared to population growth, resulting more pressure on the hospitals which are mainly situated in major urban localities. It is estimated that population per hospital which was 111 thousand per hospital in 1947 raised to 166 thousand per hospital in 2004. Fig D.8 presents population per hospital during 1947 to 2003. As compared to this population per hospital bed was 2,360 in 1947 which declined to 1,517 per hospital beds in 2004. It indicates availability of more beds in the hospitals (Table D-11).



b. Dispensaries

The dispensaries are normally supervised by a MBBS doctor and supported by a Lady Health Visitor, dispenser, midwife, aya, chowkidar and sweeper. There were 722 dispensaries in 1947, which increased to 4,582 in 2004. It shows more than 6 times increase in number of dispensaries in 57 years (Table D-11). As compared to hospitals the annual average growth rate of dispensaries was higher i.e. 3.24 percent as against 2.0 percent for hospitals.

c. Maternal and Child Health Centre (MCH)

The Maternal and Child Health Centres (MCH) are mostly established in the rural areas, which provide services to the pregnant mothers and new born babies. Centres are supervised by Lady Health Visitors. There were 91 such centres at the time of independence, registered 10 times increase in 57 years and their number raised to 906 in 2004, The annual average growth rate for MCH Centre in the country was 4.2 percent during 1947-2004

d. Beds in Hospitals and Dispensaries

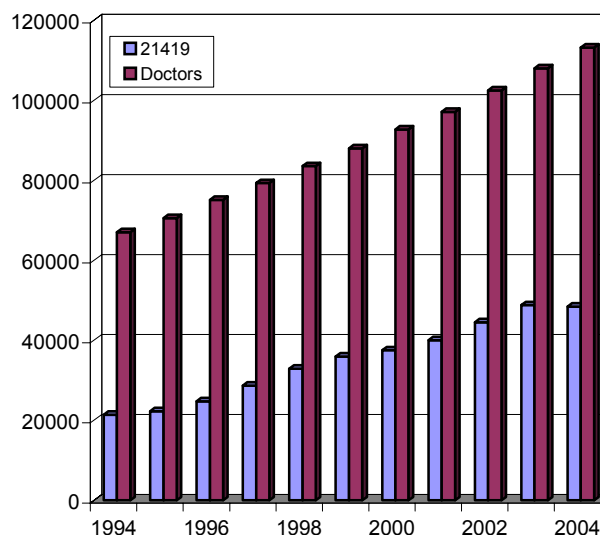
The hospitals and dispensaries have the facilities to admit patients who need continued medical care or surgical treatment. There were about 14 thousand beds in the hospitals and dispensaries in 1947 i.e. one bed for about two thousand four hundred population in the country. There was more than 7 times increase in availability of beds in hospitals and dispensaries during last 57 years in the country i.e. the number raised to 99908 thousand in 2004.

D-II.iii Health Manpower

a. Doctors

There were only 1,360 registered doctors in 1948 in the country for about 30 million population i.e. one doctor for about twenty two thousand persons. The situation gradually improved and there was one doctor available for about nine thousand population in 1956, and it is estimated that in 2004 there were more than 113 thousand registered doctors in the public and private sectors in the country, which means one doctor for 1339 persons (Table D.10). The average annual growth rate of registered doctors during 1948 to 2004 was 7.9 percent.

Fig.9 Comparison of Registered Doctors and Nurses During 1993 to 2002



b. Nurses

The nurses play very important role in the health care services. There were only 88 registered nurses in the country in 1948 i.e. one nurse for 0.41 million population. The situation improved over time and there were 48,446 registered nurses in 2004 i.e. number of registered nurses increased with an average annual growth rate of 11.3 percent which is higher than the annual growth rate of registered doctors. However, these number fared at only 43 percent of the registered doctors in 2004 (Table D-10). Population per registered nurse was 3,129 in 2004. The difference in the availability of registered doctors and nurses is quite visible in Fig. D.9.

c. Dentists

There were 1018 registered dentists in 1981. The number of registered dentists increased to 6,127 in 2004. One dentist was available for about eighty three thousand population in 1981 as against 25 thousand per dentist in 2003 (Table D-10). The number of registered dentists increased at an annual growth rate of 7.8 percent during 1981-2004. However, population per dentist is still very high. The available dentists are mainly available in big hospitals and large cities, whereas, rural population which is almost 67 percent of the total population in the country do not have easy access to dental surgeon in their areas.

D-II.iv Basic Health Indicators

Below table gives a comparison of basic demographic health indicators of some Asian countries in 2002 indicates that infant mortality rate is higher in Pakistan as compared to other countries, even higher than Bangladesh, Nepal and India. The life expectancy at birth is slightly higher than, Bangladesh and Nepal, however, it is lower than India Turkey, Iran, Sri Lanka, Thailand, Indonesia and China.

Table D-IV: Basic Health Indicators, Pakistan and Other Countries of Region, 2002

Country	Births per 1,000 Population	Deaths per 1,000 Population	Infant Mortality Rate	Life Expectancy at Birth (Years)		
				Total	Male	Female
TURKEY	23	7	39	69	66	71
BANGLADESH	30	8	66	59	59	59
INDIA	25	8	66	63	62	64
IRAN	18	6	32	69	68	70
NEPAL	34	10	77	59	59	58
PAKISTAN	37	10	91	60	60	60
SRI LANKA	19	6	13	72	70	74
INDONESIA	22	6	46	68	66	70
THAILAND	13	6	20	71	68	75
CHINA	13	6	32	71	69	73

Source:- World Population Data Sheet, 2003.

D-III Family Planning

The Family Planning Programme in the country was first introduced in 1953 through the private sector by a non-governmental organization " Family Planning Association of Pakistan". The Population Welfare Programme in the public sector has been operating since 1960. Initially the achievement of the family planning programme was slow, however, during the seventh and eighth five year plan periods there was significant progress. The recently conducted population census indicates a fertility decline and intercensal growth rate which was 3.06 during 1972-81 has declined to 2.6 during 1981-98.

At present the population welfare programme is operating both in the public and private sectors supported by the government. A net work of service delivery outlets of Ministries of Population Welfare and Health as well as Social Marketing of Contraception (Private Sector) is providing family planning services to the desirous clients.

D-III.i Knowledge of Methods

The knowledge of specific method has substantially increased during last 12-13 years. According to "Pakistan Demographic and Health Survey" conducted in 1990-91, the knowledge of at least one method was 77.9 percent which has increased to 95.5 percent in 2003 (Pakistan Reproductive Health & Family Planning survey 2003). Table below presents method specific knowledge of country-married women aged 15-49 years.

Table D-V: Currently Married Women by Knowledge of Specific Method (Percent)

Contraceptive Method	PDHS 1990-91	PFFPS 1996-97	PRHFPS 2000-01	PRHFPS 2003
Any Method	77.9	94.3	95.7	95.5
Female Sterilization	69.7	88.5	88.8	85.9
Male Sterilization	20.2	31.0	31.6	41.5
Injection	62.2	86.0	90.2	88.2
IUD	51.5	82.4	84.4	82.1
Pill	62.2	86.6	91.1	90.7
Condom	35.3	61.2	69.9	65.2
Vaginal Method	12.7	13.8	-	-
Rhythm	17.8	33.7	-	25.4
Withdrawal	14.3	40.7	42.4	35.7
Other Method	3.5	3.7	1.9	1.7

Source:- Pakistan Reproductive Health & Family Planning survey 2000-01 NIPS Pakistan

D-III.ii Contraceptive Performance and Use

The population welfare programme in the country is providing services of contraception through public or private sector outlets. The modern methods like pills, IUD, injectable, Sterilization, Condom are being dispensed to the visiting clients at the service delivery points. The performance of contraceptive delivery services through population welfare programme is given in table D-18. According to the latest survey conducted in 2003 the contraceptive prevalence rate among the currently married women aged 15-49 years was 32.1 percent. Table below gives contraceptive prevalence rates by method.

Table D-VI: Current Contraceptive Prevalence Rates by Method and Sources

Method	PCPS 1984-85	PCPS 1994-95	PFFPS 1996-97	PRHFPS 2000-01	PRHFPS 2003
Any Method	9.1	17.7	23.7	27.6	32.1
Method for Women	5.5	8.8	12.5	-	18.7
Pill	1.4	0.7	1.6	1.9	3.1
IUD	0.8	2.1	3.4	3.5	4.4
Injection	0.6	1.0	1.4	2.6	3.4
Vaginal Methods	0.1	0.0	0.1	0.0	-
Female Sterilization	2.6	5.0	6.0	6.9	7.5
Implant	-	-	-	-	0.3
Method for Men	3.0	7.9	8.8	-	11.5
Condom	2.1	3.7	4.2	5.5	6.4
Withdrawal	0.9	4.2	4.6	5.3	4.9
Male Sterilization	-	-	-	-	0.2
Method for either use	0.6	1.0	2.4	-	2
Periodic Abstinence	0.1	1.0	1.9	1.6	1.7
Other	0.5	-	0.5	0.5	0.3

Source:- National Institute of Population Studies.

D-VI Extended Programme of Immunization (EPI)

This programme was launched for the first time in 1979 on a very comprehensive scale with the prime objective to reduce morbidity and mortality resulting from six deadly diseases (Polio, Diphtheria, Whooping Cough, Tetanus, Measles and Tuberculosis) through immunizing children of less than one year of age and Tetanus immunization to all women of the child bearing age. The programme extended service delivery from all health facilities in public and private sectors and by special out reach and mobile approach. In a year, special immunization programmes are launched twice to boost up immunization coverage in the country. The data on immunization is not easy to collect or interpret as coverage is often reported on the basis of respondent recall than written records. The service statistics also falls short of adequacy and reliability. To draw up the prespective, however, the survey results of Pakistan Integrated Household Survey are given in the table below:-

Table D-VII: Percentage of Children Aged 12-23 Months that have been Immunized

Region and Province	1995-96 PIHS			1998-99 PIHS			2001-02 PIHS		
	Male	Male	Male	Male	Female	Both	Male	Female	Both
A. Based on Recall – At least one Immunisation:									
URBAN AREAS:	89	84	86	89	89	89	96	98	97
Punjab	85	87	86	87	89	88	94	99	97
Sindh	95	82	89	94	88	90	99	99	99
NWFP	80	78	79	95	92	94	98	97	97
Balochistan	83	77	80	81	95	88	80	81	80
RURAL AREAS:	77	69	73	82	79	80	95	95	95
Punjab	84	76	80	88	87	88	97	97	97
Sindh	59	73	61	72	66	69	97	96	97
NWFP	72	59	65	80	74	77	92	93	93
Balochistan	76	60	68	68	73	71	66	70	68
OVERALL	80	73	77	84	82	83	95	96	95
Punjab	84	79	81	88	87	88	96	97	97
Sindh	75	71	73	79	74	76	98	97	98
NWFP	74	61	67	82	77	79	93	94	93
Balochistan	77	64	71	69	76	73	68	72	70
B. Based on Record – Fully Immunised:									
URBAN AREAS:	40	41	41	49	41	45	41	44	43
Punjab	45	45	45	51	50	51	48	55	52
Sindh	32	33	32	49	28	38	31	30	31
NWFP	46	50	47	42	43	42	53	38	46
Balochistan	50	47	48	28	38	33	17	14	15
RURAL AREAS:	33	33	33	29	26	28	21	23	22
Punjab	36	34	35	38	33	35	24	28	25
Sindh	18	20	19	7	7	7	7	5	6
NWFP	38	37	37	35	39	37	32	32	32
Balochistan	43	36	39	5	10	7	11	14	12
OVERALL:	35	35	35	34	30	32	26	29	27
Punjab	37	37	37	42	37	39	30	35	32
Sindh	24	26	25	21	14	17	16	15	15
NWFP	39	38	39	36	39	38	35	33	34
Balochistan	44	38	41	7	13	10	12	14	13
C. Based on Recall and Record – Fully Immunised:									
URBAN AREAS:	48	52	50	64	63	64	70	71	70
Punjab	57	58	57	62	68	64	72	80	76
Sindh	38	45	41	66	54	60	66	63	64
NWFP	46	50	47	82	74	77	81	57	70
Balochistan	67	56	61	51	52	51	34	37	36
RURAL AREAS:	45	42	44	47	42	45	48	45	46
Punjab	46	43	45	56	47	52	52	50	51
Sindh	45	48	46	31	24	27	39	26	33
NWFP	38	37	37	49	54	51	52	57	55
Balochistan	60	48	54	35	29	32	22	21	22
OVERALL:	46	45	45	52	47	49	53	52	53
Punjab	48	47	47	57	52	55	57	58	57
Sindh	42	46	44	42	35	38	49	40	45
NWFP	39	38	39	52	56	54	56	57	57
Balochistan	61	50	56	36	32	34	24	24	24

NOTES: -

1. Based on recall: Children reported as having received at least one immunization expressed as a percentage of all children aged 12-23 months.
2. Based on record: Children who reported having received full immunization who also have an immunization card, expressed as a percentage of all children aged 12-23 months.
3. Immunizations: To be classed as fully immunized a child must have received: 'BCG', 'DPT1', 'DPT2', 'DPT3', 'Polio1', 'Polio2', 'Polio3' and 'Measles'.

Table D-01: Student Population (05 years and above) by Field of Educational Attainment, Sex Urban and Rural Areas,1998-Census

(000 Number)

Level of Education	All areas			Urban areas			Rural areas		
	Both Sexes	Male	Female	Both Sexes	Male	Female	Both Sexes	Male	Female
Total	22680	13533	9146	10506	5755	4751	12173	7778	4395
General	22311	13269	9042	10279	5594	4685	12032	7675	4357
Engineering/ Technical	62	56	6	47	42	5	15	14	1
TIB/Health	45	27	18	37	21	16	8	6	2
LAW	9	7	2	7	5	2	2	2	..
Agricultural/Fore stry Animal Husbandry	9	6	2	6	4	2	3	2	1
Commerce/ Business	32	27	5	27	23	4	4	4	..
Teaching	20	9	11	12	4	8	8	5	3
Religious education	159	111	48	75	52	23	84	59	25
Others	33	21	12	16	10	6	17	11	6

Source:- Population Census Organization

Note:- Total do not tally due to rounding

Table D-02: Literacy-Population 10 Years and Older by Region and Province

Region and Province	Percentage of Population 10 Years and Older								
	1996-97-PIHS			1998-99 PIHS			2001-02 PIHS		
	Both Sex	Male	Female	Both Sex	Male	Female	Both Sex	Male	Female
PAKISTAN	39	51	28	45	59	31	45	58	32
Punjab	40	51	30	46	57	34	47	57	36
Sindh	45	57	33	51	65	35	46	60	31
NWFP	30	46	17	37	56	20	38	57	20
Balochistan	27	44	9	36	54	16	36	53	15
URBAN AREA	58	65	50	65	73	56	64	72	56
Punjab	57	64	51	64	71	58	66	71	60
Sindh	61	67	54	69	79	58	64	74	54
NWFP	46	58	34	53	66	40	56	70	41
Balochistan	45	61	27	56	72	39	54	71	36
RURAL AREA	31	44	17	36	52	20	36	51	21
Punjab	32	45	21	38	52	24	38	51	26
Sindh	30	46	12	35	53	15	33	51	14
NWFP	27	43	13	34	54	16	35	55	16
Balochistan	24	41	5	33	51	12	32	49	11

Source:- Pakistan Integrated Household Survey (PIHS), Federal Bureau of Statistics

- Note:-**
1. Population aged 10 years and older that is literate, expressed as a percentage of the population aged 10 years and older.
 2. Literacy: For all the three rounds of the survey ,literacy is taken as the ability to read a newspaper, and to write a simple letter. Note the 1995-96PIHS report defined literacy as the ability to read a newspaper, write a simple letter and perform a simple sum.

**Table D-03: Literate-Population 10 Years and older-
by Region and Province, Censuses 1981& 1998**

Region and Province	Percentage of Population 10 Years and Older					
	1981 Census			1998-Census		
	Both Sex	Male	Female	Both Sex	Male	Female
PAKISTAN	26.2	35.1	16.0	43.9	54.8	32.0
Punjab	27.4	36.8	16.8	46.6	57.2	35.1
Sindh	31.5	39.7	21.6	45.3	54.5	34.8
NWFP	16.7	25.9	6.5	35.4	51.4	18.8
Balochistan	10.3	15.2	4.3	24.8	34.0	14.1
URBAN AREA	47.1	55.3	37.3	63.1	70.0	55.2
Punjab	46.7	55.2	36.7	64.5	70.9	57.2
Sindh	50.8	57.8	42.2	63.7	69.8	56.7
NWFP	35.8	47.0	21.9	54.3	67.5	39.1
Balochistan	32.2	42.4	18.5	46.9	58.1	33.1
RURAL AREA	17.3	26.2	7.3	33.6	46.4	20.1
Punjab	20.0	29.6	9.4	38.0	50.4	24.8
Sindh	15.6	24.5	5.2	25.7	37.9	12.2
NWFP	13.2	21.7	3.8	31.3	47.7	14.7
Balochistan	6.2	9.8	1.8	17.5	25.8	7.9

Source:- Population Census Organization

Table D-04: Literacy Ratios of Population (10 years and above) by Age, Sex, Province, Urban and Rural Areas

Age group (years)	Total			Urban			Rural		
	Both Sex	Male	Female	Both Sex	Male	Female	Both Sex	Male	Female
Pakistan	1998 - Census								
10 and above	43.9	54.8	32.0	63.1	70.0	55.2	33.6	46.4	20.1
10 - 14	54.7	60.9	47.7	72.6	74.2	71.0	45.6	54.3	35.4
15 - 19	57.0	67.0	46.3	73.6	76.6	70.4	47.5	61.4	32.8
20 - 24	50.4	63.7	37.0	69.7	75.6	63.0	39.6	56.5	23.5
25 - 34	42.7	55.4	29.0	63.1	71.0	53.6	31.0	45.7	16.0
35 - 44	38.3	52.2	23.3	58.3	69.0	45.7	26.5	41.6	11.1
45 - 54	30.5	44.0	15.7	50.2	63.2	34.8	20.5	33.7	6.5
55 and above	21.3	30.9	9.9	38.3	50.6	23.4	14.0	22.3	4.2
Balochistan									
10 and above	24.8	34.0	14.1	46.9	58.1	33.1	17.5	25.7	7.9
10 - 14	32.0	36.9	25.1	60.3	65.9	53.4	23.3	28.6	15.5
15 - 19	32.5	42.4	21.1	57.8	68.2	45.9	24.0	33.8	12.6
20 - 24	29.2	43.6	14.8	50.9	65.5	34.3	21.6	35.2	8.4
25 - 34	23.7	35.5	10.6	45.0	58.8	27.1	15.9	26.1	5.2
35 - 44	19.1	29.2	8.2	39.3	53.2	22.2	12.1	20.2	3.7
45 - 54	14.9	22.6	6.0	31.0	42.9	15.9	9.7	15.6	3.0
55 and above	10.9	15.8	4.6	23.4	32.9	11.4	7.5	11.2	2.8
N.W.F.P									
10 and above	35.4	51.4	18.8	54.3	67.5	39.1	31.3	47.6	14.7
10 - 14	48.1	61.0	33.7	66.4	74.5	57.7	44.5	58.4	28.8
15 - 19	49.0	67.8	29.2	66.5	78.6	53.2	45.0	65.3	24.0
20 - 24	40.8	62.6	20.2	61.3	76.2	43.7	36.1	59.0	15.4
25 - 34	31.5	50.1	13.5	52.3	67.4	34.0	26.6	45.5	9.3
35 - 44	27.4	45.1	10.1	46.7	63.3	27.5	22.8	40.2	6.4
45 - 54	20.2	33.7	6.3	38.0	54.2	19.1	16.4	29.0	3.8
55 and above	13.8	21.8	4.1	28.9	41.5	12.8	11.1	18.1	2.6
Punjab (a)									
10 and above	46.6	57.2	35.1	64.5	70.9	57.2	37.9	50.4	24.8
10 - 14	58.6	64.2	52.4	74.0	74.4	73.6	51.4	59.5	42.3
15 - 19	61.9	70.7	52.7	76.3	77.8	74.8	54.5	67.0	41.3
20 - 24	55.0	67.2	42.7	72.5	77.1	67.5	46.1	61.9	30.7
25 - 34	45.6	58.3	32.2	64.9	72.6	55.9	35.8	50.5	20.9
35 - 44	40.5	54.8	25.1	59.8	70.7	47.1	30.4	46.0	14.3
45 - 54	31.5	45.9	16.0	51.2	65.4	35.0	22.7	36.8	7.8
55 and above	21.1	31.2	9.0	37.0	50.0	21.2	15.1	24.1	4.5
Sindh									
10 and above	45.3	54.5	34.8	63.7	69.8	56.7	25.7	37.9	12.2
10 - 14	53.2	57.5	48.0	72.6	74.2	70.8	33.6	41.9	22.6
15 - 19	54.3	62.5	45.5	72.1	75.0	68.9	34.0	48.1	19.2
20 - 24	48.6	60.0	36.7	68.5	74.1	62.2	27.5	43.6	12.4
25 - 34	44.5	54.6	32.6	63.9	70.2	55.9	23.6	36.8	9.0
35 - 44	41.6	53.1	28.5	59.4	68.4	48.7	21.0	34.3	7.0
45 - 54	36.0	48.0	21.8	52.0	63.0	38.5	19.4	31.9	5.2
55 and above	27.8	37.4	16.5	43.0	54.2	29.5	13.8	21.5	4.7

Note:-Pakistan excludes the data of the Federally Administered Tribal Areas (FATA).

Table D-05: Number of Institutions, Enrollment and Number of Teachers by Sex and Level of Educational Institutions

Institute/Year	Number of Institutions			Enrollment (000. No.)		
	Total	Male	Female	Total	Male	Female
	1	2	3	4	5	6
Primary School						
1947-48	8,413	6,864	1,549	770	660	110
1954-55	14,162	11,688	2,474	1,550	1,310	240
1964-65	32,589	24,568	8,021	3,050	2,350	700
1974-75	51,744	36,066	15,678	4,971	3,541	1,430
1984-85	73,812	52,261	21,551	6,828	4,576	2,252
1994-95	139,634	97,667	41,967	14,264	8,626	5,638
1998-99	159,330	102,815	56,515	18,169	11,719	6,450
1999-00	162,521	103,773	58,748	19,148	12,104	7,044
2000-01	147,736	104,866	42,870	17,135	10,242	6,893
2001-02	149,084	105,560	43,524	17,529	10,362	7,167
2002-03	150,809	106,951	43,858	18,220	10,701	7,519
2003-04	154,970	111,057	43,913	19,781	11,602	8,179
Middle School						
1947-48	2,190	2,037	153	221	200	21
1954-55	1,517	1,321	196	332	287	45
1964-65	2,701	2,112	589	624	496	128
1974-75	4,713	3,447	1,266	1,196	917	279
1984-85	6,132	4,315	1,817	1,805	1,359	446
1994-95	12,571	7,009	5,562	3,816	2,469	1,347
1998-99	18,072	10,087	7,985	4,098	2,512	1,586
1999-00	18,435	10,289	8,146	4,112	2,497	1,615
2000-01	25,472	19,597	5,875	3,759	2,304	1,455
2001-02	26,791	20,534	6,257	3,821	2,315	1,506
2002-03	28,021	21,468	6,553	3,918	2,367	1,551
2003-04	28,727	22,160	6,567	4,321	2,584	1,737
Secondary School*						
1947-48	454	372	82	62	54	8
1954-55	837	649	188	120	102	18
1964-65	1,767	1,342	425	243	191	52
1974-75	3,199	2,288	911	504	390	114
1984-85	4,920	3,566	1,354	702	534	168
1994-95	10,005	6,682	3,323	1,611	1,082	529
1998-99	12,931	8,221	4,710	1,777	1,122	655
1999-00	13,211	8,406	4,805	1,817	1,147	670
2000-01	15,416	12,407	3,009	1,648	1,037	611
2001-02	15,658	12,658	3,000	1,657	998	659
2002-03	16,208	13,128	3,080	1,683	1,006	677
2003-04	16,742	13,529	3,213	1,901	1,169	732

* Secondary Schools include both high school and secondary vocational institutions

Contd...

Table D-05: Number of Institutions, Enrollment and Number of Teachers by Sex and Level of Educational Institutions

Institute/Year	Number of Institutions			Enrollment (000. No.)		
	Total	Male	Female	Total	Male	Female
	1	2	3	4	5	6
Arts and Science Colleges						
1947-48	40	35	5	-	-	-
1954-55	77	58	19	43	37	6
1964-65	225	163	62	127	103	24
1974-75	361	265	96	208	150	58
1984-85	467	314	153	373	256	117
1994-95	678	421	257	704	428	276
1998-99	840	501	339	780	429	351
1999-00	889	531	358	792	420	372
2000-01	916	536	380	763	389	374
2001-02	939	545	394	751	381	370
2002-03	964	550	414	802	406	396
2003-04	1,066	608	458	905	463	442
Professional Colleges						
1947-48	-	-	-	4.4	4.1	0.3
1954-55	24	24	-	8.2	7.4	0.8
1964-65	45	40	5	17.4	14.4	3.0
1974-75	83	75	8	44.7	36.6	8.1
1984-85	99	91	8	59.2	49.5	9.7
1994-95	167	157	10	100.1	73.0	27.1
1998-99	308	290	18	163.0	122.0	41.0
1999-00	324	309	15	161.1	120.0	41.0
2000-01	352	334	18	159.0	119.0	40.0
2001-02	374	354	20	161.0	120.0	41.0
2002-03	382	363	19	164.0	122.0	42.0
2003-04	416	396	20	179.0	132.0	46.0
Universities						
1947-48	2	(a)	(a)	0.6	0.5	0.1
1954-55	4	(a)	(a)	2.0	1.9	0.1
1964-65	6	(a)	(a)	13.2	10.5	2.7
1974-75	10	(a)	(a)	21.4	16.9	4.5
1984-85	21	(a)	(a)	54.0	45.6	8.4
1994-95	25	(a)	(a)	80.6	59.5	21.1
1998-99	26	25	1	91.6	66.2	25.4
1999-00	26	25	1	114.0	90.7	27.3
2000-01	26	25	1	124.9	88.3	36.6
2001-02	29	28	1	117.8	78.2	39.6
2002-03	29	28	1	126.9	83.2	43.7
2003-04	51	48	3	218.3	135.2	83.1

Note:- (a) There is co-education system in universities

Contd...

* Includes data of seven degree awarding omstitutes.

Table D-05: Number of Institutions, Enrollment and Number of Teachers by Sex and Level of Educational Institutions

Institute/Year	000 Number of Teachers			Student Per Teacher		
	Total	Male	Female	Total	Male	Female
	7	8	9	10	11	12
Primary School						
1947-48	17.8	15.4	2.4	43	43	46
1954-55	35.5	29.7	5.8	44	44	41
1964-65	75.9	59.2	16.7	40	40	42
1974-75	125.5	83.1	42.4	40	43	34
1984-85	179.0	121.8	57.2	38	38	39
1994-95	334.0	219.5	114.5	43	39	49
1998-99	359.2	234.5	124.7	51	50	52
1999-00	366.4	239.2	127.2	52	51	55
2000-01	408.9	228.9	180.0	42	45	38
2001-02	413.9	230.4	183.5	42	45	39
2002-03	433.5	241.8	191.7	42	44	39
2003-04	432.2	236.9	195.3	46	49	42
Middle School						
1947-48	12.0	11.2	0.8	18	18	26
1954-55	10.7	9.2	1.5	31	31	30
1964-65	22.1	17.4	4.7	28	29	27
1974-75	43.5	30.7	12.8	27	30	22
1984-85	57.4	40.4	17.0	31	34	26
1994-95	86.4	48.0	38.4	44	51	35
1998-99	89.7	46.3	43.4	46	54	37
1999-00	91.5	47.2	44.3	45	53	36
2000-01	209.7	83.9	125.8	18	27	12
2001-02	230.1	90.8	139.3	17	25	11
2002-03	236.3	90.5	145.8	17	26	11
2003-04	239.4	92.8	146.6	18	28	12
Secondary School						
1947-48	6.8	6.0	0.8	N.A	N.A	N.A
1954-55	12.7	10.4	2.3	N.A	N.A	N.A
1964-65	29.2	22.8	6.4	N.A	N.A	N.A
1974-75	53.6	37.7	15.9	N.A	N.A	N.A
1984-85	82.7	57.3	25.4	N.A	N.A	N.A
1994-95	182.7	115.3	67.4	9	9	8
1998-99	159.8	106.8	53.0	11	11	12
1999-00	165.0	110.8	54.2	11	10	12
2000-01	269.7	145.2	124.5	6	7	5
2001-02	277.4	149.4	128.0	6	7	5
2002-03	285.3	151.7	133.6	6	7	5
2003-04	285.4	149.3	136.1	7	8	5

- Note:-** 1. The total enrollment for high schools are not available, therefore students/teachers ratio can not be worked out.
 2. N.A = Not available

Contd...

Table D-05: Number of Institutions, Enrollment and Number of Teachers by Sex and Level of Educational Institutions

Institute/Year	000 Number of Teachers			Student Per Teacher		
	Total	Male	Female	Total	Male	Female
	7	8	9	10	11	12
Arts and Science Colleges						
1947-48	-	-	-	-	-	-
1954-55	-	-	-	-	-	-
1964-65	5.4	4.0	1.4	24	26	17
1974-75	9.6	7.0	2.6	22	21	22
1984-85	14.0	9.7	4.3	27	26	27
1994-95	22.8	14.7	8.2	31	29	34
1998-99	26.9	16.6	10.3	29	26	34
1999-00	27.7	17.1	10.6	29	25	35
2000-01	27.5	17.0	10.5	28	23	36
2001-02	26.4	16.0	10.4	28	24	36
2002-03	27.9	16.9	11.0	29	24	36
2003-04	29.7	17.5	12.2	30	26	36
Professional Colleges						
1947-48	-	-	-	-	-	-
1954-55	-	-	-	-	-	-
1964-65	1.2	1.0	0.2	15	14	15
1974-75	2.6	2.1	0.5	17	17	16
1984-85	3.9	3.3	0.6	15	15	16
1994-95	6.6	5.2	1.4	15	14	19
1998-99	8.8	7.1	1.7	19	17	24
1999-00	9.0	7.3	1.7	18	16	24
2000-01	9.1	7.3	1.8	17	16	22
2001-02	9.3	7.3	2.0	17	16	21
2002-03	9.8	7.7	2.1	17	16	20
2003-04	10.7	8.5	2.2	17	16	21
Universities						
1947-48	-	-	-	-	-	-
1954-55	-	-	-	-	-	-
1964-65	1.3	1.2	0.1	10	9	27
1974-75	2.5	2.2	0.3	9	8	15
1984-85	3.6	3.1	0.5	15	15	17
1994-95	5.3	4.4	0.9	15	14	23
1998-99	4.9	4.1	0.8	19	16	32
1999-00	5.9	4.8	1.1	19	19	25
2000-01	5.9	4.6	1.3	21	19	28
2001-02	5.2	4.0	1.2	23	20	33
2002-03	6.2	4.8	1.4	20	17	31
2003-04	11.4	8.2	3.2	19	16	26

Source:- 1 Central Bureau of Education 2. Federal Bureau of Statistics
3. Academy of Educational Planning & Management, Islamabad.
4. Provincial Bureau of Statistics.

Note:- (*) Professional Colleges includes Agriculture, engineering, Medical, Commerce, Law Home Economics, Education, Educational Research, Physical Education, Tibb, Homeopath and Fine Arts Institutions

Table D-06: Professional Colleges by Type and Sex

(Number)

Year	All Professional colleges		Agriculture (a)	Engineering (b)	Medical (c)		Commerce (d)	Law	Home Economics	Education (e)		Others (f)
	Total	Female	Total	Total	Total	Female	Total	Total	Total	Total	Female	Total
1985-86	99	-	3	11	22	-	16	13	4	17	-	13
1986-87	99	-	3	11	22	-	16	13	4	17	-	13
1987-88	99	8	3	11	22	2	16	13	4	17	2	13
1988-89	99	8	3	11	22	2	16	13	4	17	2	13
1989-90	99	8	3	11	22	2	16	13	4	17	2	13
1990-91	99	8	3	11	22	2	16	13	4	17	2	13
1991-92	139	9	3	11	22	2	33	31	4	18	3	17
1992-93	147	9	3	11	22	2	36	36	4	18	3	17
1993-94	165	10	5	10	25	2	52	36	4	21	4	12
1994-95	167	10	5	10	25	2	54	36	4	21	4	12
1995-96	260	16	5	10	25	2	58	41	4	21	4	96
1996-97	264	16	5	9	26	2	62	41	4	22	4	95
1997-98	293	19	5	13	26	2	72	43	4	22	4	108
1998-99	308	18	5	13	28	2	78	46	4	22	4	112
1999-00	324	15	5	11	28	2	80	50	4	22	4	124
2000-01	352	18	5	12	27	2	84	50	4	22	4	148
2001-02	374	20	5	13	28	2	87	53	4	22	4	162
2002-03	382	19	4	13	29	2	88	54	4	22	4	168
2003-04	416	20	5	16	30	2	100	56	4	22	4	183

Source:- i) Central Bureau of Education ii) Provincial Bureaus of Statistics

Note:-

- (a) Includes Forestry and Animal Husbandry Colleges
(b) Includes colleges of Textile Technology.
(c) Includes colleges of Dentistry and Institute of Hygiene and Preventive Medicines
(d) Includes Institute of Business Administration, University of Karachi.
(e) Includes Institutes of Educational Research of the University of Punjab and Sindh also Colleges of Physical Education.
(f) Includes Tibb, Homoeopath and Fine Arts.

Table D-07: Teachers in Professional Colleges by Type and Sex

(Number)

Year	All Types		Agriculture		Engineering		Medical		Commerce	
	Total	Female	Total	Female	Total	Female	Total	Female	Total	Female
1991-92	4,591	913	126	1	713	-	2,167	475	333	19
1992-93	4,520	927	126	1	720	-	2,175	479	339	19
1993-94	6,494	1,381	340	9	355	10	3,109	723	1,100	65
1994-95	6,650	1,364	353	8	379	10	3,155	702	1,136	77
1995-96	7,431	1,529	174	3	350	11	3,055	727	1,189	78
1996-97	7,852	1,574	181	4	418	10	3,106	753	1,240	81
1997-98	7,989	1,639	187	4	340	11	3,158	743	1,426	95
1998-99	8,861	1,771	189	4	1,018	10	3,208	822	1,457	114
1999-00	9,043	1,765	183	4	785	10	3,252	799	1,519	112
2000-01	9,131	1,769	112	4	887	13	2,902	691	1,600	133
2001-02	9,358	2,015	170	8	635	15	2,796	747	1,819	217
2002-03	9,841	2,107	127	6	636	15	3,064	815	2,013	194
2003-04	10,659	2,178	171	12	853	30	3031	781	2,185	241
Year	Law		Home Economics		Education		All Others (a)			
	Total	Female	Total	Female	Total	Female	Total	Female		
1991-92	226	3	226	226	490	149	310	40		
1992-93	226	3	230	230	497	153	207	42		
1993-94	582	18	230	230	603	268	175	58		
1994-95	606	22	224	224	611	258	186	63		
1995-96	657	27	217	217	638	264	1,151	202		
1996-97	891	26	222	221	627	259	1,167	220		
1997-98	767	45	225	224	576	241	1,310	276		
1998-99	758	55	224	223	614	260	1,393	283		
1999-00	804	49	223	221	592	255	1,685	315		
2000-01	837	67	220	218	577	251	1,996	392		
2001-02	836	77	242	240	583	262	2,277	449		
2002-03	783	74	249	247	582	248	2,387	508		
2003-04	1,035	84	247	245	610	254	2,527	531		

Source:- i) Central Bureau of Education. ii) Provincial Bureaus of Statistics
(a) = All others include Tibb, Homoeopath and Fine Arts.

Table D-08: Number of Secondary Vocational Institutions

Year	Commercial	Industrial / Vocational	Polytechnics / Technical
1985-86	74	114	25
1986-87	116	150	35
1987-88	125	169	42
1988-89	137	240	46
1989-90	156	180	48
1990-91	156	186	55
1991-92	157	188	55
1992-93	143	195	55
1993-94	143	190	51
1994-95	144	191	56
1995-96	214	204	58
1996-97	211	204	62
1997-98	211	203	58
1998-99	215	207	55
1999-00	216	194	55
2000-01	218	196	71
2001-02	200	192	70
2002-03	164	209	78
2003-04	811	235	87

Source:- i). Ministry of Education
ii). Provincial Directorates of Technical Education

**Table D-09: Enrollment in Secondary Vocational Institutions
by Kind and Sex**

(Number)

Year	Type of institution								
	Commercial			Industrial/Vocational			Polytechnic/Technical		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
1985-86	16,828	16,708	120	10,567	2,769	7,798	13,797	12,516	1,281
1986-87	14,032	14,032	-	10,743	2,707	8,036	14,132	12,629	1,503
1987-88	20,919	20,847	72	13,729	2,288	11,441	21,068	19,370	1,698
1988-89	22,550	22,449	101	13,976	2,447	11,529	22,878	21,280	1,598
1989-90	18,138	17,988	150	11,618	2,257	9,361	23,541	21,860	1,681
1990-91	20,216	19,913	303	10,697	3,582	7,115	23,258	21,725	1,533
1991-92	22,020	20,527	1,493	11,068	3,980	7,088	23,588	21,634	1,954
1992-93	22,715	22,250	465	11,018	1,963	9,055	28,215	26,204	2,011
1993-94	24,144	23,663	481	10,805	2,029	8,776	27,547	25,607	1,940
1994-95	25,798	25,231	567	10,757	2,076	8,681	38,517	36,760	1,757
1995-96	21,307	20,758	549	12,669	4,809	7,860	40,795	38,936	1,859
1996-97	24,054	23,278	776	11,789	4,786	7,003	44,124	41,176	2,948
1997-98	22,470	21,680	790	13,037	5,413	7,624	35,617	32,590	3,027
1998-99	20,364	19,720	644	12,328	4,771	7,557	25,250	22,454	2,796
1999-00	22,947	22,283	664	8,305	1,933	6,372	33,350	30,782	2,568
2000-01	22,305	21,612	693	8,053	1,719	6,334	31,435	28,760	2,675
2001-02	24,750	24,175	575	8,412	1,549	6,863	31,423	28,597	2,826
2002-03	24,270	23,579	691	10,596	3,452	7,144	33,663	30,943	2,720
2003-04	26,924	26,002	922	17,424	7,611	9,813	33,122	30,227	2,895

Source:- i) Ministry of Education
ii) Provincial Directorates of Technical Education

Table D-10: Medical Personnel in Pakistan

(Number)

Year	Doctors	Dentists	Nurses	Qualified Lady Health visitors	Registered Midwives	Pharmists
1985	30944	1409	10529	1574	8133	2425
1986	34934	1550	12014	2144	10315	2785
1987	39457	1630	13002	2384	11505	3153
1988	43732	1763	14015	2697	12866	3262
1989	48144	1909	15861	2917	13779	3484
1990	52739	2066	16948	3106	15009	3718
1991	56421	2182	18150	3463	16299	3601
1992	60889	2267	19389	3796	17678	3772
1993	63846	2392	20245	3920	18641	-
1994	67034	2582	21419	4107	19759	-
1995	70537	2745	22299	4185	20910	-
1996	75065	29331	24776	4407	21662	-
1997	79300	3152	28661	4589	21840	-
1998	83524	3432	32938	4959	22103	-
1999	87940	3855	35979	5299	22401	-
2000	92659	4163	37528	5443	22525	-
2001	97081	4610	40019	5669	22711	-
2002	102466	5056	44520	6397	23084	-
2003	107986	5529	46331	6599	23318	-
2004	113129	6126	48446	6741	23559	-

Source:- Health Division

Table D-11: Hospitals, Dispensaries, Maternity & Child Health Centres and Beds

(Number)

Year (As on 1st January)	Hospitals	Dispensaries	Maternity and Child Health Centres	Rural Health Centre	Basic Health Unit/Sub Health Centre	T.B. Clinic	Total Beds
1991	776	3,993	1,057	465	4,414	219	75,552
1992	778	4,095	1,055	470	4,526	228	76,938
1993	799	4,206	849	485	4,663	233	80,047
1994	822	4,280	853	496	4,902	242	84,883
1995	827	4,253	859	498	4,986	260	85,805
1996	858	4,513	853	505	5,143	262	88,454
1997	865	4,523	853	513	5,121	262	89,929
1998	872	4,551	852	514	5,155	263	90,659
1999	879	4,583	855	530	5,185	264	92,174
2000	876	4,635	856	531	5,171	274	93,907
2001	907	4,625	879	541	5,230	272	97,945
2002	906	4,590	862	550	5,308	285	98,264
2003	906	4,554	907	552	5,290	289	98,684
2004	916	4582	906	552	5301	289	99,908

Source :- Health Division

Table D-12: Electricity Balances (Public Utilities only)

(GWh)

Sector	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04
Total Generation	62104	65402	65751	68117	72405	75682	80827
Auxiliary Consumption	2285	2234	2640	2995	2929	3007	3041
Net purchases from PASMIC	50	27	28	9	24	23	4
Net Supply	59869	63195	63140	65114	69500	72698	77789
Consumption	44572	43296	45587	48585	50622	52655	57491
T & D Losses	15297	19899	17553	16530	18878	20043	20298
(as % of Net Supply)	25.6%	31.5%	27.8%	25.4%	27.2%	27.6%	26.1%

Source:- Pakistan Energy Year Book-2004 published by Hydrocarbon Development Institute of Pakistan

Table D-13: Natural Gas Reserves as on June 30th, 2004

(Trillion Cubic Feet)

Non Associated Gas Field		Operator Company	Original Recoverable Reserves	Cumulative Production	Balance Recoverable Reserves	Heating Value Btu/cu. ft
1.	Savi Ragha	BG	0.03000	-	0.03000	1159
2.	Zamazma	BHP	2.20849	0.16326	2.04523	811
3.	Badhra	LASMO	0.07500		0.07500	955
4.	Bhit	"	1.11900	0.12900	0.99000	950
5.	Kadanwri	"	0.43200	0.27000	0.16200	992
6.	Mari	MGCL	6.80000	2.79300	4.00700	740
7.	Mari Deep	"	1.14300	-	1.14300	517
8.	Zarghun South	"	0.09300	-	0.09300	886
9.	Bagla	OGDC	0.00837	-	0.00837	1075
10.	Bhal Syedaan	"	0.00290	0.00224	0.00066	1156
11.	Bhulan Shah	"	0.01612	0.00057	0.01556	1138
12.	Bobli	"	0.06140	0.00457	0.05683	1303
13.	Buzdar	"	-	-	-	943
14.	Chak-2	"	0.01900	0.00071	0.01829	1125
15.	Chak-7A	"	0.00390		0.00390	1158
16.	Chak-63	"	0.00980	0.00011	0.00969	1211
17.	Chak-66	"	0.00150	-	0.00150	1214
18.	Chak-5 Dim South	"	0.00250	-	0.00250	1085
19.	Dakhni	"	0.25500	0.10322	0.15178	1060
20.	Dars	"	0.00525	-	0.00525	1090
21.	Daru	"	0.02250	0.01625	0.00625	1168
22.	Dhamraki	"	0.00130		0.00130	1014
23.	Dhodak	"	0.62310	0.13447	0.48863	1019
24.	Hakeem Daho	"	0.06580	-	0.06580	1123
25.	Hundi	"	0.02576	0.02304	0.00272	860
26.	Jandran	"	0.01862	-	0.01862	1000
27.	Lala Jamali	"	0.01060	-	0.01060	1126
28.	Lashari South	"	0.00061	0.00017	0.00044	1120
29.	Loti	"	0.29245	0.22432	0.06813	842
30.	Mithrao	"	0.01900	-	0.01900	1189
31.	Nandpur	"	0.28600	0.04664	0.23936	227
32.	Noral Jagir	"	0.00773	0.00094	0.00679	1202
33.	Nur	"	0.01449	-	0.01449	1013
34.	Panjpir	"	0.12730	0.03633	0.09097	227
35.	Pirkoh	"	2.09300	0.95471	1.13829	895
36.	Qadirpur	"	5.14700	0.94961	4.19739	890
37.	Reshm	"	0.00450	0.00034	0.00416	1215
38.	Rodho	"	0.00383	-	0.00383	1129
39.	Sadkal	"	0.07290	0.06166	0.01124	1162
40.	Sari	"	0.01783	0.01709	0.00074	860
41.	Tando Allah Yar	"	0.04220	0.00002	0.04219	888
42.	Uch	"	3.10000	0.26499	2.83501	425
43.	Miano	OMV	0.90000	0.12057	0.77943	914
44.	Sawan	"	2.28700	0.10195	2.18506	922
45.	Ali	OPI	0.01517	0.00002	0.01515	1045

Contd...

Table D-13: Natural Gas Reserves as on June 30th, 2004

(Trillion Cubic Feet)

Non Associated Gas Field	Operator Company	Original Recoverable Reserves	Cumulative Production	Balance Recoverable Reserves	Heating Value Btu/cu. ft
46. Kausar	"	0.10400	0.00002	0.10398	947
47. Naimat Basal	"	0.04225	0.00328	0.03897	971
48. Siraj South	"	0.08800	0.00099	0.08701	980
49. Umer	"	0.00862	0.00019	0.00843	1168
50. Usman	"	0.14856	0.00003	0.14853	953
51. Ratana	"	0.05404	0.03019	0.02385	1122
52. Badar	PEPL	0.03400	-	0.03400	600
53. Hasan & Sadiq (Block-22)	"	0.09400	0.01600	0.07800	851
54. Kandara	"	1.70000	-	1.70000	240
55. Adhi	PPL	0.37100	0.09800	0.27300	1250
56. Kandhkot	"	1.29600	0.52700	0.76900	835
57. Mazarani	"	0.03300	0.00400	0.03300	1010
58. Sui & Sui Deep	"	10.78000	8.40000	2.38000	975
59. rehmat	Petronas	0.26700	-	0.26700	939
60. Chachar	Tullow	0.10140	-	0.10140	747
61. Sara	"	0.03200	0.02682	0.00518	802
62. Suri	"	0.03870	0.01994	0.01876	800
63. Bhatti & Nakurji	BP	0.09378	0.06642	0.02736	1066
64. Bukhari	"	0.09381	0.08980	0.00401	1216
65. Buzdar & Buzdar South	"	0.21663	0.07536	0.14127	943
66. Buzdar South Deep	"	0.03978	0.00238	0.03740	975
67. Golarchi	"	0.07488	0.05756	0.01732	1021
68. Jabo	"	0.00751	0.00714	0.00037	902
69. Jalal	"	0.02868	0.02243	0.00625	1049
70. Jhaberi	"	0.01949	0.00869	0.01081	734
71. Junathi South	"	0.01243	0.00453	0.00790	1020
72. Kato	"	0.00826	0.00514	0.00312	1225
73. Khorewah	"	0.13133	0.11973	0.01159	1068
74. Khorewah Deep	"	0.00968	0.00612	0.00356	1049
75. Koli	"	0.01933	0.01629	0.00304	1,023
76. Liari Deep	"	0.00335	0.00126	0.00209	1101
77. Mukhdumpur	"	0.05777	0.04303	0.01474	1104
78. Mukhdumpur Deep	"	0.02486	0.01219	0.01267	865
79. Matli	"	0.04860	0.04830	0.00030	1012
80. Pir	"	0.01111	0.00747	0.00364	1045
81. Raj	"	0.01121	0.00272	0.00849	966
82. Rind	"	0.00525	0.00250	0.00275	899
83. Sakhi deep	"	0.00719	0.00379	0.00340	1021
84. Shah Dino	"	0.00042	0.00007	0.00035	820
85. Sonro	"	0.02144	0.01355	0.00790	900
86. Tando Ghulam Ali	"	0.00398	-	0.00398	917
87. Turk	"	0.16671	0.15084	0.01587	1118
88. Turk Deep	"	0.11483	0.06433	0.05050	936
89. Zaur	"	0.02344	0.01641	0.00703	1221
90. Zaur Deep	"	0.02735	0.01218	0.01517	1109
91. Zaur South	"	0.00103	0.00009	0.00095	1279
Associated Gases	-	1.38068	0.84843	0.53225	-
TOTAL: TCF	-	45.34228	17.25499	28.08729	-
Normalized TCF at 900 but/cu.ft.	-	42.23452	17.77730	24.45734	-
Million:TOE	-	907.29	381.90	525.40	-

Source:- Pakistan Energy Year Book, 2004

Table D-14: Associated Gas Reserves as on 30th June, 2004

(Trillion cubic feet)

Oil Field	Operator	Original Recoverable Reserves	Cumulative Production	Balance Recoverable Reserves	Heating Value Btu/cu.ft
01 Chak Naurang	OGDC	0.001	-	0.001	n.a
02 Chanda	OGDC	0.075	0.001	0.075	1150
03 Fimkassar	OGDC	0.019	0.012	0.008	1250
04 Jakhro	OGDC	0.006	-	0.006	845
05 Kunar	OGDC	0.068	0.004	0.061	1202
06 Missakaswal	OGDC	0.029	0.019	0.010	1220
07 Tando Alam (*)	OGDC	0.041	0.020	0.021	1346
08 Toot	OGDC	0.037	0.032	0.005	1127
09 Bhangali	OPI	0.010	0.008	0.002	1384
10 Dhurnal	OPI	0.149	0.127	0.022	1198
11 Dhulian	POL	0.213	0.208	0.005	1258
12 Meyal	POL	0.292	0.266	0.026	1217
13 Pariwali	POL	0.085	0.030	0.055	1158
14 Pindori	POL	0.211	0.039	0.172	1283
15 Turkwal	POL	0.004	0.003	0.001	1352
16 Dabhi,Dhabi North & North	BP	0.037	0.027	0.010	1017
17 Halipota	BP	0.008	0.002	0.006	1115
18 Jhaberi South	BP	0.010	0.001	0.009	913
19 Mazaari**	BP	0.022	0.018	0.004	1454
20 Sakhi***	BP	0.063	0.029	0.034	1450
TOTAL: TCF	-	1.381	0.848	0.532	-
Normalized TCF at 900 btu/cu.ft.	-	1.888	1.163	0.726	-
Million TOE	-	40.57	24.98	15.59	-

Source:- Pakistan Energy Year Book-2004

(*) Includes Buzdar North, Ghunghro, Kal, Lashari Centre, Missan, Pali, Pasaki, Rajian Sono & Thora,.

(**) Includes Mazari South and Mazari South Deep

(***) Includes Bachal, Duphri, Jagir, Liari, Meyun Ismail Deep, Nari, Tangri

Table D-15: Pakistan Coal Resources as on 30th June, 2004

Province Coal Field	Seam Thickness Range (Metres)	Resources (Million Tonnes)						Status
		Total	Measured Reserved	Mineable Reserves	Indicated	Inferred	Hypothetical	
1	2	3	4	5	6	7	8	9
Balochistan								
Barkhan-Chamalar	0.3-2.0	6	1	0.6	-	5	-	Dev.
Duki	0.2-2.3	50	14	8.4	11	25	-	Dev.
Mach-Abegum	0.6-1.3	23	9	5.4	-	14	-	Dev.
Sor Range-Degari	0.3-1.3	50	15	9.0	-	19	16	Dev.
Pir Ismail Ziarat	0.4-0.7	12	2	1.2	2	8	-	Dev.
Khost-Sharig-Hamal	0.3-2.3	76	13	7.8	-	63	-	Dev.
Sub-Total:		217	54	32.4	13	134	16	
NWFP								
Hangu/Orakzai	0.43-0.6	82	1.0	0.6	4.5	76	-	Dev.
Cherat/Gulla Khel	0.8-1.2	9	0.5	0.3	-	8	-	Dev.
Sub-Total:		90	1.5	0.9	4.5	84	-	-
Punjab								
Makarwal	0.3-2.0	22	5	2.7	8	9	-	Dev.
Salt Range	0.15-1.2	213	50	30.0	16	2	145	Dev.
Sub-Total:		235	55	32.7	24	11	145	-
Sindh								
Lakhra	0.3-3.3	1,328	244	146.4	629	455	-	Dev.
Sonda-Thatta	0.3-1.5	3,700	60	36.0	511	2197	932	Non-Dev.
Jherruck	0.3-6.2	1,823	106	63.6	810	907	-	Non-Dev.
Ongar	0.3-1.5	312	18	10.8	77	217	-	Non-Dev.
Indus East	0.3-2.5	1,777	51	30.6	170	1556	-	Non-Dev.
Meting-Jhimpir	0.3-1.0	161	10	6.0	43	108	-	Dev.
Badin	0.55-3.1	16	3	1.8	13		-	Non-Dev.
Thar Coal*	0.2-22.81	175,506	2,700	1,620.0	9395	50706	112705	Non-Dev.
Sub-Total:		184,623	3,192	1,915.2	11648	56146	113637	-
Azad Kashmir								
Kotli	0.25-1.0	9	1	0.6	1	7	-	Dev.
Sub-Total:		9	1	0.6	1	7	-	-
Total:		185,173	3,303	1,982	11,690	56,382	113,798	-

* Measured reserved to Thar have been reduced by GSP after drilling and recalculation to remove overlaps in previous estimates. For Block-wise reserve/resources of Thar
 hvAb: High volatile A bituminous coal SubA: Sub bituminous A coal
 hvBb: High volatile B bituminous coal SubB: Sub bituminous B coal
 hvCb: High volatile C bituminous coal SubC: Sub bituminous C coal

Table D-15: Pakistan Coal Resources as on 30th June, 2004

Province Coal Field	Coal Quality Proximate Analysis (%)					Rank as per ASTM Classification	Heating Value Range (mmmf) (Btu/lb)
	Moisture	Volatile Matter	Fixed Carbon	Ash	Total Sulphur		
1	10	11	12	13	14	15	16
Balochistan							
Barkhan-Chamalar	1.1-2.9	24.9-43.5	19.4-47.1	9.1-36.5	3.0-8.5	hvCb to hvAb	12500-14357
Duki	3.5-11.5	32.0-50.0	28.0-42.0	5.0-38.0	4.0-6.0	SubB to hvAb	10131-14164
Mach-Abegum	7.1-12.0	34.2-43.0	32.4-41.5	9.6-20.3	3.2-7.4	SubA to hvCb	11110-12937
Sor Range-Degari	3.9-18.9	20.7-37.5	41.0-50.8	4.9-17.2	0.6-5.5	SubA to hvBb	11245-13900
Pir Ismail Ziarat	6.3-13.2	34.6-41.0	19.3-42.5	10.3-37.5	3.2-7.4	SubA to hvCb	10786-11996
Khost-Sharig-Hamal	1.7-11.2	9.3-45.3	25.5-43.8	9.3-34.0	3.5-9.55	SubB to hvAb	9637-15499
NWFP							
Hangu/Orakzai	0.2-2.5	16.2-33.4	21.8-49.8	5.3-43.3	1.5-9.5	SubA to hvAb	10500-14149
Cherat/Gulla Khel	0.1-7.1	14.0-31.2	37.0-76.9	6.1-39.0	1.1-3.5	SubC to hvAb	9386-142171
Punjab							
Makarwal	2.8-6.0	31.5-48.1	34.9-44.9	6.4-30.8	2.8-6.3	SubA to hvAb	10688-14029
Salt Range	3.2-10.8	21.5-38.8	25.7-44.8	12.3-44.2	2.6-10.7	SubC to hvAb	9472-15801
Sindh							
Lakhra	9.7-38.1	18.3-38.6	9.8-38.2	4.3-49	1.2-14.8	LigB to SubC	5503-9158
Sonda-Thatta	22.6-48.0	16.1-36.9	8.9-31.6	2.7-52.0	0.2-15.0	SubC to hvBb	8878-13555
Jherruck	9.0-39.5	20.0-44.2	15.0-58.8	5.0-39.0	0.4-7.7	SubC to hvCb	8800-12846
Ongar	9.0-39.5	20.0-44.2	15.0-58.8	5.0-39.0	0.4-7.7	LigB to SubA	5219-11172
Indus East	9.0-39.5	20.0-44.2	15.0-58.8	5.0-39.0	0.4-7.7	LigA to SubC	7782-8660
Meting-Jhimpir	26.6-36.6	25.2-34.0	24.1-32.2	8.2-16.8	2.9-5.1	LigA to SubC	7734-8612
Badin							11415-11521
Thar Coal*	29.6-55.5	23.1-36.6	14.2-34.0	2.9-11.5	0.4-2.9	LigB to SubA	6244-11045
Azad Kashmir							
Kotli	0.2-6.0	5.1-32.0	26.3-69.5	3.3-50.0	0.3-4.8	LigA to hvCb	7336-12338

Source:- Pakistan Energy Year Book-2004, Published by Hydrocarbon Development Institute of Pakistan

LigA: Lignite A coal

mmmf: Moist mineral matter free

LigB: Lignite B coal

LigC: Lignite C coal

Table D-16: Bunkering of Petroleum Products

(Unit:Qty. in Tonnes)

(QTY. IN TOE)

(Value in Million US \$)

Products	Year						
	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04
JP-1	133,891	117,294	121,531	115,802	159,285	275,588	138,451
	138,122	121,000	125,371	119,461	164,318	284,297	142,826
	(36.30)	(28.08)	(45.11)	(43.84)	(46.67)	(84.19)	(45.38)
Motor Spirit	-	-	-	-	-	5,345	368
	-	-	-	-	-	5,711	393
	-	-	-	-	-	(2.11)	(0.16)
Kerosene	-	-	-	-	-	1,384	-
	-	-	-	-	-	1,428	-
	-	-	-	-	-	(0.41)	-
HSD	2,624	2,903	2,293	4,650	1,594	31,654	2,573
	2,759	3,052	2,411	4,889	1,676	33,278	2,705
	(0.87)	(0.92)	(0.73)	(1.45)	(0.59)	(9.44)	(1.04)
LDO	240	769	813	1,519	560	244	273
	250	801	847	1,582	583	254	284
	(0.08)	(0.19)	(0.20)	(0.52)	(0.17)	(0.09)	(0.09)
Furnace Oil	11,666	11,716	13,532	19,233	11,053	10,429	11,871
	11,359	11,408	13,176	18,727	10,762	10,155	11,559
	(1.36)	(1.12)	(2.09)	(3.27)	(1.74)	(2.53)	(2.15)
Total:	148,421	132,682	138,169	141,204	172,492	324,644	153,536
	152,490	136,261	141,805	144,660	177,340	335,122	157,767
	(38.61)	(30.30)	(48.13)	(49.08)	(52.17)	(98.77)	(48.82)

Source:- Pakistan Energy Year Book-2004 Published by Hydrocarbon Development Institute Of Pakistan

ACGR = Annual cumulative growth rate.

Table D-17: Immunization Coverage

(000 Number)

Year	B.C.G	Polio				D.P.T			
		I	II	III	BR	I	II	III	BR
1991	4,429	5,610	4,468	3,899	1,135	4,417	3,953	3,887	956
1992	4,493	5,470	4,083	3,772	1,460	4,368	3,997	3,756	1,182
1993	4,387	5,332	3,952	3,686	916	4,308	3,892	3,688	717
1994	4,092	5,383	3,730	3,466	308	4,091	3,647	3,406	265
1995	3,448	4,681	3,141	3,136	256	3,639	3,125	2,876	225
1996	4,841	6,170	4,282	3,994	143	4,805	4,294	4,012	137
1997	4,804	6,261	4,221	3,947	92	4,740	4,213	3,936	89
1998	4,951	6,363	4,204	3,973	69	4,898	4,163	3,831	63
1999	5,582	7,585	4,559	4,131	-	5,070	4,530	4,273	-
2000	4,995	6,369	4,027	3,812	460	4,693	4,141	3,918	45
2001	5,070	6,318	4,079	4,024	227	4,689	4,176	4,113	47
2002	4,777	6,386	4,015	3,780	138	4,558	4,039	3,796	23
2003	5,115	6,952	4,282	4,035	106	4,769	4,228	3,983	6
2004	4,862	6,865	4,098	3,916	78	4,428	4,025	3,840	2
Year	HBV			T.T					Measles
	I	II	III	I	II	III	IV	V	
1991	127	108	180	4,348	3,728	748	-	-	3,985
1992	110	86	275	3,593	2,907	...	-	-	4,003
1993	74	58	160	3,311	2,625	...	-	-	3,819
1994	76	53	23	3,232	2,510	714	240	97	3,690
1995	-	-	-	2,871	2,234	751	240	100	2,991
1996	-	-	-	3,830	3,042	9,889	401	166	4,428
1997	-	-	-	3,733	2,912	1,097	446	251	4,242
1998	-	-	-	3,861	3,037	1,025	426	220	4,150
1999	-	-	-	4,282	3,325	1,056	485	308	4,794
2000	-	-	-	4,091	3,274	928	318	152	4,277
2001	-	-	-	4,179	3,286	869	311	164	4,547
2002	1,772	1,291	966	4,678	3,540	1,278	310	159	4,106
2003	4,483	3,893	3,576	3,591	2,970	1,423	338	164	4,163
2004	4,213	3,880	3,617	3,391	2,649	765	293	132	4,125

Source:- Health Division

Note:- Data from 1990 to 1994 is for DT. Since 2002 data for HBV started instead of DT

B.C.G= Bacillus + Calamus + Guerin

D.T.T= Diphtheria + Perussia + Tetanus

T.T= Tetanus + Toxoid

H.B.V= Hepatitis Vaccine

**Table D-18: Performance of Contraceptive Delivery Services
Through Population Welfare Programme, Pakistan**

Year	IUD (No. of insertions)	Sterilization (No. of cases male/female)	Oral Pills (No. of cycles)	Condom (In gross)	Injectable (vials)	Foam (bottles)
1981-82	78195	25475	233398	54794.396	25379	-
1982-83	95793	17501	231055	288448.46	40989	121
1983-84	152310	41068	740707	406692.03	96035	38460
1984-85	196636	58926	927439	566443.3	110427	44930
1985-86	241905	69962	1274049	586035.28	225179	76717
1986-87	315769	69439	1445372	699513.58	384190	104977
1987-88	507884	77386	1879216	954187.56	434603	139405
1988-89	379432	79167	1562513	971371.53	567852	123274
1989-90	599900	79717	1637961	922107	672457	135329
1990-91	646598	69684	1623419	911457.61	740133	105386
1991-92	750125	79663	1018360	599658.9	841088	53943
1992-93	638901	85164	860765	296548.38	662298	16382
1993-94	542999	85436	844065	305289.01	878776	89198
1994-95	713922	93553	1017405	564158.47	1026290	116483
1995-96	692474	99336	1235905	666150.36	1079867	27475
1996-97	632880	96652	1477514	807304.4	1196998	3285
1997-98	873326	105513	2467032	980404	1646392	5334
1998-99	1047634	126589	2828628	817371	1968686	...
1999-00	979342	139024	3411784	646628	2101028	...
2000-01	891726	121595	4237238	832420	1714953	...
2001-02	1056443	124412	4189899	852058	1873495	...
2002-03	1146786	130412	5562431	970112	2014536	...
2003-04	1043951	143328	6641867	995932	1972259	...

Note:- Total figures of Pakistan do not tally due to inclusion of the performance of NGOs, TGI, SMC

Contd...

**Table D-18: Performance of Contraceptive Delivery Services
Through Population Welfare Programme, Balochistan**

Year	IUD (No. of insertions)	Sterilization (No. of cases male/female)	Oral Pills (No. of cycles)	Condom (In gross)	injectable (vials)	Foam (bottles)
1981-82	1191	77	6817	496.4375	55	-
1982-83	2288	65	16571	12899.896	161	-
1983-84	3877	320	69217	44128.667	2215	444
1984-85	4563	245	63587	42236.389	1366	840
1985-86	6075	664	38786	13122.993	5283	848
1986-87	8894	876	46601	21954.292	12314	2782
1987-88	11006	939	61008	29428.354	12706	3762
1988-89	10489	536	48414	25436.896	15154	3584
1989-90	17092	544	46482	15229.632	16433	3690
1990-91	19921	641	52479	16750.576	18412	1619
1991-92	21401	643	38795	10086.639	21459	493
1992-93	14932	845	24096	2326.6806	11570	279
1993-94	13435	894	30190	4039.7639	22349	2868
1994-95	12872	1136	47597	5882.7083	21567	4274
1995-96	11590	1299	53733	5012.0972	23532	696
1996-97	12537	1467	71612	5050.5208	32215	-
1997-98	19250	1642	85762	6372	51448	-
1998-99	19162	1772	91776	9278	50217	-
1999-00	19140	1398	109341	11859	52371	-
2000-01	13868	1282	126766	14170	38999	-
2001-02	16114	1453	89456	10113	39783	-
2002-03	13700	1528	83495	9263	36796	-
2003-04	11995	1674	101020	10575	35233	-

Contd...

**Table D-18: Performance of Contraceptive Delivery Services
Through Population Welfare Programme, N.W.F.P**

Year	IUD (No. of insertions)	Sterilization (No. of cases male/female)	Oral Pills (No. of cycles)	Condom (In gross)	injectable (vials)	Foam (bottles)
1981-82	13883	2239	60288	6559.7708	9095	-
1982-83	13013	1798	45955	29740.181	14952	27
1983-84	17038	3173	118790	43633.639	11746	2502
1984-85	26910	3815	145736	67379.66	13594	2633
1985-86	28696	4969	126927	34610.313	22643	4477
1986-87	39607	4887	188115	40329.861	45056	6405
1987-88	92797	5653	335326	49240.972	52654	15249
1988-89	55867	6441	239016	36493.264	69014	9408
1989-90	68087	5671	198848	27782.458	69031	7331
1990-91	52339	5753	224353	34235.694	66129	4577
1991-92	73535	6781	145997	23531.132	83763	1121
1992-93	74877	6447	94953	7237.6389	60554	808
1993-94	64724	7969	124041	9334.4236	101082	9340
1994-95	68454	8252	137922	17220.458	113730	12934
1995-96	62259	9822	174655	19110.583	114198	2633
1996-97	48911	8738	208787	16785.625	156110	2
1997-98	61330	8492	263079	23145	225533	-
1998-99	67389	10154	316978	29341	277552	-
1999-00	60057	9121	346383	38200	285208	-
2000-01	52380	9870	457649	48571	253881	-
2001-02	62472	9763	281624	31853	202032	-
2002-03	109556	9341	341424	35627	240611	-
2003-04	73515	8215	305502	31508	220939	-

Contd...

**Table D-18: Performance of Contraceptive Delivery Services
Through Population Welfare Programme, Punjab**

Year	IUD (No. of insertions)	Sterilization (No. of cases male/female)	Oral Pills (No. of cycles)	Condom (In gross)	injectable (vials)	Foam (bottles)
1981-82	45726	14752	106869	31716.458	15004	-
1982-83	54798	10790	105288	128505.22	23823	-
1983-84	85707	20856	326759	153201.22	51296	6153
1984-85	107276	28599	450052	245264.44	59193	17077
1985-86	154146	37627	835782	444777.32	141300	37847
1986-87	190365	31460	846628	519232.47	221462	53566
1987-88	311370	36048	1007544	616050.41	232496	77020
1988-89	206758	33649	761429	589625.85	299216	62816
1989-90	366887	31554	822902	361313.16	328775	69022
1990-91	390224	29526	675396	239847	355062	23906
1991-92	462997	36147	292356	163846	397372	3007
1992-93	363654	33030	154660	40756	202097	2736
1993-94	266844	39198	244794	47650	300291	40895
1994-95	357210	44445	416405	79264	377963	55498
1995-96	345987	46711	497152	76901	374429	13445
1996-97	318784	45089	636946	75309	407535	337
1997-98	464161	52951	746898	95138	546292	-
1998-99	603346	68944	1023433	135317	714728	-
1999-00	559556	77577	1065448	162027	679719	-
2000-01	505955	66190	1370707	193520	512517	-
2001-02	659455	75432	930506	149724	559610	-
2002-03	685222	72094	829974	129767	590236	-
2003-04	558320	86033	806209	128377	543668	-

Note:-Islamabad is included in Punjab.

Contd...

**Table D-18: Performance of Contraceptive Delivery Services
Through Population Welfare Programme, Sindh**

Year	IUD (No. of insertions)	Sterilization (No. of cases male/female)	Oral Pills (No. of cycles)	Condom (In gross)	injectable (vials)	Foam (bottles)
1981-82	17395	8407	59424	16021.729	1225	-
1982-83	25694	4848	63241	117303.17	2053	94
1983-84	33974	6237	167125	153134.22	2098	4872
1984-85	43727	8462	208900	203656.9	7542	5760
1985-86	33343	8920	204929	85336.25	11881	6494
1986-87	43077	10656	280217	105798.35	37472	13045
1987-88	49790	12500	338376	142357.82	36440	18839
1988-89	58929	12329	339812	138631.4	59114	19168
1989-90	87910	11218	397744	96884.361	98713	23667
1990-91	114063	11578	436846	106286.16	140023	8842
1991-92	118955	14861	267900	76980.91	144125	1170
1992-93	85216	15845	140947	13287.868	78091	1146
1993-94	99637	17191	201545	26998.84	164336	19669
1994-95	167677	18016	221132	37075.361	187896	25420
1995-96	121343	20210	262835	32872	174090	1995
1996-97	117605	20644	268095	34055.208	209426	-
1997-98	166370	20317	333670	42118	305773	-
1998-99	206741	21559	399956	47095	349547	-
1999-00	173298	25936	428736	55184	363742	-
2000-01	135975	26077	514530	67746	259830	-
2001-02	119524	22044	382851	50302	237352	-
2002-03	120120	32349	362405	48912	242415	-
2003-04	121401	32625	406786	58482	248273	-

Source:- Population Welfare Division

Table D-19: Selected Wild Life of Pakistan

S.No.	Common Name	Scientific Name
Mammals		
01.	African wild cat	Felis libyca
02.	Baluchistan Black Bear	Selenarctos thibetanus gedrosiabnus
03.	Barking Deer	Muntiacus muntjac
04.	Black Buck	Antelope cervicapra
05.	Blue sleep or Bharal	Pseudois nayaur
06.	Brown Bear	Ursus arctos
07.	Cape Hare	Lepus capensis
08.	Caracal	Felis caracal
09.	Chiltan Markhor	Capra falconeri chiltannensis
10.	Chinkara	Gazella gazella
11.	Chittal or Spotted Deer	Axis axis
12.	Common Indian Mongoose	Herpestes edwardsi
13.	Common Otter	Lutra lutra
14.	Fishing cat	Felis viverrina
15.	Giant Red Flying Squirrel	Petaurista petaurista
16.	Goitred Gazelle	Gazella subgutturosa
17.	Goral	Naemorhaedus goral
18.	Grey Langur	Presbytis entellus
19.	Hill Fox	Vulpes vulpes griffithi
20.	Himalayan Palm Civet	Paguma larvata.
21.	Hog Deer	Axis porcinus
22.	Ibex	Capra ibex
23.	Indian Flying Fox	Pteropus giganteus
24.	Indian Hare	Lepus nigricollis
25.	Indian Porcupine	Hystrix indica
26.	Indus Dolphin	Platanista indi
27.	Jackal	Canis aureus
28.	Jungle cat	Felis chaus
29.	Leopar Cat	Felis benghalsnsis
30.	Leopard	Panthera pardus
31.	Lynx	Felis lynx
32.	Morcopolo sleep	Ovis ammon
33.	Musk deer	Moschus moschiferus

Contd...

Table D-19: Selected Wild Life of Pakistan

S.No.	Common Name	Scientific Name
34.	Nilgai or Blue Bull	<i>Boselaphus tragocamelus</i>
35.	Pallas Cat	<i>Felis manul</i>
36.	Pangolin	<i>Manis crassicaudata</i>
37.	Persian wild goat	<i>Capra hircus</i>
38.	Ratel or Honey Badger	<i>Melliovra capensis.</i>
39.	Rhesus Monkey	<i>Macaca mulatta</i>
40.	Small Indian Mongoose	<i>Herpestes auropunatatus</i>
41.	Sand Cat	<i>Felis margarita</i>
42.	Small Indian Civet	<i>Viverricula indica</i>
43.	Smooth Coated Otter	<i>Lutra perspicillata</i>
44.	Snow Leopard	<i>Panthera uncia</i>
45.	Striped Hyaena	<i>Hyaena hyaena</i>
46.	Suleman Markhor	<i>Capra falconeri jerdoni</i>
47.	Urial	<i>Ovis vignei</i>
48.	Wild Ass	<i>Equus hemionus</i>
49.	Wild boar	<i>Sus scrofa</i>
50.	Wolf	<i>Canis lupus</i>
51.	Yellow-Throated Marten	<i>Martes flavigula.</i>
BIRDS		
01.	Baikal Teal	<i>Anas formosa</i>
02.	Barn owl	<i>Tyto albea</i>
03.	Black Coot	<i>Fulica atra</i>
04.	Black Kite	<i>Milvus migrans</i>
05.	Black oartridge	<i>Francolinus francolinus</i>
06.	Cheer pheasant	<i>Catreus wallichi</i>
07.	Chukor	<i>Alectoris chukar</i>
08.	Comb Duck or Nakta	<i>Sarkibdiornis melanotos</i>
09.	Common Crane	<i>Grus grus</i>
10.	Common Kestrel	<i>Falco tinnunculus</i>
11.	Common Pochard	<i>Aythya ferina</i>
12.	Common Quail	<i>Coturnix coturnix</i>
13.	Common Shelduck	<i>Tabdorna tabdorna</i>

Contd...

Table D-19: Selected Wild Life of Pakistan

S. No.	Common Name	Scientific Name
14.	Common Teal	Anas Crecca
15.	Cream coloured courser	Cursorius cursor
16.	European Nightjar	Caprimulgus europaeus
17.	Falcated Teal	Anas falcata
18.	Ferruginous duck	Aythya nyroca
19.	Fulvous Whistling Teal	Dendrocygna bicolor
20.	Gadwall	Anas strepera
21.	Garganey	Anas querquedula
22.	Golden Eagle	Aquila chrysaetos
23.	Golden Eyed Duck	Bucephala clangula
24.	Goosander	Mergus merganser
25.	Goshawk	Accipiter gentilis
26.	Great Crested Grebe	Podiceps cristatus
27.	Great Indian Bustard	Ardotis nigriceps
28.	Greater Sand Plover	Charadrius leschenaulti
29.	Green plover	Vanellus vanellus
30.	Grey partridge	Francolinus pondicerianus
31.	Himalayan Jungle Crow	Corvus leucomelana
32.	Himalayan monal	Lophophorus impeyanus
33.	Himalian Jungle Nightjar	Caprimulgus Indicus
34.	Houbara Bustard	Chlamydotis undulata
35.	House Crow	Corvus splendens
36.	Indian Sandgrouse	Pterocles exustus
37.	Kalis pheasant	Lophura leucomelana
38.	Koklas pheasant	Pucracia macrolophba
39.	Laggar Falcon	Falco jugger
40.	Large Indian Parakeet	Psittacula eupatria
41.	Lesser Whistling Teal	Dendrocygna Javanica
42.	Little Brown Dove	Streptopelia senegalensis
43.	Little Bustard	Tetrax tetrax
44.	Long Tailed Duck	Clangula hyemalis
45.	Long tailed Nightjar	Caprimulgus Macrurus
46.	Mallard	Anas platyrhynchos
47.	Marbled Teal	Marmaronetta angustirostis

Contd...

Table D-19: Selected Wild Life of Pakistan

S.No.	Common Name	Scientific Name
48.	Marsh Harrier	Circus aeruginosus
49.	Merlin	Falco columbarius
50.	Northern Hobby	Falco subbuteo
51.	Painted Sand grouse	Petrocles indicus
52.	Painted Sandgrouse	Pterocls indicus
53.	Painted Snipe	Gallinago stenura
54.	Peafowl	Pavo cristatus
55.	Pheasant Tailed Jacana	Hydrophasianus chirurgus
56.	Pied Avocet	Recurvirostra avosetta
57.	Pintailed Sandgrouse	Pterocles alchata
58.	Red Breasted Merganser	Mergus serrator
59.	Red turtule Dove	Streptopelia tranquebarica
60.	Rock Pigeon	Columba livia
61.	Rose Ringed Parakeet	Psittacula krameri
62.	Rosy Pelican	Pelicanus onocrotalus
63.	Ruff	Philomachus pugnax Scolopax Rusticola
64.	Saker Falcon	Falco cherrug
65.	Seesee partridge	Ammoperdix griseogularis
66.	Sheen Falcon	Falco peregrinus
67.	Shovelber	Anas clypeata
68.	Smew	Mergus albellus
69.	Snow partridge	Lerwa lerwa
70.	Sociable Lapwing	Chettusia gregaria
71.	Solitary Snipe	Gallinago solitaria
72.	Spotbilled Duck	Anas poecilorhyncha
73.	Spotted Dove	Streptopelia chinensis
74.	Tufted Duck	Aythya fuligula
75.	Water Cock	Gallicrex cinerea
76.	Water Rail	Rallus aquaticus
77.	Wedge Tailed Green pigeon	Treron sphenura
78.	Western Tragopan	Tragopan melanocephalus
79.	White backed Vulture	Gyps bengalensis
80.	White Breasted Waterhen	Amauornis phoenicurus

Contd ...

Table D-19 Selected Wild Life of Pakistan

S.No.	Common Name	Scientific Name
81.	White Headed Duck	Oxyura leucocephala
82.	Wigeon	Anas penelope
83.	Wood cock	Scolopax rusticola
84.	Yellow-wattled Lapwing	Vanellus malabaricus
Reptiles		
01.	Azdha	Python species
02.	Gharial	Gavialis gangeticus
03.	Marsh Crocodile	Crocodylus palustris
04.	Monitor Lizards	Varanus species
05.	Muggar	Crocodylus species
06.	Rock Python	Python molurus
07.	Sea Turtles	Turtles of the genera Chelone, caretta and Eretomochelys
08.	Snakes	Genus Python, colubridae
09.	Tortoises	
Fishes		
01.	Bam	Mastacembelus species
02.	Daula	Channe species
03.	Fidar	Colisa fasciata
04.	Kalbans	Labeo calbasu
05.	Khagga	Rita rita
06.	Mahaseer	Barbus species
07.	Mirgal	Cirshina mrigala
08.	Mullee	Vallago attu
09.	Rohu	Labeo rohita
10.	Saul	Ophicephalus marulius
11.	Singhara	Mystus species
12.	Thaila	Catla catla
13.	Trout	Salmo fario

Source:- Provincial departments of Wildlife.

Appendix-I

Concepts and Definitions

Agricultural Land

Agriculture land is the land which include arable land, land under permanent crops and land under permanent meadows and pastures.

Air Pollutants

Substances in air that could, at high enough concentrations, harm human beings, animals, vegetation or material. Air pollutants may thus include forms of matter of almost any natural or artificial composition capable of being airborne. They may consist of solid particles, liquid droplets or gases, or combinations of these forms.

Air Pollution

The presence of contaminant or pollutant substances in the air that do not disperse properly and that interfere with human health or welfare or produce other harmful environmental effects is called air pollution.

Alkalinity

The alkalinity is the capacity of aqueous media to react with hydroxyl ions. Alkalinity is the factor representing the acid-neutralizing capacity of an aqueous system.

Arid Zone

Arid Zone is defined as the area with less than 250 millimetre (mm) of yearly rainfall. The term may include a reference to bioclimatic factors.

Atmosphere

The mass of air surrounding the earth, composed largely of oxygen and nitrogen is called atmosphere.

Bacteria

The single-celled micro-organisms is called bacteria. Some bacteria are useful in pollution control because they break down the organic matter in water and land. Other bacteria may cause disease.

Biochemical Oxygen Demand (BOD)

The dissolved oxygen required by organisms for the aerobic decomposition of organic matter present in water is termed as Biochemical Oxygen Demand (BOD).

Biodiversity

The range of genetic differences, species differences and ecosystem differences in a given area is called biodiversity.

Biogas

The mixture of methane and carbon dioxide is called biogas. The ratio of methane and carbon dioxide in the mixture is 7:3. This mixture is produced by the treatment of animal dung, industrial wastes and crop residues. It is used as an alternative source of energy.

Biomass

Biomass is defined as the total living weight (generally in dry weight) of all organisms in a particular area or habitat. It is sometimes expressed as weight per unit area of land or per unit volume of water.

Brackish Water

The water which contains salts at a concentration significantly lower than that of sea water is known as brackish water. The concentration of total dissolved salts is usually in the range of 1,000-10,000 milligrams per liter (mg/l).

Carbon Dioxide (CO₂)

It is colourless, odorless and non-poisonous gas that results from fossil fuel combustion and is normally a part of ambient air. It is also produced in the respiration of living organisms (plants and animals) and considered to be the main greenhouse gas, contributing to climate change.

Carbon Monoxide (CO)

It is colourless, odorless and poisonous gas produced by incomplete fossil fuel combustion. Carbon monoxide combines with the haemoglobin of human beings, reducing its oxygen carrying capacity, with effects harmful to human beings.

Catchment Area

The area from which rainwater drains into river systems, lakes and seas is known as Catchment Area.

Chemical Oxygen Demand (COD)

The index of water pollution measuring the mass concentration of oxygen consumed by the chemical breakdown of organic and inorganic matter is called Chemical Oxygen Demand.

Chloro-fluorocarbons (CFCs)

Chloro-fluorocarbons are the inert, non-toxic and easily liquefied chemicals used in refrigerator, air-conditioning, packaging and insulation, or as solvents and aerosol propellants. Because CFCs are not destroyed in the lower atmosphere, they drift into the upper atmosphere where their chlorine components destroy ozone. These are also among the greenhouse gases that may affect climate change.

Chromium

Chromium is heavy metal used in the manufacture of alloys and electroplating. It is a multivalent element that in hexavalent form can be toxic in drinking water if concentration exceeds 50 milligrams per liter.

Climate

Climate is the condition of the atmosphere at a particular location (microclimate) or region over a long period of time. It is the long-term summation of atmospheric elements - such as solar radiation, temperature, humidity, precipitation type (frequency and amount), atmospheric pressure and wind (speed and direction)- and their variations.

Coliform Organism

Coliform are the micro-organism which found in the intestinal tract of human being and animals. Its presence in water indicates faecal pollution and potentially dangerous bacterial contamination.

Containment

Containment are the retention of hazardous material so as to ensure that it is effectively prevented from dispersing into the environment, or released only at an acceptable level. Containment may occur in specially built containment spaces.

Decibel (dB)

Decibel is the unit of sound measurement on a logarithmic scale, with sound approximately doubling in loudness for every increase of 10 decibels.

Desertification

The land degradation in arid, semi-arid and dry sub-humid areas resulting from various factors, including climatic variations (drought) and human activities (over exploitation of dry lands) is called desertification.

Disposal of Waste

The waste elimination techniques comprising landfills, containment, underground disposal, dumping at sea and all other disposal methods is called disposal of waste.

Dissolved Oxygen (DO)

The amount of gaseous oxygen (O₂) actually present in water expressed in terms either of its presence in the volume of water (milligrams of O₂ per litre) or of its share in saturated water (percentage) is called dissolved oxygen.

Dissolved Solids

Disintegrated organic and inorganic material contained in water. Excessive amounts make water unsuitable for drinking or for use in industrial processes are called dissolved solids.

Drinking Water Standards

The standards determining the quality of drinking water in the context of prevailing environmental, social, economic and cultural conditions, with reference to the presence of suspended matter, excess salts, unpleasant taste and all harmful microbes is called drinking water standards. Meeting of those standards does not necessarily imply purity.

Earthquake

Earthquake is a sudden shaking or trembling of the earth caused by faulting or volcanic activity.

Effluent

The liquid waste product (whether treated or untreated) discharged from an industrial process or human activity that is discharged into the environment is called effluent.

Emission

Emission is defined as the discharge of pollutants into the atmosphere from stationary sources such as smokestacks, other vents, surface areas of commercial or industrial facilities and mobile sources, for example, motor vehicles, locomotives and aircraft.

Environment

The totality of all the external conditions affecting the life, development and survival of an organism is called Environment.

Environment Statistics

Statistics that describe the state and trends of the environment, covering the media of the natural environment (air/climate, water, land/soil), the biota within the media, and human settlements is termed as Environment Statistics. This statistics is integrative in nature, measuring human activities and natural events that affect the environment, the impacts of these activities and events, social responses to environmental impacts, and the quality and availability of natural assets. Broad definitions include environmental indicators, indices and accounting.

Environmental Condition

It is the modification of the environment of one or more organisms by their activities, including reaction and co-action (liberation of oxygen, for example by water plants in an aquarium).

Environmental Degradation

The deterioration in environmental quality from ambient concentrations of pollutants and other activities and processes such as improper land use and natural disasters is known as Environmental degradation.

Environmental Effects

These are the results of environmental impacts on human health and welfare. The term is also used synonymously with environmental impact.

Environmental Functions

Environmental services, including spatial functions, waste disposal, natural resource supply and life support are called Environment Functions.

Environmental Impacts

Direct effect of socio-economic activities and natural events on the components of the environment are called Environmental Impacts.

Environmental Protection

Any activity to maintain or restore the quality of environmental media through preventing the emission of pollutants or reducing the presence of polluting substances in environmental media is called Environmental Protection. It may consist of: (a) changes in characteristics of goods and services, (b) changes in consumption patterns, (c) changes in production techniques, (d) treatment or disposal of residuals in separate environmental protection facilities, (e) recycling and (f) prevention of degradation of the landscape and ecosystems.

Fresh Water

Naturally occurring water having a low concentration of salts is called fresh water. It is generally accepted as suitable for abstraction and treatment to produce potable water.

Flora

Flora consists of all plants life i.e it includes all type of plants species, including ferns, lycopods and masses. It is an important component of the environment and comprises a large variety of life form and is an integral part of various ecosystem, for example agriculture, including major & minor crops , forestry, trees areas, standing wood volume etc.

Fauna

Fauna consists of all animal life i.e it includes all species of animals, birds, mammals, reptiles, fish, insects and amphibians.

Greenhouse Effect

Greenhouse effect is defined as the effect caused by warming of the earth's atmosphere due to build-up of carbon dioxide and other greenhouse or trace gases that act like a pane of glass in a greenhouse, allowing sunlight to pass through and heat the earth but preventing a counterbalancing loss of heat radiation.

Ground-level Ozone

Amount of ozone present as a secondary pollutant in the lower atmosphere, where its formation can be enhanced by other pollutants. It is highly toxic at levels above 0.1 parts per million (p.p.m).

Ground Water

Freshwater beneath the earth's surface (usually in aquifers) supplying wells and springs. Because groundwater is a major source of drinking water, there is a growing concern over leaching of agricultural and industrial pollutants or substances from underground storage tanks.

Habitat

Habitat is place where an organism or population (human, animal, plant, micro-organism) lives.

Hazardous Air Pollutants

Air pollutants that may reasonably be expected to cause or contribute to irreversible illness or death are called Hazardous Air Pollutants. They include asbestos, beryllium, mercury, benzene, coke oven emissions, radio nuclides and vinyl chloride.

Human Settlements

Integrative concept that comprises (a) physical components of shelter and infrastructure and (b) services to which the physical elements provide support, that is to say, community services such as education, health, culture, welfare, recreation and nutrition.

Industrial Waste

Liquid, solid and gaseous wastes originating from the manufacture of specific products is called industrial waste.

Irrigation

The irrigation is a process of artificial application of water to land to assist in the growing of crops and pastures. It is carried out by spraying water under pressure (spray irrigation) or by pumping water onto the land (flood irrigation).

Landfill

These are the final placement of waste in or on the land in a controlled or uncontrolled way according to different sanitary, environmental protection and other safety requirements.

Land Reclamation

Land Reclamation is a process of gain of land from the sea, or wetlands, or other water bodies, and restoration of productivity or use to lands that have been degraded by human activities or impaired by natural phenomena.

Marine Pollution

Direct or indirect introduction by humans of substances or energy into the marine environment (including estuaries), resulting in harm to living resources, hazards to human health, hindrances to marine activities including fishing, impairment of the quality of sea water and reduction of amenities is called marine pollution.

Municipal Waste

Wastes produced by residential, commercial and public services sectors that are collected by local authorities for treatment and/or disposal in a central location is called municipal waste.

New and Renewable Energy Source

These are the energy sources including solar energy, geothermal energy, wind power, hydropower, ocean energy (thermal gradient, wave power and tidal power), biomass, draught animal power, fuel wood, peat, oil shale and tar sands.

Night-soil

These are the contents of cesspools and so forth removed at night, especially for use as manure.

Nitrate

Nitrogen-containing compounds are called nitrates. These nitrates can exist in the atmosphere or as a dissolved gas in water.

Noise Pollution

Sound at excessive levels that may be detrimental to human health is called noise pollution.

p.p.m./p.p.b./p.p.t.

parts per million/ parts per billion/parts per trillion, measures of the concentrations of pollutants in air, water, soil, human tissue, food or other products.

Ozone (O₃)

Ozone is pungent, colourless, toxic gas which contains three atoms of oxygen in each molecule. It occurs naturally at a concentration of about 0.01 parts per million (p.p.m) of air. Levels of 0.1 p.p.m. are considered to be toxic. In the atmosphere, ozone provides a protective layer shielding the earth from the harmful effects of ultraviolet radiation on human beings and other biota. In the atmosphere, it is a major component of photo-chemical smog, which seriously affects the human respiratory system.

Ozone Depletion

The process of destruction of ozone in the stratosphere, where it shields the earth from harmful ultraviolet radiation is called Ozone depletion. Its destruction is caused by chemical reactions in which oxides of hydrogen, nitrogen, chlorine and bromine act as catalysts.

Appendix-II Abbreviations

ACGR	Annual Compound Growth Rate
AGR	Annual Growth Rate
AF	Acre feet
amsl	Above mean sea level
ARL	Attock Refinery Limited
Avg.	Average
B.A	Bachelor of Arts
B.C.G	Bacillues of Calmette and Guerin
BCM	Billion cubic metre
BDL	Below Detection Limit
BDS	Bachelor of Dental Surgery
Bm3	Billion cubic metre
BOD	Biological Oxygen Demand
BOD)5	BOD for 5 days
B.Sc	Bachelor of Science
BTU	British Thermal Unit
BTX	Benzyne Toulene Xylene
C	Centigrade
Ca	Calcium
CaCo3	Calcium Carbonate
CH4	Methane
CO	Carbon Monoxide
CO2	Carbon Dioxide
CO3	Carbonate
COD	Chemical Oxygen Demand
Cft	Cubic feet
Cl	Chlorine
cm3	Cubic centimeter
CNG	Compressed Natural Gas
Cond	Conductivity
Cr	Chromium
Cu	Copper (Cprum)
Cub.	Cubic
Cu.m	Cubic metre
Cusec	Flow of Water Cubic Feet Per Second
d	Day
dBa	Decibel (International scale of noise level)
D.G. Khan	Dera Ghazi Khan
DO	Dissolved Oxygen
D.P.T	Diphtheria, Pertussis and Tetanus
D.T	Diphtheria and Tetanus
Engg.	Engineering
EPM	Department of Environmental Planning and Management, Peshawar University
FATA	Federally Administered Tribal Areas
Fe	Iron
FO	Furnace Oil
Forhigh	Forested, Shrub and Highlands
ft	Feet
FSMP	Forestry Sector Master Plan
GDP	Gross Domestic Product
gm	Gram
GMT	Greenwich Mean Time
GNP	Gross National Product
GTPS	Gas Turbine Power Station
GWh	Gega watts hour
ha	Hectare

HCC	Haveli Canal Circle
HCO ₃	Bicarbonate
HDIP	Hydrocarbon Development Institute of Pakistan
H.Hold	Household
HOBC	High Octane Blending Compound
hr	Hour
HSD	High Speed Diesel Oil
HUBCO	The Hub Power company
HUM	Humidity
Irrhigh N	High Productivity Irrigated (North)
Irrlow N	Low Productivity Irrigated (North)
Irrhigh S	High Productivity Irrigated (South)
Irrlow S	Low Productivity Irrigated (South)
IUCN	IUCN-The World Conservation Union
JBO	Jute Batch Oil
JP-1, JP-4	Aviation fuels
K	Potash Fertilizers
KANUPP	Karachi Nuclear Power Plant
KAPCO	Kot Addu Power Company
KESC	Karachi Electric Supply Corporation
Kg/c/day	Kilogram per capita per day
Kg/h/day	Kilogram per household per day
Kh	Kharif
Kg	Kilogram
Km	Kilometer
Km ²	Square Kilometer
l	Litre
LASMO	Lasmo Oil Pakistan Limited
LAT	Latitude
LBDC	Lower Bari Dawab Canal
LCC	Lower Chanab Canal
LDO	Light Diesel Oil
L.L.B	Bachelor of Law and Legislation
LONG	Longitude
LPG	Liquified Petroleum Gas
m	Metre
M.A	Master of Arts
Ma	Million acres
MAF	Million acres feet
MBBS	Bachelor of Medicine and Bachelor of Surgery
MC	Municipal Committee
Meth	Methyl
Mg	Magnesium
mg	Milligram
MGCL	Mari Gas Company Limited
mg/l	Milligram Per Litre
ml/d	Millilitre per day
Min	Minutes
mm	Millimetre
Mn	Manganese
MPN	Most Probable Number
M.Sc	Master of Science
MT	Metric Tonnes
MTBE	Methyl Tertiary Butyl Ether
M.Ton	Metric ton
MTT	Mineral Turpentine
MW	Mega Watts
MWh	Mega Watts Hour
Micro-s	Micro-Second

N	Nitrogenous Fertilizers
NA	Sodium
NA & AJK	Northern Areas and Azad Jamun & Kashmir
NEQS	National Environmental Quality Standards
NGO	Non-Governmental Organization
NGPS	Natural Gas Power Station
NH3	Ammonia
Ni	Nickel
nm/cm	Nanometer per centimeter
N-Meth	N-Methyl
NO2	Nitrite
NO3	Nitrate
NOx	Nitrogen Oxides
NRL	National Refinery Limited
NTU	Nephelometric turbidity unit
NWFP	North West Frontier Province
OGDC	Oil and Gas Development Corporation
OH	Hydroxyl-ion
OTPS	Oil Thermal Power Station
OXY	Occidental of Pakistan Inc.
P	Phosphorous Fertilizers
PAEC	Pakistan Atomic Energy Commission
PASMIC	Pakistan Steel Mills Corporation
Pb	Lead
PCSIR	Pakistan Council for Scientific and Industrial Research
PCSP	Pakistan Contraceptive Prevalence Survey
PDHS	Pakistan Demographic and Health Survey
PFPS	Pakistan Fertility and Family Planning Survey
pH	Power of Hydrogenion
PIHS	Pakistan Integrated Household Survey
PM10	Particles at matter having size 10-micron(Respirable dust)
PMDC	Pakistan Mineral Development Corporation
Po4	Phosphate
POL	Pakistan Oilfields Limited
ppb	Particle passed per billion
PPL	Pakistan Petroleum Limited
ppm	Particle passed per million
PRL	Pakistan Refinery Limited
Qty	Quantity
RCC	Reinforcement of Concrete and Cement
RBC	Reinforcement of Bricks and Cement
Rs.	Rupees
S	Sulphur
Set S	Settable Solids
SGW	Saline Ground Water
SNGPL	Sui Northern Gas Pipelines Limited
SO2	Sulphur Dioxide
SO3	Sulphide
SO4	Sulphates
SPS	Steam Power Station
ssagl	Stevenson Screen Above ground level
SSGCL	Sui Southern Gas Company Limited
Sq.	Square
STEL	Short Term Exposure Limit
T.B	Tuberculosis
TCF	Trillion Cubic Feet
TCU	Time colour unit
TDS	Total Dissolved Solids
TEL	Tapal Energy Limited

TEMP	Temperature
TLV	Threshold Limit Value
TNTC	Too numerous to be counted
TOE	Ton of Oil Equivalent
Tonne	Metric Tonne
TPS	Thermal Power Station
TSP	Total Suspended Particle
TSS	Total Surface Salinity
T.T	Tetanus Toxoid
UB	US Barrel
UCC	Upper Chanab Canal
U/S	Up Stream
WAPDA	Water and Power Development Authority
WASA	Water and Sanitation Agency
W.DIR	Wind Direction
WHO	World Health Organization
W/M2	Watt per square meter
W.SPD.m/s	Wind Speed Miles Per Second
Zn	Zinc
µg	Micro Gram
µg/m ³	Microgram per cubic meter
µm	Micro Mhose
µs	Micro Sem

Appendix-III

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Appendix-IV

The list of excluded tables

The following tables included in the predecessor for 1998 of the this publication could not be up-dated due either to being single time activity or the source agencies did not have the pertinent data, have been excluded.

S.No.	Table No.	Title	Source
1.	A-52	ESMP Estimates of land use based on satellite imagery interpretation	Forestry Master Plan (ESMP) National Perspective Vol-I
2.	A-56	Average consumption of fire wood by source, 1991-93	Pakistan Energy Year Book-1996, published by Hydrocarbon Development Institute of Pakistan
3.	A-57	Consumption of fire wood by area and province, 1991-93	Pakistan Energy Year Book-1996, published by Hydrocarbon Development Institute of Pakistan
4.	A-65	Consumption of dung cake by area and province	Pakistan Energy Year Book-1996, published by Hydrocarbon Development Institute of Pakistan
5.	A-81	Energy consumption by fuel and province	Pakistan Energy Year Book-1996, published by Hydrocarbon Development Institute of Pakistan
6.	A-91	Characteristics of river of Indus basin	Environment Problems of Pakistan by Mr. M.Arshaid Ali Baig, PCSIR Laboratories, Karachi 1977
7.	A-92	Per-Capita surface water availability	Centre of Excellence in Water Resources, University of Engineering & Technology, Lahore
8.	A-106	Average concentration of major ambient air pollutants at sub-urban area of Karachi	Pakistan Council of Scientific & Industrial Research Laboratories, (PCSIR) Complex, Karachi
9.	A-107	Mean concentration of heavy metal accumulation in soils leaf and street dust in the urban area of Karachi	Pakistan Council of Scientific & Industrial Research Laboratories, (PCSIR) Complex, Karachi
10.	A-108	Average wave heights off sea shore Karachi	National Institute of Oceanography, Karachi
11.	B-17	Tentative comparative data on solid wastes	Problems & Practices of Solid Waste Management in Asia regional Solid Waste Seminar, Asia Institute of Technology Sep. 1978, Bangkok by Lohani.B.N & Than.
12.	B-18	Waste quality of river ravi-1996	Environment Protection Department, Lahore
13.	B-19	Qualities & quantities of waste water entering in to river ravi near Lahore 1996	Environment Protection Department, Lahore
14.	B-20	Hadyara drain (Lahore) chemical & bacteriological analysis (As on 13-04-1998)	Environment Protection Department, Lahore
15.	B-21	Hadyara drain (Lahore) chemical & bacteriological analysis (As on 26-07-1997)	Environment Protection Department, Lahore
16.	B-22	Concentration of toxic metals in river ravi (Near Lahore) at selected areas (As ib 26-07-1997)	Environment Protection Department, Lahore

S.No.	Table No.	Title	Source
17.	B-23	Raw water quality data of warsak dam	Pollution & the Kabul river (An analysis & action plan)IUCN The World Conservation
18.	B-24	Raw water quality data of Kabul river	Pollution & the Kabul river (An analysis & action plan)IUCN The World Conservation
19.	B-28	Details of losses & damages due to rains & floods by area	Cabinet Division, Islamabad
20.	C-13	Area of crops covered by ground plant protection measures in Pakistan	Provincial Agriculture Department
21.	C-26	Area requiring drainage facilities by province, 1991	Centre of Excellence in Water Resources, University of Engineering & Technology, Lahore
22.	D-17	Biomass standing stock & productivity by agro-ecological zones	Pakistan Energy Year Book-1996, published by Hydrocarbon Development Institute of Pakistan
23.	D-18	Biomass standing stock & productivity by province	Pakistan Energy Year Book-1996, published by Hydrocarbon Development Institute of Pakistan

Appendix-V International Comparison

Table 1: Rural Environment and Land Use

Country Name	Rural population			Rural population density People per sq.km of arable land	Land area Thousand sq. km	Land use					
	% of total		Average annual % growth			Arable land		% of land area permanent cropland		Other land	
	1980	2002	1980-2002	2001	2001	1980	2001	1980	2001	1980	2001
Afghanistan	84	77	2.2	268	652	12.1	12.1	0.2	0.2	87.7	87.6
Argentina	17	12	-0.4	13	2737	10.6	12.3	0.4	0.5	89.0	87.2
Australia	14	9	-1.0	3	7682	5.7	6.5	0.0	0.0	94.2	93.4
Bangladesh	85	74	1.5	1228	130	68.3	62.1	2.0	3.1	29.6	34.8
Brazil	33	18	-1.2	54	8457	5.3	7.0	0.9	0.9	93.7	92.1
Canada	24	21	0.4	14	9221	4.9	5.0	0.0	0.0	95.0	95.0
China	80	62	0.1	561	9327	10.4	15.4	0.4	1.2	89.3	83.4
Egypt	56	57	2.3	1306	995	2.3	2.9	0.2	0.5	97.5	96.6
France	27	24	0.0	78	550	31.8	33.5	2.5	2.1	65.7	64.4
Germany	17	12	-1.4	86	349	34.5	33.9	1.4	0.6	64.1	65.6
India	77	72	1.6	460	2973	54.8	54.4	1.8	2.7	43.4	42.9
Indonesia	78	57	0.2	591	1812	9.9	11.3	4.4	7.2	85.6	81.5
Iran	50	35	0.6	160	1636	7.9	8.7	0.4	1.4	91.6	89.9
Iraq	34	32	2.5	134	437	12.0	13.1	0.4	0.8	87.6	86.1
Italy	33	33	0.0	232	294	32.2	27.8	10.0	9.5	57.7	62.7
Japan	24	21	-0.2	603	365	13.3	12.2	1.6	1.0	85.1	86.8
Korea Rep. of	43	17	-3.2	491	99	20.9	17.2	1.4	2.0	77.8	80.9
Malaysia	58	41	1.0	554	329	3.0	5.5	11.6	17.6	85.4	76.9
Mexico	34	25	0.5	102	1909	12.1	13.0	0.8	1.3	87.1	85.7
Netherlands	12	10	0.1	184	34	23.3	26.7	0.9	1.0	75.7	72.3
PAKISTAN	72	66	2.2	438	771	25.9	27.9	0.4	0.9	73.7	71.3
Philippines	63	40	0.3	564	298	17.5	18.9	14.8	16.8	67.7	64.3
Saudi Arabia	34	13	-0.6	79	2150	0.9	1.7	0.0	0.1	99.1	98.2
South Africa	52	42	1.3	129	1221	10.2	12.1	0.7	0.8	89.1	87.1
Spain	27	22	-0.6	69	499	31.1	26.1	9.9	9.9	59.0	64.1
Sri Lanka	78	77	1.1	1607	65	13.2	13.9	15.9	15.7	70.9	70.4
Sweden	17	17	0.3	55	412	7.2	6.5	0.0	0.0	92.8	93.4
Thailand	83	80	1.1	326	511	32.3	29.4	3.5	6.5	64.2	64.2
Turkey	56	33	-0.3	87	770	32.9	30.9	4.1	3.3	63.0	65.8
United Kingdom	11	10	-0.1	109	241	28.7	23.5	0.3	0.2	71.0	76.3
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United States of America	26	22	0.3	37	9159	20.6	19.1	0.2	0.2	79.2	80.6

Source:- World Development Indicators 2004, The World Bank,

Table 2: Agricultural Inputs

Country Name	Arable Land		Irrigated Land		Land under cereal production		Fertilizer consumption		Agricultural Machinery			
	Hectares per capita		% of cropland		Thousand of hectares		Hundred of gram per hectare of arable land		Tractors per 1,000 agricultural workers		Tractors per 100 sq. km of arable land	
	1979-81	1999-01	1979-81	1999-01	1979-81	1999-01	1979-81	1999-01	1979-81	1999-01	1979-81	1999-01
Afghanistan	0.50	0.30	31.1	29.6	3037	2302	62	12	0	0	1	1
Argentina	1.03	0.91	5.2	4.5	11154	10714	39	253	132	205	63	89
Australia	2.97	2.58	3.5	4.7	15986	17097	269	478	751	705	75	64
Bangladesh	0.10	0.06	17.1	49.6	10823	11712	459	1662	0	0	5	7
Brazil	0.37	0.34	3.0	4.4	20612	17799	777	1103	31	61	118	139
Canada	1.86	1.48	1.3	1.6	19561	17106	416	550	827	1870	144	160
China	0.10	0.11	45.1	36.3	94647	83012	1494	2562	2	2	76	70
Egypt	0.06	0.04	100.0	100.0	2007	2700	2864	4401	4	10	158	307
France	0.32	0.31	7.2	13.4	9804	9106	3260	2367	737	1411	836	687
Germany	0.15	0.14	3.7	4.0	7692	7001	4249	2367	624	1018	1340	873
India	0.24	0.16	22.8	32.2	104350	97956	345	1074	2	6	24	94
Indonesia	0.12	0.10	16.2	14.4	11825	15004	645	1243	0	1	5	35
Iran	0.36	0.24	35.5	44.2	8062	7740	430	905	17	37	57	158
Iraq	0.40	0.24	32.1	60.8	2159	2526	172	668	23	91	44	107
Italy	0.17	0.14	19.3	24.2	5082	4187	2295	2078	370	1219	1117	1973
Japan	0.04	0.04	56.0	54.7	2724	2017	4131	3162	209	745	2723	4601
Korea Rep. of	0.05	0.04	59.6	60.4	1689	1177	3920	4539	1	80	14	1112
Malaysia	0.07	0.08	6.7	4.8	729	705	4273	6695	4	25	77	239
Mexico	0.34	0.25	20.3	23.1	9356	10322	570	736	16	37	54	131
Netherlands	0.06	0.06	58.5	59.9	225	223	8620	4755	560	603	2238	1644
PAKISTAN	0.24	0.15	72.7	81.6	10693	12300	525	1362	5	13	50	150
Philippines	0.11	0.07	12.8	14.6	6790	6514	636	1337	1	1	20	20
Saudi Arabia	0.20	0.17	28.9	42.8	388	615	228	1036	2	16	10	27
South Africa	0.45	0.34	8.4	9.2	6760	4633	874	510	92	43	140	50
Spain	0.42	0.33	14.8	20.1	7391	6658	1012	1674	200	686	335	668
Sri Lanka	0.06	0.05	28.3	33.6	864	809	1800	2768	4	2	141	90
Sweden	0.36	0.31	2.4	4.2	1505	1163	1654	1055	715	1108	623	616
Thailand	0.35	0.25	16.4	27.1	10625	11257	177	1120	1	10	11	147
Turkey	0.57	0.36	9.6	16.9	13499	13946	529	825	38	65	169	391
United Kingdom	0.12	0.10	2.0	1.8	3930	3203	3191	3251	726	931	744	860
Un. Rep. of Tanzania	0.16	0.12	3.1	3.3	2834	2980	110	56	1	1	35	19
United States of America	0.83	0.62	10.8	12.6	72639	55818	1092	1097	1230	1586	253	272

Source:- World Development Indicators 2004, The World Bank,

Table 3 Agricultural Output & Productivity

Country Name	Crop production Index		Food Production Index		Livestock Production Index		Cereal Yield		Agricultural Productivity	
	1989-91 =100		1989-91 =100		1989-91 =100		Kilograms per hectare		Agricultur value added per worker 1995 \$	
	1979-81	2000-02	1979-81	2000-02	1979-81	2000-02	1979-81	2000-02	1979-81	2000-02
Afghanistan	..	..	..	..	..	..	1337	1533	..	..
Argentina	83.6	165.2	91.7	142.5	100.9	108.8	2184	3374	7148	10317
Australia	79.9	152.2	91.3	138.8	85.6	116.1	1321	1758	20872	36327
Bangladesh	80.2	135.6	79.3	138.3	81.3	142.1	1938	3312	232	318
Brazil	75.4	135.8	69.5	153.2	67.9	169.8	1496	3081	2049	4899
Canada	77.6	106.7	79.7	123.5	88.3	142.2	2173	2521	16002	43064
China	67.1	155.6	60.8	185.9	45.4	226.7	3027	4845	161	338
Egypt	75.5	154.9	68.5	158.2	67.0	165.9	4053	7244	721	1316
France	87.4	107.0	93.6	104.3	97.8	105.5	4700	6796	19318	59243
Germany	90.0	118.2	91.4	97.1	98.7	87.7	4166	6355	9119	33686
India	70.9	124.2	68.2	131.8	62.6	149.8	1324	2390	269	401
Indonesia	65.9	122.9	63.1	123.6	51.0	124.7	2837	4141	604	748
Iran	57.5	151.5	61.2	154.8	68.0	158.3	1108	2163	2165	3737
Iraq	74.7	76.7	77.3	77.5	81.2	67.9	832	945	..	..
Italy	106.1	101.9	101.4	102.3	93.0	105.1	3548	4815	11090	27064
Japan	108.3	87.1	94.1	91.6	85.1	93.2	5252	5879	17378	33077
Korea Rep. of	87.8	114.3	77.5	132.3	52.4	159.9	4986	6118	3765	14251
Malaysia	75.3	119.4	55.6	142.1	41.0	142.1	2828	3132	3939	6912
Mexico	86.5	123.6	85.3	135.7	86.2	150.1	2164	2870	1482	1813
Netherlands	79.8	111.7	86.5	98.4	88.3	96.5	5696	7531	24360	59476
PAKISTAN	65.6	122.8	66.3	152.7	59.5	171.9	1608	2266	416	716
Philippines	88.3	123.1	86.1	137.1	73.8	177.8	1611	2692	1381	1458
Saudi Arabia	27.2	84.2	26.7	98.5	32.7	152.6	820	3818	2152	15796
South Africa	94.9	110.1	90.5	111.1	86.0	104.3	2105	2633	2857	4072
Spain	83.0	115.8	81.9	120.1	83.9	134.2	1986	3091	7556	22412
Sri Lanka	99.3	114.8	98.1	117.2	92.0	147.7	2462	3520	642	725
Sweden	93.1	89.3	100.6	96.0	103.8	100.2	3595	4878	20865	40368
Thailand	79.1	124.3	79.7	123.5	64.5	135.3	1911	2654	616	863
Turkey	76.6	118.8	75.8	114.6	80.4	103.9	1869	2176	1872	1848
United Kingdom	80.1	97.2	92.2	92.4	98.1	93.1	4792	6841	20326	32918
Un. Rep. of Tanzania	80.5	107.7	75.4	112.8	69.2	126.9	1063	1438	..	187
United States of America	98.6	118.3	94.5	122.5	89.0	123.6	4151	5830	20672	53907

Source:- World Development Indicators 2004, The World Bank,

Table 4: Deforestation and Biodiversity

Country Name	Forest area		Average annual deforestation 1990 -2000		Mammals Species 2002		Birds Species 2002		Higher plants Species 2002		Nationally protected areas 2003	
	Thousand Sq km 2000	% of total land area 2000	Sq km	%	No.	Threatened	No.	Threatened	No.	Threatened	Thousand Sq km	% of total land area
Afghanistan	14	2.1	..	..	119	13	181	11	4000	1	20	0.3
Argentina	346	12.7	2851	0.8	320	34	362	39	9372	42	180.6	6.6
Australia	1581	20.6	0	0.0	252	63	497	37	15638	38	1029.4	13.4
Bangladesh	13	10.2	-165	-1.3	125	23	166	23	5000	12	1.0	0.8
Brazil	5325	63.0	22264	0.4	394	81	686	114	56215	..	566.6	6.7
Canada	2446	26.5	0	0.0	193	14	310	8	3270	1	1023.5	11.1
China	1589	17.0	-13483	-0.9	394	79	618	74	32200	168	727.5	7.8
Egypt	1	0.1	-20	-3.4	98	13	123	7	2076	2	96.6	9.7
France	153	27.9	-616	-0.4	93	18	283	5	4630	2	73.2	13.3
Germany	107	30.8	0	0.0	76	11	247	5	2682	12	113.8	31.9
India	641	21.6	-381	-0.1	390	88	458	72	18664	244	154.6	5.2
Indonesia	1050	58.0	13124	1.2	515	147	929	114	29375	384	373.2	20.6
Iran	73	4.5	0	0.0	140	22	293	13	8000	1	78.5	4.8
Iraq	8	1.8	0	0.0	81	11	140	11	..	0	0.0	0.0
Italy	100	34.0	-295	-0.3	90	14	250	5	5599	3	23.2	7.9
Japan	241	66.1	-34	-0.0	188	37	210	34	5565	11	24.8	6.8
Korea Rep. of	63	63.3	49	0.1	49	13	138	25	2898	0	6.8	6.9
Malaysia	193	58.7	2377	1.2	300	50	254	37	15500	681	18.7	5.7
Mexico	552	28.9	6306	1.1	491	70	440	39	26071	..	194.7	10.2
Netherlands	4	11.1	-10	-0.3	55	10	192	4	1221	0	4.8	14.2
PAKISTAN	25	3.2	304	1.1	188	19	237	17	4950	2	37.8	4.9
Philippines	58	19.4	887	1.4	153	50	404	67	8931	193	17.0	5.7
Saudi Arabia	15	0.7	0	0.0	77	8	125	15	2028	3	823.3	38.3
South Africa	89	7.3	80	0.1	247	42	304	28	23420	45	67.2	5.5
Spain	144	28.8	-860	-0.6	82	24	281	7	5050	14	42.5	8.5
Sri Lanka	19	30.0	348	1.6	88	22	126	14	3314	280	8.7	13.5
Sweden	271	65.9	-6	-0.0	60	7	259	2	1750	3	37.5	9.1
Thailand	148	28.9	1124	0.7	265	37	285	37	11625	78	71.0	13.9
Turkey	102	13.3	-220	-0.2	116	17	278	11	8650	3	12.3	1.6
United Kingdom	26	10.7	-200	-0.8	50	12	229	2	1623	13	50.3	20.9
Un. Rep. of Tanzania	388	43.9	913	0.2	316	42	229	33	10008	236	263.3	29.8
United States of America	2260	24.7	-3880	-0.2	428	37	508	55	19473	..	2372.2	25.9

Source:- World Development Indicators 2004, The World Bank,

Table 5: Freshwater

Country Name	Renewable freshwater Resources 2000			Annual freshwater withdrawals					Access to Improved water source			
	Internal flows billion cu. m	Net flows from other countries billion cu. m	Total resources per capita cu. m ^a	Billion cu. m 1980-2000 ^b	% of total resources 1980-2000 ^{a,b}	% for agriculture 1987	% of industry 1987	% for domestic 1987	% of urban population		% of rural population	
									1990	2000	1990	2000
Afghanistan	55	10.0	2322	26.1	40.2	99c	0c	1c	..	19	..	11
Argentina	276	623.0	23693	28.6	3.2	75	9	16	..	97	..	73
Australia	492	0.0	25022	14.6	3.0	33	2	65	100	100	100	100
Bangladesh	105	1105.6	8922	14.6	1.2	86	2	12	99	99	93	97
Brazil	5418	1900.0	41941	54.9	0.8	61	18	21	93	95	54	53
Canada	2850	52.0	92532	45.1	1.6	12	70	18	100	100	99	99
China	2812	17.2	2210	525.5	18.6	78	18	5	99	94	60	66
Egypt	2	66.7	1032	66.0	96.4	82c	11c	7c	97	99	92	96
France	179	11.0	3186	32.3	17.0	10	72	18	..	..	..	..
Germany	107	71.0	2158	46.3	26.0	20	69	11	..	..	..	..
India	1261	647.2	1819	500.0	26.2	92	3	5	88	95	61	79
Indonesia	2838	..	13405	74.3	2.6	93	1	6	92	90	62	69
Iran	129	..	1961	70.0	54.5	92	2	6	..	98	..	83
Iraq	35	75.9	4596	42.8	38.5	92	5	3	..	96	..	48
Italy	183	6.8	3281	42.0	22.2	48	34	19	..	..	..	..
Japan	430	0.0	3382	91.4	21.3	64	17	19	..	..	..	..
Korea Rep. of	65	4.9	1465	23.7	34.0	63	11	26	..	97	..	71
Malaysia	580	..	23863	12.7	2.2	77	13	11	..	..	..	94
Mexico	409	49.0	4543	77.8	17.0	78	5	17	90	95	52	69
Netherlands	11	80.0	5637	7.8	8.6	34	61	5	100	100	100	100
PAKISTAN	52	170.3	1534	155.6	70.0	97	2	2	96	95	77	87
Philippines	479	0.0	5992	55.4	11.6	88	4	8	93	91	82	79
Saudi Arabia	2	..	110	17.0	..	90	1	9	..	100	..	64
South Africa	45	5.2	1103	13.3	26.6	72	11	17	99	99	73	73
Spain	111	0.3	2725	35.2	31.6	68	19	13	..	..	..	..
Sri Lanka	50	0.0	2636	9.8	19.6	96c	2c	2c	91	98	62	70
Sweden	171	12.2	20529	2.9	1.6	9	55	36	100	100	100	100
Thailand	210	199.9	6653	33.1	8.1	91c	4c	5c	87	95	78	81
Turkey	227	7.6	3369	35.5	15.1	73	12	16	83	81	72	86
United Kingdom	145	2.0	2482	11.8	8.0	3c	77c	20c	100	100	100	100
Un. Rep. of Tanzania	82	9.0	2587	1.2	1.3	89	2	9	76	90	28	57
United States of America	2800	18.0	9772	467.3	16.6	42	45	13	100	100	100	100

Source:- World Development Indicators 2004, The World Bank,

Table 6: Water pollution

Country Name	Emissions of organic water pollutants				Industry shares of emissions of organic water pollutants 2000 % of total							
	Kilograms per day		Kilograms per day per worker		Primary metals	Paper and Pulp	Chemicals	Food and beverages	Stone, ceramics, and glass	Textiles	Wood	Other
	1980	2000	1980	2000								
Afghanistan	6680	..	0.17	..	..	..	..	..	..	..	..	..
Argentina	244711	177882	0.18	0.21	6.5	12.5	8.0	59.4	0.1	7.4	1.5	4.5
Australia	204333	95369	0.18	0.21	..	..	6.5	81.7	0.1	2.8	3.1	..
Bangladesh	66713	273082	0.16	0.14	1.8	6.8	6.6	23.2	0.1	64.1	0.5	..
Brazil	866790	629406	0.16	0.20	17.7	12.9	7.6	44.4	0.1	9.8	1.4	4.5
Canada	330241	307325	0.18	0.15	10.8	23.9	9.8	34.8	0.1	5.4	5.1	10.0
China	3377105	6204237	0.14	0.14	20.6	10.8	15.3	28.4	0.5	14.8	0.8	8.9
Egypt	169146	203633	0.19	0.20	11.8	7.9	8.3	49.8	0.3	18.9	0.4	2.9
France	729776	278878	0.14	0.10	14.9	30.9	10.3	37.7	0.3	9.7	2.7	..
Germany	..	792194	..	0.13	11.2	22.3	9.8	34.4	0.2	3.2	2.3	16.5
India	1422564	1582285	0.21	0.20	13.9	6.6	9.6	52.2	0.2	13.1	0.3	4.2
Indonesia	214010	752834	0.22	0.18	2.8	8.6	8.6	50.1	0.1	22.0	5.3	4.5
Iran	72334	101900	0.15	0.17	20.6	8.0	8.0	39.7	0.5	17.3	0.7	5.4
Iraq	32986	19617	0.19	0.16	8.8	14.1	15.1	39.4	0.7	16.7	0.3	4.8
Italy	442712	495411	0.13	0.13	9.5	16.9	10.8	30.3	0.3	16.0	3.7	12.5
Japan	1456016	1332302	0.14	0.15	7.4	21.8	8.9	41.7	0.2	5.4	1.7	12.7
Korea Rep. of	281900	303091	0.14	0.12	12.2	17.0	12.4	26.0	0.2	15.7	1.3	15.3
Malaysia	77215	158761	0.15	0.12	6.5	14.5	16.5	34.1	0.2	7.5	3.2	19.7
Mexico	130993	296093	0.22	0.20	7.8	12.5	10.4	55.6	0.2	7.5	1.3	3.7
Netherlands	165416	124182	0.18	0.18	7.3	26.7	11.3	43.0	0.2	2.3	2.1	7.4
PAKISTAN	75125	100821	0.17	0.18	11.6	7.0	8.1	39.9	0.2	30.3	0.5	2.1
Philippines	182052	201952	0.19	0.18	5.2	9.8	7.3	54.5	0.2	16.4	2.6	4.3
Saudi Arabia	18181	24436	0.12	0.14	4.4	15.9	5.8	45.1	1.0	3.8	2.0	6.8
South Africa	237599	234012	0.17	0.17	13.7	16.3	9.1	40.3	0.2	10.2	3.4	6.8
Spain	376253	374589	0.16	0.15	6.7	19.8	8.9	42.5	0.3	9.3	4.0	8.6
Sri Lanka	30086	83058	0.18	0.18	0.6	7.4	9.8	52.6	0.2	29.8	1.1	..
Sweden	130439	103913	0.15	0.14	11.3	35.0	7.8	26.6	0.1	1.3	3.0	14.9
Thailand	213271	355819	0.22	0.16	6.1	5.3	5.3	42.2	0.2	35.4	1.5	3.9
Turkey	160173	170685	0.20	0.17	11.0	7.1	7.6	44.5	0.3	23.6	1.1	5.0
United Kingdom	964510	569736	0.15	0.15	7.2	30.4	10.0	32.1	0.2	5.6	2.5	12.0
Un. Rep. of Tanzania	21084	35155	0.21	0.25	1.5	9.4	4.9	69.3	0.1	14.0	1.5	1.4
United States of America	2742993	1968196	0.14	0.12	10.5	11.0	13.8	38.4	0.2	7.1	4.1	14.9

Source:- World Development Indicators 2004, The World Bank,

Table 7: Energy Production and use

Country Name	Total energy production		Energy use					Energy use per capita		
	Thousands of metric tons of oil equivalent		Total Thousands of metric tons of oil equivalent		Combustible renewables and waste % of total		Average Annual % growth 1990-2001	Kg of oil equivalent		Average Annual % growth 1990-2001
	1990	2001	1990	2001	1990	2001		1990	2001	
Afghanistan	..	..	..	..	..	..	..	..	..	..
Argentina	47384	82862	45039	57601	3.8	5.2	2.9	1395	1593	1.6
Australia	157712	250436	87536	115627	4.5	4.5	2.7	5130	5956	1.5
Bangladesh	10747	16200	12937	20410	53.0	37.9	4.3	118	153	2.5
Brazil	97069	145933	132985	185083	31.0	23.4	3.6	899	1074	2.1
Canada	273680	379207	209090	248184	3.9	4.2	1.8	7524	7985	0.8
China	902689	1138617	870441	1139369	23.0	19.0	2.8	767	896	1.8
Egypt	54869	59301	32024	48012	3.3	2.8	3.9	611	737	1.9
France	111278	132709	227114	265570	4.8	4.5	1.2	4003	4487	0.8
Germany	186157	133745	356218	351092	1.3	2.3	-0.0	4485	4264	-0.3
India	333978	438099	363153	531453	48.4	38.5	3.6	427	515	1.8
Indonesia	161518	234314	92815	152304	43.9	31.5	4.4	521	729	2.9
Iran	179738	246644	68775	120000	1.0	0.7	5.2	1264	1860	3.6
Iraq	106715	123296	20841	28476	0.1	0.1	4.2	1153	1202	1.6
Italy	25547	26264	152552	171998	0.6	1.4	1.2	2690	2981	1.0
Japan	73209	104006	436523	520729	1.0	1.0	1.8	3534	4099	1.5
Korea Rep. of	21908	34207	92578	194780	0.3	1.2	7.1	2160	4114	6.1
Malaysia	48727	77623	22455	51608	9.5	4.6	7.2	1234	2168	4.6
Mexico	194454	230236	124028	152273	5.9	5.4	1.8	1490	1532	0.2
Netherlands	60316	60437	66491	77214	1.1	1.6	1.1	4447	4814	0.5
PAKISTAN	34360	48606	43424	64506	43.2	37.2	3.8	402	456	1.3
Philippines	15901	20006	28292	42151	34.8	23.1	4.2	463	538	1.9
Saudi Arabia	368753	476831	60834	110586	0.0	0.0	4.3	3850	5195	1.6
South Africa	114534	145287	91229	107738	11.4	11.7	1.9	2592	2404	-0.3
Spain	34648	33022	91209	127381	4.5	3.2	3.1	2349	3127	2.7
Sri Lanka	4191	4462	5516	7923	71.0	52.9	3.8	339	423	2.5
Sweden	29754	34377	46667	51054	11.8	16.0	0.7	5452	5740	0.4
Thailand	25908	40059	43215	75542	33.9	17.1	5.2	777	1235	4.4
Turkey	25857	26154	53005	72458	13.6	8.7	3.8	944	1057	2.0
United Kingdom	207007	261939	212176	235158	0.3	1.0	0.8	3686	3982	0.6
Un. Rep. of Tanzania	9063	13001	9808	13917	91.0	91.5	3.2	385	404	0.4
United States of America	1650408	1711814	1927572	2281414	3.2	3.1	1.7	7728	7996	0.4

Source:- World Development Indicators 2004, The World Bank

Table 8: Energy Efficiency, dependency, and Emissions

Country Name	GDP per unit of energy use		Net energy import ^a		Carbon dioxide emission					
	1995 ppp \$ per kg oil equivalent		% energy use		Total million metric tons		Per capita metric tons		Kg per 1995 ppp \$ of GDP	
	1990	2001	1990	2001	1990	2000	1990	2000	1990	2000
Afghanistan	..	..	..	..	2.6	0.9	0.1	0.0	..	..
Argentina	5.8	6.8	-5	-44	109.7	138.2	3.4	3.9	0.4	0.3
Australia	3.7	4.2	-80	-117	266.0	344.8	15.6	18.0	0.8	0.7
Bangladesh	9.1	9.7	17	21	15.4	29.3	0.1	0.2	0.1	0.2
Brazil	6.6	6.2	27	21	202.6	307.5	1.4	1.8	0.2	0.3
Canada	2.9	3.2	-31	-53	428.8	435.9	15.4	14.2	0.7	0.5
China	2.0	4.2	-4	0	2401.7	2790.5	2.1	2.2	1.4	0.6
Egypt	4.3	4.5	-71	-24	75.4	142.2	1.4	2.2	0.6	0.7
France	5.0	5.3	51	50	357.5	362.4	6.3	6.2	0.3	0.3
Germany	4.7	5.6	48	62	890.2	785.5	11.1	9.6	0.5	0.4
India	3.6	4.4	8	18	675.3	1070.9	0.8	1.1	0.5	0.5
Indonesia	3.9	3.7	-74	-54	165.2	269.6	0.9	1.3	0.5	0.5
Iran	3.3	3.0	-161	-106	212.4	310.3	3.9	4.9	0.9	0.9
Iraq	..	..	-412	-333	49.3	76.3	2.7	3.3	..	..
Italy	7.4	7.8	83	85	398.9	428.2	7.0	7.4	0.4	0.3
Japan	6.0	5.8	83	80	1070.7	1184.5	8.7	9.3	0.4	0.4
Korea Rep. of	3.9	3.5	76	82	241.2	427.0	5.6	9.1	0.7	0.7
Malaysia	4.1	3.6	-117	-50	55.3	144.4	3.0	6.2	0.6	0.8
Mexico	4.7	5.3	-57	-51	305.4	424.0	3.7	4.3	0.5	0.5
Netherlands	4.5	5.2	9	22	150.0	138.9	10.0	8.7	0.5	0.3
PAKISTAN	3.7	3.8	21	25	67.9	104.8	0.6	0.8	0.4	0.4
Philippines	7.4	6.8	44	53	44.3	77.5	0.7	1.0	0.2	0.3
Saudi Arabia	2.9	2.0	-506	-331	177.9	374.3	11.3	18.1	1.0	1.7
South Africa	3.4	3.5	-26	-35	291.1	327.3	8.3	7.4	0.9	0.9
Spain	6.2	6.0	62	74	211.8	282.9	5.5	7.0	0.4	0.4
Sri Lanka	6.4	7.3	24	44	3.9	10.2	0.2	0.6	0.1	0.2
Sweden	3.7	4.0	36	33	48.5	46.9	5.7	5.3	0.3	0.2
Thailand	5.3	4.8	40	47	95.7	198.6	1.7	3.3	0.4	0.6
Turkey	5.1	4.9	51	64	143.8	221.6	2.6	3.3	0.5	0.6
United Kingdom	5.0	5.8	2	-11	569.3	567.8	9.9	9.6	0.5	0.4
Un. Rep. of Tanzania	1.2	1.2	8	7	2.3	4.3	0.1	0.1	0.2	0.3
United States of America	3.4	4.0	14	25	4815.9	5601.5	19.3	19.8	0.7	0.6

Source:- World Development Indicators 2004, The World Bank,

Table 9: Traffic and Congestion

Country Name	Moter vehicles				Passenger cars		Two-wheelers		Road traffic		Fuel prices	
	Per 1000 people		Per kilometer of road		Per 1000 people		Per 1000 people		Million vehicle kilometers		\$ per liter	
	1990	1999-2001	1990	1999-2001	1990	1999-2001	1990	1999-2001	1990	1999-2001	Super 2002	Diesel 2002
Afghanistan	..	..	..	..	..	..	..	..	..	..	0.34	0.27
Argentina	181	181	27	37	134	140	1	..	43119	27458	0.63	0.46
Australia	530	..	11	..	450	..	18	18	138501	..	0.50	0.48
Bangladesh	1	1	0	..	0	0	1	1	..	..	0.52	0.29
Brazil	88	..	8	..	..	..	..	.28	..	..	0.55	0.31
Canada	605	580	20	20	468	458	12	11	..	73500	0.51	0.43
China	5	12	4	11	1	7	3	26	..	840960	0.42	0.37
Egypt	29	..	33	..	21	..	6	..	..	..	0.19	0.80
France	484	575	32	38	405	477	55	440	422000	519400	1.05	0.80
Germany	405	..	53	..	386	516	18	56	446000	589500	1.03	0.82
India	4	10	2	..	2	6	15	29	..	..	0.66	0.41
Indonesia	16	25	10	..	7	..	34	59	..	..	0.27	0.19
Iran	34	..	14	..	25	..	36	..	..	..	0.07	0.02
Iraq	14	..	6	..	1	..	..	..	..	..	0.02	0.01
Italy	529	606	99	74	476	542	45	125	344726	67916	1.05	0.86
Japan	469	572	52	62	283	413	146	110	628581	775723	0.91	0.66
Korea Rep. of	79	255	60	120	48	171	32	59	30464	67266	1.09	0.51
Malaysia	124	..	26	..	101	..	167	233	..	..	0.35	0.19
Mexico	119	159	41	44	82	107	3	..	55095	..	0.62	0.47
Netherlands	405	428	58	58	368	384	44	25	90150	109955	1.12	0.81
PAKISTAN	6	9	4	5	4	5	8	15	..	234515	0.52	0.35
Philippines	10	32	4	12	7	10	6	16	6189	9548	0.35	0.27
Saudi Arabia	165	..	19	..	98	..	0	..	..	..	0.24	0.10
South Africa	139	..	26	..	97	..	8	4	..	..	0.43	0.40
Spain	360	467	43	54	309	408	79	92	100981	201896	0.83	0.72
Sri Lanka	21	37	4	7	7	12	24	42	3468	15630	0.54	0.31
Sweden	464	494	29	21	426	450	11	31	61040	128200	1.06	0.96
Thailand	46	..	36	..	14	..	86	..	45769	..	0.36	0.32
Turkey	50	85	8	14	34	63	10	15	27041	52631	1.02	0.78
United Kingdom	400	391	64	62	341	384	14	3	399000	462400	1.18	1.20
Un. Rep. of Tanzania	5	..	2	..	1	..	..	..	..	..	0.67	0.61
United States of America	758	779	30	34	573	481	17	15	2527441	2653043	0.40	0.39

Source:- World Development Indicators 2004, The World Bank,

Compilers of Compendium on Environment Statistics

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